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Deliverable 4: Bbalitvet improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for Bbalitvet in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. Bbalitvet.

J. Indonesian Veterinary Services, Indonesian OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia
3. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: Bbalitvet improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for Bbalitvet in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

b. Specific outputs (for Deliverable 4) in the next 12 months consistent with project M&E objectives (to enhance the ability of both Bbalitvet to appropriately handle, diagnose and report on IDENTIFY targeted diseases):

i. Laboratory Focal Point Program and Network is in place and the Laboratory Focal Point is engaged in the standard setting/revision process of the OIE Biological Standards Commission
ii. Communication and laboratory visits of OIE staff to discuss disease reporting obligations, OIE International Standards related to animal diseases including zoonoses, and the importance of adequate and strategic investment in animal health laboratories conducted
iii. Annual Laboratory Directors Forum held, with Bbalitvet participation
iv. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis held, with Bbalitvet participation
v. Survey on sample shipment results compiled and distributed

I. Bbalitvet through engagement of Laboratory Director.
J. Bbalitvet, FAO, ASEAN, Laboratory Directors.

Vietnam

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in Vietnam under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratories—National Center for Veterinary Diagnosis (NCVD) of Vietnam and the Laboratory of the Regional Animal Health Office Number 6 (RAHO6):

Objective 2:

1. Ongoing engagement and support for the OIE Vietnam Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
    a. 5th Laboratory Directors' Forum Meeting, September 2013
    b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
    c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Vietnam country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Vietnam Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Vietnam and to provide NCVD and RAHO6 better access to policy makers. The OIE Vietnam Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between the NCVD, RAHO6, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by NCVD and RAHO6 as evidence for action (response and disease control measures) and also to increase allocation of resources to NCVD and RAHO6 as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has

been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as Vietnam. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[3]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: NCVD and RAHO6 progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NCVD and RAHO6 in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: NCVD and RAHO6 improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NCVD and RAHO6 in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. NCVD & RAHO6.

J. Vietnam Veterinary Services, Vietnam OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER

[3] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. Vietnam NCVD Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for NCVD. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of NCVD following the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. November 2012 Hanoi, Vietnam

H. **Deliverable 1: NCVD progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NCVD in the next 12 months will include:*

i. Development of the NCVD Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities

ii. NCVD laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories

iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NCVD

J. NCVD), Vietnam Laboratory Directors, Vietnam OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013).

H. **Deliverable 2: NCVD and RAHO6 progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NCVD and RAHO6 in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: NCVD and RAHO6 improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for NCVD and RAHO6 in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information

sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NCVD & RAHO6.

J. Vietnam Veterinary Services, Vietnam OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia
3. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: NCVD and RAHO6 improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for NCVD and RAHO6 in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NCVD and RAHO6 through engagement of Laboratory Directors.

J. NCVD, RAHO6, FAO, ASEAN, Laboratory Directors.

Cambodia

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in Cambodia under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—National Veterinary Research Institute (NaVRI) of Cambodia:

Objective 2:

1. Ongoing engagement and support for the OIE Cambodia Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
    a. 5th Laboratory Directors' Forum Meeting, September 2013
    b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
    c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Cambodia country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Vietnam Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Cambodia and to provide NaVRI better access to policy makers. The OIE Cambodia Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between NaVRI, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by NaVRI as evidence for action (response and disease control measures) and also to increase allocation of resources to NaVRI as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as Cambodia. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[4]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: NaVRI progressively increases adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NaVRI in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: NaVRI improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for NaVRI in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
  - ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. NaVRI.

J. Cambodia Veterinary Services, Cambodia OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory

[4] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. Cambodia NaVRI Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for NaVRI. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of NaVRI.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. November 2012 Phnom Penh, Cambodia

H. **Deliverable 1: NaVRI progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NaVRI in the next 12 months will include:*

i. Development of the NaVRI Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities

ii. NaVRI laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories

iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NaVRI

J. NaVRI, Cambodia Laboratory Directors, Cambodia OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013).

H. **Deliverable 2: NaVRI progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NaVRI in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: NaVRI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for NaVRI in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NaVRI.

J. Cambodia Veterinary Services, Vietnam OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: NaVRI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for NaVRI in the next 12 months will include:

ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NaVRI through engagement of Laboratory Directors.

J. NaVRI, FAO, ASEAN, Laboratory Directors.

Lao PDR

IDENTIFY Project, Year 4 Work Plan

Six main activities are proposed to occur in Lao PDR under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—National Animal Health Centre Laboratory (NAHC) of Lao PDR:

Objective 1:
1. Pilot OIE PVS Pathway Laboratory Tool
2. Pilot OIE PVS Pathway Laboratory Mission

Objective 2:
3. Ongoing engagement and support for the OIE Lao PDR Focal Point for Veterinary Laboratories
4. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:
5. Participation of national staff to international conferences/meetings/trainings

Objective 4:
6. Laboratory Networking Meetings:
   a. 5th Laboratory Directors' Forum Meeting, September 2013
   b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
   c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Lao PDR country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1
- Pilot OIE PVS Pathway Laboratory Methodology and Tools development

A. Development of the Pilot OIE PVS Pathway Laboratory Methodology and Tools, the veterinary laboratory component following the OIE PVS Gap Analysis as a key element in the OIE PVS Pathway

B. This activity aims to develop, implement, and refine a specific decision making tool, requested by National Veterinary Services (VS), for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services as stated in the PVS Gap Analysis report, to comply with international standards, and to better address the demand and market for laboratory services at the country level. Laboratories do not exist in a vacuum, and strategic decisions about laboratory investment and capacity building must be taken in the framework of understanding the system in which the laboratory is functioning and the national VS and market needs it must meet. Outcomes of this activity will allow National Veterinary Services' decision makers to better allocate appropriate budgets to the National Animal Health Laboratory and better advocate for sufficient resources to support accurate and timely diagnosis of IDENTIFY priority animal diseases. Once pilot tested in different laboratory networking settings—Laos PDR's laboratory system (and new BSL3

laboratory) is a common case—the methodology and tool will be available for use by expert consultation in all IDENTIFY countries upon request of the Veterinary Services. Additional missions in other IDENTIFY countries are projected for Year 5 of the project.

C. OIE departments responsible: HQ, Scientific and Technical Department (STD); Sub-regional Representation-Bangkok

D. The Pilot OIE PVS Pathway Laboratory Methodology and Tools development is co-funded by the IDENTIFY project (existing). The PVS Pathway and its existing components for efficient Veterinary Services (existing) is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID, and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA, and DFAIT), and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on preliminary activities that begun in Year 2 with an initial working group meeting held in 12-13 May 2011 to better understand the role that the laboratory can play in the achievement of national strategic goals. Further development of the methodology and tools continued throughout Year 3, with pilot testing beginning in Year 3 and continuing in Year 4. This activity is linked to 3.6.5S.

F. Point of Contact: Dr. Kate Glynn

G. Start: Mar 2011; End: Sept 2013, with 2 meetings planned after the first and second pilot tests to refine and finalize the methodology and tools.

H. **Deliverable 1: National animal health laboratories progressively increase resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY priority diseases**

a. *Specific outcomes for NAHC and Lao PDR will include:*
   i. Development of the NAHC Laboratory Strategic Plan, with the inclusion of internal and external investment possibilities
   ii. Determination of required resources to support the functioning of Lao PDR's national laboratory system allowing for better rationalization of priorities and higher likelihood of additional investment
   iii. Assessment of the priorities for Veterinary Laboratories recorded in the Lao PDR PVS Gap Analysis report and the specific needs of Lao PDR's national laboratory system according to these priorities
   iv. Identification of sustainable options (including estimated budgets) to address priorities for veterinary laboratories as stated in the Lao PDR PVS Gap Analysis and Laboratory pilot mission reports
   v. NAHC policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
   vi. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NAHC.

J. Experts from OIE Reference Laboratories and Collaborating Centres and including WHO, FLI, CIRAD, and RAHO6. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- Pilot OIE PVS Pathway Laboratory Mission implementation

A. Implementation of the Pilot OIE PVS Pathway Laboratory Mission in Lao PDR using the Pilot OIE PVS Pathway Laboratory Methodology and Tools, the veterinary laboratory component following the OIE PVS Gap Analysis

B. This activity aims to implement and refine the Pilot OIE PVS Pathway Laboratory Methodology and Tools at the country level, requested by country-level stakeholders, for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services as stated in the PVS Gap Analysis report, to comply with international standards, and to better address the demand and market for laboratory services at the country level. The implementation of the methodology and tools in the mission will aid countries to better understand current laboratory capacity, to better plan at the laboratory and policy levels to meet strategic planning goals, to better allocate appropriate resources to the national animal health laboratory, and to accurately and rapidly diagnose pathogens that threaten populations in their countries. Once pilot tested in different laboratory networking settings—Lao PDR's laboratory system (and new BSL3 laboratory) is a common case—the methodology and tool will be available for use by expert consultation in all IDENTIFY countries upon request of the Veterinary Services. Additional missions in other IDENTIFY countries are projected for Year 5 of the project.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); Sub-regional Representation-Bangkok

D. The Pilot OIE PVS Pathway Laboratory Mission using the Pilot OIE PVS Pathway Laboratory Methodology and Tools is co-funded by the IDENTIFY project (existing). The PVS Pathway for efficient Veterinary Services (existing), of which the Pilot OIE PVS Pathway Laboratory Tool is one component, is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA and DFAIT) and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on preliminary activities that begun in Year 2 with an initial working group meeting held in 12-13 May 2011. The pilot mission in Lao PDR will be followed by refinement of the Pilot OIE PVS Pathway Laboratory Methodology and Tools towards in Year 4.

F. Point of Contact: Dr. Andrew Davis

G. September 2012, precise dates to be determined with Lao PDR Delegate and NAHC, once the formal request for a pilot mission is received by OIE. We hope to conduct another pilot mission in Year 4.

H. **<u>Impact 1: NAHC progressively increases resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY priority diseases</u>**

a. *Specific outcomes for NAHC laboratory in the next 12 months will include:*
   i. Development of the NAHC Laboratory Strategic Plan, with the inclusion of internal and external investment possibilities
   ii. Determination of required resources to support the functioning of Lao PDR's laboratory system allowing for better rationalization of priorities and higher likelihood of additional investment
   iii. Assessment of the priorities for Veterinary Laboratories recorded in the Lao PDR PVS Gap Analysis report and the specific needs of the national laboratory systems according to these priorities
   iv. Identification of sustainable options (including estimated budgets) to address priorities for NAHC as stated in the PVS Gap Analysis and Laboratory pilot mission reports
   v. NAHC policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories

vi. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NAHC.

J. Experts from OIE Reference Laboratories and Collaborating Centres, OIE PVS Experts, National Veterinary Services, NAHC Directors. As authorized by countries, results will be shared with USAID in biannual reports and with EPT partners during EPT Quarterly Meetings. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Vietnam Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Lao PDR and to provide NAHC better access to policy makers. The OIE Lao PDR Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between NAHC, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by NAHC as evidence for action (response and disease control measures) and also to increase allocation of resources to NAHC as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as Lao PDR. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[5]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: NAHC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines***

[5] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

for Terrestrial Animals **leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NAHC in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: NAHC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NAHC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. NAHC.

J. Lao PDR Veterinary Services, Lao PDR OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. Lao PDR NAHC Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for NAHC. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of NAHC following the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. November 2012 Vientiane, Lao PDR

H. **Deliverable 1: NAHC progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NAHC in the next 12 months will include:*
  - i. Development of the NAHC Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities
  - ii. NAHC laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
  - iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NAHC

J. NAHC, Lao PDR Laboratory Directors, Lao PDR OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013).

H. **Deliverable 2: NAHC progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NAHC in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: NAHC improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NAHC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NAHC.

J. Lao PDR Veterinary Services, Lao PDR OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: NAHC improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for NAHC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NAHC through engagement of Laboratory Directors.

J. NAHC, FAO, ASEAN, Laboratory Directors.

Thailand

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in Thailand under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—National Institute of Animal Health (NIAH) of Thailand:

Objective 2:

1. Ongoing engagement and support for the OIE Thailand Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
   a. 5th Laboratory Directors' Forum Meeting, September 2013
   b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
   c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Thailand country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Vietnam Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Thailand and to provide NIAH better access to policy makers. The OIE Thailand Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between NIAH, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by NIAH as evidence for action (response and disease control measures) and also to increase allocation of resources to NIAH as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as Thailand. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[6]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: NIAH progressively increases adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NIAH in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: NIAH improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NIAH in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. NIAH.

J. Thailand Veterinary Services, Thailand OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. Thailand NIAH Strategic Planning development through follow-up in-country missions/workshop

[6] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for NIAH. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of NIAH.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. November 2012 Bangkok, Thailand

H. **Deliverable 1: NIAH progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NIAH in the next 12 months will include:*
  - i. Development of the NIAH Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities
  - ii. NIAH laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
  - iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. NIAH

J. NIAH, Thailand Laboratory Directors, Thailand OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance

and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013); support for laboratory staff from NIAH, Thailand to receive training in Nipah Virus diagnostic techniques at the OIE Reference Laboratory for Nipah and Hendra Viruses in Geelong, Australia (December 2012) .

H. **Deliverable 2: NIAH progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for NIAH in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: NIAH improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for NIAH in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NIAH.

J. Thailand Veterinary Services, Thailand OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013

2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia
3. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **<u>Deliverable 4: NIAH improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases</u>**

a. Specific outcomes for NIAH in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. NIAH through engagement of Laboratory Directors.

J. NIAH, FAO, ASEAN, Laboratory Directors.

China

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in China under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—China Animal Health & Epidemiology Centre (CAHEC) of China and the laboratory of the Yunnan Animal Science and Veterinary Institute (YASVI):

Objective 2:

1. Ongoing engagement and support for the OIE Vietnam Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
   a. 5th Laboratory Directors' Forum Meeting, September 2013
   b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
   c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this China country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE China Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within China and to provide CAHEC and YASVI better access to policy makers. The OIE China Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between the CAHEC, YASVI, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by CAHEC and YASVI as evidence for action (response and disease control measures) and also to increase allocation of resources to CAHEC and YASVI as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as China. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[7]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: CAHEC and YASVI progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CAHEC and YASVI in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: CAHEC and YASVI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CAHEC and YASVI in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. CAHEC and YASVI

J. China Veterinary Services, China OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain

[7] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. CAHEC and YASVI Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for both CAHEC and YASVI. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory directors of CAHEC and YASVI following the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. January/February 2013 Qindao, Kunming, China

H. **Deliverable 1: CAHEC and YASVI progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for CAHEC and YASVI in the next 12 months will include:*
  - i. Development of the CAHEC and YASVI Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities
  - ii. CAHEC and YASVI laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
  - iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. CAHEC and YASVI

J. CAHEC and YASVI Laboratory Directors, China OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013).

H. **Deliverable 2: CAHEC and YASVI progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for CAHEC and YASVI in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: CAHEC and YASVI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for CAHEC and YASVI in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. CAHEC and YASVI.

J. China Veterinary Services, China OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia
3. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **<u>Deliverable 4: CAHEC and YASVI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases</u>**

a. Specific outcomes for CAHEC and YASVI in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. CAHEC and YASVI through engagement of Laboratory Directors.

J. CAHEC, YASVI, FAO, ASEAN, Laboratory Directors.

Malaysia

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in Malaysia under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—Veterinary Research Institute (VRI) of Malaysia:

Objective 2:

1. Ongoing engagement and support for the OIE Malaysia Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
    a. 5th Laboratory Directors' Forum Meeting, September 2013
    b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
    c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Malaysia country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Vietnam Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Malaysia and to provide VRI better access to policy makers. The OIE Malaysia Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between VRI, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by VRI as evidence for action (response and disease control measures) and also to increase allocation of resources to VRI as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as Malaysia. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[8]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: VRI progressively increases adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for VRI in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: VRI improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for VRI in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. VRI.

J. Malaysia Veterinary Services, Malaysia OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory

[8] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. Malaysia VRI Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for VRI. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of VRI.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. February 2013 Ipoh, Malaysia

H. **Deliverable 1: VRI progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for VRI in the next 12 months will include:*

i. Development of the VRI Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities

ii. VRI laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories

iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. VRI

J. VRI, Malaysia Laboratory Director, Malaysia OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support

for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013).

H. **Deliverable 2: VRI progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for VRI in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: VRI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for VRI in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. VRI.

J. Malaysia Veterinary Services, Malaysia OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia
3. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: VRI improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for VRI in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. VRI through engagement of Laboratory Directors.

J. VRI, FAO, ASEAN, Laboratory Directors.

Philippines

IDENTIFY Project, Year 4 Work Plan

Four main activities are proposed to occur in the Philippines under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the laboratory director and technical staff of the national animal health laboratory—Laboratory of the Philippines Animal Health Centre (PAHC) of the Philippines:

Objective 2:

1. Ongoing engagement and support for the OIE Philippines Focal Point for Veterinary Laboratories
2. Technical support for IDENTIFY Laboratory Strategic Plan development through in-country workshops

Objective 3:

3. Participation of national staff to international conferences/meetings/trainings

Objective 4:

4. Laboratory Networking Meetings:
   a. 5th Laboratory Directors' Forum Meeting, September 2013
   b. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November2012, Kuala Lumpur, Malaysia
   c. Regional Laboratory Technical Advisory Group Annual Meeting, Aug 2013, Bangkok, Thailand

Please note in Section H of this Philippines country work plan the deliverable that is expected by the end of the project, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 2

- *OIE National Focal Point Program and Network for Veterinary Laboratories*

A. Ongoing engagement and support for the OIE Philippines Laboratory Focal Point as a part of the OIE National Focal Point Program and Network for Veterinary Laboratories

B. This activity aims to reinforce and maintain links between specialized laboratory expertise and high-level policy makers within Philippines and to provide PAHC better access to policy makers. The OIE Philippines Laboratory Focal Point will provide support to the OIE Delegate to better engage in and influence the OIE international standard setting process in regard to animal health laboratories (see Annex 9 for Terms of Reference). Through a strengthened link between PAHC, policy makers and the OIE Delegate (and internationally through the network of OIE Member Countries), this initiative aims to improve confidence in laboratory results produced by PAHC as evidence for action (response and disease control measures) and also to increase allocation of resources to PAHC as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, following and through the regular OIE Laboratory Focal Point trainings (last training occurred 21-24 August 2012 during Year 3), a regional network of laboratory expertise has been created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

C. 3 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Regional Representation for Asia (Tokyo) and Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative—an expansion of the OIE National Focal Point Training Program to veterinary Laboratories—will be funded by the IDENTIFY Project as well as *ad hoc* requests by the OIE Laboratory Focal Point for IDENTIFY countries such as the Philippines. The OIE Focal Point Training Program is a full-fledged worldwide program of networks based on various themes with support from multiple donors[9]. When the activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity follows the OIE National Focal Points Training Seminar for Veterinary Laboratories held in Pakchong, Thailand, 21-24 August 2012. The activity was developed based on gaps identified during the laboratory mapping exercise (including review of OIE PVS Evaluation and Gap Analysis reports) that began in Year 2.

F. Point of Contact: Dr. Andrew Davis

G. Technical support ongoing throughout Year 4.

H. **Deliverable 2: PAHC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for PAHC in the next 12 months will include:*
  - i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
  - ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
  - iii. Advocacy through laboratory strategic plan development, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE Expert during follow-up country missions

Deliverable 4: PAHC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

- *a. Specific outcomes for PAHC in the next 12 months will include:*
  - i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
  - ii. Through development of a strategic plan, better prioritization for case diagnosis with appropriate testing applied in reaching the correct diagnosis (i.e. improved specificity) and recognition of appropriate technical training of staff for improved testing capability

I. PAHC.

J. The Philippines Veterinary Services, Philippines OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory

[9] Themes included in the Focal Point Program: communication, aquatic animals, animal production food safety, veterinary products, animal welfare, official animal disease notification, and wildlife.

supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

- *Animal Health Laboratory National Strategic Planning follow-up missions*

A. The Philippines PAHC Strategic Planning development through follow-up in-country missions/workshop

B. Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners and by Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This follow-up country-level workshop will address this need, by directly assisting the laboratory directors and laboratory staff, alongside key stakeholders, in drafting a strategic plan for PAHC. Examples of areas to be addressed within the strategic plan includes financial sustainability, human resources and retention strategies, quality management systems, consolidating current diagnostic capacity and exploring future strategic expansion of diagnostic capacity.

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded entirely by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, stated strongly as a need during the IDENTIFY Animal health stakeholders meeting in Jan 2011 in subsequent laboratory visits to each IDENTIFY country's national animal health laboratory and requested by the laboratory director of PAHC.

E. Yes, the development of this activity began in Year 2 following expression of strong interest by countries and recommendations of experts in the Jan 2011 technical consultation on improving the diagnosis of emerging animal diseases conducted under the IDENTIFY project and was further advanced by the regional workshop on Strategic Planning held in Melbourne in Year 3 of the project.

F. Point of Contact: Dr. Andrew Davis

G. November 2012 Manila, the Philippines

H. **Deliverable 1: PAHC progressive increase their resources for laboratory activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

- **a.** *Specific outcomes for PAHC in the next 12 months will include:*
  - i. Development of the NaVRI Laboratory Strategic Plans, with the inclusion of internal and external investment possibilities
  - ii. NaVRI laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
  - iii. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. PAHC

J. PAHC, Philippines Laboratory Directors, Philippines OIE Delegate. Collaboration with the DELIVER project is being explored at the HQ & regional levels in terms of integrating laboratory supply chain management issues and providing opportunities for advocacy and awareness raising with OIE partners.

Objective 3

- *Participation of national staff to international conferences/meetings/trainings*

A. Support for participation and contribution of national staff to international conferences/meetings/trainings

B. In support of strengthening, and where appropriate expansion, of laboratory capacity, including disease diagnosis, laboratory management, quality systems, and biosafety, the OIE will offer support for staff in IDENTIFY laboratories to attend relevant conferences, meetings, and trainings. This activity aims to strengthen technical expertise of laboratory staff to diagnose known diseases and build capacity in cross-cutting techniques applicable to the diagnosis of other emerging or re-emerging pathogens. This expertise may include learning new techniques or refining existing techniques. An added benefit of these activities is more network building opportunities that allow ongoing and future technical support in the day-to-day application of these techniques. Other areas that will be supported include the management, quality assurance and safety aspects associated with performing these techniques that will in turn increase confidence that results are accurate, timely and have been produced under good biosafety and biosecurity conditions.

C. Sub-regional Representation for Southeast Asia (Bangkok) with technical guidance from HQ, Scientific and Technical Department (STD)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative.

E. Yes, this activity has occurred in Year 2 & 3. Identification of topics/subjects/techniques of interest to laboratories and staff will take into account OIE PVS Evaluations, OIE PVS Gap Analyses, Laboratory Assessments carried out by FAO under the IDENTIFY project, the national and regional priority diseases identified through the Regional Laboratory Network and ongoing engagement with laboratory directors and technical staff through various IDENTIFY supported missions and meetings.

F. Point of Contact: Dr. Andrew Davis

G. Ongoing throughout Year 4, as relevant topics are identified/opportunities arise. Upcoming activities that have been identified are: Support for laboratory staff from IDENTIFY supported laboratories in the region to attend the Asia Pacific Biosafety Conference and workshops (May 2013); support for laboratory staff from PAHC, Philippines to receive training in the isolation of the zoonotic pathogens mycoplasma, chlamydia, Brucella, leptospirosis at the OIE Reference laboratories in Kyunggi-do, Korea and Georgia, USA (tentative dates within the timeframe of Nov 2012-Feb 2013).

H. **Deliverable 2: PAHC progressively increase adoption of diagnostic procedures consistent with OIE International Standards: OIE *Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for PAHC in the next 12 months will include:*

i. Increased awareness and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Increased involvement in regional laboratory networking activities, such as the annual Laboratory Directors' Forum, annual Meetings on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through engagement with OIE Reference Centres, to adopt OIE-approved diagnostic methods and general procedures with guidance from an OIE expert

Deliverable 4: PAHC improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for PAHC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information

sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. PAHC.

J. The Philippines Veterinary Services, The Philippines OIE Delegate, OIE Delegate-appointed Laboratory Focal Point, Experts from OIE Reference Laboratories and Collaborating Centres, Asia Pacific Biosafety Association.

Objective 4

- *Laboratory Networking and Meetings*

A. Meetings:

1. 5th Laboratory Directors' Forum Meeting, September 2013
2. Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, 13-15th November 2012, Kuala Lumpur, Malaysia

B. This activity aims to provide a forum to discuss issues and act as a coordinating platform for the national veterinary diagnostic laboratories and networks of the SE Asia region. A main objective is to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of zoonotic, Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

C. OIE department responsible: Sub-regional Representation for Southeast Asia (Bangkok)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to continue this country-led initiative. When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured. As this is a cross-sectoral meeting organized with multiple partners, partners may use funding from other sources.

E. Yes, this activity has occurred in Year 2 & 3 following expression of strong interest by countries at the Animal Health Stakeholders' Meeting in Jan 2011 to keep regional laboratory fora alive, given that its benefits are widely felt by the countries involved.

F. Point of Contact: Dr. Andrew Davis

G. See A for exact dates of all foreseen meetings.

H. **Deliverable 4: PAHC improve accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for PAHC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

I. PAHC through engagement of Laboratory Directors.

J. PAHC, FAO, ASEAN, Laboratory Directors.

Congo Basin Country[10] Work Plans

While the OIE is not proposing specific technical activities to occur exclusively at the global or regional levels for the IDENTIFY Project in Year 4, it is important to highlight the crucial coordination and guidance role that OIE HQ and Regional Project staff play in ensuring coherence between laboratory, country and regional activities and oversight for technical relevance and resource efficiency. The HQ and Regional Project staff participate in the activities at the laboratory, country and regional levels with technical guidance, coordination with partners, supervision of day-to-day activities, monitoring and evaluation, project planning and reporting and administrative support. After the initial regional launch of Year 3 activities that will continue throughout Year 4, the activities have been focused at the laboratory and country levels and this is reflected in the country work plans presented below.

Table 3: IDENTIFY Activities in the Congo Basin countries for Year 4

OIE IDENTIFY Activity	Deliverables	Congo Basin							
		DRC	Uganda	Cameroon	Gabon	Congo	Rwanda	Tanzania	CAR
Objective 1: Laboratory Detection									
Proficiency Testing rounds for rabies diagnosis	2, 4, 5								
Backstopping in-country missions for rabies diagnosis following Proficiency Testing rounds	2, 4, 5								
Feedback Workshop on Standard Operating Procedures' harmonisation to OIE Standards for rabies diagnosis, following the Proficiency Testing rounds	2, 4, 5								
Pilot Laboratory Methodology and Tool development	1								
Pilot Laboratory Mission implementation	1								
Objective 2: Disease Reporting, Policy & Guidance									
National Focal Points Program for Veterinary Laboratories	2, 3, 4								
Objective 3: Laboratory Quality									
National workshop on OIE standards for collection and shipment of biological samples	2, 4								
Animal Health Laboratory participation in international and regional workshops and trainings	2, 4								
Objective 4: Laboratory Networking									
Animal Health Laboratory participation in regional laboratory networking meetings	2, 4								

[10] The activities described in the country work plans for the Congo Basin will be extended to the USAID Category 1, 2, 3, & 4 countries, as well as to Ethiopia, Kenya, and Sudan. These countries do not have additional country-specific activities.

Country-Level Work Plans for the Congo Basin Countries

Democratic Republic of Congo (DRC)

IDENTIFY Project, Year 4 Work Plan

Five main activities are proposed to occur in DRC under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Laboratoire Vétérinaire de Kinshasa (LCVK) of DRC laboratory staff:

Objective 1:

1. IDENTIFY national animal health laboratories participation in Proficiency Testing schemes for improved rabies detection and diagnosis
2. In-country backstopping missions for rabies diagnosis
3. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis

Objective 2:

4. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

5. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Southern Africa Development Community (SADC) Veterinary Laboratories Sub Committee bi-annual meetings
   d. SADC Epidemiology & Informatics and Veterinary Laboratories Sub Committees Annual Joint Meeting
   e. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this DRC country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *IDENTIFY laboratories participation in Proficiency Testing schemes*

A. LCVK participation in Proficiency Testing rounds to confirm the quality and timeliness of their results for Rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide LCVK with the possibility to participate in Proficiency Testing rounds and to improve their ability to accurately and rapidly diagnose Rabies. The focus of this round of proficiency testing will be on Rabies using the OIE prescribed test, the Fluorescent Antibody Test (FAT) technique. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. Yes, this initiative for Rabies PT rounds will be co-funded by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing from other sources (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 2.

F. Point of Contact: Dr. Neo Mapitse

G. Initial testing beginning in July-2012 and continuing with communication and troubleshooting through the first quarter of Year 4

H. **Deliverable 2: LCVK progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LCVK in the next 12 months will include:*

i. Increased adopt and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, Laboratory Focal Point and laboratory staff by the OIE Rabies Expert
ii. Harmonized rabies testing standards to OIE internationals standards
iii. Strengthen linkages with OIE Rabies Reference Laboratory
iv. Advocacy to OIE-approved diagnostic methods and general procedures with guidance from OIE Experts
v. Handling of rabies biological samples in appropriate environment

Deliverable 4: LCVK improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, troubleshooting, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iii. Improved rate and consistency of detection of rabies in samples.
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: LCVK progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. Increased awareness of the importance of participating in proficiency testing and the OIE Quality Standard and Guidelines through communication between the OIE Delegate and laboratory staff and the OIE Rabies Expert
ii. Concrete efforts towards the improvement of performance of Rabies FATOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. LCVK

J. LCVK, ARC-OVI, OIE Reference Centre for Rabies

- *In-country backstopping missions following first round of Proficiency Testing to improve compliance with international standards on rabies diagnosis*

A. LCVK participation in Proficiency Testing rounds will benefit from a backstopping mission to assure the methodology, quality and timeliness of their results for rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide LCVK with the possibility to fine tune their rabies FAT techniques with the goal of improving their ability to accurately and rapidly diagnose rabies. The focus of this mission will be on rabies and Fluorescent Antibody Test (FAT) techniques. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges. During the visit, other cross-cutting issues such as biosafety and quality assurance may be addressed to improve not only rabies diagnosis but also the overall performance of the laboratory.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone Nairobi)

D. Yes, this initiative for a Rabies FAT diagnostic backstopping mission will be funded uniquely by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Mission yet to be scheduled, but between Jan-September 2013

H. **Deliverable 2: LCVK progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LCVK in the next 12 months will include:*

i. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and laboratory staff by the OIE Rabies Expert
ii. Improved local capacity in diagnostic techniques and troubleshooting
iii. Increased involvement with OIE Rabies Reference Laboratory and in regional laboratory networking activities
iv. Improved adoption and application of SOPs and OIE prescribed methods with guidance from OIE Rabies Experts

Deliverable 4: LCVK improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples
ii. Engagement with regional networks including OIE Reference Laboratories to improve communication, information sharing, troubleshooting, etc. for diagnostic specimens that require additional testing, expertise or confirmation
iii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: LCVK progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. International standards maintained and test results within internationally acceptable limits
ii. Increased knowledge and appropriate interpretation of test results by laboratory staff
i. Concrete efforts towards the improvement of compliance to SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. LCVK

J. LCVK, OIE Reference Centre on Rabies (ARC-OVI)

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist LCVK in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: LCVK progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LCVK in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: LCVK improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: LCVK progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. LCVK

J. LCVK, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may

vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.

4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: LCVK progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate, and laboratory staff

ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures

iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: LCVK progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being

iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: LCVK improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by LCVK in international and regional meetings:

1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Southern Africa Development Community (SADC) Veterinary Laboratories Sub Committee bi-annual meetings
4. SADC Epidemiology & Informatics and Veterinary Laboratories Sub Committees Annual Joint Meeting
5. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by LCVK in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: LCVK progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LCVK in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed
ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point
iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases
iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: LCVK improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LCVK in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. LCVK

J. OIE Delegate, LCVK, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Uganda

IDENTIFY Project, Year 4 Work Plan

Seven main activities are proposed to occur in Uganda under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC) of Uganda laboratory staff:

Objective 1:

1. IDENTIFY national animal health laboratories participation in Proficiency Testing schemes for improved rabies detection and diagnosis
2. In-country backstopping missions for rabies diagnosis
3. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis
4. Pilot OIE PVS Pathway Laboratory Mission

Objective 2:

5. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 3:

6. Uganda national workshop on OIE standards for collection and shipment of biological samples

Objective 4:

7. Country participation in international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. East African Community Veterinary Laboratories Network meeting
   d. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Uganda country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *IDENTIFY laboratories participation in Proficiency Testing schemes*

A. NADDEC participation in Proficiency Testing rounds to confirm the quality and timeliness of their results for Rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide NADDEC with the possibility to participate in Proficiency Testing rounds and to improve their ability to accurately and rapidly diagnose Rabies. The focus of this round of proficiency testing will be on Rabies using the OIE prescribed test, the Fluorescent Antibody Test (FAT) technique. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. Yes, this initiative for Rabies PT rounds will be co-funded by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing from other sources (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 2.

F. Point of Contact: Dr. Neo Mapitse

G. Initial testing beginning in July 2012 and continuing with communication and troubleshooting through the first quarter of Year 4

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased adopt and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, Laboratory Focal Point and laboratory staff by the OIE Rabies Expert
ii. Harmonized rabies testing standards to OIE internationals standards
iii. Strengthen linkages with OIE Rabies Reference Laboratory
iv. Advocacy to OIE-approved diagnostic methods and general procedures with guidance from OIE Experts
v. Handling of rabies biological samples in appropriate environment

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, troubleshooting, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iii. Improved rate and consistency of detection of rabies in samples.
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: NADDEC progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Increased awareness of the importance of participating in proficiency testing and the OIE Quality Standard and Guidelines through communication between the OIE Delegate and laboratory staff and the OIE Rabies Expert
ii. Concrete efforts towards the improvement of performance of Rabies FATOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. NADDEC

J. NADDEC, ARC-OVI, OIE Reference Centre for Rabies

- *In-country backstopping missions following first round of Proficiency Testing to improve compliance with international standards on rabies diagnosis*

A. NADDEC participation in Proficiency Testing rounds will benefit from a backstopping mission to assure the methodology, quality and timeliness of their results for rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide NADDEC with the possibility to fine tune their rabies FAT techniques with the goal of improving their ability to accurately and rapidly diagnose rabies. The focus of this mission will be on rabies and Fluorescent Antibody Test (FAT) techniques. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges. During the visit, other cross-cutting issues such as biosafety and quality assurance may be addressed to improve not only rabies diagnosis but also the overall performance of the laboratory.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone Nairobi)

D. Yes, this initiative for a Rabies FAT diagnostic backstopping mission will be funded uniquely by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Mission yet to be scheduled, but between Jan-September 2013

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and laboratory staff by the OIE Rabies Expert
ii. Improved local capacity in diagnostic techniques and troubleshooting
iii. Increased involvement with OIE Rabies Reference Laboratory and in regional laboratory networking activities
iv. Improved adoption and application of SOPs and OIE prescribed methods with guidance from OIE Rabies Experts

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples
ii. Engagement with regional networks including OIE Reference Laboratories to improve communication, information sharing, troubleshooting, etc. for diagnostic specimens that require additional testing, expertise or confirmation
iii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: NADDEC progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. International standards maintained and test results within internationally acceptable limits
ii. Increased knowledge and appropriate interpretation of test results by laboratory staff

iv. Concrete efforts towards the improvement of compliance to SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. NADDEC

J. NADDEC, OIE Reference Centre on Rabies (ARC-OVI).

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist NADDEC in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate

ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing

iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs

ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization

iii. Reduced interval between confirmation and reporting of rabies

iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: NADDEC progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for*

Veterinary Laboratories: Infectious Diseases **leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. NADDEC

J. NADDEC, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

- *Pilot OIE PVS Pathway Laboratory Mission*

A. Implementation of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component following the OIE PVS Gap Analysis

B. This activity aims to implement the Pilot OIE PVS Pathway Laboratory Tool at the country level, requested by country-level stakeholders, for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services objectives, to comply with international standards, and to address needed resources for activities stated in the OIE PVS Gap Analysis Report. The implementation of this mission will aid countries to better understand current laboratory capacity, to better plan at the laboratory and policy levels to meet strategic goals, to better allocate appropriate resources to the national animal health laboratory, and to accurately and rapidly diagnose pathogens that threaten populations in their countries.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representation (Gaborone & Nairobi)

D. The Pilot OIE PVS Pathway Laboratory Mission will be co-funded by the IDENTIFY project. The PVS Pathway for efficient Veterinary Services, of which the Pilot OIE PVS Pathway Laboratory Tool is one component, is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA and DFAIT) and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. The tool development activity began in Year 2 with an working meetings held in 12-13 May 2011 and 28 Feb-1 Mar 2012; a pilot mission in SEA is projected to occur in Sept 2012 in Lao PDR and the outcomes of that pilot mission will influence the refinement of the Pilot OIE PVS Pathway Laboratory mission carried out in Africa in Year 4.

F. Point of Contact: Dr. Neo Mapitse

G. Spring 2013, precise dates to be determined with each pilot host country Delegate and the national animal health laboratory and once the formal request for a pilot mission is received by OIE. To date, 5 IDENTIFY Congo Basin countries (Cameroon, Ethiopia, Rwanda, Tanzania, Uganda) have completed the PVS Gap Analysis and would be good candidates for a pilot laboratory mission. We plan to conduct one pilot mission in 2013.

H. **Deliverable 1: National animal health laboratories progressively increase resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for each national animal health laboratory in the next 12 months will include:*

i. Determination of required resources to support the functioning of the national laboratory systems allowing for better rationalization of priorities and higher likelihood of additional investment
ii. Assessment of the priorities for Veterinary Laboratories recorded in the PVS Gap Analysis reports and the specific needs of the national laboratory systems according to these priorities
iii. Identification of sustainable options (including estimated budgets) to address priorities for veterinary laboratories as stated in the PVS Gap Analysis and Laboratory pilot mission reports
iv. National laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
v. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. The national animal health laboratories of 1 IDENTIFY country will be engaged in this activity, and will be confirmed in the coming months. The advancement of this activity is contingent upon completion of PVS Gap Analysis Mission and request of the host country to participate.

J. Experts from OIE Reference Laboratories and Collaborating Centres, OIE PVS Experts, National Veterinary Services, National Laboratory Directors. As authorized by countries, results will be shared with USAID in biannual reports and with EPT partners during EPT Quarterly Meetings.

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and

promote animal health and in the ability of countries to comply with international standards.

3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.
4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate, and laboratory staff
ii. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: NADDEC progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 3

- *National workshop on OIE standards for collection and shipment of biological samples*

A. Safe shipment of biological samples in compliance with OIE International Standards

B. The aim of this activity is to assist NADDEC and Ugandan laboratory staff in the safe shipment of biological samples between national, provincial, and satellite laboratories in accordance with OIE Standards. The involvement of laboratory technicians and the veterinary field staff will enhance the proper preparation and safe transfer of samples for an accurate diagnosis followed by disease reporting. This will facilitate consistency in the quality and integrity of results. This will allow NADDEC to more accurately and rapidly diagnose pathogens in their country without putting the country at risk of disease spread through inappropriate means of shipment. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity, a specific request from the OIE Workshop on the subject conducted in August 2011 during Year 2.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Oct 2012 -September 2013

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*
i. Increased application of the OIE International Standards, *Code* and *Manual* on shipment of samples through engagement of the laboratory staff, Laboratory Focal Point and OIE Delegate

ii. Improved quality and number of diagnostic samples submitted to NADDEC
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE Standards are discussed
iv. Advocacy to adopt OIE Standards and guidelines with guidance from OIE Experts

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
ii. Increasing use of OIE Reference laboratories for confirmation of normative diseases and emerging disease.
iii. Increased disease reporting by OIE Reference laboratories as a result of referred samples
iv. Implementation of safe and secure shipment of samples in line with OIE International Standards

I. NADDEC

J. NADDEC, National Veterinary Services, National Laboratory Director, OIE Delegate, Laboratory quality managers, OIE Experts from OIE Reference Laboratories

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by NADDEC in international and regional meetings:

1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. East African Community Veterinary Laboratories Network meeting
4. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by NADDEC in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: NADDEC progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines***

for Terrestrial Animals **leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for NADDEC in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases

iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: NADDEC improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for NADDEC in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. NADDEC

J. OIE Delegate, NADDEC, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Cameroon

IDENTIFY Project, Year 4 Work Plan

Six main activities are proposed to occur in Cameroon under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Laboratoire National Vétérinaire (LANAVET) of Cameroon laboratory staff:

Objective 1:

1. IDENTIFY national animal health laboratories participation in Proficiency Testing schemes for improved rabies detection and diagnosis
2. In-country backstopping missions for rabies diagnosis
3. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis
4. Pilot OIE PVS Pathway Laboratory Mission

Objective 2:

5. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

6. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Cameroon country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *IDENTIFY laboratories participation in Proficiency Testing schemes*

A. LANAVET participation in Proficiency Testing rounds to confirm the quality and timeliness of their results for Rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide LANAVET with the possibility to participate in Proficiency Testing rounds and to improve their ability to accurately and rapidly diagnose Rabies. The focus of this round of proficiency testing will be on Rabies using the OIE prescribed test, the Fluorescent Antibody Test (FAT) technique. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. Yes, this initiative for Rabies PT rounds will be co-funded by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing from other sources (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 2.

F. Point of Contact: Dr. Neo Mapitse

G. Initial testing beginning in July-2012 and continuing with communication and troubleshooting through the first quarter of Year 4

H. **Deliverable 2: LANAVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LANAVET in the next 12 months will include:*

i. Increased adopt and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, Laboratory Focal Point and laboratory staff by the OIE Rabies Expert
ii. Harmonized rabies testing standards to OIE internationals standards
iii. Strengthen linkages with OIE Rabies Reference Laboratory
iv. Advocacy to OIE-approved diagnostic methods and general procedures with guidance from OIE Experts
v. Handling of rabies biological samples in appropriate environment

Deliverable 4: LANAVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, troubleshooting, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iii. Improved rate and consistency of detection of rabies in samples.
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: LANAVET progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Increased awareness of the importance of participating in proficiency testing and the OIE Quality Standard and Guidelines through communication between the OIE Delegate and laboratory staff and the OIE Rabies Expert
ii. Concrete efforts towards the improvement of performance of Rabies FATOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. LANAVET

J. LANAVET, ARC-OVI, OIE Reference Centre for Rabies

- *In-country backstopping missions following first round of Proficiency Testing to improve compliance with international standards on rabies diagnosis*

A. LANAVET participation in Proficiency Testing rounds will benefit from a backstopping mission to assure the methodology, quality and timeliness of their results for rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide LANAVET with the possibility to fine tune their rabies FAT techniques with the goal of improving their ability to accurately and rapidly diagnose rabies. The focus of this mission will be on rabies and

Fluorescent Antibody Test (FAT) techniques. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges. During the visit, other cross-cutting issues such as biosafety and quality assurance may be addressed to improve not only rabies diagnosis but also the overall performance of the laboratory.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone Nairobi)

D. Yes, this initiative for a Rabies FAT diagnostic backstopping mission will be funded uniquely by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Mission yet to be scheduled, but between Jan-September 2013

H. **Deliverable 2: LANAVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LANAVET in the next 12 months will include:*

i. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and laboratory staff by the OIE Rabies Expert
ii. Improved local capacity in diagnostic techniques and troubleshooting
iii. Increased involvement with OIE Rabies Reference Laboratory and in regional laboratory networking activities
iv. Improved adoption and application of SOPs and OIE prescribed methods with guidance from OIE Rabies Experts

Deliverable 4: LANAVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples
ii. Engagement with regional networks including OIE Reference Laboratories to improve communication, information sharing, troubleshooting, etc. for diagnostic specimens that require additional testing, expertise or confirmation
iii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: LANAVET progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. International standards maintained and test results within internationally acceptable limits
ii. Increased knowledge and appropriate interpretation of test results by laboratory staff
iv. Concrete efforts towards the improvement of compliance to SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. LANAVET

J. LANAVET, OIE Reference Centre on Rabies (ARC-OVI)

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist LANAVET in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: LANAVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LANAVET in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: LANAVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: LANAVET progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Harmonized national standards to international standards on laboratory quality and rabies diagnosis

ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. LANAVET

J. LANAVET, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

- *Pilot OIE PVS Pathway Laboratory Mission*

A. Implementation of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component following the OIE PVS Gap Analysis

B. This activity aims to implement the Pilot OIE PVS Pathway Laboratory Tool at the country level, requested by country-level stakeholders, for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services objectives, to comply with international standards, and to address needed resources for activities stated in the OIE PVS Gap Analysis Report. The implementation of this mission will aid countries to better understand current laboratory capacity, to better plan at the laboratory and policy levels to meet strategic goals, to better allocate appropriate resources to the national animal health laboratory, and to accurately and rapidly diagnose pathogens that threaten populations in their countries.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representation (Gaborone & Nairobi)

D. The Pilot OIE PVS Pathway Laboratory Mission will be co-funded by the IDENTIFY project. The PVS Pathway for efficient Veterinary Services, of which the Pilot OIE PVS Pathway Laboratory Tool is one component, is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA and DFAIT) and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. The tool development activity began in Year 2 with an working meetings held in 12-13 May 2011 and 28 Feb-1 Mar 2012; a pilot mission in SEA is projected to occur in Sept 2012 in Lao PDR and the outcomes of that pilot mission will influence the refinement of the Pilot OIE PVS Pathway Laboratory mission carried out in Africa in Year 4.

F. Point of Contact: Dr. Neo Mapitse

G. Spring 2013, precise dates to be determined with each pilot host country Delegate and the national animal health laboratory and once the formal request for a pilot mission is received by OIE. To date, 5 IDENTIFY Congo Basin countries (Cameroon, Ethiopia, Rwanda, Tanzania, Uganda) have completed the PVS Gap Analysis and would be good candidates for a pilot laboratory mission. We plan to conduct one pilot mission in 2013.

H. **<u>Deliverable 1: LANAVET progressively increase resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases</u>**

a. *Specific outcomes for LANAVET in the next 12 months will include:*
i. Determination of required resources to support the functioning of LANAVET systems allowing for better rationalization of priorities and higher likelihood of additional investment
ii. Assessment of the priorities for LANAVET recorded in the PVS Gap Analysis reports and the specific needs of the national laboratory systems according to these priorities

iii. Identification of sustainable options (including estimated budgets) to address priorities for LANAVET as stated in the PVS Gap Analysis and Laboratory pilot mission reports
iv. LANAVET policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
v. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. The national animal health laboratories of 1 IDENTIFY country will be engaged in this activity, and will be confirmed in the coming months. The advancement of this activity is contingent upon completion of PVS Gap Analysis Mission and request of the host country to participate.

J. Experts from OIE Reference Laboratories and Collaborating Centres, OIE PVS Experts, National Veterinary Services, National Laboratory Directors. As authorized by countries, results will be shared with USAID in biannual reports and with EPT partners during EPT Quarterly Meetings.

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.

4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: LANAVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LANAVET in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate, and LANAVET laboratory staff

ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed

iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures

iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: LANAVET progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being

iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: LANAVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LANAVET in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information

sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE

iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally LANAVET Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by LANAVET in international and regional meetings:

1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by LANAVET in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: LANAVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LANAVET in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases
iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: LANAVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. *Specific outcomes for LANAVET in the next 12 months will include:*
   i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
   ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. LANAVET

J. OIE Delegate, LANAVET, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Gabon

IDENTIFY Project, Year 4 Work Plan

Three main activities are proposed to occur in Gabon under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Laboratoire National Vétérinaire de Libreville (LNVL) laboratory staff:

Objective 1:

1. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis

Objective 2:

2. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

3. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Gabon country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist LNVL in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: LNVL progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative**

diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. *Specific outcomes for LNVL in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: LNVL improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LNVL in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: LNVL progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LNVL in the next 12 months will include:

i. harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. LNVL

J. LNVL, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of

laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.
4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: LNVL progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LNVL in the next 12 months will include:*

i. International standards maintained and test results within internationally acceptable limits

ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: LNVL progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: LNVL improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by LNVL in international and regional meetings:
1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by LNVL in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for

more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: LNVL progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LNVL in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases

iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: LNVL improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LNVL in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. LNVL

J. OIE Delegate, LNVL, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Republic of Congo

IDENTIFY Project, Year 4 Work Plan

Three main activities are proposed to occur in Republic of Congo under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Laboratoire de Diagnostic Vétérinaire de Brazzaville (LDVB) of Republic of Congo laboratory staff:

Objective 1:

1. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis

Objective 2:

2. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

3. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Republic of Congo country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist LDVB in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: LDVB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative**

diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. *Specific outcomes for LDVB in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: LDVB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LDVB in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: LDVB progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LDVB in the next 12 months will include:

i. harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. LDVB

J. LDVB, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of

laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.
4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: LDVB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LDVB in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate, and laboratory staff

ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: LDVB progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: LDVB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by LDVB in international and regional meetings:
1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by LDVB in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for

more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: LDVB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LDVB in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases

iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: LDVB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LDVB in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. LDVB

J. OIE Delegate, LDVB, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Rwanda

IDENTIFY Project, Year 4 Work Plan

Six main activities are proposed to occur in Rwanda under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the National Veterinary Laboratory of Rwanda Agriculture Board (RAB) laboratory staff:

Objective 1:

1. IDENTIFY national animal health laboratories participation in Proficiency Testing schemes for improved rabies detection and diagnosis
2. In-country backstopping missions for rabies diagnosis
3. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis
4. Pilot OIE PVS Pathway Laboratory Mission

Objective 2:

5. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

6. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Rwanda country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *IDENTIFY laboratories participation in Proficiency Testing schemes*

A. RAB participation in Proficiency Testing rounds to confirm the quality and timeliness of their results for Rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide RAB with the possibility to participate in Proficiency Testing rounds and to improve their ability to accurately and rapidly diagnose Rabies. The focus of this round of proficiency testing will be on Rabies using the OIE prescribed test, the Fluorescent Antibody Test (FAT) technique. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. Yes, this initiative for Rabies PT rounds will be co-funded by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing from other sources (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 2.

F. Point of Contact: Dr. Neo Mapitse

G. Initial testing beginning in July-2012 and continuing with communication and troubleshooting through the first quarter of Year 4

H. **Deliverable 2: RAB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB in the next 12 months will include:*

i. Increased adopt and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, Laboratory Focal Point and laboratory staff by the OIE Rabies Expert
ii. Harmonized rabies testing standards to OIE internationals standards
iii. Strengthen linkages with OIE Rabies Reference Laboratory
iv. Advocacy to OIE-approved diagnostic methods and general procedures with guidance from OIE Experts
v. Handling of rabies biological samples in appropriate environment

Deliverable 4: RAB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, troubleshooting, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iii. Improved rate and consistency of detection of rabies in samples.
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: RAB progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Increased awareness of the importance of participating in proficiency testing and the OIE Quality Standard and Guidelines through communication between the OIE Delegate and laboratory staff and the OIE Rabies Expert
ii. Concrete efforts towards the improvement of performance of Rabies FATOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. RAB

J. RAB, ARC-OVI, OIE Reference Centre for Rabies

- *In-country backstopping missions following first round of Proficiency Testing to improve compliance with international standards on rabies diagnosis*

A. RAB participation in Proficiency Testing rounds will benefit from a backstopping mission to assure the methodology, quality and timeliness of their results for rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide RAB with the possibility to fine tune their rabies FAT techniques with the goal of improving their ability to accurately and rapidly diagnose rabies. The focus of this mission will be on rabies and Fluorescent

Antibody Test (FAT) techniques. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges. During the visit, other cross-cutting issues such as biosafety and quality assurance may be addressed to improve not only rabies diagnosis but also the overall performance of the laboratory.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone Nairobi)

D. Yes, this initiative for a Rabies FAT diagnostic backstopping mission will be funded uniquely by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Mission yet to be scheduled, but between Jan-September 2013

H. **Deliverable 2: RAB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB in the next 12 months will include:*

i. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and laboratory staff by the OIE Rabies Expert
ii. Improved local capacity in diagnostic techniques and troubleshooting
iii. Increased involvement with OIE Rabies Reference Laboratory and in regional laboratory networking activities
iv. Improved adoption and application of SOPs and OIE prescribed methods with guidance from OIE Rabies Experts

Deliverable 4: RAB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples
ii. Engagement with regional networks including OIE Reference Laboratories to improve communication, information sharing, troubleshooting, etc. for diagnostic specimens that require additional testing, expertise or confirmation
iii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: RAB progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. International standards maintained and test results within internationally acceptable limits
ii. Increased knowledge and appropriate interpretation of test results by laboratory staff
iii. Concrete efforts towards the improvement of compliance to SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. RAB

J. RAB, OIE Reference Centre on Rabies (ARC-OVI)

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist RAB in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: RAB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: RAB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: RAB progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Harmonized national standards to international standards on laboratory quality and rabies diagnosis

ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. RAB

J. RAB, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

- *Pilot OIE PVS Pathway Laboratory Mission*

A. Implementation of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component following the OIE PVS Gap Analysis

B. This activity aims to implement the Pilot OIE PVS Pathway Laboratory Tool at the country level, requested by country-level stakeholders, for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services objectives, to comply with international standards, and to address needed resources for activities stated in the OIE PVS Gap Analysis Report. The implementation of this mission will aid countries to better understand current laboratory capacity, to better plan at the laboratory and policy levels to meet strategic goals, to better allocate appropriate resources to the national animal health laboratory, and to accurately and rapidly diagnose pathogens that threaten populations in their countries.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representation (Gaborone & Nairobi)

D. The Pilot OIE PVS Pathway Laboratory Mission will be co-funded by the IDENTIFY project. The PVS Pathway for efficient Veterinary Services, of which the Pilot OIE PVS Pathway Laboratory Tool is one component, is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA and DFAIT) and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. The tool development activity began in Year 2 with an working meetings held in 12-13 May 2011 and 28 Feb-1 Mar 2012; a pilot mission in SEA is projected to occur in Sept 2012 in Lao PDR and the outcomes of that pilot mission will influence the refinement of the Pilot OIE PVS Pathway Laboratory mission carried out in Africa in Year 4.

F. Point of Contact: Dr. Neo Mapitse

G. Spring 2013, precise dates to be determined with each pilot host country Delegate and the national animal health laboratory and once the formal request for a pilot mission is received by OIE. To date, 5 IDENTIFY Congo Basin countries (Cameroon, Ethiopia, Rwanda, Tanzania, Uganda) have completed the PVS Gap Analysis and would be good candidates for a pilot laboratory mission. We plan to conduct one pilot mission in 2013.

H. **Deliverable 1: RAB animal health laboratories progressively increase resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB animal health laboratory in the next 12 months will include:*
i. Determination of required resources to support the functioning of the RAB laboratory systems allowing for better rationalization of priorities and higher likelihood of additional investment
ii. Assessment of the priorities for RAB Laboratories recorded in the PVS Gap Analysis reports and the specific needs of the national laboratory systems according to these priorities

iii. Identification of sustainable options (including estimated budgets) to address priorities for RAB veterinary laboratories as stated in the PVS Gap Analysis and Laboratory pilot mission reports
iv. RAB laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
v. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. The national animal health laboratories of 1 IDENTIFY country will be engaged in this activity, and will be confirmed in the coming months. The advancement of this activity is contingent upon completion of PVS Gap Analysis Mission and request of the host country to participate.

J. Experts from OIE Reference Laboratories and Collaborating Centres, OIE PVS Experts, National Veterinary Services, National Laboratory Directors. As authorized by countries, results will be shared with USAID in biannual reports and with EPT partners during EPT Quarterly Meetings.

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may

vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.

4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: RAB ANIMAL HEALTH LABORATORY progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB ANIMAL HEALTH LABORATORY in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate and laboratory staff
ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: RAB animal health laboratory progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: RAB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by RAB in international and regional meetings:
1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by RAB in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: RAB progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for RAB in the next 12 months will include:*
i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point
iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases
iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: RAB improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for RAB in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. RAB

J. OIE Delegate, RAB, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Tanzania

IDENTIFY Project, Year 4 Work Plan

Six main activities are proposed to occur in Tanzania under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Central Veterinary Lab (CVL) Temeke laboratory staff:

Objective 1:

1. IDENTIFY national animal health laboratories participation in Proficiency Testing schemes for improved rabies detection and diagnosis
2. In-country backstopping missions for rabies diagnosis
3. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis
4. Pilot OIE PVS Pathway Laboratory Mission

Objective 2:

5. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

6. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Southern Africa Development Community (SADC) Veterinary Laboratories Sub Committee bi-annual meetings
   d. SADC Epidemiology & Informatics and Veterinary Laboratories Sub Committees Annual Joint Meeting
   e. East African Community Veterinary Laboratories Network meeting
   f. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Tanzania country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *IDENTIFY laboratories participation in Proficiency Testing schemes*

A. CVL Temeke participation in Proficiency Testing rounds to confirm the quality and timeliness of their results for Rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide CVL Temeke with the possibility to participate in Proficiency Testing rounds and to improve their ability to accurately and rapidly diagnose Rabies. The focus of this round of proficiency testing will be on Rabies using the OIE prescribed test, the Fluorescent Antibody Test (FAT) technique. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. Yes, this initiative for Rabies PT rounds will be co-funded by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing from other sources (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 2.

F. Point of Contact: Dr. Neo Mapitse

G. Initial testing beginning in July-2012 and continuing with communication and troubleshooting through the first quarter of Year 4

H. **Deliverable 2: CVL Temeke progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*

i. Increased adopt and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate, Laboratory Focal Point and laboratory staff by the OIE Rabies Expert
ii. Harmonized rabies testing standards to OIE internationals standards
iii. Strengthen linkages with OIE Rabies Reference Laboratory
iv. Advocacy to OIE-approved diagnostic methods and general procedures with guidance from OIE Experts
v. Handling of rabies biological samples in appropriate environment

Deliverable 4: CVL Temeke improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, troubleshooting, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iii. Improved rate and consistency of detection of rabies in samples.
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: CVL Temeke progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. Increased awareness of the importance of participating in proficiency testing and the OIE Quality Standard and Guidelines through communication between the OIE Delegate and laboratory staff and the OIE Rabies Expert
ii. Concrete efforts towards the improvement of performance of Rabies FAT SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. CVL Temeke

J. CVL TEMEKE, ARC-OVI, OIE Reference Centre for Rabies

- *In-country backstopping missions following first round of Proficiency Testing to improve compliance with international standards on rabies diagnosis*

A. CVL Temeke participation in Proficiency Testing rounds will benefit from a backstopping mission to assure the methodology, quality and timeliness of their results for rabies

B. Rabies is an IDENTIFY targeted disease. The aim of this IDENTIFY activity is to provide CVL Temeke with the possibility to fine tune their rabies FAT techniques with the goal of improving their ability to accurately and rapidly diagnose rabies. The focus of this mission will be on rabies and Fluorescent Antibody Test (FAT) techniques. Accurate diagnosis of this disease will also aid in more rapid treatment of exposed human beings and identifying when an unknown disease emerges. During the visit, other cross-cutting issues such as biosafety and quality assurance may be addressed to improve not only rabies diagnosis but also the overall performance of the laboratory.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone Nairobi)

D. Yes, this initiative for a Rabies FAT diagnostic backstopping mission will be funded uniquely by the IDENTIFY project (new), building upon funding previously provided for rabies proficiency testing (existing). The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Mission yet to be scheduled, but between Jan-September 2013

H. **Deliverable 2: CVL Temeke progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*

i. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and laboratory staff by the OIE Rabies Expert
ii. Improved local capacity in diagnostic techniques and troubleshooting
iii. Increased involvement with OIE Rabies Reference Laboratory and in regional laboratory networking activities
iv. Improved adoption and application of SOPs and OIE prescribed methods with guidance from OIE Rabies Experts

Deliverable 4: CVL Temeke improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples
ii. Engagement with regional networks including OIE Reference Laboratories to improve communication, information sharing, troubleshooting, etc. for diagnostic specimens that require additional testing, expertise or confirmation
iii. Implementation and improved participation in proficiency testing to the OIE International Standards allow for refinement of methodology to improve test sensitivity and specificity
iv. Reporting of OIE listed diseases to appropriate national authorities and the OIE

Deliverable 5: CVL Temeke progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. International standards maintained and test results within internationally acceptable limits

ii. Increased knowledge and appropriate interpretation of test results by laboratory staff
iii. Concrete efforts towards the improvement of compliance to SOPs for improved laboratory diagnostic performance with guidance from OIE experts

I. CVL Temeke
J. CVL Temeke, OIE Reference Centre on Rabies (ARC-OVI)

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis
B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist CVL Temeke in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.
C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)
D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.
E. Yes, the development of this activity began in Year 3.
F. Point of Contact: Dr. Neo Mapitse
G. Between September and December 2013
H. **Deliverable 2: CVL Temeke progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*
i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: CVL TEMEKE improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL TEMEKE in the next 12 months will include:
i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: CVL TEMEKE progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. CVL Temeke

J. CVL Temeke, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

- *Pilot OIE PVS Pathway Laboratory Mission*

A. Implementation of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component following the OIE PVS Gap Analysis

B. This activity aims to implement the Pilot OIE PVS Pathway Laboratory Tool at the country level, requested by country-level stakeholders, for the assessment of the National Animal Health Laboratory to meet the needs of the National Veterinary Services objectives, to comply with international standards, and to address needed resources for activities stated in the OIE PVS Gap Analysis Report. The implementation of this mission will aid countries to better understand current laboratory capacity, to better plan at the laboratory and policy levels to meet strategic goals, to better allocate appropriate resources to the national animal health laboratory, and to accurately and rapidly diagnose pathogens that threaten populations in their countries.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representation (Gaborone & Nairobi)

D. The Pilot OIE PVS Pathway Laboratory Mission will be co-funded by the IDENTIFY project. The PVS Pathway for efficient Veterinary Services, of which the Pilot OIE PVS Pathway Laboratory Tool is one component, is a worldwide project co-funded by the European Union (EU), the World Bank, the USA (CDC, USAID and USDA), the UK (DFID and FCO), Switzerland (FVO), Japan, Italy, France, Canada (CFIA, CIDA and DFAIT) and Australia (AusAID and DAFF), through the OIE World Animal Health and Welfare Fund.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. The tool development activity began in Year 2 with an working meetings held in 12-13 May 2011 and 28 Feb-1 Mar 2012; a pilot mission in SEA is projected to occur in Sept 2012 in Lao PDR and the outcomes of that pilot mission will influence the refinement of the Pilot OIE PVS Pathway Laboratory mission carried out in Africa in Year 4.

F. Point of Contact: Dr. Neo Mapitse

G. Spring 2013, precise dates to be determined with each pilot host country Delegate and the national animal health laboratory and once the formal request for a pilot mission is received by OIE. To date, 6 IDENTIFY Congo Basin countries (Cameroon, Dem. Rep. of Congo, Gabon, Rwanda, Tanzania, Uganda) have completed the PVS Gap Analysis and would be good candidates for a pilot laboratory mission. We plan to conduct one pilot mission in 2013.

H. **Deliverable 1: CVL Temeke progressively increase resources for their activities as stated in their strategic plan leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*
   i. Determination of required resources to support the functioning of the national laboratory systems allowing for better rationalization of priorities and higher likelihood of additional investment
   ii. Assessment of the priorities for CVL recorded in the PVS Gap Analysis reports and the specific needs of the national laboratory systems according to these priorities
   iii. Identification of sustainable options (including estimated budgets) to address priorities for CVL as stated in the PVS Gap Analysis and Laboratory pilot mission reports
   iv. National laboratory policies better aligned with the needs of the national Veterinary Services, and with other national and regional policies and strategies related to laboratories
   v. Increased collaboration between in-country stakeholders to further streamline diagnostic services and advocate for multi-sectoral funding and collaboration

I. The national animal health laboratories of 1 IDENTIFY country will be engaged in this activity, and will be confirmed in the coming months. The advancement of this activity is contingent upon completion of PVS Gap Analysis Mission and request of the host country to participate.

J. Experts from OIE Reference Laboratories and Collaborating Centres, OIE PVS Experts, National Veterinary Services, National Laboratory Directors. As authorized by countries, results will be shared with USAID in biannual reports and with EPT partners during EPT Quarterly Meetings.

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and

promote animal health and in the ability of countries to comply with international standards.

3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.
4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: CVL Temeke progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate and laboratory staff
ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: CVL Temeke progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:

i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff

ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: CVL Temeke improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by CVL Temeke in international and regional meetings:

1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Southern Africa Development Community (SADC) Veterinary Laboratories Sub Committee bi-annual meetings
4. SADC Epidemiology & Informatics and Veterinary Laboratories Sub Committees Annual Joint Meeting
5. East African Community Veterinary Laboratories Network meeting
6. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by CVL TEMEKE in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: CVL Temeke progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for CVL Temeke in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases

iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: CVL Temeke improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for CVL Temeke in the next 12 months will include:

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. CVL Temeke

J. OIE Delegate, CVL Temeke, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

Central African Republic (CAR)

IDENTIFY Project, Year 4 Work Plan

Three main activities are proposed to occur in CAR under the IDENTIFY Project during Year 4, with the direct involvement and for the direct benefit of the Laboratoire Central Vétérinaire de Bangui (LACEVET) laboratory staff:

Objective 1:

1. Regional workshop for developing Standard Operating Procedures (SOP) compliance to international standards on Rabies diagnosis

Objective 2:

2. OIE National Focal Point Training Program for Veterinary Laboratories

Objective 4:

3. Country participation in significantly relevant international and regional meetings :
   a. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
   b. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
   c. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

Please note in Section H of this Central African Republic country work plan the impact that is expected by the end of the project period, the specific outcomes to be achieved, and the specific outputs as a result of the work. The indicators used to demonstrate measurable improvement of the laboratory towards the stated key outcomes are presented in Annex 7.

Objective 1

- *Regional workshop to harmonize Standard Operating Procedures (SOP) compliance to international standards on rabies diagnosis*

A. Standard Operating Procedures (SOP) harmonization to OIE Standards on rabies diagnosis

B. Rabies is an IDENTIFY targeted disease. The aim of this activity is to assist LACEVET in the review and validation of SOP in accordance with OIE Standards for veterinary laboratories. The development and use of SOPs are an integral part of a successful quality system as they provide laboratory technicians with the information on the correct procedure to perform a diagnostic techniques and preparation of samples properly, and facilitate consistency in the quality and integrity of results. The presence, improved use, and appropriateness of the SOP for rabies will allow laboratory staff to more accurately and rapidly diagnose pathogens in their country. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

C. 2 OIE departments responsible: OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The EPT Program and the IDENTIFY project have provided the opportunity to realize this activity.

E. Yes, the development of this activity began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. Between September and December 2013

H. **Deliverable 2: LACEVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LACEVET in the next 12 months will include:*

i. Increased application and harmonization of the OIE International Standards, Code and Manual into national standards and operating procedures through engagement of the laboratory staff Laboratory Focal Point and OIE Delegate
ii. Increased involvement in development and harmonization of rabies FAT diagnostic testing
iii. Increased involvement in regional laboratory networking activities and other relevant workshops where OIE-approved diagnostic methods and technical items are discussed

Deliverable 4: LACEVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LACEVET in the next 12 months will include:

i. Accuracy and consistency of detection of rabies on samples through use of SOPs
ii. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve standardization
iii. Reduced interval between confirmation and reporting of rabies
iv. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve rabies FAT sensitivity and specificity

Deliverable 5: LACEVET progressively improves performance in proficiency testing and compliance to standard operating procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for LACEVET in the next 12 months will include:

i. harmonized national standards to international standards on laboratory quality and rabies diagnosis
ii. Increased use of appropriately documented standard operating procedures by laboratory staff
iii. improvement of laboratory performance due to increasing compliance to SOPs with guidance from OIE experts

I. LACEVET

J. LACEVET, National Veterinary Services, National Laboratory Director, OIE Delegate, FAO, Laboratory quality managers, OIE Experts from OIE Reference Laboratories (ARC-OVI)

Objective 2

- *OIE National Focal Point Training Program for Veterinary Laboratories*

A. Development of the OIE National Focal Point Training Program for Veterinary Laboratories to be piloted in the African region

B. This activity aims to establish links between specialized laboratory expertise to high-level policy makers, among them the OIE Delegate, at the country level in each IDENTIFY country to provide national animal health laboratories better access to policy makers. This initiative aims to improve the understanding of laboratory issues at the policy level, in turn improving confidence in laboratory results produced by each laboratory as evidence for action (response and disease control measures) and also to increase allocation of resources to the national animal health laboratory as a critical

component of Veterinary Services to further improve the laboratory's ability to rapidly and accurately diagnose known and emerging diseases. As an added value, a regional network of laboratory expertise recognized by the Veterinary Services is created between countries and reinforces existing and creates new technical relationships, allowing more rapid and accurate diagnosis of known and emerging diseases at the regional level.

1. The OIE has established a system of OIE Focal Points to provide additional support to Delegates in various fields of expertise. Countries nominate national focal points for Disease Notification, Wildlife, Veterinary products, Animal welfare, Animal production food safety, Aquatic animals, and Communication. This network of experts is considered to be a key factor for the improvement of national Veterinary Services, helping the Delegates and the Veterinary Services to comply with the rights and responsibilities and OIE international standards. Terms of reference have been established for each of the official OIE national focal points, and regional training has been conducted for all the established focal points from the 178 OIE Member Countries.
2. The OIE has been asked by countries to establish a pilot project on an extension of this network of national focal points to laboratories. The OIE recognizes the importance of the role of Veterinary Laboratories in the functioning of Veterinary Services to protect and promote animal health and in the ability of countries to comply with international standards.
3. As with all OIE national focal points, activities of the laboratory focal point are under the authority of the OIE Delegate, and the appointment of focal points to the OIE will be done by the National Delegate. The Delegate may appoint the person s/he feels most prepared for the post, and as has been our experience with other focal points, focal point profiles may vary between countries; we anticipate that Laboratory Directors in the pilot in the African region will figure among the nominees.
4. International standard setting, the process and each country's participation in it, laboratory capacity building opportunities, timely reporting, rights and responsibilities, awareness and mobilization of national and regional networking initiatives, One Health issues and cross-sectoral collaboration, are included among the workshop's themes and will be transmitted through presentations, small working groups, breakout sessions, and hands-on activities.

C. 2 OIE departments responsible: HQ, Scientific and Technical Department (STD); OIE Sub-Regional Representations (Gaborone & Nairobi)

D. This initiative will be co-funded by the IDENTIFY project. The OIE National Focal Point Training Program for Veterinary Laboratories is a full-fledged worldwide program of networks based on various themes with support from multiple donors (existing). When an activity is co-funded, visibility of the EPT Program, the IDENTIFY Project and USAID will be ensured.

E. Yes, this activity builds on gaps identified during the laboratory mapping exercise that began in Year 1. Focused development of this activity in the African region began in Year 3.

F. Point of Contact: Dr. Neo Mapitse

G. June 2013. Following the kick-off pilot training event that occurred in Aug 2012, the pilot event for the African region will tentatively occur in spring/summer 2013.

H. **Deliverable 2: LACEVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LACEVET in the next 12 months will include:*

i. Increased application of the OIE International Standards, *Code* and *Manual* for targeted diseases through engagement of the OIE Delegate and laboratory staff
ii. Increased involvement in regional laboratory networking activities and other significantly relevant conferences and workshops where OIE-approved diagnostic methods and technical items are discussed
iii. Advocacy through the Laboratory Focal Point, to adopt OIE-approved diagnostic methods and general procedures
iv. Harmonized laboratory disease diagnostic procedures including sample handling and shipping to OIE international standards

Deliverable 3: LACEVET progressively improves occupational health and safety conditions for laboratory staff and adopts quality management procedures consistent with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* leading to enhance ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Increased awareness of the importance of occupational health and safety and the *OIE Quality Standard and Guidelines* through engagement of the OIE Delegate, OIE Laboratory Focal Point, and laboratory staff
ii. Concrete efforts towards the improvement of working conditions for improved laboratory performance and staff well-being
iii. Review and update of quality management system to be in line with OIE Standards

Deliverable 4: LACEVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. Specific outcomes for laboratory in the next 12 months will include:
i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation
ii. Strengthen communication between the laboratory and the OIE Delegate (animal diseases reporting authority) for improved disease reporting to the OIE
iii. Reduced duration between identification of targeted disease/pathogen(s) and reporting to the OIE

I. The OIE Delegates will each appoint a National Laboratory Focal Point, ideally the National Animal Health Laboratory Director or another senior official with significant laboratory expertise. This appointee will be the senior advisor on laboratory related issues to the OIE Delegate. Each IDENTIFY country will be engaged in this activity (See Annex 1 for complete list).

J. OIE Delegates, OIE Delegate-appointed Laboratory Focal Points, Experts from OIE Reference Laboratories and Collaborating Centres, National Veterinary Services, National Laboratory Directors

Objective 4

- *IDENTIFY Laboratory participation in international and regional meetings*

A. Support for participation of and scientific presentations by LACEVET in international and regional meetings:
1. African Biological Safety Association (AfBSA) 4th Annual Biological Safety Conference, 2013
2. Southern and Eastern Africa Rabies Group (SEARG) Biennial Conference, February 2013
3. Association of Institutions for Tropical Veterinary Medicine (AITVM) 14TH International Conference, Johannesburg, South Africa, August 2013

B. The aim of this activity is to support the participation of and scientific presentations by LACEVET in the listed international and regional meetings. Their participation will allow them to gain renown among regional stakeholders as a regional resource, further linking together the global network for more rapid and accurate diagnosis of known and emerging diseases. Participation in these meetings will also provide an opportunity to engage with their peers on issues related to laboratory diagnosis and investigation, advances or new tools in diagnosis, to introduce concepts and receive updates from partners on progress and to strengthen linkages among regional laboratory networks across human and animal health and animal-human-wildlife interface. The activities will in addition build and maintain laboratory competencies developed under the Twinning Project.

C. 2 OIE departments responsible: OIE Sub-Regional Representations- (Gaborone & Nairobi)

D. This initiative will be funded by the IDENTIFY project (existing). The EPT Program and the IDENTIFY project have provided the opportunity to sponsor participants who would not otherwise have had the resources to participate in this activity.

E. Yes, this activity is a continuation of the same approved in Year 3's Work Plan.

F. Point of Contact: Dr. Neo Mapitse

G. See section A for all dates.

H. **Deliverable 2: LACEVET progressively increases adoption of diagnostic procedures consistent with OIE International Standards: *OIE Terrestrial Animal Health Code* (Chapter 1.3: Prescribed and alternative diagnostic tests for OIE listed diseases) and *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases**

a. *Specific outcomes for LACEVET in the next 12 months will include:*

i. Increased involvement in regional laboratory networking activities and other relevant conferences and workshops where OIE-approved diagnostic methods and laboratory technical items are discussed

ii. Increased understanding and application of the OIE International Standards, *Code* and *Manual* through engagement of the OIE Delegate and Laboratory Focal Point

iii. Increased adoption of OIE prescribed tests for IDENTIFY targeted diseases

iv. Strengthening of laboratory biosafety and biocontainment network

Deliverable 4: LACEVET improves accuracy and timely diagnosis of transboundary and emerging infectious diseases leading to enhanced ability to appropriately handle, diagnose and report on IDENTIFY targeted diseases

a. *Specific outcomes for LACEVET in the next 12 months will include:*

i. Engagement with regional and global laboratory networks including OIE Reference Laboratories to improve referral system (sample shipment, communication, information sharing, etc.) for diagnostic specimens that require additional testing, expertise or confirmation

ii. Implementation and improved participation in proficiency testing to the OIE international Standards allow for refinement of methodology to improve sensitivity of tests

I. LACEVET

J. OIE Delegate, LACEVET, National Laboratory Director, and in the case of the stakeholder's meeting : FAO, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, Regional USAID EPT program, PREDICT and RESPOND representatives will be invited.

PROJECT IMPLEMENTATION PLAN (PROVISIONAL)

OIE IDENTIFY Activity by Objective	Deliverables	FY12 Q1 OCT-DEC 12	FY12 Q2 JAN-MAR 13	FY12 Q3 APR-JUN 13	FY12 Q4 JUL-SEP 13
Objective 1: Laboratory Detection					
Pilot Laboratory Methodology and Tool development	1				
Pilot Laboratory Mission implementation	1				
Objective 2: Disease Reporting, Policy & Guidance					
National Focal Points Program for Veterinary Laboratories	2, 3, 4				
Development of Animal Health Laboratory Strategic Plans, in-country workshops by OIE experts	1				
Objective 3: Laboratory Quality					
Animal Health Laboratory participation in international and regional workshops and trainings	2, 4				
Objective 4: Laboratory Networking					
Animal Health Laboratory participation in regional laboratory networking meetings	2, 4				

OIE IDENTIFY Activity	Deliverables	FY12 Q1 OCT-DEC 12	FY12 Q2 JAN-MAR 13	FY12 Q3 APR-JUN 13	FY12 Q4 JUL-SEP 13
Objective 1: Laboratory Detection					
Proficiency Testing rounds for rabies diagnosis	2, 4, 5				
Backstopping in-country missions for rabies diagnosis following Proficiency Testing rounds	2, 4, 5				
Feedback Workshop on Standard Operating Procedures' harmonisation to OIE Standards for rabies diagnosis, following the Proficiency Testing rounds	2, 4, 5				
Pilot Laboratory Methodology and Tool development	1				
Pilot Laboratory Mission implementation	1				
Objective 2: Disease Reporting, Policy & Guidance					
National Focal Points Program for Veterinary Laboratories	2, 3, 4				
Objective 3: Laboratory Quality					
National workshop on OIE standards for collection and shipment of biological samples	2, 4				
Animal Health Laboratory participation in international and regional workshops and trainings	2, 4				
Objective 4: Laboratory Networking					
Animal Health Laboratory participation in regional laboratory networking meetings	2, 4				

PERFORMANCE MONITORING PLAN

		IDENTIFY Objective	Tripartite End-of Project Target	OIE End-of Project Target	OIE Project Indicator	Data Source	Year-end Results for the objective -Year X[11]	
							Congo Basin	South and Southeast Asia
1	1.1	Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	From the time of commencement of tracking, 100% of IDENTIFY-supported laboratories have maintained or strengthened their capacity to test for the IDENTIFY-targeted diseases	According to the List of key diseases[12], 100% of IDENTIFY-supported laboratories in EPT countries will have at least maintained their detection capabilities[13] of the diseases for which tests are available and 30% of IDENTIFY-supported laboratories in EPT countries will have increased their capabilities[14].	Percentage of key diseases for which tests are available in national animal health laboratories[15]	WAHIS Annual Reports	XX countries out of XX (XX%) and XX laboratories out of XX (XX%) have increased their detection capabilities of the key diseases for which tests are available and/or the level of characterization of pathogens between 2009 and now	XX countries out of XX (XX%) and XX laboratories out of XX (XX%) have increased their detection capabilities of the key diseases for which tests are available and/or the level of characterization of pathogens between 2009 and now
	1.2				Percentage of key diseases for which advanced tests are available in national animal health laboratories[5]	WAHIS Annual Reports		
2	2.1	Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations	100% of IDENTIFY-supported laboratories have systems in place to provide, within 7 days, results to relevant authorities on detection of IDENTIFY-targeted diseases when required to do so by legislation or regulation.	100% of positive results for exceptional epidemiological events (notified to the OIE through WAHIS Immediate Notifications) for the key diseases are sent to national or international authorities within 7 days of confirmatory tests, for every targeted laboratory/country[5]	Percentage of immediate notifications submitted to the OIE within 7 days of positive laboratory test result[16]	WAHIS Immediate Notifications and Follow-Up Reports	XX% of countries and XX% of laboratories have submitted positive results for exceptional epidemiological events for the key diseases to the OIE within 7 days of confirmatory tests during the considered year	XX% of countries and XX% of laboratories have submitted positive results for exceptional epidemiological events for the key diseases to the OIE within 7 days of confirmatory tests during the considered year
	2.2			Based on the List of key diseases[2], 60% of IDENTIFY-supported laboratories in EPT countries will have maintained or decreased the median time between the confirmation test and the submission of positive laboratory results to the appropriate national or international authorities	Number of days between positive laboratory test result[6] and submission of the corresponding Immediate Notification to the OIE (Annual median)	WAHIS Immediate Notifications and Follow-Up Reports	XX% of IDENTIFY-supported laboratories in EPT countries have maintained the median time between the confirmation test and the submission of positive laboratory results for key diseases to the OIE and XX% have decreased it	XX% of IDENTIFY-supported laboratories in EPT countries have maintained the median time between the confirmation test and the submission of positive laboratory results for key diseases to the OIE and XX% have decreased it
4		Laboratories are participating in the relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	100% of IDENTIFY-supported laboratories maintained or increased their participation in regional and/or international laboratory networks	100% of IDENTIFY-supported laboratories in EPT countries will have maintained or increased the use of other laboratories for confirmation testing after first performing initial tests	Use of other laboratories[17] for diagnosis of pathogens during exceptional events after national laboratories perform initial tests	WAHIS Immediate Notifications and Follow-Up Reports	XX% of IDENTIFY-supported laboratories in EPT countries have maintained the use of other laboratories for confirmation testing after first performing initial tests and XX% have increased it	XX% of IDENTIFY-supported laboratories in EPT countries have maintained the use of other laboratories for confirmation testing after first performing initial tests and XX% have increased it

[11] Results will only be interim results and the full effect of the project will not be seen until the end of the project period.
[12] As a part of the IDENTIFY mapping exercise, the OIE has analyzed the list of IDENTIFY targeted diseases developed by the stakeholders of the project in both regions against the occurrence of diseases in each IDENTIFY country. As a result, a list of key diseases by country has been established (between 11 and 24 diseases) in an attempt to rationalize the investments in each country, to better identify gaps, strengths, and needs of each laboratory, and to facilitate measurement of evolving deliverables and targets.
[13] Kept at least the same level of characterization or maintained capability in at least one detection method per disease as at baseline measurement
[14] Added new detection methods for a given disease, increased the level of characterization for a given disease, or added detection capabilities for a new disease as baseline as at baseline measurement
[15] Results will be provided by country and by IDENTIFY-targeted laboratory
[16] The laboratory test that was considered sufficient for official confirmation of the event by national authorities varies between countries. This is why, when several tests were used for diagnosis of an exceptional epidemiological event, only the date of the test that was used for confirmation (according to the information provided by the country) must be considered
[17] All laboratories will be considered and secondary analysis will detail the kind of laboratories IDENTIFY-supported laboratories network with.

PROJECT MANAGEMENT – SOUTHEAST ASIA REGION

Describe the organizational relationship between headquarters and the regional/country-level offices

The OIE, as one of the implementing agencies under the IDENTIFY project, assigns part of the responsibility for project management to one of its regional representations in Asia, the Sub-Regional Representation for Southeast Asia, based in Bangkok, Thailand. Oversight of regional activities is managed by the IDENTIFY Project Coordinator. In addition, the OIE will hire short term experts when and where required. While the OIE does not hold country-level offices, the regional OIE IDENTIFY Project Coordinators additionally acts as the OIE IDENTIFY project representatives at the country level. In addition, the national OIE Delegate, usually the chief veterinary officer of the country, routinely serves as advocate for OIE standards and activities in their country.

Active coordination of many of the activities is handled at the regional and country levels, so the headquarters level tripartite coordination has a different face, with more information and document sharing related to work plans, reporting, and meeting planning. OIE, FAO, and WHO have maintained regular TCs for program updates, have shared and discussed each other's work plans and reports, and have continued working together on specific activities, such as communication and meeting materials, presentations for meetings, contributions to each other's activities, development and measurement of project indicators, etc. The USAID decision in June 2011 to separate the work plans required a substantial revision of our draft tripartite work plan, and probably temporarily decreased the frequency of the day-to-day interactions, but not the fact that they occurred or what they covered.

FAO, OIE and WHO held several meetings and TCs in which activities were discussed prior to submission to USAID 1 Sept 2012 at HQ, regional, and country levels. When requested, all partners shared more information in order to better understand the proposed activities, and modifications were made where necessary and shared. Since OIE shared the Year 4 work plan with WHO and FAO, and in subsequent discussions (in person and by telephone in 2012) about the activities contained therein, any concerns expressed by either partner about overlapping or redundancy were raised and addressed, so we are confident that FAO, OIE, and WHO will continue to implement activities at the regional and country levels that complement each other's activities and those of other EPT partners.

Partnerships at the regional/country level

Partnerships at the regional level include (but are not limited to): Food and Agriculture Organization HQ, FAO-RAP Bangkok; World Organisation for Animal Health HQ and OIE Bangkok; World Health Organization HQ, WHO SEARO New Delhi, and WPRO Manila; Regional Economic Communities covering the region (ASEAN); other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC); regional networks (e.g. OFFLU, EDPLN, GFN, etc.); international and regional reference laboratories situated in SE Asia, private sector laboratories, universities, and non-governmental organizations.

At the regional level, the coordination between FAO, WHO, and OIE is quite strong. Many tripartite activities, both those funded by USAID and by other donors, are underway in the Southeast Asia region (e.g. Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses, Third Laboratory Directors' forum, Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, ASEAN/FAO/OIE/WHO Rabies Workshop for the Southeast Asia Rabies Network Launch, etc.), and are conducted A-Z in a collaborative fashion between FAO, OIE, and/or WHO. At the regional level, the OIE IDENTIFY Regional Coordinator makes a significant effort to reach out and continue dialogue with all EPT partners at the regional and country levels, to attend country meetings, and makes an earnest attempt to be responsive on all issues.

As it concerns EPT partners, we receive few outreach requests related to IDENTIFY activities outside of the regional and country level meetings, but when received, have attempted to provide timely responses to their inquiries, and have, ourselves, made attempts to reach out to them, especially during the EPT Partners' and regional/country EPT meetings.

Reporting

Reporting follows the reporting requirements and deadlines as required by USAID. The OIE submits semiannual reports (due 30 April and 31 October) and annual work plan documents (typically due 1 Sept), into which the contributions of all regional OIE IDENTIFY Project Coordinators are integrated.

In addition, the OIE is bound to carry out the IDENTIFY activities in the Letter of Agreement (Amendment 2) signed 13 January 2012 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project).

PROJECT MANAGEMENT – CONGO BASIN REGION

Describe the organizational relationship between headquarters and the regional/country-level offices

The OIE, as one of the implementing agencies under the IDENTIFY project, assigns part of the responsibility for project management to one of its regional representations in Africa, the Sub-Regional Representation for Southern Africa, based in Gaborone, Botswana. Oversight of regional activities is managed by the IDENTIFY Project Coordinator in Gaborone, with additional support from staff in the Sub-Regional Representation for Eastern Africa and the Horn of Africa, based in Nairobi, Kenya, and will hire short term experts when and where required. While the OIE does not hold country-level offices, the regional OIE IDENTIFY Project Coordinators additionally acts as the OIE IDENTIFY project representatives at the country level. In addition, the national OIE Delegate, usually the chief veterinary officer of the country, routinely serves as advocate for OIE standards and activities in their country.

Active coordination of many of the activities is handled at the regional and country levels, so the headquarters level tripartite coordination has a different face, with more information and document sharing related to work plans, reporting, and meeting planning. OIE, FAO, and WHO have maintained regular TCs for program updates, have shared and discussed each other's work plans and reports, and have continued working together on specific activities, such as communication and meeting materials, presentations for meetings, contributions to each other's activities, development and measurement of project indicators, etc. The USAID decision in June 2011 to separate the work plans required a substantial revision of our draft tripartite work plan, and probably temporarily decreased the frequency of the day-to-day interactions, but not the fact that they occurred or what they covered.

FAO, OIE and WHO held several meetings and TCs in which activities were discussed prior to submission to USAID 1 Sept 2012 at HQ, regional, and country levels. When requested, all partners shared more information in order to better understand the proposed activities, and modifications were made where necessary and shared. Since OIE shared the Year 4 work plan with WHO and FAO, and in subsequent discussions (in person and by telephone in 2012) about the activities contained therein, any concerns expressed by either partner about overlapping or redundancy were raised and addressed, so we are confident that FAO, OIE, and WHO will continue to implement activities at the regional and country levels that complement each other's activities and those of other EPT partners.

Partnerships at the regional/country level

Partnerships at the regional level include (but are not limited to): Food and Agriculture Organization HQ and FAO-ECTAD Bamako, Gaborone, Nairobi; World Organisation for Animal Health HQ, Gaborone, and Nairobi; World Health Organization HQ and AFRO Brazzaville; Regional Economic Communities covering the Congo Basin region; other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC); regional technical agencies (e.g. AU-IBAR, CEBEVIRHA, CTTBD, ILRI, international and regional reference laboratories situated in Africa, private sector laboratories, universities, and non-governmental organizations).

As it concerns EPT partners, we receive few outreach requests related to IDENTIFY activities outside of the regional and country level meetings, with the notable exception of Uganda, in which the USAID Mission is very active in coordinating a high-level of communication between Program Partners. When received, we have attempted to provide timely responses to inquiries, and have, ourselves, made attempts to reach out to EPT Partners, especially during the EPT Partners' and regional/country EPT meetings.

Reporting

Reporting follows the reporting requirements and deadlines as required by USAID. The OIE submits semiannual reports (due 30 April and 31 October) and annual work plan documents (typically due 1 Sept), into which the contributions of all regional OIE IDENTIFY Project Coordinators are integrated.

In addition, the OIE is bound to carry out the IDENTIFY activities in the Letter of Agreement (Amendment 2) signed 13 January 2012 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project).

Annex 1 : IDENTIFY Provisional List of Animal Health and Public Health Laboratories, Congo Basin Region, as of Jan 2012 (cont'd)

IDENTIFY provisional list of Animal Health and Public Health laboratories: Congo Basin Region

Please note that this list may change over time

NATIONAL LABORATORIES

Country	Veterinary laboratories	Disease specialty/focus*	Public Health laboratories	Disease specialty/focus**
Cameroon	Laboratoire National Vétérinaire, Garoua, LANAVET	PPR, ASF, NCD and CBPP, rabies, tuberculosis, brucellosis	National Public health laboratory Hygiene Mobile	Bacterial meningitis, Hepatitis, Bacterial enteric diseases
			Centre Pasteur, Yaounde	Dengue, other viral respiratory diseases, Yellow fever, Influenza viruses, Leptospirosis, Rabies, TB, VHF, Toxoplasmosis, Trypanosomosis
			Hopital Central de Yaounde	Malaria
Central African Republic	Laboratoire Central Vétérinaire de Bangui, LACEVET	ASF, PPR, NCD, Rabies, brucellosis	Laboratoire National de Santé Publique, Bangui	Bacterial meningitis, Hepatitis, Bacterial enteric diseases, Malaria, Toxoplasmosis
			Institut Pasteur Bangui	Dengue, other viral respiratory diseases, Yellow fever, Rickettsiosis, Brucellosis, Influenza viruses, Leptospirosis, Rabies, TB, VHF, Monkey pox
Democratic Republic of Congo	Laboratoire Vétérinaire de Kinshasa, LCVK	MPX, RVF in ruminants, ASF, NCD ,AI , LSD, PPR, rabies, brucellosis, CBPP, ASF, FMD	Institut National de Recherche Biomédicale (INRB), Kinshasa †	Bacterial meningitis, Bacterial enteric diseases, Malaria, Plague, Yellow fever, Influenza viruses, VHF, Monkey pox, Toxoplasmosis, Trypanosomosis, Brucellosis
Equatorial Guinea	Laboratoire National ECAA-KM 7	n/a	Laboratorio de Microbiologia de Hopital Regional de Malabo	Bacterial meningitis, Bacterial enteric diseases, Malaria
Gabon	Laboratoire National Vétérinaire de Libreville, LNVL	n/a	Laboratoire National de Santé Publique	Bacterial meningitis, Bacterial enteric diseases, Toxoplasmosis, Malaria, TB

Annex 1 : IDENTIFY Provisional List of Animal Health and Public Health Laboratories, Congo Basin Region, as of Jan 2012 (cont'd)

			Centre International de Recherche Médicale-Franceville (CIRMF) †	Dengue, Hepatitis, other viral respiratory diseases, Influenza viruses, VHF, Monkey pox, Rabies
Republic of Congo	Laboratoire de diagnostic vétérinaire de Brazzaville, LDVB	CBPP, PPR	Laboratoire National de Sante Publique, Brazzaville	Bacterial meningitis, Hepatitis, Bacterial enteric diseases, Malaria, Yellow fever, Influenza viruses, TB, Toxoplasmosis
Rwanda	National Veterinary Laboratory, RARDA, Rubirizi, Kigali †	AI, CBPP, CCPP, RVF, PPR, brucelosis	Laboratoire National de Référence et de Santé Publique, Kigali	Bacterial meningitis, Hepatitis, other viral respiratory diseases, Bacterial enteric diseases, Malaria, Influenza viruses, TB, Toxoplasmosis, Trypanosomosis
Tanzania	Central Veterinary Lab, CVL in Temeke, Dar es Salaam †	AI, BTB, FMD, CBPP, RVF, PPR, NCD, ASF, rabies, brucellosis	Muhimbili Medical Centre, Dept of Microbiology, Dar es Salaam	Bacterial meningitis, Hepatitis, Malaria, Plague, TB, Toxoplasmosis
			National Health Laboratory Quality Assurance and Training Centre	Bacterial meningitis, Dengue, Bacterial enteric diseases, other viral respiratory diseases, Influenza viruses, Rickettsiosis, Yellow fever, Anthrax, Brucellosis, VHF
			Mnazi Mmoja Hospital, Pathology Laboratory, Zanzibar	Bacteriology
Uganda	National Veterinary Lab, CVL in Entebbe	FMD, CBPP, Influenzas (H1N5, H1N1), ASF, PPR, rinderpest, rabies.	Central Public Health Lab, Kampala	Bacterial meningitis, Bacterial enteric diseases, Malaria
			Uganda Virus Research Institute, Entebbe ⅄	Dengue, Hepatitis, other viral respiratory diseases, Brucellosis, Influenza viruses, Leptospirosis, VHF, Plague, Rickettsiosis, Yellow fever, Toxoplasmosis

Annex 2 : IDENTIFY Provisional List of Animal Health and Public Health Laboratories, Southeast Asia Region, as of Jan 2012

IDENTIFY provisional list of Animal Health and Public Health laboratories: South and South East Asia Region					
Please note that this list may change over time					
NATIONAL LABORATORIES					
Region	**Country**	**Veterinary laboratories**	**Disease specialty/focus***	**Public Health laboratories**	**Disease specialty/focus**
Southeast Asia	**Cambodia**	National Veterinary Research Institute (NaVRI) †	n/a	National Institute for Public Health (NIPH)	n/a
				Takeo Provincial Laboratory	n/a
				Kampong Cham Provincial Laboratory	n/a
				Battambang Provincial Laboratory	n/a
	China	Langzhou Veterinary Research Institute	FMD	*no laboratory will be supported*	n/a
		Yunnan Tropical and Subtropical Animal Virus Disease Laboratory (also referred to as: "National Exotic Animal Disease Diagnostic Laboratory)	Bluetongue		
		China Animal Disease Control Centre, Beijing	n/a		
		China Animal Health and Epidemiology Center, Qingdao	Newcastle and Exotic Diseases		
	Indonesia **	Directorate of Livestock Animal Health Service (includes Bbalitvet, 8 National Disease Investigation Centres, National Drug Assay Laboratory, and Pusvetma)	n/a	National Institute of Health Research and Development (NIHRD), Salatiga	n/a
	Lao PDR	National Animal Health Center (also referred to as "National Avian Influenza Diagnostic Laboratory") †	n/a	National Centre for Laboratory and Epidemiology (NCLE)	n/a
	Malaysia	Veterinary Research Institute †	Avian Influenza	*no laboratory will be supported*	n/a

Annex 2 : IDENTIFY Provisional List of Animal Health and Public Health Laboratories, Southeast Asia Region, as of Jan 2012

		Department of Wildlife and National Parks Peninsular Malaysia †	Wildlife		
	Myanmar ***	Livestock Breeding and Veterinary Department	n/a	*out of the EPT country priority list*	
	Philippines	Philippine Animal Health Center	n/a	Research Institute for Tropical Medicine (RITM)	n/a
	Thailand	National Institute of Animal Health	n/a	National Institute of Health (NIH) ⅄	n/a
		FMD Regional Reference Laboratory Pakchong	FMD		
		Chulalongkorn University Center for Emerging and Re-Emerging Diseases in Animals †	n/a		
	Viet Nam **	Department of Animal Health (DAH); National Center for Veterinary Diagnosis (NCVD) and Regional Animal Health Numbre 6 (RAHO6) †	CSF and PRRS	National Institute for Hygiene and Epidemiology (NIHE)	n/a
				Pasteur Institute, Nha Trang	n/a
		Hanoi Agriculture University †	Wildlife	Tay Nguyen Institute for Hygiene and Epidemiology	n/a
		National Institute of Veterinary Research	Avian Influenza	Pasteur Institute Ho Chi Minh City (PI-HCMC)	n/a

Annex 3: Regions and countries targeted by IDENTIFY, Year 4

EPT Region	USAID Category	IDENTIFY-Targeted Country
Congo Basin 8 countries total	1	Democratic Republic of Congo
	1	Uganda
	2	Cameroon
	2	Gabon
	3	Republic of Congo
	3	Rwanda
	3	Tanzania
	4	Central African Republic
South and Southeast Asia 8 countries total	1	Indonesia
	1	Vietnam
	2	Cambodia
	2	Lao PDR
	2	Thailand
	3	China
	3	Malaysia
	4	Philippines

** Ethiopia, Kenya, and Sudan are not EPT target countries, but will participate in IDENTIFY activities and may receive some benefits from the EPT Progam by participating in regional networks.*

Annex 4: Global Laboratory Networking Strategy - August 2011 update
Emerging Pandemic Threats Program
IDENTIFY Project

INTERNAL DOCUMENT FOR IDENTIFY PARTNERS (FAO/OIE/WHO, USAID)
NOT FOR DISTRIBUTION

Background:

The IDENTIFY project is the component of the USAID-funded Emerging Pandemic Threats (EPT) programme that focuses on the capacity of laboratories in the human-health and animal-health sectors to contribute to the management of emerging zoonotic pathogens through rapid detection of known pathogens and appropriate handling of material from cases of unidentifiable diseases. The IDENTIFY project is specifically designed to strengthen diagnostic capacities in the geographic "hot spot" regions identified by USAID where new diseases have previously emerged. In addition to IDENTIFY, the EPT Program has projects called PREDICT, RESPOND, and PREVENT which cover the areas of wildlife monitoring, field epidemiology and training, behavior change communications, and national planning. IDENTIFY activities have necessary connections and interactions with the activities of several of the other components of the EPT programme.

IDENTIFY will be jointly implemented by the U.N. Food and Agriculture Organization (FAO), the World Organization for Animal Health (OIE), and the U.N. World Health Organization (WHO). These organizations have long-established networks of laboratories which are an integral part of their public-health or animal-health function. Under the framework of the IDENTIFY project, the three organizations will enhance the diagnostic capacity and improve networking of these laboratories – both geographically and across the human-health and animal-health sectors. The networks will include international reference laboratories which will support national and regional laboratories, when necessary, by performing full characterization and investigation of "unknown" agents. The ultimate aim of the five-year project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to OIE on listed animal diseases and unusual epidemiological events or emerging diseases, and investigating events of potential international public health concern and reporting to WHO as required by the International Health Regulations (IHR).

Laboratory networks, often vertical or disease-oriented in nature, exist and will be the foundation to which the IDENTIFY project will look to meet its goals. Gaps, both disease-specific and with respect to geographical coverage, exist. The IDENTIFY project intends to determine gaps and propose, in collaboration with national partners, mechanisms for capacity building to fill these gaps. National and regional ownership of capacity building and networking activities is critical. Regional parties are already active in regional networking and need to be engaged as early as possible in the planning process in order to ensure sustainability and continued collaboration within and between the animal and public health sectors.

Steps to support enhanced laboratory capacity and networking

A. Identification of priority diseases and laboratories

1. Identification of targeted normative diseases and emerging pathogens *[Note: steps A.1 and A.2 conducted concurrently]*

    a. For each hot spot region, IDENTIFY project partners will compile a list of targeted diseases among humans and animals (including wildlife) in each region for which improved rapid and accurate diagnosis is needed within the framework of national and regional priorities. This list is based on

official disease notifications, country disease data review, regional existing disease lists and priorities, literature review, input from national and regional stakeholders, previous regional occurrence, predictive modeling, and other relevant sources.

b. Once the list of targeted diseases is finalized following the stakeholders awareness meetings, IDENTIFY project partners will catalog recommended and updated testing methods, identify associated pathogens or syndromes, and identify diseases which use similar testing technology, in order to better coordinate and increase impact of project activities, specifically laboratory-based training on testing methods.

2. Identification of laboratories and networks in or providing services to the hot spot regions and countries *[Note: continuous and evolving approach for Congo Basin and SE Asia regions]*

    a. Within each of the hot spot regions, laboratory capacity of national animal and public health laboratories will be assessed using standard criteria.

        a. Results of assessments previously conducted by the three IDENTIFY partners will be summarized and will act as the basis for additional data collection. This step could include incorporating available assessments conducted by other EPT partners.

        b. Additional targeted data collection on capacity will be conducted if necessary (by self-assessment and questionnaire) by IDENTIFY partners to fill in gaps in knowledge on laboratory capacity.

    b. This information plus additional information from other EPT projects on geographic areas with the highest risk of pathogen emergence and spread, and in consultation with local stakeholders such as Ministries of Health and Agriculture, will also be considered in better targeting national laboratories for support, within the framework of national and regional priorities.

    c. National laboratories (human and animal) will be the lowest level of engagement within a country for IDENTIFY. Exceptions will be made in cases where another laboratory has been specified by national authorities, or where this relationship could be defined and/or strengthened, and could provide the capacity to fill in gaps at national or regional levels.

    d. Continuous support to regional networking will enable information and experience sharing between countries, development of trust, regional decisions on laboratory strengthening

    e. International and regional reference laboratories serving the hot spot regions, most of which are affiliated with the IDENTIFY partners' existing networks, will be incorporated to provide technical support to national laboratories in accordance with existing Terms of References or mandates if appropriate. These laboratories, along with high-capability national laboratories, can also support quality control/assurance for other national laboratories in the hot spot regions.

    f. The IDENTIFY partners will support development or adaptation of standard procedures and mechanisms, and reinforcement of linkages and communication to refer specimens (or strains) between the above-mentioned laboratories. This could include decision trees and algorithms for referring specimens associated with human or animal outbreaks for which all tests for known pathogens are negative to high capability

laboratories and the referral of unusual or unidentified pathogens to reference laboratories.

*Deliverables and outcomes **A**:*

1. A list of the national laboratories to be strengthened by the IDENTIFY project for each of the hot spot regions. [*Note: the process will start with the Congo and Southeast Asia regions in 2010 and expand to the Amazon and South Asia regions in 2011. **NB**: Following a request from USAID, activities in the Amazon and South Asia are currently on hold*]
    - Where possible, information could be provided on human and animal laboratories that hold key positions across existing networks, by disease specialty/focus (if any) and roles/responsibilities as defined by their respective networks.
2. A list of targeted animal and human diseases for which the project will strengthen the national laboratories' ability to provide accurate and timely diagnosis within the framework of national priorities.

Note: A.1 and A.2 are developed from regional stakeholders' inputs, and therefore reflect their endorsement.

*Monitoring and evaluation indicator **A**:*

1. Cumulative number of hot spot regions for which IDENTIFY, with the agreement of relevant national authorities, has defined the laboratories and list of diseases targeted [2009 baseline = 0; end of CY2010 target = 2; end of CY2011 target = 4]. ***NB**: Following a request from USAID, activities in the Amazon and South Asia are currently on hold.*

B. Strengthening of national laboratories in regional networks

1. For the laboratories identified (step A.2.b above), more detailed assessments may be conducted to fill information gaps and to identify specific needs (step A.1.a above) - which could include training, supplies for shipping, equipment, reagents, etc. - that are needed to ensure that overall laboratory functioning, accuracy, and timeliness is improved according to the national laboratory's priorities with the ultimate goal of improving disease reporting to the proper national authorities.
2. Within the framework of national priorities and following laboratory assessments (see B.1), partners will provide strengthening support, such as training, protocols and documentation, quality assurance systems, proficiency testing, networking opportunities, equipment, reagents, supplies, etc. for national laboratories.
    a. Development/adaptation and provision of protocols and/or in-service training for laboratory staff related to testing, sample handling, laboratory biosafety, reporting, quality control, sample shipping, etc. Follow-up training may be required at certain intervals.
    b. Procurement and delivery of equipment, reagents, supplies, etc. For sustainability reasons, it would be ideal for national authorities to include equipment and commodities costs in their budgets or to phase in coverage of the costs so the country is fully supporting recurrent costs for commodities and maintenance of equipment. At the stakeholders meetings, participants expressed their desire to develop a strategy for ensuring sustainability (see B.4 below).

    Note: These steps will be coordinated with national, regional, and global partners to ensure that this support is not already being provided by others.
3. In collaboration with national authorities, the development of a sustainability plan by country will be facilitated to assist the identification of sources of funding,

including reinforced budget lines for national laboratories, to ensure optimal use of resources.

*Deliverables and outcomes **B***:

1. Assistance provided for the development of cross-sectoral laboratory strengthening plans in each hot spot region based upon country and regional priorities.
2. Laboratory twinning projects between regional and international reference laboratories and national laboratories proposed to address gaps in diagnostic capacity and to achieve national priorities.
3. Support provided for the development of sustainability plans for targeted national laboratories. At the stakeholders meetings, participants expressed desire to develop a strategy for ensuring sustainability (see B.4 above).
4. A list of conducted and planned activities intended to strengthen national and regional laboratories by hot spot region (to be provided within the framework of the semi-annual report).
5. Summary report on laboratory strengthening achievements by hot spot region based upon monitoring and evaluation process (to be provided within the framework of the semi-annual report).

*Monitoring and evaluation indicators **B***:

1. Evaluation of countries by region where targeted national laboratories, have received capacity building. Each measurement is by category and country and adjusted by the year in which the region entered the project. [baseline and targets: TBD]

   1.1 Protocols for laboratory practices and targeted diseases

   1.2 Training for targeted disease diagnosis

   1.3 Training on laboratory practices (e.g., biosecurity, equipment calibration, etc.)

   1.4 Focused capacity building (e.g., twinning, quality assurance programme)

   1.5 Laboratory procurement (e.g., equipment, reagents, etc.)

   Non-expendable:

   - Biosafety/Biosecurity equipment/service
   - Quality Assurance equipment
   - Diagnostic, pathology, or other related equipment
   - Other (documents, manuals, books, database access)

   Expendable:

   - Reagent supply
   - Shipment supply
2. Number of participants to global/regional conferences, trainings or workshops organized on laboratory activities
3. Indicator for timeliness of diagnosis:
   a. Comparison of historic OIE, FAO and WHO disease reporting data with current data for sentinel diseases, to be determined by region. [baseline and targets: TBD]
   b. Where possible, for two proxy diseases (1 viral, 1 bacterial), participating countries will be asked for timeliness data, which could include comparing date of sample submission to date of results. [baseline and targets: TBD]
4. Cumulative amount of laboratory supplies procured by region [targets TBD following assessments]:

Non-expendable:

- Biosafety/Biosecurity equipment/service
- Quality Assurance equipment
- Diagnostic, pathology, or other related equipment
- Other (documents, manuals, books, database access)

Expendable:

- Reagent supply
- Shipment supply

5. Sample throughput data for 2 proxy targeted diseases (1 viral, 1 bacterial) from countries supported by the IDENTIFY project. [baseline and targets: TBD]
6. Number of outbreak investigations during which laboratory people have been involved by country/region. [2009 baseline = TBD; end of project target = 100%]
7. Number of scientific publications as a result of collaborative work

C. <u>Establishing/strengthening linkages among existing regional and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities.</u>

1. Within each hot spot region, the mapping exercise will include the inventory of activities of existing geographical/specialized laboratory networks that already contribute to meeting IDENTIFY's goals.
2. Discussions with the key global specialized networks (e.g. OFFLU, GFN, EDPLN) will occur for the strengthening of linkages and increased collaboration between national laboratories and regional networks.
3. IDENTIFY will advocate for new and enhanced linkages between laboratory networks and epidemiological networks both within the animal and human health sectors, and across sectors.
4. For the laboratories in each hot spot region, collaborations and communication pathways will be strengthened in order to share samples, data, reports, etc. with disease control authorities. Development of mutual trust and interest within regional networks will be promoted.

*<u>Deliverables and outcomes **C**</u>*:

1. Facilitation of access to regional collaboration/communication platforms (e.g. membership to specific networks, online platforms) for each hot spot region [*Note: the process will start with the Congo and Southeast Asia regions in 2010 and expand to the Amazon and South Asia regions on/about 2011. **NB**: Following a request from USAID, activities in the Amazon and South Asia are currently on hold.*]
2. A list of conducted and planned activities including collaboration/ communication pathways (to be provided within the framework of the semi-annual report).
3. Assistance provided to develop or strengthen networking pathways and tools within each hot spot region and with global specialized networks (e.g. OFFLU, GFN, EDPLN).

*<u>Monitoring and evaluation indicators **C**</u>*:

1. Proportion of laboratories by region and sector (e.g. animal vs public health) that have received communications and networking support, adjusted by the year in which the region entered the project. [2009 baseline = TBD following assessments; end of CY2010 target =10%; end of CY2011 target = 40%; end of CY2012 target = 70%; end of CY2013 target = 80%; end of CY2014 target = 100%]

2. User statistics and distribution lists demonstrating country participation for existing regional platforms by region and sector [baseline and targets: TBD].
3. Proportion of laboratories by region that maintain or have established new focal points for international/global networks by region and sector. [baseline and targets: TBD by assessments]
4. Number and type of specimens/strains for proxy targeted diseases from each hot spot submitted to FAO, OIE, and WHO affiliated referral laboratories by year. [baseline and targets: TBD]

Annex 5: USAID EPT/IDENTIFY Project Position on Providing Laboratory Equipment and Supplies

The IDENTIFY project seeks to strengthen national laboratory capacity for rapid and accurate detection of known key pathogens and appropriate handling of material from cases of disease with no identified cause. FAO/OIE/WHO are jointly implementing the IDENTIFY project through their existing institutional frameworks, mechanisms and networks. These project efforts by IDENTIFY are often implemented alongside a variety of host governments', donors' and international organizations' laboratory capacity building efforts and investments, and coordinating and rationalizing IDENTIFY's efforts among these other efforts needs to be done in a transparent manner.

The IDENTIFY project aims to provide sustainable inputs into: 1) the development of guidance and policy for national laboratories; 2) promoting laboratory quality (e.g. biosafety/biosecurity, quality assurance, accurate diagnosis, and specimen collection, handling and shipping); 3) strengthening laboratory capacity in support of surveillance and response; and 4) enhanced laboratory networking.

Given the EPT program's focused mission and limited funds, the IDENTIFY project doesn't intend to routinely provide or pay for partner laboratories' recurring material costs. On a case-by-case basis, where the absence of particular pieces of laboratory equipment or reagents are seriously limiting the laboratory's ability to perform normative disease testing, or where specific laboratory investments may improve a laboratory's ability to serve as a national and/or regional resource for normative disease testing, and where there is reasonable expectation that the government involved will sustain the efforts of the laboratory(ies) in question, then in these instances IDENTIFY will consider financing these needs, and then only in full cooperation with the relevant national authorities and in consultation with other EPT Partners.

While all three organizations recognize the need to engage regional parties in order to ensure sustainability and continued collaboration within and between the animal and public health sectors, the three organizations operate under separate mandates and the approach to achieving their goals sometimes differs. For example, provision of laboratory equipment and consumables in support of points 2 and 3 above is considered by all three organizations based upon need and in line with the national authority, with the following distinctions:

- For FAO, a regional approach is followed where a programmatic strategy exists in order to provide consumables such as reference reagents to countries equally, and national inputs are coordinated where need is identified and in agreement with the Ministry of Agriculture.
- While the OIE may provide laboratory equipment and supplies on a limited basis within the context of the OIE Twinning Programme, the OIE is not planning wide-spread procurement of equipment or supplies under the IDENTIFY Project.
- For WHO, both a regional and national approach is followed under existing regional platforms such as the Asia Pacific Strategy for Emerging Diseases (APSED), the Asia Pacific Strategy for Strengthening Health Laboratory Services and the Integrated Disease Surveillance and Response (IDSR) Strategy. Unlike FAO and OIE, WHO allocates funds under IDENTIFY directly to some of its Country Offices. These funds may be used to procure equipment and laboratory supplies following the agreement of the Ministry of Health of those countries.

Practically, should a USAID Mission or EPT partner in a given country wish to inquire about current or planned support for laboratory equipment or supplies through the IDENTIFY project, if the IDENTIFY Project has local representatives from WHO and FAO in that country/region, they may approach

those people to convey their request or suggestion. For inquiries regarding public health laboratories, the WHO representative may be contacted. Inquiries pertaining to support for animal health laboratories should be addressed to the FAO representative. Alternatively, if local or regional representatives are not available, USAID Mission and EPT partners may convey have queries to IDENTIFY's headquarters' representatives, or to the USAID Washington AOTR. Requests or suggestions for provision of laboratory equipment can be best considered by the IDENTIFY Project if they are submitted early, when upcoming yearly work plans are being developed.

When the IDENTIFY Project has queries related to planned support for laboratory equipment or supplies coming from USAID Missions or EPT partners, these will be directed to the USAID/Washington AOTR, or the EPT Partner headquarters counterparts, who will attempt to collect and share any details on such provisions that would be of help to IDENTIFY, and its own laboratory strengthening efforts.

Should there be an extraordinary need, for example a disease outbreak that has exhausted local supplies, a country may request additional support from the IDENTIFY Project for their laboratory services. FAO, OIE and WHO, as IDENTIFY partners and also in keeping with their respective organizations' mandates, will attempt to meet such requests. The three organizations would coordinate their response with the other EPT partners under the leadership of the relevant national authorities as appropriate.

Annex 6 : Regional Strategic Framework for Laboratory Capacity Building and Networking in Southeast Asia

I. Background

The economic and public health implications of Highly Pathogenic Avian Influenza (HPAI) and other Highly Pathogenic Emerging Diseases (HPED) are the threats to the national prosperity of the Member States and the regional development of the Association of Southeast Asian Nations (ASEAN). Since 2003, HPAI outbreaks caused considerable losses of production, and loss of livelihoods of vulnerable people. In addition, recent emergence and re-emergence of the potential transboundary animal diseases (TADs), including Highly Pathogenic Porcine Reproductive and Respiratory Syndrome (HP-PRRS), New Castle disease (NDV) and Foot and Mouth Disease (FMD) in ASEAN countries have posed serious economic loss, a significant threat on human food security and trade barrier to the affected countries.

The continuing outbreaks that began in late 2003 and early 2004 have been disastrous for the poultry industry in the region; by mid-2005, more than 140 million birds had died or been destroyed and losses to the poultry industry are estimated to be in excess of US$10 billion (World Bank, 2009). Although concerted international action has successfully eliminated the deadly H5N1 virus from poultry in almost all the 63 countries infected at the peak of the global outbreaks, the virus still persists in the SEA regions, with evidence of transboundary transmission among the affected neighboring countries. At least five countries, namely Bangladesh, China, Egypt, Indonesia, and Vietnam, have been identified as HPAI endemic countries with high disease incidence in both humans and animals. Two out of these five HPAI endemic countries, Vietnam and Indonesia, are in Southeast Asian regions. In addition, there are clear evidences that the virus has continuously evolved, resulting in substantial phenotypic diversification and expansion of host ranges. This has raised serious public health concerns at the region and global levels. The obtained research information highlights the need of continuous monitoring of the biological and epidemiological natures of the HPAI viruses in the affected region. Establishment and continued support on the regional laboratory network is essential for the effective surveillance, and control program against HPAI in the region.

Apart from HPAI, pathogens circulating in domestic animals and wildlife population also pose a threat to both animal and public health sectors. Intensified livestock production system, urbanization and the continuous changes of the eco system allows the closer interface of livestock, wild life and human which could enhance the possibility of disease emergence and spread to the domestic animal and human populations. The majority (>70%) of the newly emerged infectious diseases originate in animals including severe acute respiratory syndrome (SARS), Ebola, Nipah, etcetera. More importantly, most of the recently emerged diseases occurred within Asia. Laboratory capacity of the Member States is crucial for surveillance and monitoring efforts which could initiate the rapid response to contain the disease before it spreads. Sharing of quality laboratory results generated by laboratories of Member States is another concern when interpretation of the results is required for

disease control at the regional basis. Sharing of expertise among the laboratories of the Member States would enhance the resource mobilization within the region through the collaborative efforts. Therefore, the regional laboratory network can serve as a key mechanism to orchestrate the above mentioned efforts to combating against the upcoming EIDs in the region.

II. **Vision** – ASEAN is capable of detecting and responding in a timely manner to animal and zoonotic diseases with high impact on food security and public health safety through multi- sectoral cooperation and partnerships.

III. **Purpose** – The Regional Strategic Framework for Laboratory Capacity Building and Networking (hereinafter referred to as "the Framework") is proposed to promote sustainable development of diagnostic capacities, quality of laboratory services, and sharing of information and expertise among the veterinary diagnostic laboratories of the ASEAN Member States.

IV. **Scope and Linkages** – The Framework is action-oriented, included medium term activities but long-term strategy. The Framework aims to harmonize efforts across the Member States to promote the efficient and sustainable animal health laboratory services. The Framework will focus on the national veterinary diagnostic laboratories with the aims to build and/or enhance the laboratory capacity for detecting and responding to HPAI and other potential HPED in the region, promote laboratory quality system, and networking among the laboratories within the region. It is also to streamline regional and global initiatives, such as the OIE/FAO Network of Expertise on Animal Influenza (OFFLU), the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TAD), and the One Health approach

The Framework is linked with the strategic goals envisaged under the Roadmap for an HPAI-Free ASEAN Community by 2020. It also provides a strategic approach to converge efforts to strengthen laboratories into the prevailing, ongoing ASEAN's initiative in a broader context to establish a functional mechanism to coordinate undertakings on animal health and zoonosis.

The Framework is complementary with the Master Plan for ASEAN Connectivity to enhance integration and cooperation of ASEAN, global competitiveness of ASEAN through stronger production networks, and the well-being and livelihood of ASEAN peoples. The Strategic Goals set forth therein are also aligned with the ASEAN Economic Community (AEC) Blueprint that ratifies deepened and broadened economic integration by 2015. Through multi-sectoral dimension of the Framework, and its contribution to safeguard animal and human health, the Framework is also cohesive with the ASEAN Socio-Cultural Community (ASCC) Blueprint that is aspired to lift the quality of life of its peoples by building a strong foundation for greater understanding, good neighbourliness, and a shared sense of responsibility.

V. **Strategic Goals** – There are 6 key strategic goals in this strategic framework as followed;

Goal 1: Development of regionally-coherent, national laboratory strategies and policies

Goal 2: Allocation and mobilisation of resources to support implementation of national strategies for efficient and cost-effective delivery of laboratory services
Goal 3: Strengthening of ASEAN Member States capacity to provide acceptable quality and proficient laboratory services
Goal 4: Enhancement and promotion of acceptable biosafety and biosecurity practices and environment in laboratory settings
Goal 5: Enhancement and promotion of linkages and sharing of information among laboratories and stakeholders to ensure rational use of laboratory services
Goal 6: Strengthening of ASEAN Member States capacity on planning, coordinating, and implementing research activities under standard ethical research conducts

Goal 1: Development of regionally-coherent, national strategies and policies to support effective and sustainable laboratory services

Objective 1: To develop national strategies and policies for animal health laboratory services
Objective 2: To promote regional and national regulatory mechanisms and/or certification process on good laboratory services and practices
Objective 3: To align animal health laboratory policies and governances at national level with that of regional level through the regional laboratory network
Objective 4: To strengthen regional mechanisms to coordinate laboratory policies and activities

Goal 2: Allocation and mobilisation of resources to support implementation of national strategies for efficient and cost-effective delivery of laboratory services

Objective 1: To advocate for and support development of national human and financial resource management plans
Objective 2: To assess needs and gaps for the implementation of national strategies and maintenance of laboratory services considering the use of existing tools such as OIE Performance of Veterinary Services (PVS) Pathway

Goal 3: Strengthening of ASEAN Member States capacity to provide acceptable quality and proficient laboratory services

Objective 1: To strengthen laboratory capacities of ASEAN Member States to diagnose and confirm infections of animal and zoonotic diseases
Objective 2: To develop and promote the implementation of regional guidelines and protocols for diagnosis of animal and zoonotic diseases
Objective 3: To strengthen proficiency of laboratory services of ASEAN Member States through engagement in the regional and national proficiency testing programs

Goal 4: Enhancement and promotion of acceptable biosafety and biosecurity practices and environment in laboratory settings

Objective 1: To develop and implement operating procedures on laboratory biosafety and biosecurity management, including occupational health and safety programs, and biological waste management
Objective 2: To strengthen functional and physical capacities of laboratories to implement the biosecurity and biosecurity guidelines

Goal 5: Enhancement and promotion of linkages and sharing of information among laboratories and stakeholders to ensure rational use of laboratory services

Objective 1: To strengthen capacities of laboratories to efficiently manage relevant information
Objective 2: To enable laboratories within ASEAN Member States to appropriately share information among laboratory networks and other stakeholders at national, regional and global level
Objective 3: To promote sharing of expertise, resources, and trainings among laboratories within ASEAN Member States

Goal 6: Strengthening of ASEAN Member States capacity on planning, coordinating, and implementing research activities under standard ethical research conducts

Objective 1: To strengthen capacity of laboratory personnel in research methodology and ethical research conduct
Objective 2: To enable engagement and promote proper recognition of laboratory personnel of ASEAN Member States in research studies and scientific meetings/conferences and publications

VI. Cross cutting strategies –

The regional competency in providing a quality laboratory services require multi-agency and multi-sectoral cooperation among the ASEAN Member States, international organizations and donor agencies. The multi-sectoral collaboration is expected to be further strengthened by the regional coordination mechanism on animal and human health laboratory networks. Joint development and implementation of regional laboratory diagnostic protocol, sharing of research/laboratory expertise, collaborative research and development are among the potential implementation activities. Through this coordination, benefit from activities related to the laboratory issues and networking can be shared among the network members in a technically and financially efficient manner.

VII. Implementation arrangements –

The proposed activities within the framework can be facilitated through several mechanisms at national, regional, or international levels. In a short-term, the implementation of the Framework will be coordinated by the ASEAN Secretariat, with assistance from the ASEAN Regional Support Unit, in close consultation with Regional Laboratory Advisory Group. There are existing dialogue partners including WHO, FAO, OIE, and regional reference/leading laboratories which can provide technical guidance, and inputs, and financial contributions along the implementation process, with financial inputs currently available from several regional and national projects and programs, such as EU-HPED, USAID-EPT program.

In a mid- and long-term, the Member States which implement national laboratory capacity building programs will assume responsibilities in ensuring successful execution of the Framework.

Annex 7: IDENTIFY Project M&E Framework

DRAFT

EPT/IDENTIFY Project Indicators
Version 4, 29 February 2012

EPT 5-Year Over-Arching Mission

Minimize the risk of potential pandemic disease threats

EPT 5-Year Objectives for the IDENTIFY project

1. Enhance Laboratories'[18] ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases[19]
2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations
3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System
4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

IDENTIFY Project End-of Project Targets and Indicators[20] for Annual (Fiscal Year) Reporting

Objective #1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

> **End-of Project Target for Objective #1:** The IDENTIFY-supported laboratories in EPT countries have improved their ability to detect – to the appropriate level of characterization for the laboratory's capability- the IDENTIFY targeted diseases in their respective regions

[18] See Annex 1 for complete list of animal and public health laboratories in the IDENTIFY countries.
[19] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases and data will not be reported for diseases in those cases.
[20] In order to remain flexible to the evolution of the IDENTIFY project and the national situation of each IDENTIFY country, IDENTIFY partners keep open the possibility to review indicators and make necessary modifications. IDENTIFY partners will collect data from the effective start date of each activity implemented of the IDENTIFY project to determine baseline figures. While we have aligned the indicators across organizations in each objectives table below, additional linkages between indicators and between IDENTIFY objectives is frequent. We encourage examining the IDENTIFY framework as a whole with each objective and indicator demonstrating one piece of the overall capability of a laboratory or country that, without the other pieces, has little meaning.

DESCRIPTION OF IDENTIFY OBJECTIVE #1 INDICATORS[21]

IDENTIFY project indicators - Objective 1			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators[22]**
		Proportion of national outbreaks and/or events confirmed by laboratory diagnoses nationally and internationally each year	6
	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided		6
Ability of each lab to diagnose noted priority diseases*	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	Source of the laboratory's method to test targeted diseases	6
		Source of reagents and controls used to test for targeted diseases	6
		Level of training provided to staff who perform diagnostic tests	6
	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	Access to testing outside the country for targeted diseases for which diagnosis is not available in-country	6
	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health laboratories	Availability of advanced characterization of targeted pathogens, where appropriate, in-country or internationally	6
Number of staff trained by topic, professional category and type of training/meeting/conference	Number of people trained by topic in laboratory practices	Number of people trained in field epidemiology, epidemiology, lab techniques, lab management, biosafety and biosecurity, sample management (infectious sample shipment, etc.), logistics, IT (LIMS), etc.	1
	Number of laboratories that have developed a National Animal Health Laboratory Strategic Plan		6
Value of equipments/supplies provided to supported laboratories	Value of commodities provided (USD)	Total sum (in USD) spent on laboratory supplies, reagents and equipment from IDENTIFY funds	13[23]
Percentage of lab requested equipment/supplies provided by FAO/IDENTIFY			

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Objective #2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

[21] Under each IDENTIFY Objective, the FAO, OIE, and WHO indicators are listed, as well as each indicator's alignment with the EPT Indicators. In addition, when the partners' indicators are interrelated, they are aligned for ease and demonstrate their complementarity in capturing all facets of each objective. When joint activities are held, they will be counted separately and only once in the joint category (FAO/OIE, OIE/WHO, FAO/WHO, FAO/OIE/WHO) (reporting table to be developed after first data call).

[22] See Annex 2 for full descriptions of the EPT Program Indicators applicable to the IDENTIFY project.

[23] While some quality assurance-related commodities (under IDENTIFY Objective 3) may be purchased, IDENTIFY partners include the reporting data for EPT Indicator 13 "Value of PIOET commodities provided to PIOET programs" only under IDENTIFY Objective 1 for simplicity.

End of Project Target for Objective 2: The IDENTIFY-supported laboratories in EPT countries report laboratory results of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate international animal and human health organizations

DESCRIPTION OF IDENTIFY OBJECTIVE #2 INDICATORS

IDENTIFY project indicators - Objective 2			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
	Number of days between start of an exceptional event and first laboratory test	Time from start of a suspected HPAI outbreak to laboratory confirmation in IDENTIFY countries	12
	Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	Percentage of specimens tested for targeted diseases within the "acceptable"/"reasonable" time period	12
Reporting of proxy disease (e.g. AI in endemic countries) to relevant national authority	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country		6
	Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided		6
	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	Percentage of priority disease detections notified within the "specified"/"reasonable" time period	12
	Percentage of immediate notifications for which the submission time is shorter than 2 days		12

Objective #3: Laboratories have adopted or improved Quality Assurance (QA) practices, including of biosafety and biosecurity measures, and a comprehensive Quality Management System

End of Project Target for Objective 3: The IDENTIFY-supported laboratories in EPT countries have adopted/improved and implemented appropriate QA practices, including biosafety and biosecurity practices

DESCRIPTION OF IDENTIFY OBJECTIVE #3 INDICATORS

IDENTIFY project indicators - Objective 3			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Ability of each laboratory to implement critical elements of a laboratory quality management system by NPD *	Number of laboratories with a Quality Manager in place		6
	Number of procedures described under the Quality Management System by laboratory in line with OIE International Standards		6
	Number of diagnostic tests by laboratory in-line with OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals		6
	Number of proficiency testing rounds performed adequately in regional external quality assurance schemes	EQA results for those covering targeted diseases	6
	Number of diagnostic tests performed using both positive and negative controls		6
	Number of OIE Standards and guidance provided		6
Ability of each lab to safely handle X of XX NPDs in a biosecure environment*	Number of staff trained in OH&S	Training provided to staff on the topic of biosafety	1
		Availability and use of PPE appropriate for the activities carried out in the laboratory	6
	Number of OH&S risk assessments undertaken by procedure and department	Conduction of biorisk assessment	6
		Calibration and maintenance of major pieces of equipment used to detect targeted diseases according to the manufacturer's recommendations	6
		Availability and appropriate use of biosafety cabinets and other safety equipment	6
		Certification and maintenance of biosafety cabinets to international standards	6
		Management of laboratory waste disposal according to international recommendations	6
		Control of access to the laboratory and stored infectious material	6
		Maintenance of inventory of stored infectious material	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Objective #4: Laboratories are participating in the relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

End of Project Target for Objective 4: The IDENTIFY-supported laboratories in EPT countries are participating in relevant regional and international laboratory networks as according to their abilities, disease priorities, and responsibilities. In many laboratories' cases, this may involve participation in multiple networks

DESCRIPTION OF IDENTIFY OBJECTIVE #4 INDICATORS

IDENTIFY project indicators - Objective 4			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Level of laboratory engagement in regional and international networks (low, medium, high)*		Membership of regional or international networks related to targeted diseases	6
	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	Participation of the laboratory in specimen sharing and other technical activities organized by networks	6
	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days		6
	Number of focused capacity building opportunities supported		1
Number of meetings & conferences held on laboratory themes	Number of meetings & conferences held on laboratory themes	Attendance of appropriate laboratory staff to relevant meetings of regional and international networks related to targeted diseases	1
Number of participants to meetings & conferences held on laboratory themes	Number of participants to meetings & conferences held on laboratory themes		1
	Number of countries that have nominated OIE National Focal Points for Laboratories		1
Level of information sharing (low, medium, high) *	Number of samples sent to OIE Reference Laboratories for diagnostic or confirmation support		6
	Number of reagents received from OIE Reference Laboratories		6
Level of communication with other laboratories (low, medium, high) *		Communication with other laboratories in network/s and seek and/or provide advice to network members	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Measuring and reporting progress achieved by the IDENTIFY-supported Laboratories

Project partners will measure and report yearly each animal and human health laboratory's capability according to the IDENTIFY objectives and end of project targets. Three to five levels of capability, from least to most advanced (e.g. Low, Medium, and High capability), for each of the objectives, are presented for each laboratory (or country) in template form in the table below. Results on animal and public health laboratories' capability will be presented separately in two tables, and results will also be presented separately region by region.

IDENTIFY Countries'/Laboratories' capability for Animal Health

IDENTIFY Laboratories (or Countries)	IDENTIFY Objective 1	IDENTIFY Objective 2	IDENTIFY Objective 3	IDENTIFY Objective 4
LAB A	Low	Medium	Low	High
LAB B	…			
etc.				
Total by Objective				

IDENTIFY Countries'/Laboratories' capability for Public Health

IDENTIFY Laboratories (or Countries)	IDENTIFY Objective 1	IDENTIFY Objective 2	IDENTIFY Objective 3	IDENTIFY Objective 4
LAB A	Low	Medium		
LAB B				
etc.				
Total by Objective				

This system was devised in order to allow for the strengths and gaps of each laboratory to emerge in the measurement of indicators for the IDENTIFY Project. For example, a laboratory may carry out only basic diagnostic tests, but carry out those tests under a quality assurance system, in a timely and sustainable manner, and with accurate results. In such a case, it may be best that the laboratory continues on this path in order to maintain consistency in laboratory diagnosis at their present level, rather than expand to more advanced methods too rapidly, potentially compromising the timeliness, accuracy, and consistency of test results. The goal is not to fund an advanced laboratory on unsustainable resources in each country, but rather foster a sustainable regional network composed of laboratories of varying capability and resources to consistently conduct all tests under a quality system, in a timely manner, with accurate results, and in a sustainable manner.

Yearly assessment[24] of each laboratory would be done to assess their capability using all available data collection modalities. WHO will determine the level for each laboratory/country based on the IDENTIFY project data collection tool. FAO and OIE will collaborate to determine the level of each laboratory by objective, respectively using the FAO Laboratory Progress Monitoring Tool and OIE WAHIS data.

This method establishes a means to:

a) Quickly, objectively, and consistently categorize a laboratory's capability
b) Assess changes in laboratories' capability by the end of the project

[24] Resulting from a specific assessment and/or extraction of data from existing sources.

c) Compare progress by laboratory (or by country) and by region over time
d) Administer the assessment process consistently, in different locations and by different individuals
e) Provide feedback to each laboratory on the assessments conducted (i.e. critical feedback loop)

Laboratories' names will be removed at all points in the reporting process providing anonymity, as the objectives of this process are not to compare one laboratory to another, but rather to measure the progress of each laboratory over time. Results can be clustered by region to provide a good sense of change over time of the region as a whole.

Number of Countries/Laboratories Targeted for IDENTIFY Assistance, by Region and type (Animal & Human)

Animal Health (see Annex 1 for detailed list)

IDENTIFY Region	Total Number of Countries	Total Number of Laboratories
Congo Basin/Africa	14	14
Southeast Asia	8	20
South Asia	3	4
Global	**25**	**38**

Public Health (see Annex 1 for detailed list)

IDENTIFY Region	Total Number of Countries	Total Number of Laboratories
Congo Basin/Africa	9	16
Southeast Asia	6	12
South Asia	2	2
Global	**17**	**30**

Annex 1: IDENTIFY Partner Countries and Laboratories, by Type and by Region

Veterinary Laboratories in the Congo Basin Region

Cameroon	Laboratoire National Vétérinaire, Garoua, LANAVET
Central African Rep.	Laboratoire Central Vétérinaire de Bangui, LACEVET
Dem. Rep. of Congo	Laboratoire Vétérinaire de Kinshasa, LCVK
Equatorial Guinea	Laboratoire National ECAA-KM 7
Gabon	Laboratoire National Vétérinaire de Libreville, LNVL
Republic of Congo	Laboratoire de diagnostic vétérinaire de Brazzaville, LDVB
Rwanda	National Veterinary Laboratory, RARDA, Rubirizi, Kigali
South Sudan	Central Veterinary Laboratory, Juba, CVL
Tanzania	Central Veterinary Laboratory, CVL, Temeke, Dar es Salaam
Uganda Entebbe	National Animal Disease Diagnostics and Epidemiology Centre – NADDEC

Laboratories providing Regional Support Services:

Botswana	Botswana National Veterinary Laboratory, BNVL, Gaborone
Ethiopia	National Animal Health Diagnostic Investigation Centre, NAHDIC
Nigeria	National Veterinary Research Institute, NVRI, Vom
Senegal	Laboratoire National de l'Elevage et de Recherches Vétérinaire, LNEVR, Dakar

Veterinary Laboratories in the Southeast and South Asia Regions

Cambodia	National Veterinary Research Institute
China	Langzhou Veterinary Research Institute
	Yunnan Animal Science and Veterinary Institute
	China Animal Disease Control Centre, Beijing
	China Animal Health and Epidemiology Center, Qingdao
Indonesia	Directorate of Livestock Animal Health Service
Lao PDR	National Animal Health Center
Malaysia	Veterinary Research Institute
	Department of Wildlife and National Parks Peninsular Malaysia
Myanmar	Livestock Breeding and Veterinary Department[25]
Philippines	Philippine Animal Health Center
Thailand	National Institute of Animal Health
	FMD Regional Reference Laboratory Pakchong
	Chulalongkorn University Center for Emerging and Re-Emerging Diseases in Animals
Viet Nam	Regional Animal Health Office Number 6
	Hanoi Agriculture University
	National Center for Veterinary Diagnosis
Bangladesh	Central Disease Investigation Laboratory
	Bangladesh Livestock Research Institute
Nepal	Central Veterinary Laboratory

Laboratories providing Regional Support Services:

India	High Security Animal Disease Laboratory

Public Health Laboratories in the Congo Basin Region

[25] Included in the regional laboratory network, but participation to regional events is not funded by IDENTIFY in Year 3 and therefore Myanmar is not included in the total number of countries or laboratories.

Cameroon	National Public health laboratory Hygiene Mobile
	Centre Pasteur, Yaoundé Bacteriology, Cameroon virology
	Laboratoire de bactériologie du CHU de Yaoundé
Central African Rep.	Bacteriology Laboratoire National de Santé Publique, Bangui
	Institute Pasteur Bangui
Dem. Rep. of Congo	Institut National de Recherche Biomédicale (INRB), Kinshasa
Equatorial Guinea	Laboratorio de Microbiologia de Hopital Regional de Malabo
Gabon	Laboratoire National de Santé Publique, Libreville, Gabon
	Centre International de Recherche Médicale-Franceville (CIRMF)
Rep. of Congo	Laboratoire National de Sante Publique, Brazzaville
Rwanda	Laboratoire National de Référence et de Santé Publique, Kigali
Tanzania	Muhimbili Medical Centre, Dept of Microbiology, Dar es Salaam
	Mnazi Mmoja Hospital, Pathology Laboratory, Zanzibar
	National Health Laboratory Quality Assurance and Training Centre
Uganda	Central Public Health Laboratory, Kampala
	Uganda Virus Research Institute, Entebbe

Public Health Laboratories in the Southeast and South Asia Regions

Cambodia	National Institute for Public Health (NIPH)
	Takeo Provincial Laboratory
	Kampong Cham Provincial Laboratory
	Battambang Provincial Laboratory
Lao PDR	National Centre for Laboratory and Epidemiology (NCLE)
Philippines	Research Institute, for Tropical Medicine (RITM)
Vietnam	National Institute, for Hygiene and Epidemiology (NIHE)
	Pasteur Institute, Ho Chi Minh City (PI-HCMC)
	Paster Institute, Nha Trang
	Tay Nguyen Institute for Hygiene and Epidemiology
Thailand	National Institute of Health (NIH)
Indonesia	National Institute of Health Research and Development (NIHRD), Salatiga
Nepal	National Public Health Laboratory (NPHL)
Bangladesh	International Centre for Diarrhoeal Diseases Research, Bangladesh

Annex 2: EPT Indicators applicable to the IDENTIFY project

Sub-Element: Planning and Preparedness for Outbreak Response	
Indicator 1	**Number of people trained in those competencies necessary to address Public Health Emergencies of International Concern (PHEIC).**
Definition	This indicator contributes to the International Health Regulation (IHR) minimum target of one trained field epidemiologist for every 200,000 people in a population and a to-be-determined ratio for veterinarian epidemiologists. Other training required to establish the capacity to respond to PHEIC will be included in this indicator including laboratory skills, logistics etc.
New or Existing Indicator?	Modified existing indicator for the International Health Regulation (IHR) working group/Emerging Pandemic Threats Sub-Interagency Policy Committee
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Planning and Preparedness for Outbreak response
Linkage to Long-Term Outcome or Impact	The number of people trained should increase over time.
Indicator Type	Output
Unit of Measure	Number
Use of Indicator	To document the number of people trained in the skills required to respond to a PHEIC
Data Source and Reporting Frequency	**Data Sources:** USG, WHO, FAO,OIE **Reporting Frequency:** Annual
Known Data Limitations	This indicator is specific to EPT and does not reflect all of the work CDC is doing for FETP and FETP-V
Baseline Timeframe	October 2009

Sub-Element: Animal and Human Disease Surveillance	
Indicator 6	**Number of PIOET targeted countries that have access to the capacity to reliably* conduct core diagnostic tests for priority** animal and priority human diseases.**
Definition	Access to an efficient and effective laboratory system enables accurate and timely surveillance and response capabilities. This indicator represents only a single outcome. The core diagnostic tests are determined by WHO, IHR, FAO, and OIE and pathogens that are of specific priority to the region/country.
New or Existing Indicator?	New and existing indicator for the International Health Regulation (IHR) working group/Emerging Pandemic Threats Sub-Interagency Policy Committee. A parallel effort with FAO and OIE is ongoing to determine comparable priority for animal diseases.
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Animal and Human Disease Surveillance
Linkage to Long-Term Outcome or Impact	The number of countries should increase over time
Indicator Type	Outcome
Unit of Measure	Number
Use of Indicator	These data would monitor the ability of the country's own laboratories or the use of reference laboratories to which the country sends specimens to confirm and characterize these core pathogens and identify areas of focus for improvement.
Data Source and Reporting Frequency	**Data Sources:** USG reports (USAID, CDC), WHO, FAO, OIE **Reporting Frequency:** Annually
Known Data Limitations	
Baseline Timeframe	October 2009
Responsibility	USAID
Disaggregate(s)	none

Sub-Element: Response to Disease Outbreak	
Indicator 12	**Time from start of a suspected, priority animal or human health disease outbreak to laboratory confirmation in targeted areas** **a. Humans (only for HPAI human cases)** **b. Animals (as reported by OIE)**
Definition	This indicator measures the laboratory confirmation component of responding to an outbreak. In many countries this is required before an official response can be mounted.
New or Existing Indicator?	New
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Response to Disease Outbreak
Linkage to Long-Term Outcome or Impact	This is an outcome indicator. The time should decrease over time.
Indicator Type	Outcome
Unit of Measure	Number
Use of Indicator	This measures improvement of the laboratory system
Data Source and Reporting Frequency	**Data Sources:** FAO, WHO, OIE **Reporting Frequency:** When surveys are available. The timeframe for these surveys in any given country will be different. At this time there is no ongoing source other than USAID projects and Ministry records if they exist.
Known Data Limitations	The data will be USAID project sourced. There are many issues that complicate this measurement, including the type of outbreak, the need for laboratory referral versus capacity in-country to diagnosis, etc.
Baseline Timeframe	October 2009
Responsibility	USAID and CDC
Disaggregate(s)	none

Sub-Element: Commodity Stockpile	
Indicator 13	**Value of PIOET commodities provided to PIOET programs**
Definition	This indicator measures the direct assistance provided to PIOET planning, preparedness and response efforts in priority countries.
New or Existing Indicator?	New
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Commodity Stockpile
Linkage to Long-Term Outcome or Impact	The dollar amount should decrease over time
Indicator Type	Output
Unit of Measure	Number
Use of Indicator	To track the commodity assistance provided to PIOET program efforts
Data Source and Reporting Frequency	**Data Sources:** All PIOET partners **Reporting Frequency:** Ongoing
Known Data Limitations	The data will be USAID project sourced.
Baseline Timeframe	October 2009
Responsibility	USAID
Disaggregate(s)	none

Annex 8: OIE National Focal Point Program for Veterinary Laboratories – Terms of Reference

TERMS OF REFERENCE
LABORATORY NATIONAL FOCAL POINT

OIE has requested Delegates to nominate national focal points for notification, wildlife, veterinary products, animal production food safety, animal welfare and aquatic animal diseases and the OIE focal point network is active for these topics. The OIE is also initiating focal points for veterinary laboratories and asking Delegates in selected regions to nominate individuals with laboratory expertise to support the Delegate in fulfilling his rights and responsibilities to OIE.

As detailed in the final report of the 76th General Session of the World Assembly of National Delegates in May 2008, the responsibilities of all focal points are under the authority of the OIE Delegate. Any information transmitted to the OIE from the different focal points needs to be transmitted under the designated authority of the OIE Delegate. This practice would equally apply if focal points are located in other Departments or Ministries not under jurisdiction of the Veterinary Authority, as from a legal perspective the OIE considers the official OIE Delegate to be the unique representative of the country.

Details on proposed tasks of the national focal point for veterinary laboratories:

1. to establish a network of experts in the country on veterinary laboratory issues and/or to communicate with existing networks;

2. to establish and maintain a dialogue with the Competent Authority for veterinary laboratories in the country, including facilitating cooperation and communication among several authorities where responsibility for veterinary laboratories is shared. This would also incorporate facilitating cooperation and communication with Competent Authorities of other National Laboratories, including those in other government Ministries. Keep updated on the legislation and activities of the National Veterinary Laboratories to verify that they are in conformity with the standards and guidelines of the OIE;

3. to serve as focal point for the OIE in topics related to the National Veterinary Laboratories, including contributing to determining the training and other capacity building needs for the National Veterinary Laboratories in the country;

4. to compile responses to requests for information required by the OIE in coordination with National Veterinary Laboratories that provide specific competence in the subject of consultation;

5. if prompted, to organize consultations with recognized experts in the area of veterinary laboratories in the country on OIE draft standards and/or guidelines and country proposals of new standards;

6. to prepare comments for the Delegate on all OIE draft standards and/or guidelines and country proposals of new standards, reflecting the points of view and the scientific positions of the OIE Member Country or the region;

7. to maintain contact with the other OIE national focal points for veterinary laboratories that belong to regional networks and with experts of OIE Reference Laboratories present in the Region;

8. to prepare proposals for participation of National Veterinary Laboratories in the OIE Laboratory Twinning Programme when relevant.

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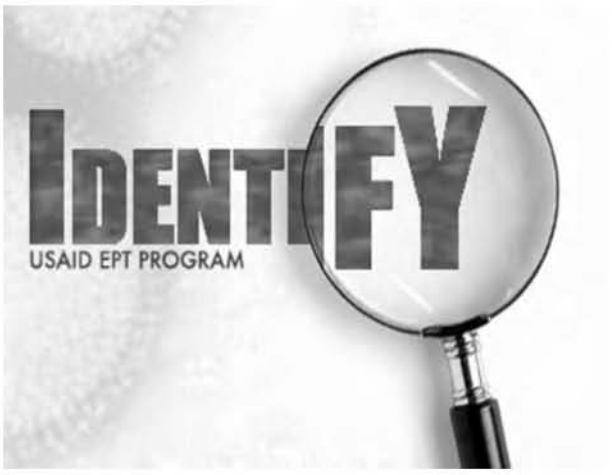

Biannual Report

OIE Contribution to the IDENTIFY Project

Reporting institutions:
The World Organisation for Animal Health, OIE, IDENTIFY Project Partner

Reporting period: 1 April 2011 - 30 September 2011

Planned activities: 1 October 2011 - 31 March 2012

Project Title: IDENTIFY

Regional component: Global
Countries: 2 "hot spots", by USAID category:
- Congo Basin: Democratic Republic of Congo, Uganda, Cameroon, Gabon, Central African Republic, Republic of Congo, Equatorial Guinea, Rwanda, Tanzania, South Sudan, Angola, Sudan, Ethiopia, Kenya
- **South and Southeast Asia:** Indonesia, Vietnam, Cambodia, Lao Peoples Democratic Republic, China, Malaysia, Thailand, Philippines, Bangladesh, India (future activities pending), Nepal
Project title: IDENTIFY, OIE contribution
Budget: USD 2 000 000 for Year 2 plus carry-over from Year 1
Effective starting date: December 2009
Planned end date: 30 September 2013
Context of the project
This project is part of a complex program—Emerging Pandemic Threats (EPT)—designed by USAID and aimed to find and implement mechanisms to detect disease emergences, especially from wildlife. The One Health concept is an important component of the whole program. The IDENTIFY project is implemented jointly by the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO).
Objectives of the project
The IDENTIFY project is intended to strengthen diagnostic capacities through the development of laboratory networks spanning animal and human sectors with the ultimate aim of enabling countries to meet international obligations for disease reporting. Accurate and timely detection of known pathogens should facilitate the rapid recognition of newly emerging pathogens. International reference laboratories capable of fully characterizing the emerging pathogens are an integral part of these networks. For a list of targeted diseases, see Annex 1.
The project focuses on several parts of the world defined by the USAID as "hot spots" for emerging diseases where they are more likely to happen: Congo Basin and South and Southeast Asia.
The project will collaborate with the other arms of the EPT program: PREDICT, RESPOND, PREVENT, and USAID's DELIVER project. Collaborations are defined through the Lines of Work (LoW) defined by USAID: Pathogen Detection, Outbreak Response, Risk Determination, and Risk Reduction. Each LoW has a defined work plan with activities and sub-activities to which every project team has agreed upon their level of participation (support, participate or lead).
Planned activities
As instructed on the USAID teleconference of 21 Sept 2011, the Year 3 Work Plan Addendum submitted by OIE on 6 October 2011 serves as the submission for planned activities.
For the description of planned outputs, activities and sub-activities, refer to the OIE IDENTIFY Year Three Work Plan (1 Sept 2011) and Work Plan Addendum (6 October 2011).

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Acronyms & Abbreviations

AAHL	Australian Animal Health Laboratory
AH	Animal Health
AOTR	Agreement Officer's Technical Representative
A-PBA	Asia-Pacific Biosafety Association
APSED	Asian Pacific Strategy for Emerging diseases
ARC	Agricultural Research Council
ASEAN	Association of Southeast Asian Nations
ASF	African Swine Fever
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
BVI	Botswana Vaccine Institute
cELISA	Competitive Enzyme Linked Immunosorbent Assay
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CSF	Classical Swine Fever
CVO	Chief Veterinary Officer
DAH	Department of Animal Health
DIC	Disease Investigation Centres
DRC	Democratic Republic of Congo
EARLN	East Africa Regional Laboratory Network
EDP	Emerging and Dangerous Pathogens
EDPLN	WHO Emerging and Dangerous Pathogens Laboratory Network
EID	Emerging Infectious Diseases
ELISA	Enzyme-linked Immunosorbent Assay
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
EQAS	External Quality Assessment Schemes
FAO	Food and Agriculture Organization of the United Nations
FAO-ECTAD	Food and Agriculture Organization of the United Nations Emergency Center for Transboundary Animal Diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific
FMD	Foot and Mouth Disease
FMD PCP	Foot and Mouth Disease Progressive Control Pathway
GFN	WHO Global Foodborne Infections Network
GLNS	Global Laboratory Networking Strategy
HPAI	Highly Pathogenic Avian Influenza
HPED	Regional Cooperation Programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia
HQ	Headquarters
HUA	Hanoi University of Agriculture
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
IDSR	Integrated Disease Surveillance and Response

IZS A&M	Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale in Terumo, Italy
IZSVe	Istituto Zooprofilattico Sperimentale delle Venezie
LANAVET	Laboratoire National Vétérinaire, Cameroon
Lao PDR	Lao People's Democratic Republic
LoA	Letter of Agreement
MARD	Ministry of Agriculture and Rural Development
MoA	Ministry of Agriculture
MoH	Ministry of Health
NAHC	National Animal Health Centre, Vientiane, Laos
NaVRI	National Veterinary Research Institute
NCVD	National Centre for Veterinary Diagnosis (Hanoi, Vietnam)
NIAH/T	National Institute of Animal Health (Bangkok, Thailand)
NIAH/J	National Institute of Animal Health (Japan)
NICD	National Institute for Communicable Diseases, South Africa
NIVR	National Institute of Veterinary Research (Hanoi, Vietnam)
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OH&S	Occupational Health and Safety
OIE	World Organization for Animal Health
OIE SRR	OIE Sub-Regional Representation
OVI	Onderstepoort Veterinary Institute
PCR	Polymerase Chain Reaction
PPE	Personal Protection Equipment
PPR	Peste des Petit Ruminants
PVS	OIE Performance of Veterinary Services Pathway
QA	Quality Assurance
RAHO6	Regional Animal Health Office #6 (Ho Chi Minh, Vietnam)
RFSEA	Regional Framework for Laboratory Capacity Building and Networking in SE Asia
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SADC FANR	Southern African Development Community Food Agriculture and Natural Resources
SADC TADs	SADC Transboundary Animal Diseases Project
SEACFMD	Southeast Asia and China Foot and Mouth Disease Campaign
SOP	Standard Operating Procedures
TAG	Technical Advisory Group
USAID/RDMA	U.S. Agency for International Development/Regional development Mission for Asia
USAID/W	U.S. Agency for International Development/Washington
VRI	Veterinary Research Institute, Malaysia
WAHID	World Animal Health Information Database
WAHIS	World Animal Health Information System
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office
WNV	West Nile Virus

Introduction
Main progress made towards the achievement of project outcomes

The OIE IDENTIFY project has gained significant momentum during this reporting period. A number of concrete activities in the laboratories have been implemented by the OIE project team for the benefit of the Congo Basin and South and Southeast Asia regions:

- Workshop on OIE Standards for shipment of biological specimens (3.9.1C)
- Focused capacity building in the framework of the Special Project for Uganda NADDEC (3.13.4C)
- IDENTIFY project performance indicators monitoring and evaluation (3.6.3G)
- World Animal Health Information Database data analysis on IDENTIFY targeted diseases in IDENTIFY countries (3.6.3G)
- Analysis of capacity building and technical support provided by OIE Reference Laboratories (3.6.6G)
- Participation in the OIE Global Conference on Rabies Control (3.8.1G)
- Laboratory visits and capacity building support plan development for IDENTIFY countries (3.6.4S)
- Planning for staff exchanges on West Nile Virus between NIAH Thailand and OIE Reference Laboratory Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale, Terumo, Italy (3.13.1S)
- Planning and development of the PVS Pathway Pilot Laboratory Mission (3.6.5G & 3.6.6G)
- Exploration of the Tanzania Central Veterinary Laboratory Twinning project on PPR with CIRAD (3.13.1C & 3.13.2C)
- Preparation for Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region (3.7.1S)

For many laboratories, these activities are unique opportunities for improvements. These initiatives have concretely contributed to better networking of these laboratories leading to the ultimate goal of timely and accurate diagnosis of diseases through responding to observed and expressed needs of stakeholders and advocate for the crucial role of national laboratories in effective public and veterinary health systems in the principle of "One Health". There is an expressed need by project beneficiaries for more technical support for certain areas (in the OIE IDENTIFY Year 3 Work Plan):

- Laboratory strategic planning (3.9.5S)
- PVS laboratory missions (3.6.4G & 3.6.5G)
- Laboratory focal points (3.6.6S)
- Focused capacity building in the framework of Special Projects (3.13.4C)
- Laboratory Director's Forum (3.9.1S)
- Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region (3.7.1S)
- Occupational Health and Safety (OH&S) in Animal Health laboratories (3.10.2S)
- Quality Management Systems in National Animal Health laboratories (3.10.3S)
- South East Asia Rabies Network (3.12.6S)

The reporting period covered 11 country and central veterinary laboratory visits (DRC, Lao PDR, Thailand, Vietnam, Indonesia, Nepal, and Cambodia). These visits have enabled direct contact with representatives of beneficiary countries and laboratories. They have also enabled excellent progress in terms of technical assistance needs, laboratory capacity mapping, and linking with

needed resources. The exchange between the public and animal health sectors has also been reinforced in both regions and has shown promising and new possibilities for collaboration.

This period has also covered the exploration of new ideas and the development of pilot projects--the development of a laboratory component within the widely implemented OIE PVS Pathway and the implementation of the OIE Laboratory Focal Point Program —and we expect that in the next reporting period and upon implementation their relevance will be confirmed.

We maintain a collaborative tripartite IDENTIFY project team at the HQ and regional levels. The fruits of project planning in the previous period are ripe as the country beneficiaries work to accomplish project goals for more rapid and accurate diagnosis of targeted diseases. The joint regional activities have set an important precedent for regional intersectoral collaboration between organizations; tripartite regional activities have activated regional engagement and have encouraged increased communication. Integrating laboratory capacity and network advocacy in activities such as the global conference on rabies and involvement on World Rabies Day Commemorations, also specifically provided the opportunity to bring together Chief Veterinary Officers and Laboratory Directors to discuss complex issues around the human-animal interface.

Activities undertaken during the reporting period
(1 Apr 2011 - 30 Sept 2011)

Output 1: Coordination (Global and Regional)

Activity 3.1[1]: Ongoing tripartite project management and coordination, monitoring, and planning

GLOBAL

- **3.1.1G:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO, and with the IDENTIFY AOTR at USAID, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.
- **3.1.1G:** The three partners, FAO, OIE, and WHO, continued the rotating system of responsibility sharing on a monthly basis in order to more effectively and rapidly handle communication with program partners, day-to-day operations, and logistic arrangements. This system also applies to document creation, revision and meeting hosting. The OIE hosted the IDENTIFY secretariat in July 2011.

CONGO

- **3.1.1C:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

S/SE ASIA

- **3.1.1S:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

Table 1: 3.1.1: OIE and Tripartite Internal communication and coordination (including communication with USAID)

Type of communication/ coordination	Dates	Additional Information
Global		
Face-to-face meetings	10-11, 18-20 May; 14-16, 27-28 June	Project management and planning
Regular teleconferences (TC)	weekly Apr-June; monthly July-Oct	Project management and planning; biannual report; laboratory networking strategy; Year 3 Work Plans; Global Survey
TC with IDENTIFY AOTR, USAID/W	19 Apr; 3 Aug; 22 Sept	Face-to-face meetings, instead of TC, were held 14-16 & 28 June; 13 & 27 July
Face-to-face meetings with IDENTIFY AOTR,	14-16, 28 June; 13, 27	Face-to-face meetings replacing monthly TCs

[1] References have been harmonized between the Year 2 and Year 3 references. Those present in this report refer to Year 3 activity and sub-activity references.

USAID/W	July	
EPT Program Quarterly meetings	27-28 June	Progress reports on implementation of program activities
Tripartite Report Submission to USAID	12 May	Tripartite first six-monthly report for Year 2
OIE Report Submission to FAO	5 May	Submitted 3rd financial and technical activities report
OIE IDENTIFY Taskforce meetings	20 Apr; 26 July; 26 Sept	Project planning and management
Congo Basin		
TC between Tripartite regional coordinators	7 Apr; 2, 19 May; 12 July	Project management and planning; Regional laboratory networking strategy; Progress reports on implementation of project activities; Coordination and preparations for DRC EPT meeting
TC between OIE HQ and OIE regional team	20 Apr; 2, 6 May; 3, 24 June; 8, 20, 22 July; 9 Sept	Project management and planning; Progress reports on implementation of project activities
Face-to-face meetings between Tripartite regional coordinators	29 July	Project management and planning
Face-to-face meetings with HQ and regional teams	29 July	To discuss implementation and roles and responsibilities; To solidify collaboration, coordination, and communication
Face-to-face meetings with OIE HQ and OIE regional team	23-27 May	Project management and planning
	8-11 Aug	Project management and planning
Face-to-face meetings between FAO and OIE	26 July	Review of ongoing activities and identification of possible Year 3 areas for collaboration in animal health sector
Communication with USAID	27-28 July	Face to face at USAID EPT Program Regional Planning Meeting
	28 Sept	Uganda EPT Partners Meeting (TC)
S/SE Asia		
Communication with USAID	27 Apr	Face to face at USAID-EPT Country Work Planning meeting (Vientiane, Laos)
	3 May	Face to face meeting at USAID-RDMA with FAO to discuss roles of PREDICT and IDENTIFY (Bangkok, Thailand)
	20-21 June	Face to face at USAID-EPT Country Work Planning meeting (Hanoi, Vietnam)
	23-24 June	Face to face at USAID-RDMA: USAID-EPT Country Workplan meeting covering Laos and Thailand (Bangkok, Thailand)
	12-13 July	Face to face at USAID-EPT SE and South Asia Regional Work Planning meeting (Bangkok, Thailand)
	15-17 July	Face to face at USAID-EPT Country Work Planning meeting (Jakarta, Indonesia)
	19 Aug	Country scoping visit meeting with USAID-Cambodia, (Phnom Penh, Cambodia)
	22 Sept	Emerging and Dangerous Pathogens Laboratory Network; side meeting with USAID Indonesia to discuss prospect of continuing public health projects in

		Year 3 in Indonesia, (Jakarta, Indonesia)
Face-to-face meetings between Tripartite partners	27 Apr	USAID-EPT Country Work Planning meeting-Laos: side meetings with country-level representatives of WHO and FAO (Vientiane, Laos)
	19-20 May	Side meetings at WHO-WPRO 'Informal Consultation of a Draft Asia Pacific Laboratory Action Plan for Emerging Infectious Diseases' (including both HQ and regional partners) (Manila, Philippines)
	20-21 June	Side meetings at USAID-EPT Country Work Planning meeting for Country level: WHO and regional level FAO (Hanoi, Vietnam)
	11 July	Regional and HQ project planning meeting, OIE office, (Bangkok, Thailand)
	12-13 July	Side meetings at USAID-EPT SE and South Asia Regional Work Planning meeting (Bangkok, Thailand)
	15-16 July	Side meetings at USAID-EPT Country Work Planning meeting (Jakarta, Indonesia)
	1 Aug	FAO and OIE regional coordinators and WHO-Thailand country level coordinator to guide in development of WHO country level workplan (Bangkok, Thailand)
	11-12 Aug	Side meetings at Workshop to identify priority zoonotic diseases in Viet Nam and map zoonoses activities of different organizations, Country level WHO and FAO, regional level OIE (Hanoi, Vietnam)
	20-22 Sept	Emerging and Dangerous Pathogens Laboratory Network: side meetings to discuss possibility of continuing public health projects in Year 3 in Indonesia (Jakarta, Indonesia)
Face-to-face meetings between FAO and OIE	18 Mar	Briefing of new OIE regional coordinator, share work plans and relevant documents, OIE office (Bangkok, Thailand)
	5-6 May	Asia Pacific Biosafety Association side meeting with FAO regional coordinator to discuss joint activities and harmonise the Year 2 FAO/OIE Work Plan (Singapore)
	25 May	Laboratory Scoping visit to National Institute of Animal Health, (Bangkok, Thailand)
	13-19 June	Laboratory Scoping visit to National Centre for Veterinary Diagnosis, Hanoi University of Agriculture, National Institute of Veterinary Research and Regional Animal Health Office #6 (RAHO6) (Hanoi & Ho Chi Minh, Vietnam)
	18 July	Laboratory Scoping visit to Bbalitvet, (Bogor, Indonesia)
	21-22 July	Side meetings at Regional Laboratory Network Workshop in Diagnostic and Characterization of Priority and Emerging Diseases in Swine (Ho Chi Minh, Vietnam)
	27-29 July	Side meetings at Consultative Workshop on Regional Epidemiology and Laboratory networking in the SAARC region (Kathmandu, Nepal)
	4-5 Aug	Regional Laboratory Network Technical Advisory Group meeting (Bangkok, Thailand)
	9-10 Aug	Side meetings at Putting One Health to Work (Bangkok,

Face-to-face meetings between FAO and OIE		Thailand)
	19 Aug	Country scoping visit meeting with FAO country level (Phnom Penh, Cambodia)
	1 Sept	Planning meeting for October Stakeholder's meetings (Bangkok, Thailand)
Face-to-face meetings with OIE and WHO	19 Aug	Country scoping visit meeting with WHO country level (Phnom Penh, Cambodia)
Face-to-face meetings with OIE HQ and OIE regional team	12-16 May	Side meetings at OIE PVS laboratory tool development meeting to discuss OIE IDENTIFY project activities (Paris, France)
	18-20 May	Side meetings at WHO-WPRO 'Informal Consultation of a Draft Asia Pacific Laboratory Action Plan for Emerging Infectious Diseases' (Manila Philippines)
TC between Tripartite regional team	7 Apr; 22 June	Monthly TC to discuss and collaborative opportunities and share event calendars
	25 Aug; 28 Sept	Discussion on tripartite laboratory meeting in KL in October
TC between OIE HQ and OIE regional team	5, 7 Apr; 24 June; 8 July; 1, 3, 26 Aug; 21, 28 Sept	Project management and planning

Table 2: 3.1.1: External project communication and coordination (including communication with EPT Partners)

Dates	Event Title	Venue	Organizer(s)	Other Information
Global				
23-27 May	OIE General Session	Paris, France	OIE	Networking with IDENTIFY Country Delegates
Congo Basin				
2-4 May	Coopération pour la Recherche Universitaire et Scientifique (CORUS) FMD Meeting	Skukuza, Kruger National Park, South Africa	CIRAD	OIE/FAO FMD PCP and laboratory capacity building
16 May	Peste des petits ruminants Preparatory Meeting	OIE SRR SA Gaborone, Botswana	SADC Secretariat	Key stakeholders in development of PPR control strategy and laboratory capacity building. OIE produced report on affected countries.
10-12 May	SADC Livestock Technical Committee (LTC) Meeting	Gaborone	SADC Secretariat	IDENTIFY project strategy and update on PPR activities
31 May	Peste des petits ruminants Preparatory Meeting	OIE SRR SA Gaborone, Botswana	SADC Secretariat	Contribution to outline of the PPR control strategy
22-23 June	SADC Joint Sub-Committee meeting: EIS and VET LABS	Johannes-burg, South Africa	SADC TADS Project	Discussions of the draft PPR Strategy and introducing OIE twinning program as an activity of the IDENTIFY Project. Discussions are underway for a PPR Twinning with CIRAD and Tanzania Twinning Project.
S/SE Asia				

26 Apr	PREDICT technical meeting	National Animal Health Centre (NAHC), Vientiane, Laos	PREDICT	Invited as IDENTIFY representative. Aims: to present proposed PREDICT activities to, and gain support of, laboratory managers; identify complementarities between PREDICT/ IDENTIFY
5-6 May	Asia Pacific Biosafety Association Conference	Marina Mandarin Hotel, Singapore	Asia Pacific Biosafety Association	Presented jointly with FAO entitled "One Health Approach to Biosafety", giving a background to the Tripartite approach, cross-sectoral collaboration in the context of laboratories in the area of biosafety
2 June	Emerging Infectious Disease Preparedness Forum	Queens Park Imperial Hotel, Bangkok, Thailand	RESPOND	This is an information-sharing forum focused on sharing knowledge, data and lessons learned on work carried out around the general topics of One Health and emerging infectious diseases. The theme of this particular meeting was ECO-Health and was also attended by PREDICT and RESPOND partners.
7 June	RESPOND Project baseline assessments	OIE Bangkok office	RESPOND M&E team	Interview on data collection for RESPOND Project baseline assessments. Information sharing on One Health initiatives and networks in the region including general OIE and EPT-IDENTIFY activities
14 June	Project meeting	FAO Country office, Hanoi, Vietnam	FAO/OIE/ PREDICT	Discuss opportunities for collaboration on IDENTIFY/PREDICT – particularly relating to the support of Hanoi University of Agriculture laboratory
21-22 July	Regional Laboratory Network Workshop in Diagnostic and Characterization of Priority and Emerging Diseases in Swine	Regional Animal Health Office #6, Ho Chi Minh, Vietnam	FAO	Aims: Information sharing, update on diagnostic techniques and swine disease situation in the region, to discuss and develop a regional framework for key areas related to swine viral diseases, to discuss their existing and ideal strategies for sharing of samples, diagnostic reagents and information related to swine viral diseases in the region. Technical staff, partner institutions, organisations, wildlife sector
27-29 July	Consultative Workshop on Regional Epidemiology and Laboratory networking in the SAARC region	Radisson Hotel, Kathmandu, Nepal	FAO	Presented "South East Asia and China Foot and Mouth Disease Campaign and Networking in South East Asia and China". Aims: share information and experiences in managing the priority diseases in the region (HPAI, FMD, PPR and brucellosis); to discuss and develop recommendations for improving disease management and

				information sharing; present to ministries; to establish functional laboratory and epidemiology networks and focal points.
9-10 Aug	Putting One Health to Work	Queen's Park Hotel, Bangkok, Thailand	RESPOND/ FAO	Senior level technical staff from Public Health, Animal Health and Wildlife/Environment sectors, international partners, development partners. Aims: Sharing experiences in developing mechanisms for cross sectoral collaboration; development of a Regional Framework for a Communication Strategy against EIDs in Asia and the Pacific 2011-2016
11-12 Aug	Workshop to Identify Priority Zoonotic Diseases and Map Zoonoses Activities of Different Organizations in Viet Nam	Hanoi, Vietnam	MoH/MARD/ FAO/WHO	Purpose: to identify and map zoonoses activities/programmes by different organizations; identify priority zoonoses and to increase the coordination, collaboration and networking on zoonoses prevention and control among related stakeholders.
20-22 Sept	Emerging and Dangerous Pathogens Laboratory Network	Marriot Hotel, Jakarta, Indonesia	WHO	Aims: to assess the current situation, priorities and needs for laboratory response in the context of outbreaks of Emerging and Dangerous Pathogens (EDP) and acute zoonotic threats in the South East Asian Region (SEAR); develop the functional priorities and activities of EDPLN-SEAR for collaborative laboratory response in line with the regional laboratory networking strategies in the context of International Health Regulations 2005; and identify knowledge gaps and research priorities for laboratory response during outbreaks of priority EDPs and acute zoonotic threats; Determining next steps in developing this new Public Health-focused laboratory network

Activity 3.2: Recruitment of staff to support IDENTIFY activities

GLOBAL

- **3.2.1G:** Ongoing employment of Global OIE IDENTIFY Project Coordinator, OIE HQ, Paris.
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 2 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the global activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.
- **3.2.2G**: Ongoing employment of Global OIE IDENTIFY Financial and Administrative Coordinator, OIE HQ, World Animal Health and Welfare Fund, Paris

- The OIE IDENTIFY Financial and Administrative Coordinator is responsible for all financial aspects related to administrative activities, including reporting, budgets, official communications with USAID, and Work Plan development.

CONGO

- **3.2.1C:** Ongoing employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Gaborone
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 2 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the Congo activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.
- **3.2.2C:** Ongoing employment of Regional OIE IDENTIFY Project Support, OIE SRR Nairobi
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 2 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the Congo/East Africa activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.

S/SE ASIA

- **3.2.1S:** Ongoing employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Bangkok
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 2 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the South and Southeast Asia activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.

Activity 3.3*:* Preparation and review of global, regional, and country-level work plans and other project documents

GLOBAL

- **3.3.1G:** The Year 2 work plan activities were reviewed based upon outcomes of previous years and the Laboratory Networking Strategy by the HQ IDENTIFY Project Coordinators of the three partner organisations. A plan for a Tripartite Year 3 Work Plan development process (from the country to global level) was outlined during the project planning and brainstorming meeting in Lyon, France 10-11 May.
  - Subsequently, USAID requested separate Year 3 Work Plans from FAO, OIE, and WHO and this plan was adapted for the new request.
- **3.3.1G:** The Year 3 Work Plan activities were developed by the OIE from the country, regional, to the global level and in collaboration with FAO and WHO in the case of tripartite and cross-sectoral activities.
  - The OIE Year 3 Work Plan was divided into core and supplemental work plans. The division of the plan into two parts reflected the request from USAID delivered at the Rome meeting of 14-16 June 2011. Both Parts One and Two included a description of the proposed activities, implementation plans, and budgets in the format requested by USAID.
- **3.3.1G:** Activities contained in the OIE Year 3 Work Plan were presented along with FAO and WHO activities to USAID/W during the FAO/OIE/WHO/USAID meeting in Rome (14-16 June).
- **3.3.1G:** The OIE IDENTIFY Year 3 Work Plan was submitted to USAID with copies to FAO and WHO on 1 Sept.

  - USAID requested more detailed information on the major activities of the OIE Year 3 work plan: when each activity is to be done, where it will be done, how it will be done, with whom, as well as a description of each of your proposed major activities that follows the revised format described in email (12 Sept).
- **3.3.1G:** The OIE IDENTIFY Year 3 Work Plan Addendum was submitted to USAID with copies to FAO and WHO on 6 Oct.
- **3.3.1G:** The first biannual report for Year 2 (1 Oct 2010-31 Mar 2011) was prepared by FAO, OIE, and WHO and submitted to USAID 12 May.
- **3.3.1G:** Preparation of the second biannual report for Year 2 (1 Apr-30 Sept 2011) began in Sept. This report will be the first biannual report prepared individually by each partner.
  - A financial report and report on activities conducted is due to FAO in the framework of the Letter of Agreement between OIE and FAO on 15 Oct.
  - The present report on activities conducted is due to USAID on 31 Oct. USAID has waived inclusion of the "planned activities" section, as the recently submitted OIE IDENTIFY Year 3 Work Plan and Addendum were submitted to USAID on 1 Sept and 6 Oct, respectively.

CONGO

- **3.3.1C:** The Year 2 work plan activities were reviewed based upon outcomes of previous years and the Laboratory Networking Strategy by the regional IDENTIFY Project Coordinators of the three partner organisations.
- **3.3.1C:** The Year 3 Work Plan activities were developed by the OIE from the country, regional, to the global level and in collaboration with FAO and WHO in the case of tripartite and cross-sectoral activities.
- **3.3.1C:** The OIE's draft Year 3 work plan activities was shared during the tripartite regional IDENTIFY coordinators meeting on the 26 Jul 2011 and immediately thereafter during the EPT Africa Regional Work Planning meeting 27-28 July 2011.
- **3.3.1C:** The OIE Regional IDENTIFY coordinator participated in the development of the EPT Program detailed implementation planning process requested by USAID/W at meetings in Kinshasa (27-29 Jul 2011), along with FAO and WHO. The OIE plan presented at that time are largely based on the draft Year 3 Work Plans for the OIE component of the IDENTIFY project.
- **3.3.1C:** Areas of collaboration in the work plans for Year 3 for Congo Basin developed by each organization will be discussed (once USAID sends comments and approval for the Year 3 Work Plan) and reviewed during the regional IDENTIFY Coordinators meeting planned March 2012.
- **3.3.1C:** The draft OIE Year 3 Work Plan was presented to USAID/W, USAID country missions and EPT partners during the Congo Basin regional planning meeting in Kinshasa (27-28 July).
- **3.3.1C:** Preparation of the second biannual report for Year 2 (1 Apr-30 Sept 2011) began in Sept.

S/SE ASIA

- **3.3.1S:** The Year 2 work plan activities were reviewed and the Year 3 Work Plan activities were developed by the OIE from the country, regional, to the global level and in collaboration with FAO and WHO at all levels in the case of tripartite and cross-sectoral activities.
- **3.3.1S:** The OIE's Year 3 work plan activities were shared during the tripartite regional IDENTIFY coordinators meeting in Bangkok, 11-13 Jul 2011.

- **3.3.1S:** The draft OIE Year 3 Work Plan was presented to USAID/W, USAID country missions and EPT partners during several meetings: the SE Asia regional planning meeting in Bangkok (12-13 July), the Regional Laboratory Technical Advisory Group Meeting in Bangkok (4-5 Aug), and the various country work plan meetings in SE Asia.
- **3.3.1S:** The draft OIE Year 3 Work Plan was presented to IDENTIFY Project stakeholders and regional partners during the GF-TADS meeting in Tokyo (20-22 June), the Regional Laboratory Technical Advisory Group Meeting in Bangkok (4-5 Aug).
- **3.3.1S:** The OIE Regional IDENTIFY coordinator contributed to various country work plans (Viet Nam, Thailand, Lao PDR, Indonesia) in the framework of the planning process requested by USAID regional and country missions, along with FAO and WHO. The OIE plan presented at that time are largely based on the Year 3 Work Plan for the OIE component of the IDENTIFY project.
- **3.3.1S:** Preparation of the second biannual report for Year 2 (1 Apr-30 Sept 2011) began in Sept.

Activity 3.4*:* Communication tool development and resource building

GLOBAL

- **3.4.1G:** The OIE Project Coordinator posted draft and final IDENTIFY documents on the SharePoint to continue communication and coordination, as well as keeping the common calendar up-to-date.
- **3.4.2G:** The joint IDENTIFY leaflet was finalized and validated by the three partners and shared with IDENTIFY project stakeholders.
- **3.4.2G:** The list of OIE Guidelines, Standards and other related literature addressing sample collection, specific pathogens or other topics of interest for EPT partners was posted on the SharePoint and Basecamp for ease of access for EPT partners, following the EPT Partners Quarterly Meeting, 23-25 Mar.

CONGO

- **3.4.1C:** The OIE regional IDENTIFY coordinator was provided access to the IDENTIFY SharePoint.
- **3.4.1C:** There is regular contact on activities implemented between OIE IDENTIFY coordinators (Gaborone and Nairobi) and stakeholders, in particular laboratory directors.
- **3.4.2C:** The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings.
- **3.4.2C:** A specific web page for the IDENTIFY project has been created on the OIE Sub-regional representation's website (http://www.rr-africa.oie.int/IDENTIFY/en_index.html) to contribute to USAID, EPT Program, and IDENTIFY project visibility. A link has also been provided to the USAID EPT web page. Reports and updates on IDENTIFY project activities are posted on the page including reference materials.
- **3.4.2C:** Production of tripartite awareness materials (banners, leaflets) for various IDENTIFY funded meetings, and other meetings which the OIE IDENTIFY regional coordinator attended.
- **3.4.2C:** Development of a common IDENTIFY Project communication tool for animal health stakeholders was discussed and agreed to between the OIE and FAO in July 2011 and is to be implemented in the next reporting period October2012 – April 2012.
- **3.4.2C:** The OIE provided OIE Standards, Guidance and literature relevant to laboratories to IDENTIFY Project stakeholders during the Training workshop on OIE standards for collection and shipping of samples in Nairobi, Kenya
  - OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals

- OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases.
- Atlas of Transboundary Animal Diseases
- OIE Bulletin

S/SE ASIA

- **3.4.1S:** The OIE regional IDENTIFY coordinator was provided access to the IDENTIFY SharePoint.
- **3.4.1S:** There is regular contact on activities implemented between the OIE IDENTIFY coordinator in Bangkok and stakeholders, in particular laboratory directors in IDENTIFY countries.
- **3.4.2S:** The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings, as well as with USAID and EPT Partners.
- **3.4.2G:** The same OIE Standards (see 3.4.2C) will be distributed to S/SE Asia IDENTIFY stakeholders during the Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific in Kuala Lumpur, Malaysia 18-21 Oct.
- **3.4.2S:** A specific web page for the IDENTIFY project has been created on the OIE Sub-regional representation's website (http://www.srr-seasia-oie.com/programs/identify) to contribute to USAID, EPT Program, and IDENTIFY project visibility.

Activity 3.5*:* Annual review of the Laboratory Networking Strategy

GLOBAL

- **3.5.1G:** The HQ IDENTIFY Project Coordinators of the three partner organisations conducted the first annual update of the Laboratory Networking Strategy (LNS) and further elaborated the IDENTIFY project performance indicators during the project planning and brainstorming meeting in Lyon, France 10-11 May.
  - The LNS, approved in July 2010, is the strategic framework through which FAO, OIE, and WHO have agreed with USAID to work towards achieving the objectives of the IDENTIFY project. It is necessary each year to review and refocus project activities and is considered a valuable exercise, given the numerous exchanges with stakeholders, to modify the strategy and performance indicators according to the needs and evolving situations of the target EPT countries.
  - The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity in the hot spot regions of the IDENTIFY project are housed within WAHID. The analysis of the data has already provided valuable baseline information and historical trend information to OIE, and will inform OIE, FAO, and WHO of the actual situation as the project progresses.
- **3.5.1G:** The updated global LNS was presented to USAID/W during the FAO/OIE/WHO/USAID meeting in Rome (14-16 June).
- **3.5.1G:** The updated version of the LNS, as well as the updated performance indicators, was included in the OIE Year 3 Work Plan submission.

CONGO

- **3.5.1S:** The updated global LNS was presented to USAID/W, USAID country missions and EPT partners during the Congo Basin regional planning meeting in Kinshasa (27-28 July).
- **3.5.1C** Finalization of the Regional LNS (RLNS): Comments from the tripartite partners were received by OIE in July in Kinshasa, followed thereafter by circulation of the document to include modified monitoring indicators.

- The RLNS will be discussed for adoption during a special teleconference end October 2011.
- The GLNS was presented at the Congo Basin regional stakeholders meeting (2-4 Nov 2010, Entebbe, Uganda) and serves as a basis for tripartite collaboration the region.
- The next step is underway and will insert for each IDENTIFY targeted disease the OIE recommended diagnostic tests to complete the mapping exercise (see activity 3.6.) with the availability of these tests in the supported laboratories.

- **3.5.1C:** Revision of the "Guide for Networking National Human and Animal Reference Laboratories in Africa" at country level. This document was drafted by WHO AFRO and is under review by FAO and OIE.

S/SE ASIA

- **3.5.1S:** The current draft of the South and Southeast Asia RLNS reflects the revisions of the animal health partners, FAO and OIE. The RNLS will be updated following the recommendations from the Regional Laboratory Network for South East Asia Technical Advisory Group meeting and harmonised with the Regional Framework for Capacity Building and Networking to be presented for comment at the Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia Pacific in Kuala Lumpur, Malaysia 19-20 October; this is a working project document and ongoing revisions will occur as necessary.
  - All IDENTIFY regional coordinators have been given the opportunity to contribute to the adaptation of the South and Southeast Asia RLNS. The current draft of the South and Southeast Asia RLNS reflects the revisions of the animal health partners, FAO and OIE.
- **3.5.1S:** The updated global LNS was presented to USAID/W, USAID country missions and EPT partners during the SE Asia regional planning meeting in Bangkok (12-13 July), the Regional Laboratory Technical Advisory Group Meeting in Bangkok (4-5 Aug), and the various country work plan meetings in SE Asia.
- **3.5.1S:** The updated global LNS was presented to IDENTIFY Project stakeholders and regional partners during the GF-Tads meeting in Tokyo (20-22 June), the Regional Laboratory Technical Advisory Group Meeting in Bangkok (4-5 Aug).
- **3.5.1S:** The OIE Project Coordinator compiled additional information required for the finalization of the IDENTIFY Project performance indicators, including ARAHIS user, site hits, and other project indicator data.

Output 2. Technical Capacity Building - General

Activity 3.6[2]*:* Follow-up of laboratory mapping exercise activities

GLOBAL

- **3.6.1G:** Mapping of laboratory capacity in OIE global networks, as well as in Congo Basin and S/SE Asia, continues to progress. Several phases of the activity, such as ongoing identification of the gaps in data and follow-up visits of laboratories (as needed) as outlined in the LNS, will continue throughout the next reporting period.
- **3.6.1G:** The list of potential laboratories to be strengthened under IDENTIFY to achieve improved timely and accurate detection of potential pandemic threats in the hot spot regions was submitted to USAID 6 May for both hot spot regions. Discussions and close

[2] For information on the activities at the country level conducted during this reporting period, please see individual country achievement tables on pg. 36.

contact with each laboratory have begun to assist in the development of OIE IDENTIFY activities that will answer needs of the IDENTIFY beneficiary laboratories.

  - Laboratories were requested to list and propose a budget for their needs under capacity building and the exercise is being assessed and reviewed by FAO in consultation with OIE. The purpose of this exercise to collect information on the needs was to focus support and capacity building to these laboratories. Discussions with all laboratories have not officially commenced, but at a minimum all have started informally at stakeholder meetings. OIE Reference Laboratories and Collaborating Centres will be contacted in the near future and provided with this information on the capacity building that they can provide to these labs.

- **3.6.1G and 3.6.2G:** The compilation of OIE documentation concerning laboratory capacity (e.g. OIE Reference Laboratory and Collaborating Centre annual reports; information contained in WAHIS and PVS Evaluation reports on animal diseases available to Donors and Partners) of national veterinary laboratories and existing networking efforts by international Reference Laboratories in and serving the IDENTIFY beneficiary countries was completed early in the reporting period.
- **3.6.2G:** Review of the PVS documentation available to Donors and Partners is complete and it was found that several Members would like assistance in the adaptation and adoption of international guidelines and standards for laboratories, improved communication between networks of labs in the region, as well as between sectors. In general, donor round table meetings, laboratory strategic planning, and focused laboratory PVS missions were often cited as areas of desired intervention by the OIE. The OIE training on standards for specimen shipment in Congo Basin and the planned training on laboratory strategic planning and quality management systems were in part based on needs identified in the assessments of 3.6.1 and 3.6.2.
- **3.6.3G:** The refinement of the project performance indicators (in the framework of the LNS) began in the previous reporting period and continued throughout this reporting period. The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity in the hot spot regions of the IDENTIFY project are housed within WAHID.
  - The analysis of the data has already provided valuable baseline and historical trend information to OIE, and will inform OIE, FAO, and WHO of the actual situation on the project progresses.
  - Following the annual review of the LNS, the determination of baseline, midterm (as of Aug 2011), and historical trends (2005-present) of WAHID were finalized. For the detailed description of the baseline indicators for the OIE contributions to the IDENTIFY project, please see Annex 3.
  - The OIE initiated a contract with a Veterinary Epidemiologist to conduct this sub-activity.
- **3.6.3G:** The formulation of the work plan and descriptive analysis of the World Animal Health Information Database (WAHID) for IDENTIFY priority diseases and countries began in the previous reporting period and continued throughout this reporting period. This included determination of data sources, validation of variables, conduct of the analysis, preparation of the results and the report, development of tables, graphs, and maps. Please see Annex 4 for a detailed report on the analysis.
  - Gaps in information related to disease reporting on IDENTIFY-targeted diseases have been identified. An analysis on the concordance of disease priority lists to actual disease reporting and surveillance systems in place at the country level has been conducted. Disease reporting and sample referral maps related to outbreaks reported to the OIE in the form of immediate notifications have been developed. A comparison

of historic official OIE and WHO disease reporting data for two IDENTIFY-targeted diseases (Avian influenza and Rift Valley Fever) to analyze timeliness of diagnosis has been conducted.
  - The OIE initiated a contract with a Veterinary Epidemiologist to conduct this sub-activity through Aug 2012.
- **3.6.4G & 3.6.5G:** Development of the **Pilot OIE PVS Pathway Laboratory Tool**, the veterinary laboratory component of the OIE PVS Pathway, began early in the reporting period. The strategic direction and framework on how to proceed with the enhancement of the existing PVS laboratory tool within the PVS Gap Analysis structure were defined. Additionally, the next steps for tool development were proposed and the process and associated timeline for the tool development defined by a group of PVS and laboratory experts, 12-13 May in Paris, France.
  - This activity aims to develop and implement a specific decision making tool, requested by national veterinary services, for the assessment of the National Animal Health Laboratory System to meet the needs of the National Veterinary Services objectives as identified in the PVS Gap Analysis Mission. Laboratories should not exist in a vacuum, and strategic decisions about laboratory investment and capacity building must be taken in the framework of understanding the system in which the laboratory is functioning and the national needs it must meet. Outcomes of this activity will allow national Veterinary Service decision makers to better allocate appropriate budgets to the National Animal Health Laboratory and better advocate for sufficient resources to support accurate and timely diagnosis of IDENTIFY priority animal diseases.
  - The next steps consist of: Refining the generic ToR of the OIE PVS Pathway Laboratory Tool and Mission, developed during the meeting; Defining which data need to be collected prior to and during the pilot mission; Defining the data collection instrument to be developed; and Defining the outcomes of the proposed PVS Laboratory Technical Mission:
    - To define the outcomes of the pilot PVS Laboratory Technical Mission
    - To produce recommendations regarding the laboratory function that other evaluations do not achieve
    - To define more precisely the laboratory function needed to attain the country's objectives, and options to fulfill this function
    - To provide specific recommendations to the country regarding the resources needed for a functioning laboratory system
    - To identify adapted, laboratory-based, and sustainable solution(s) that is/are most feasible and achievable
    - To clarify that the output of the PVS Pathway Laboratory Mission goes beyond assessments of the technical activities of the national VS laboratory system, by situating the laboratory in the strategic objectives of the country in relation to disease diagnosis and surveillance
    - To develop a budget to achieve solution(s) agreed to by the country
  - The OIE will initiate a contract with a PVS Expert and Laboratory Expert to work with the IDENTIFY team to conduct this sub-activity.
- **3.6.6G:** The development of the pilot OIE Laboratory Focal Point training program got underway during the reporting period. After suggestions by many countries and experts that laboratory-related issues need more visibility at the highest levels of Veterinary Services and the country's government, Laboratory Focal Point nominations were recommended at the country level and draft ToRs were developed and will be presented to stakeholders in the next reporting period.

- It is agreed by experts and stakeholders that this pilot program will have great benefits and ensure sustainability of IDENTIFY project outcomes as the country authorities would be involved in the development of the TOR for the pilot program.
- Formally establishing this link between laboratory focal points and CVOs speaks to the strong support for the use of laboratory diagnostic information for notifying exceptional events to the OIE, an important aim of the IDENTIFY project.
- It was also suggested by the group of PVS and laboratory experts who met 12-13 May in Paris, France that Laboratory Focal Points be nominated at the country level (see 3.6.4G[3]); the experts agreed that this pilot program will have great benefits and ensure sustainability of IDENTIFY project outcomes as the country authorities would be involved in the development of the TOR for the pilot program and laboratory issues would gain in visibility at the national level.

- **3.6.7G:** No outcomes for the reporting period
- **3.6.8G:** The analysis of OIE Reference Laboratory and Collaborating Centres Annual Reports began during this reporting period. The development of OIE resource documents by IDENTIFY disease (to be distributed to IDENTIFY laboratories) has begun, and a questionnaire on the challenges of shipment of biological specimens was developed, distributed, and completed by all IDENTIFY countries. The information gained from the analysis helped the OIE to develop activities that are more closely targeted to the real needs of countries. A short-term consultant was engaged to dedicate time to this project.
  - This activity aims to better understand existing technical support efforts and networks for sample referral and training between IDENTIFY countries' National Animal Health Laboratories and OIE Reference Centres and to inform the reinforcement of technical support and networking activities and the development of appropriate and sustainable interventions to improve laboratory capacity to more rapidly and more accurately diagnose known and emerging threats. In addition, this initiative aims to better connect National Animal Health Laboratories with necessary expertise in the region for more effective diagnosis of pathogens. Comparison with WAHIS data on sample referral and confirmation will occur.
  - The analysis will be complete in Mar 2012. The OIE will provide a report of the analysis in the next biannual IDENTIFY report.

CONGO

- **3.6.1C:** Mapping of laboratory capacity in the Congo Basin continues to progress. Several phases of the activity, such as identifying the gaps in data and follow-up visits of laboratories (as needed) as outlined in the LNS, will continue throughout the next reporting period.
- **3.6.1C:** Laboratories were requested to propose a budget and list their needs under capacity building. This exercise is being assessed and reviewed by FAO in consultation with OIE. The purpose of this exercise to collect information on the needs was to focus support and capacity building to these laboratories, and information to be shared with the OIE Reference Centres where partnerships for technical laboratory capacity building and networking can be of assistance.
- **3.6.1C:** The preliminary results and responses to questionnaire by FAO on needs assessment for laboratories to update the mapping exercise were discussed with OIE in July 2011. Work is ongoing to compile the remaining data and the information collected will be shared with OIE to update the mapping of national laboratory capacity.

[3] Some sub-activities contribute to several activities and objectives and have been indicated accordingly throughout the document.

- **3.6.1C** Harmonisation of FAO and OIE animal health laboratory mapping data will occur during the next reporting period.
- **3.6.2C:** Review of the PVS documentation available to Donors and Partners is complete and it was found that several Members would like assistance in the adaptation and adoption of international guidelines and standards for laboratories, improved communication between networks of labs in the region, as well as between sectors. In general, donor round table meetings and focused laboratory PVS missions were often cited as areas of desired intervention by the OIE.
  - Tanzania requested a laboratory-specific PVS evaluation and mission (pilot tool and mission in development, see 3.6.4G), as well as activities leading up to their expected Twinning Project Proposal for Peste des petits ruminants (PPR, proposed activity for Year 3, see 3.6.4C).
  - DRC's laboratory was identified as having many strengths, and more discussions will occur in the coming months. The laboratory often must send samples externally but had no formalized agreements and would like assistance with MOU development (discussions will continue in Year 3). Increased capacity to send biological specimens is desired, and as a result, an invitation was extended to the DRC laboratory to attend the OIE Workshop on the shipment of biological specimens according to the OIE Standards, but unfortunately they were unable to attend at the last minute.
- **3.6.3C:** The regional LNS and the indicators were re-examined in the annual review. New and modified monitoring indicators will be included during the next reporting period. These indicators will be monitored and measured each project year. Measurements for Year 2 project performance indicators are included in Annex 3.
- **3.6.4C:** Pre-twinning assessments: The SADC joint Veterinary Laboratories and Epidemiology & Informatics subcommittees recommended in June 2011 that Tanzania Central Veterinary Laboratory initiate a laboratory twinning program with one of the OIE Reference Laboratories (CIRAD or Pirbright). This twinning proposal will therefore achieve a regional mandate. Discussions were held with various officials including the Head, Deputy Head, virologist and the epidemiologist of Tanzania CVL on the processes. A letter of intent was prepared by Tanzania and delivered to OIE on August 2011. Assessment missions are intended to be conducted in the next reporting period.
- **3.6.5C:** An assessment of the Kinshasa Central Veterinary Laboratory was conducted by the OIE regional project coordinator and recent developments and upgrading of processes and improvement of quality standards since the last PVS Evaluation report were noted. The laboratory has developed an organizational structure and designated biosafety and biosecurity manager and a quality control manager. Standard Operating Procedures were under development, purchases of new diagnostic equipment and training were done with support from various sources.

S/SE ASIA

- **3.6.1S:** Mapping of laboratory capacity in OIE regional network in S/SE Asia, continues to progress. Several phases of the activity, such as identifying the gaps in data and follow-up visits of laboratories (as needed) as outlined in the LNS, will continue throughout the next reporting period.
- **3.6.2G:** Review of the PVS documentation available to Donors and Partners has been undertaken and will continue as more reports become available from countries in the region. A common theme identified within this documentation, also identified through review of assessments conducted by partner organisations and through discussions with laboratory directors whilst on mission to IDENTIFY countries, is a lack of strategic guidance in the development of laboratories or national laboratory networks. In many

cases, there is no document such as a strategic plan outlining the current roles and responsibilities of the laboratory, nor guidelines or proposals for future development. Other notable and recurring gaps in many laboratories in the region are poorly developed quality systems. Whilst some capacity building has been performed in many of these laboratories under the recently ended AusAID 'Programme for Strengthening Veterinary Services', continued engagement and capacity building is required to bring many of these laboratories up to an acceptable level.

- **3.6.3S:** No outcomes for the reporting period
- **3.6.4S:** The OIE, in collaboration with FAO, conducted country and national animal health laboratory visits to several IDENTIFY countries (see Table 3 and details below) as follow-up to the SE Asia Stakeholders Awareness meeting.
  - IDENTIFY work plans were discussed; specific capacity building needs/requests were compiled; candidates for OIE Reference Laboratory training and short-term staff exchange with OIE Reference Laboratories and Collaborating Centres (see activity 1.13) were identified; specific technical assistance that OIE can provide under the IDENTIFY project to beneficiary countries and laboratories were used to inform the Year 3 work plan.
  - Technical assistance on West Nile Virus (WNV) were expressed as a need by NIAH Thailand, and the OIE has begun coordination for staff exchange with Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale (IZS A&M) for resolution of problems with existing diagnostic tests and for the provision of further expertise.
- **3.6.5S:** Because the PVS Gap Analysis Laboratory Tool/Missions will be first implemented in SE Asia, the IDENTIFY coordinator has been actively involved in the development of the Pilot OIE PVS Pathway Laboratory Tool, the veterinary laboratory component of the OIE PVS Pathway. In this role, Dr Davis attended the initial tool development meeting, 12-13 May in Paris, France (see 3.6.4G).
- **3.6.6S:** Development of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component of the OIE PVS Pathway, began early in the reporting period (see 3.6.5G for more information).
- **3.6.7S:** The development of the pilot OIE Laboratory Focal Point training program got underway during the reporting period, and is envisioned to be first implemented in Southeast Asia (see 3.6.6G).

Table 3: 3.6.4: Country Scoping and National Animal Health Laboratory Visits

Dates	Venue	Organizer(s)	Other Information
Congo			
29 July	Central Veterinary Laboratory, Kinshasa, DRC	OIE/FAO	Aim: update of laboratory activities and status of diagnostic equipment; developments and advances since the last OIE PVS Evaluation; upgrading of processes and improvement of quality standards. Improvements were noted: developed an organizational chart, designated biosafety and biosecurity manager, quality control manager, Standard Operating Procedures under development, purchases of new diagnostic equipment, and training with support from various sources.
29 July	Department of Animal Production and Health, Kinshasa, DRC	OIE Permanent Delegate of DRC	Meeting with senior management of Department of Animal Production and Health to provide a brief on IDENTIFY Project activities

S/SE Asia			
26-28 Apr	NAHC, Vientiane, Laos	OIE	Meeting with DG of Dept. Livestock and Fisheries; Director, Head and Deputy Head, technical staff of NAHC. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY; to determine interest in opportunities to strengthen networks. Technical advice was given: suggestions to improve specimen submission; sample flow to laboratories; methods of information sharing; guidance on where and how to source assistance when needed
29 Apr	Sub-national laboratory, Luang Prabang, Laos	OIE	Meeting with technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY; to determine interest in opportunities to strengthen networks. Technical advice was given: suggestions to improve specimen submission; sample flow to laboratories; methods of information sharing; guidance on where and how to source assistance when needed
25 May	National Institute of Animal Health (NIAH), Bangkok, Thailand	OIE/FAO	Meeting with Director, Department Heads, and technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Technical advice was given: diagnostic testing for Nipah and West Nile Virus, in particular, arrangement of follow-up staff exchange at an OIE reference laboratory.
13-14 June	National Centre for Veterinary Diagnosis, Hanoi University of Agriculture, National Institute for Veterinary Research, Hanoi, Vietnam	FAO/OIE	Meeting with DG of Dept. Animal Health, Laboratory Directors, and technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on appropriate laboratory flow and suggestions on modifications for improvement for biosafety and biosecurity.
15-16 June	Regional Animal Health Office #6 (RAHO6), Ho Chi Minh, Vietnam	FAO/OIE	Meeting with DG of Dept. Animal Health, Laboratory Directors, and technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on appropriate laboratory flow and suggestions on modifications for improvement for biosafety and biosecurity.
18 July	Bbalitvet, Bogor, Indonesia	OIE/FAO	Meeting with Heads of Departments of Bbalitvet laboratory, various technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on different strategies available for improved engagement with partner laboratories and District Investigation Centres, and roles/responsibilities of leading and reference laboratories (including OIE reference laboratories).

20 July	National Institute of Animal Health (NIAH), Bangkok, Thailand	OIE	Meeting with technical staff after request for assistance to improve techniques for diagnosing WNV and Nipah virus. Outcome – proposal for support under IDENTIFY for NIAH staff to visit OIE reference laboratory to gain expertise in WNV testing. OIE acted as facilitator between AAHL and NIAH to improve outcome of Nipah testing.
29 July	Central Veterinary Laboratory, Kathmandu, Nepal	OIE/FAO	Meeting with Laboratory Director, technical staff. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on improvement of laboratory work flow for improved biosafety and biosecurity, quality control and troubleshooting on PCR diagnostic testing.
17-19 Aug	National Veterinary Research Institute, Phnom Penh, Cambodia	OIE	Meeting with OIE Delegate, Deputy Secretary General, Vice Laboratory Director, technical staff at the National Veterinary Research Institute, and MoH representatives. Purpose: to present EPT/IDENTIFY; to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on advocacy for improved veterinary legislation and institution quality management systems in the laboratory.

Activity 3.7*:* Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

GLOBAL

- **3.7.1G:** OIE HQ has assisted the efforts of the SE Asia regional team.

CONGO

- **3.7.1C:** A joint stakeholders meeting for the Congo region is projected for early 2012 and preparations for that meeting will commence in the next reporting period. The regional tripartite project coordinators agreed that the main objective of the meeting will be to review the project activities/outputs.

S/SE ASIA

- **3.7.1S:** Critical preparations for the upcoming Third Laboratory Directors' Forum Meeting (see Annex 5 for meeting agenda, concept note, and draft strategic framework) were completed in this reporting period. The meeting will be held 18-21 Oct in Kuala Lumpur, Malaysia and its aim is to finalize the strategic framework for regional EID laboratory capacity building and networking.
  - Achievements to date on this activity are: concept note and terms of reference drafted, finalized and distributed to participants; invitations prepared and sent; agenda drafted and distributed to participants; budget formulated; contracts with host venue completed; meeting arrangements finalized.
- **3.7.1S:** OIE, in collaboration with regional coordinators from FAO and WHO, is co-organising the second IDENTIFY Stakeholder's meeting in Kuala Lumpur 19-21 October entitled 'Meeting on Laboratory Strengthening for Emerging Infectious Disease Diagnosis in the Asia Pacific' (see Annex 6 for meeting agenda and concept note). This meeting is the first time in the larger Asia Pacific region that in a high-profile joint meeting of Animal Health and Public Health Laboratories have come together.
  - This meeting will involve separate but parallel Public Health and Animal Health consultative sessions, as well as a joint opening and a full-day cross-sectoral meeting with recommendations for future collaboration and IDENTIFY activities in the areas

of biosafety/biosecurity, laboratory strategic planning, occupational health and safety. Organisation of this meeting has involved numerous tripartite (FAO/OIE/WHO) teleconferences, emails and face to face side meetings at other events.
  - OIE, in collaboration with FAO, has made arrangements for support of Laboratory Directors and technical staff from National Animal Health Laboratories from IDENTIFY countries to attend this meeting.
  - Participating countries: Bangladesh; Cambodia; China; Indonesia; Lao PDR; Malaysia; Nepal; Philippines; Thailand; Vietnam
  - Achievements to date on this activity are: concept note and terms of reference drafted, finalized and distributed to participants; invitations prepared and sent; agenda drafted and distributed to participants; budget formulated; contracts with host venue completed; meeting arrangements finalized.
- **3.7.1S:** The IDENTIFY Animal Health Stakeholders Awareness Meeting was held from 20-21 January 2011 in Bangkok Thailand; the meeting report was finalized in May after receiving Stakeholders' comments, and was posted on the SharePoint and OIE SRR SEA website, and submitted to USAID/W.
- **3.7.1S:** The OIE participated as member of the Meeting Secretariat and presenter to the Informal Consultation of a Draft Asia Pacific Laboratory Action Plan for Emerging Infectious Diseases held in Manila, Philippines, organised by WPRO 19-20 May. Dr Davis presented on One Health, the Tripartite (FAO/OIE/WHO) approach, and EPT/IDENTIFY activities. WPRO country members engaged in development of a 5-year laboratory work plan under the Asia Pacific Strategy for Emerging Diseases (APSED). The participation of OIE provided opportunity to promote a 'One Health' approach and stress the importance of engaging the animal health sector as a partner as well as a stakeholder. At the conference Dr Davis also delivered a presentation entitled "Animal Health Regional Laboratory Networking".

Output 3. Technical Capacity Building - Development of guidance, policy and training

Activity 3.8*:* Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

GLOBAL
- **3.8.1G:** All IDENTIFY countries' National Animal Health Laboratory Directors were invited by the OIE to attend the OIE Global Conference on Rabies Control, 7-9 Sept Seoul, Republic of Korea. This conference was held in collaboration with FAO and WHO.
  - The meeting agenda included a session on Scientific Advances: Current and future tools available for rabies control which included presentations and discussions concerning new diagnostic tools for rabies in animals and the latest advancements in vaccine development.
  - Many recommendations concerning rabies control were developed, and included several related to laboratory issues:
    - Definitive diagnosis of rabies in animals should only be confirmed by laboratory tests as described in the OIE Terrestrial Manual;
    - OIE Reference Laboratories and WHO Collaborating Centres should continue their work on international harmonization of laboratory methods for the diagnosis and the quality control of vaccines as well as development/evaluation of new techniques and methodologies for rabies control; and

- Laboratory twinning/training programmes should be encouraged to further improve diagnostic capability in laboratories in developing countries.

- The future development of the Southeast Asia Rabies Network (see 3.12.6S) will be based upon these recommendations and include a laboratory component. A laboratory in the region will be nominated by the countries at the regional reference laboratory for the disease.
- The South and East Africa Rabies Group (SEARG), composed of many IDENTIFY country representatives for which the participation was supported by OIE IDENTIFY, contributed to the development of the recommendations, including those related to laboratories.

Table 4: 3.8.1: Support of country representatives in international and regional meetings/conferences

Dates	Event Title	Venue	Organizer(s)	Participating IDENTIFY Countries	Other Information
Global					
7-9 Sept	OIE Global Conference on Rabies Control: Towards sustainable prevention at the source	Incheon-Seoul, Republic of Korea	OIE	CONGO BASIN: Uganda, Tanzania Republic of Congo, Gabon, Angola; S/SE ASIA: China; Indonesia; Malaysia; Nepal; Thailand; Vietnam	Participants: Laboratory Directors and OIE Delegates. Concerns of rabies in Congo Basin articulated. Purpose: to assess the global rabies situation, to develop recommendations for sustainable prevention and detection of rabies at the animal source. Held in collaboration with FAO & WHO
S/SE Asia					
4-5 Aug	Regional Laboratory Network Technical Advisory Group meeting	Bangkok, Thailand	OIE/FAO	China; Malaysia; Thailand; Vietnam	Purpose: to update partners on activities implemented under 'Regional Framework for Capacity Building for Animal Influenza Diagnosis and Networking' (see Annex 5); to identify expected outcomes for implementation of future activities under key strategic areas; to draft 'Regional Framework for Laboratory Capacity Building and Networking in Southeast Asia'.

- **3.8.2G:** No outcomes for the reporting period
- **3.8.3G:** No outcomes for the reporting period

CONGO

- **3.8.1C:** Information on planned trainings for Year 2 of the project was shared between FAO/OIE/WHO and other EPT partners. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.
- **3.8.2C:** No outcomes for the reporting period
- **3.8.3C:** No outcomes for the reporting period
- **3.8.4C:** No outcomes for the reporting period

S/SE ASIA
- **3.8.1S:** See Table 4 above
- **3.8.1S:** Information on planned trainings for Year 2 of the project was shared between FAO/OIE/WHO. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.
- **3.8.2S:** No outcomes for the reporting period
- **3.8.3S:** No outcomes for the reporting period

Activity 3.9*:* Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

GLOBAL
- **3.9.1G:** The OIE Headquarters project coordinators assisted the Congo Basin regional team in the preparations (logistics, invitations, budgets, and other administrative tasks) for the Training workshop on OIE standards for collection and shipping of samples held in Nairobi, Kenya, 9-11 Aug.
- **3.9.2G:** The OIE *ad hoc* group on Biosafety and Biosecurity met 19-22 Sept in Paris, France to discuss the existing OIE Guidelines on Biosafety and Biosecurity in veterinary laboratories and for the shipment of infectious substances to veterinary laboratories; to consider existing OIE and other international standards/guidelines and to revise OIE Standards if needed; to discuss collaboration with WHO on the possibility of developing joint OIE/WHO guidelines for laboratory biosafety and biosecurity; to consider existing barriers to rapid and secure transfer of infectious substances and identify possible measures to improve the current situation, including: developing a standard shipment form for veterinary diagnostic samples to facilitate their shipment to veterinary diagnostic laboratories (follow-up to the Recommendation No. 11 of the Second Global Conference of OIE Reference Laboratories and Collaborating Centres and building on chapter 1.1.1. item C. of the Terrestrial Manual); identify common actions for WHO and OIE directed to specific relevant organisations (UNCTAD, IATA, etc.) for facilitating shipment of infectious substances to veterinary laboratories.
  - While no IDENTIFY funds were used for this activity, the IDENTIFY coordinators will follow the work of this *ad hoc* group for any opportunities for collaboration on the IDENTIFY activities concerning biosafety, biosecurity and biothreat reduction.
- **3.9.3G:** OFFLU Technical Project on the development of LAMP as a diagnostic tool tailored to developing country situations has made concrete progress: the scientific validation of novel diagnostic tools (LAMP and other commercial kits) for sensitive and specific detection of influenza of H5 subtype has occurred; enhancement of the international laboratory networking and capacity building of basic laboratories in Asia and/or Africa is underway, and preparations for the application and training of techniques for test validation will begin in the next reporting period.

- Avian influenza is an IDENTIFY priority disease for Congo Basin and South and Southeast Asia. The overall goal of this project is to refine and validate at the country level a tool, a method and a strategy that enables laboratories lacking resources to accurately, confidently and in a user-friendly way, diagnose avian influenza and other diseases with low cost and by use of basic equipment that can be easily maintained and repaired with the integration of a colorimetric system to read results with the naked eye. This will be beneficial to countries to support more rapid and accurate diagnosis of animal diseases, as many labs cannot afford and/or maintain the machines to read results with existing kits. LAMP as a technology can be used for many different transboundary and zoonotic diseases (rabies, FMD, ASF, ND, etc.), the project focuses on LAMP-primers targeting avian and swine influenza, including the HPAI H5N1 strain and the novel 2009 H1N1 pandemic strain. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.
- Preliminary results show that LAMP, an isothermal nucleic acid amplification assay, is a reliable test for fast and low-cost diagnosis of avian influenza of H5-subtype. LAMP has the advantage of being highly sensitive (as compared to rapid tests and conventional PCR), is based on nucleic acid detection and thus makes it bio-safe, robust and more independent of maintaining a cold chain for the samples transported to the lab. Theoretically, the LAMP assay as a simple genetic diagnostic technique finds its niche in the unique possibility of visualization of a positive reaction. This would make its application autonomous of expensive equipment and therefore a perfect tool for laboratories with limited capacities.
- The evaluated H5-specific RT-LAMP assay developed by IAEA is much cheaper than LFD (while being almost as rapid) and in addition much more sensitive with a comparable sensitivity to PCR. Further, the IAEA designed H5 specific LAMP kit has the favourable advantage of delivery as lyophilised format, which makes it possible to transport and store it for one to one-and-half years under room temperature (25°C) without the need for constant -20°C freezing conditions.
- Preliminary discussions were held with FLI to include this activity and the funding for a one year extension in the OIE IDENTIFY Year 3 Work Plan, submitted to USAID 1 Sept.

CONGO

- **3.9.1C:** All IDENTIFY countries in the region were invited to attend the IDENTIFY Workshop on OIE Standards for Collection & Shipment of Biological Samples, held in Nairobi, Kenya at the Kabete Central Laboratory, 9-11 Aug (see Annex 7 for more information).
  - Achievements on this activity are: participants trained in OIE Standards on shipment of biological specimens; IDENTIFY laboratory representatives participated in hands-on practical sessions on shipment preparation, troubleshooting, and problem solving; IDENTIFY laboratories learned about focused capacity building opportunities with OIE Reference Laboratories and the OIE Twinning program; Linkages with UN regulated biological specimen containers suppliers were made; FAO collaborated as speaker; IATA-certified trainer trained participants; Private sector trainer from equipment suppliers conducted practical session on proper handling and PPE for specimen shipment and spills.
  - Participating countries: Cameroon, Central African Republic, Gabon, Republic of Congo, Rwanda, Uganda, Tanzania, Angola, Ethiopia, Kenya, Sudan and South Sudan. Participants: Directors of national/central veterinary laboratories, veterinary

pathologists, virologists and officials in charge of receiving and sending out biological samples.

- **3.9.1C:** The PREDICT Project Training Guides and Protocols (April 2011): Guide to Packing and Shipping Biological Samples were received and will be made available/distributed to IDENTIFY in-country contacts.
- **3.9.2C:** Critical preparations for two OIE Focal Point trainings occurred during the reporting period: OIE Regional training course on surveillance and notification of wildlife diseases for OIE Wildlife Focal Points from English Speaking countries in Nairobi (4-6 October 2011) and for French-speaking Africa (28 November – 1 December 2011) were well-advanced.
  - Achievements during this reporting period included: concept note for each training drafted; program/agenda for each training drafted; participating countries identified and invitations issued; budgets formulated; participants registered for the courses.
  - 9 IDENTIFY countries were invited to benefit from this training under the auspices of the EPT/IDENTIFY project: Cameroon, Central African Republic, Congo (Dem. Rep), Congo (Rep), Equatorial Guinea, Gabon, Rwanda, Tanzania and Uganda (see Annex 8 for more information). Familiarisation with OIE Listed Diseases of attending members of Veterinary Services will occur and wildlife diseases surveillance in country and notification to the OIE is expected to improve.
- **3.9.3C:** Field testing planning began for some Congo Basin countries (Cameroon and Tanzania are currently under discussion). See 3.9.3G for additional information.

S/SE ASIA

- **3.9.1S:** See 3.8.1S and Table 4 for additional information.
- **3.9.2S:** No outcomes for the reporting period
- **3.9.3S:** Field testing planning of the new LAMP diagnostic assay with results reading for the naked eye was initiated with some S/SE Asia countries (Philippines, Nepal and Lao PDR are currently under discussion). See 3.9.3G for additional information.
- **3.9.4S:** See 3.7.1S for additional information.
- **3.9.5S:** OIE, in collaboration with the Australian Animal Health Laboratory, developed plans for a workshop and follow-up consultative country missions to assist IDENTIFY countries to develop strategic plans for National Animal Health Laboratories and the country network of laboratories (to be held in Geelong, Australia, tentatively February 2012).
  - This IDENTIFY-supported workshop (to be conducted in Year 3 as stated in proposed work plan) will address this deficit, to build capacity of laboratory directors (LD) in the principles and tools of developing strategic plans, to directly assist LDs in drafting a strategic plan, and provide them with guidance on the further elaboration and stakeholder buy-in, of the strategic plan back in the respective countries. Further one-on-one assistance in the development/elaboration of strategic plans will be provided under the IDENTIFY project in the form of follow up visits to countries by OIE and strategic planning experts. The objectives of the workshop are to assist LD in initiating a draft strategic plan from a generic template and provide guidance in following the development process back in country, to educate LD in the importance as well as basic concepts of strategic planning, and to offer participants an opportunity to gain insight into an existing and well-established laboratory network, including linkages with other sectors, engagement with stakeholders, the various management systems and processes for developing and maintaining strategic plans, and to understand the impact that these plans can have on improved diagnosis and of emerging pathogens and overall functioning of the laboratory.

  - Development of this proposal included reviews of laboratory performance and capacity within OIE PVS Evaluations and Gap Analysis reports (see 3.6.2S), Laboratory Assessments performed by various International Partners, as well as Country and Laboratory visits by OIE staff; a budget, concept note, and an agenda were drafted and submitted for approval.
- **3.9.6S:** Technical assistance was provided in the development of a pathology workshop to be held in the region in 2012. Objectives of this workshop are to build capacity in interpretation of gross pathologic changes to enable differential diagnosis, gain competence in necropsy procedure and sample collection, and expand expertise for sample packaging and submission.
- **3.9.6S:** Technical assistance was provided by the OIE to the Vietnamese Ministry of Agriculture and Rural Development, Department of Animal Health (DAH) in relation to their investigation of an unknown disease of cultured shrimp. Via the expertise of the President of the OIE Aquatic Animal Health Standards Commission and head of the OIE Reference Laboratory for shrimp diseases, Prof. Donald Lightner, an investigation was implemented to confirm the preliminary diagnosis and recommend applicable control measures. The results of the analysis undertaken by Prof. Don Lightner contributed to identifying and confirming the aetiology of the disease causing shrimp mortality. **3.9.7S:** Preparatory work for staff exchange between NIAH, Thailand and the OIE reference laboratory Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale (IZS A&M) in Terumo, Italy for development of expertise in the IDENTIFY priority disease West Nile Fever has been undertaken.
  - The OIE Reference Laboratory has been contacted and has provided an offer of assistance; development of a program and budget is underway (as proposed in Year 3 Work Plan).
  - The aim of this activity is to create opportunities for laboratory diagnosticians in SE Asia (initially from the Thailand later to be expanded to other South East Asia IDENTIFY countries after evaluation of the experience) to gain experience and technical guidance from experts of OIE Reference Laboratories (see 3.13.1S for additional information).
- **3.9.8S:** See 3.8.1S and Table 4 for additional information.

Output 4. Technical Capacity Building - Laboratory Quality Systems

Activity 3.10*:* Promote and support laboratory quality management

GLOBAL
- **3.10.1G:** The development of OIE resource documents by IDENTIFY disease (to be distributed to IDENTIFY laboratories) has begun. Each document will include references from the OIE Terrestrial Animal Health Code, the OIE Manual of Diagnostic Tests and Vaccines for terrestrial Animals, and other OIE reference documents, as well as relevant scientific literature published by the OIE. This series of documents was developed as an aid for the IDENTIFY targeted diseases in settings where access and familiarity to the OIE standards may be limited.
- **3.10.1G:** Final modifications of the EQA portion of the Global Survey results were agreed upon and will be published jointly by OIE, WHO, FAO, and IAEA in excel format. The file will contain 4 data sheets (EQA providers for human samples, food samples, environmental samples, terrestrial and aquatic animal samples), will be password

protected and will be hosted by WHO with cover letters and hyperlinks on each organisations websites to the WHO webpage.

CONGO

- **3.10.1C:** No outcomes for the reporting period
- **3.10.2C:** No outcomes for the reporting period
- **3.10.3C:** No outcomes for the reporting period

S/SE ASIA

- **3.10.1S:** No outcomes for the reporting period
- **3.10.2S:** The OIE began developing an activity to promote occupational health and safety (OH&S) programs during the reporting period.
  - There is increasing demand on diagnostic laboratories to expand their range of testing capabilities and receive samples that may contain new or emerging infectious agents; increased risk to staff health and safety must be acknowledged and addressed. Increasing diagnostic capacity to be achieved through the IDENTIFY project must be accompanied by effective occupational health and safety (OH&S) programs. The purpose of this IDENTIFY activity is to promote awareness of OH&S issues, to build capacity to perform OH&S risk assessments, to perform a workplace risk assessment, and to identify gaps and provide recommendations to improve OH&S issues.
  - A regional training workshop on OH&S (to be potentially combined with Quality Management Systems activity – see 3.10.3S, as outlined in proposed Year 3 Work Plan) is planned on issues such as the importance of OH&S in the laboratory, development of OH&S policy, in-house risk assessments including identification and evaluation of hazards, and providing methods of addressing these issues, including detailed case studies. Country-level consultations at the national animal health laboratory to conduct a country-specific risk assessment and make recommendations to address OH&S issues.
- **3.10.3S:** The OIE began developing an activity to promote quality management systems during the reporting period.
  - To ensure confidence in laboratory test results, test methods must be properly validated with respect to their intended application, within a standardized setting, and they must be performed by proficient technicians. Validation, often referring to specific tests for known agents (normative diseases)also refers to cross cutting techniques and the adoption of general principles of quality assurance, that combined contribute to improved performance in the diagnosis of new or emerging infectious agents. Across South East Asia, quality assurance standards within laboratories are quite variable and it is believed that obtaining accreditation by national or international certifying organisations may be seen as a great hurdle. This activity proposes to assist less developed laboratories to improve general quality assurance within OIE guidelines and to guide more developed laboratories in obtaining a level of performance acceptable for accreditation.
  - This IDENTIFY activity (to be conducted as stated in the proposed Year 3 Work Plan) will promote the use of a quality management system (QMS) within national animal health laboratories and establish a QMS tailored to individual national animal health laboratories in the region based upon the OIE guidelines. Where a QMS is already in place, the QMS will be reviewed and recommendations made for identified gaps; in the absence of a QMS, countries will be encouraged to nominate a laboratory quality manager with established responsibilities.

Output 5. Technical Capacity Building - Building laboratory infrastructure

Activity 3.11*:* Provision of laboratory equipment and supplies in a coordinated manner

Procurement activities under the OIE IDENTIFY Project occur only in the framework of OIE Twinning Projects (see 3.13)

Output 6. Technical Capacity Building - Laboratory Networking

Activity 3.12*:* Support and promote laboratory networks

GLOBAL

- **3.12.1G, 3.12.2G & 3.12.3G:** One OIE Headquarters staff attended and presented at the EDPLN regional meeting in Kuala Lumpur, 20-22 Sept on "Global Cooperation and Encountering Emerging Animal and Zoonotic Diseases"
  - The coordination of this sub-activity is provided in-kind by HQ staff as a component of normal OIE activities. At the regional level, these sub-activities have more concrete contribution under the IDENTIFY project. It is important that these linkages exist and that these activities are supported at the HQ level.
- **3.12.4G:** Informal discussions were held between the IDENTIFY project coordinators and various OIE Reference Laboratories (e.g. Botswana Vaccine Institute, Onderstepoort Veterinary Institute, Institute for Animal Health-Pirbright) concerning their potential involvement in various IDENTIFY activities, such as the Twinning Orientation Meeting for IDENTIFY country laboratory directors and proficiency testing and SOP harmonization activities planned in Year 3 (see 3.13.3S).
  - BVI participated as a trainer and facilitator in the Training workshop on OIE standards for collection and shipping of samples held in Nairobi, Kenya, 9-11 Aug
  - IAH-Pirbright began further focused laboratory capacity building with NADDEC, an extension of the existing OIE Twinning Project on improved diagnostic capacity.
- **3.12.5G:** The coordination of this sub-activity is provided in-kind by HQ staff as a component of normal OIE activities. It is important that these linkages exist and that these activities are supported at the HQ level.

CONGO

- **3.12.1C:** See Table 5 below for further information.

Table 5: 3.12.1-3: OIE support for networks for improving laboratory capacity and networking in hot spot regions

Dates	Event Title	Venue	Organizer	Other Information
Congo Basin				
June 22 - 23	SADC Joint Sub-Committee meeting: EIS and VET LABS	Johannesburg South Africa	SADC TADs Project	Representatives from central veterinary laboratories and epidemiologists of Tanzania, DRC, Angola and Zambia participated. Updates on new salmonella international standard test approved by the

				OIE World Assembly of Delegates and other updates of the OIE Manual. PPR control strategy for affected countries (TZ and DRC) and a regional strategy proposal were discussed. A network for e-discussions was formed. Agreed that TZ will pursue an OIE Twinning project on PPR. FAO also participated.
June 6 – 8	SADC cross-border harmonisation meeting between with regard to PPR	Chingola, Zambia	SADC TADs Project	DRC, Tanzania, Angola and Zambia. Agreement on conduct of surveillance for PPR in at-risk countries (Angola and Zambia). Agreement to use competitive ELISA as standard test and to harmonise test. Agreement to share information on results and improve networking.
S/SE Asia				
19-20 May	Informal Consultation on a Draft Asia Pacific Laboratory Action Plan (2011 – 2015) for Emerging Infectious Diseases	Manila, Philippines	WHO-WPRO	See 3.7.1S
21-22 July	Regional Laboratory Network Workshop in Diagnostic and Characterization of Priority and Emerging Diseases in Swine	RAHO6, Ho Chi Minh, Vietnam	FAO	See 3.1.1S
27-29 July	Consultative Workshop on Regional Epidemiology and Laboratory networking in the SAARC region	Radisson Hotel, Kathmandu, Nepal	FAO	See 3.1.1S
4-5 Aug	Regional Laboratory Network Technical Advisory Group meeting	Siam Hotel, Bangkok, Thailand	FAO/OIE	See 3.8.1S
20-22 Sept	Regional Workshop on Emerging and Dangerous Pathogens Laboratory Network (EDPLN)	Marriott Hotel, Jakarta, Indonesia	WHO (SEARO)	See 3.1.1S

- **3.12.2C:** Joint regional laboratory networks and epidemiological networks across animal health, including implementation of regional guiding principles for surveillance and diagnosis on IDENTIFY-targeted diseases was supported through participation of DRC and Tanzania (funded by OIE IDENTIFY) in the SADC Epidemiology & Informatics and VET LABS networks.

- The joint meeting of the networks discussed the common approach to surveillance and testing of PPR in the affected and at risk countries. Integrated PPR Control Strategy was discussed and a working group formed. An OIE expert had intended to provide a PPR expert but could not; this will occur in the next reporting period to give direction to the integrated PPR strategy and to link to the work of the global OIE PPR Working Group.

- **3.12.3C:** See Table 5 below for further information.
- **3.12.4C:** OIE Reference Laboratories and Collaborating Centres in the African region are prepared to offer expertise on diseases and Congo Basin technical areas relevant to the region. The OIE will continue working with the IDENTIFY laboratories to link up expertise with needs of the IDENTIFY laboratories in the form of focused capacity building and training opportunities:
  - The Botswana Vaccine Institute (BVI) have pledged their support to the activities of national veterinary laboratories in the Congo Basin through availing their expertise to upcoming meetings, technical support to FMD sample collection, preservation, shipping, documentation and diagnostics. BVI offered a training officer for the OIE workshop on shipment of biological specimens conducted in August 2011.
  - Onderstepoort Veterinary Institute (OVI) have pledged their support to the activities of national veterinary laboratories in the Congo Basin through availing their experts to upcoming meetings, technical support for sample collection, documentation and diagnostics. OVI is ready to provide expertise for various activities of the OIE IDENTIFY Project with respect to the multiple disease expertise available.

S/SE ASIA

- **3.12.1S:** See Table 5 below for further information.
- **3.12.2S:** See Table 5 below for further information.
- **3.12.3S:** See Table 5 below for further information.
- **3.12.4S:** See 3.13.1S for further information.
- **3.12.5S:** The second joint assessment mission of the FAO/WHO Four-way linking of epidemiological and virological information on human and animal influenza project occurred 17 June in Vietnam. Mission results were presented including gaps in information sharing between Laboratory/Epidemiology departments, and Animal and Public Health sectors.
  - Although IDENTIFY funds were not used by the OIE for this activity, the OIE did provide an OIE expert to participate in the mission to Vietnam using other funds and the OIE IDENTIFY coordinator is involved in planning for the follow up risk assessment workshop.
- **3.12.6S:** The OIE began developing and planning for the first meeting of the South East Asia Rabies Network during the reporting period.
  - This activity aims to develop a multi-sectoral strategy including a laboratory component to control rabies in South East Asia that would focus in getting resources from governments, international organizations and other partners to support rabies control in the region and to further develop this framework into a robust strategy to control rabies in ASEAN. It is also foreseen that a national animal health laboratory will be nominated as a regional reference laboratory for the network. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

Activity 3.13*:* Support and promote laboratory twinning initiatives and partnerships

GLOBAL

- **3.13.1G and 3.13.2G:** Discussions on several potential OIE Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases (see sub-activity 3.13.1C). OIE Twinning projects are approved and overseen at the HQ level with involvement from regional counterparts. The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.

CONGO

- **3.13.1C and 3.13.2C:** Discussions on several potential OIE Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases. The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.
  - Central Veterinary Laboratory (CVL Temeke) of Tanzania and CIRAD of France on Peste des Petits Ruminants (PPR)
  - Ethiopian Central Veterinary Laboratory and OIE Reference Laboratory (TBD, when decision taken to pursue twinning on FMD or PPR)
- **3.13.1C and 3.13.2C:** The OIE Laboratory Twinning Program, in support of the advancement of the laboratory networks and diagnostic capacity, was discussed with stakeholders in technical meetings of veterinary laboratories and epidemiology networks.
  - The Tanzania Central Veterinary Laboratory in the Congo Basin region expressed interest in further collaboration in the framework of PPR diagnostics through the Laboratory Twinning Project with CIRAD and submitted their request in August 2011. The laboratory sought further clarifications on the program and was provided with reference materials on proposal writing, letters of intent, and guidelines, and was put in contact with the OIE Twinning program officer.
  - DRC CVL also expressed interested in capacity building for African swine fever but this discussion was deferred to until the OIE PVS Gap Analysis mission was completed.
  - Cameroon (LANAVET) expressed interest in an OIE Twinning Project and was put in contact with OIE HQ and provided the procedure for application for a Twinning project.
- **3.13.3C:** Planning for an OIE-organised orientation for National Laboratory Directors focused on introduction to the OIE laboratory strengthening resources, the OIE Twinning Program, roles and responsibilities of OIE Twinning Candidates, and networking with OIE Reference Laboratories and Collaborating Centres, tentatively scheduled for January 2012, began this reporting period (See sub-activity 3.13.3C Uganda country plan in the Year 3 Work Plan).
- **3.13.4G:** The proposal (see Annex 9) for the Special Project for focused laboratory capacity building for NADDEC in Entebbe, Uganda in the framework of the Special Project for Additional Support for OIE Twinning Projects was approved and funded in this project period. After exploratory conversations following the Stakeholders' meeting in Uganda in November, the initial proposal was received by OIE in March, a revised proposal was received in August, and the final proposal was completed in September 2011.

- The OIE further refined the pilot project framework and concept note and interacted with IAH Pirbright throughout the reporting period to obtain a satisfactory application for focused capacity building funding complementary to the existing OIE Twinning Project between NADDEC and Pirbright on improving diagnostic capacity consistent with the IDENTIFY project.
- IAH Pirbright conducted a field mission to NADDEC in Entebbe, Uganda for budget refinement and validation of requested focused laboratory capacity building, and based on this the OIE drafted and signed an agent agreement between IAH Pirbright and the OIE to carry out procurement of necessary equipment outlined in the project budget and to begin planning project activities, including samples collection and diagnosis.
- IAH-Pirbright began further focused laboratory capacity building with NADDEC, an extension of the existing OIE Twinning Project on improved diagnostic capacity.
  - The current OIE-funded Twinning Project aims at providing training and interactions between IAH-Pirbright and NADDEC, however this project cannot, due to funding restrictions, fully address the gaps in diagnostic capacity required to achieve all goals, including goals for the IDENTIFY project. These gaps are the target of the IDENTIFY Special Project funds.
  - The aim of this IDENTIFY activity is to improve the accurate and timely diagnosis of animal diseases in Uganda and in the Congo Basin region by stimulating sample flow from the districts in the field to the national veterinary laboratory through training and equipping the veterinary services. Currently many disease outbreaks in Uganda go undiagnosed so it is essential to stimulate the flow of samples between the field and the diagnostic laboratory. In this way the vets and farmers will gain trust and confidence in the ability of the national reference lab to provide timely and accurate diagnosis, so that relevant control measures can be rapidly initiated.
  - Additionally, the project aims to set up and standardize a national serum and virus bank for improved testing, initiating research projects and collaborations with other institutions; Provide capacity for the early disease detection and diagnosis of livestock diseases through efficient and effective national veterinary surveillance and diagnostic systems; Augment the laboratory's capacity to standardize and evaluate selected serological and molecular tests and set up tissue culture facilities for virus isolation; Refurbish existing animal facilities which will open up the possibility of using animal infections to develop diagnostic material and test vaccines through animal experiments; Purchase essential equipment in order to increase the diagnostic capacity of the lab and enable further tests to be carried out; Evaluate and streamline the existing laboratory quality management and biosecurity standards; Stimulate further national and international collaborations for enhanced disease diagnosis and effective control in the Eastern and Central African region.

S/SE ASIA

- **3.13.1S:** No outcomes for the reporting period
- **3.13.2S:** Preparatory work for staff exchange between NIAH, Thailand and the OIE reference laboratory Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale (IZS A&M) in Terumo, Italy for development of expertise in the IDENTIFY priority disease West Nile Fever has been undertaken.
  - The OIE reference laboratory has been contacted and has provided an offer of assistance; development of a program and budget is underway. The aim of this activity is to create opportunities for laboratory diagnosticians in SE Asia (initially from the

Thailand later to be expanded to other South East Asia IDENTIFY countries after evaluation of the experience) to gain experience and technical guidance from experts of OIE Reference Laboratories. The NIAH currently has active and passive surveillance of WNV using a c-ELISA; however, they hope to establish a plaque reduction neutralization test to further characterize any positive results they may encounter. Furthermore, they are interested in becoming a resource center for WNV in the region and would like to further develop their expertise in diagnosis/characterization of this agent. The objective of the visit is to refine/learn new diagnostic techniques, engage with the global network of expertise on WNV, and better understand any issues surrounding the development and maintenance of techniques/expertise for the diagnosis of this disease. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

- The OIE is planning additional short-term staff exchanges between national laboratories in the region and OIE Reference Laboratory and Collaborating Centres and OIE Twinning Candidates for the IDENTIFY targeted diseases. Additional partnerships will be determined next quarter.

Activities undertaken during the reporting period, by country

Congo Basin Regional Activities

Democratic Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Visit to Central Veterinary Laboratory	29 July	Kinshasa, DRC	OIE/FAO IDENTIFY Focal points conducted the visit together to receive a brief outline of laboratory activities and status of diagnostic equipment for updating the mapping exercise. Provided guidance on development of laboratory SOPs with reference to OIE standards (Manual).
Meeting with senior management of Department of animal production and health	29 July	Kinshasa, DRC	Brief on IDENTIFY Project activities to OIE Permanent Delegate of DRC and his senior management staff.
Interest in OIE Twinning Project for Kinshasa Central Veterinary Laboratory and OIE Reference Laboratory on ASF	July 2011, ongoing	Kinshasa, DRC	Initial expression of interest on capacity building for ASF diagnostics through an OIE Twinning project.
Uganda Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Director and Deputy Director of NADDEC (see Annex 7 for details). Director is certified IATA trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases. FAO collaboration: speaker/trainer.
OIE Global Conference on Rabies	7-9 Sept	Seoul, South Korea	Director of NADDEC participated; Support to SEARG Network; in collaboration with FAO and WHO; Participated in discussions concerning new diagnostic tools for rabies in animals and the latest advancements in vaccine development & the development of recommendations related to laboratories and rabies: definitive diagnosis of rabies in animals should only be confirmed by laboratory tests as described in the OIE Terrestrial Manual; OIE Reference Laboratories and WHO Collaborating Centres should continue their work on international harmonization of laboratory methods for the diagnosis and the quality control of vaccines as well as development/evaluation of new techniques and methodologies for rabies control; Laboratory twinning/training programmes should be encouraged to further improve

			diagnostic capability in laboratories in developing countries
Special Project for focused laboratory capacity building	Sept 2011, ongoing	NADDEC, Entebbe, Uganda	Aim: to improve the accurate and timely diagnosis of animal diseases in Uganda and in Congo Basin by stimulating sample flow from field to NADDEC through field training; to set up and standardize national serum & virus bank; initiating research projects and collaborations; to provide capacity for early disease detection and diagnosis; to refurbish animal facilities to purchase essential equipment to increase diagnostic capacity; to evaluate & streamline existing laboratory quality management and biosecurity standards.
Cameroon Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Veterinarian Assistant Chief of Service for Virology participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
OIE Global Conference on Rabies	7-9 Sept	Seoul, South Korea	Laboratory Director participated; Support to SEARG Network; in collaboration with FAO and WHO; Participated in discussions concerning new diagnostic tools for rabies in animals and the latest advancements in vaccine development & the development of recommendations related to laboratories and rabies: definitive diagnosis of rabies in animals should only be confirmed by laboratory tests as described in the OIE Terrestrial Manual; OIE Reference Laboratories and WHO Collaborating Centres should continue their work on international harmonization of laboratory methods for the diagnosis and the quality control of vaccines as well as development/evaluation of new techniques and methodologies for rabies control; Laboratory twinning/training programmes should be encouraged to further improve diagnostic capability in laboratories in developing countries
Interest in OIE Twinning Project for Cameroon Central Veterinary Laboratory LANAVET and OIE Reference Laboratory on IDENTIFY disease	May 2011, ongoing	Cameroon Central Veterinary Laboratory LANAVE	Expressed interest in an OIE Twinning Project and was provided information on the application procedure

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Gabon Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Responsable Laboratoire participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
OIE Global Conference on Rabies	7-9 Sept	Seoul, South Korea	Laboratory Director participated; Support to SEARG Network; in collaboration with FAO and WHO; Participated in discussions concerning new diagnostic tools for rabies in animals and the latest advancements in vaccine development & the development of recommendations related to laboratories and rabies: definitive diagnosis of rabies in animals should only be confirmed by laboratory tests as described in the OIE Terrestrial Manual; OIE Reference Laboratories and WHO Collaborating Centres should continue their work on international harmonization of laboratory methods for the diagnosis and the quality control of vaccines as well as development/evaluation of new techniques and methodologies for rabies control; Laboratory twinning/training programmes should be encouraged to further improve diagnostic capability in laboratories in developing countries
Central African Republic Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Directeur de la Santé Animale Responsable du Laboratoire Central Veterinaire participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Chef de service des Epizooties, Responsable Assurance Qualité participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas

			of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Rwanda Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Disease Control Specialist participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Tanzania Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Principal Veterinary Research Officer participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
OIE Global Conference on Rabies	7-9 Sept	Seoul, South Korea	Laboratory Director participated; Support to SEARG Network; in collaboration with FAO and WHO; Participated in discussions concerning new diagnostic tools for rabies in animals and the latest advancements in vaccine development & the development of recommendations related to laboratories and rabies: definitive diagnosis of rabies in animals should only be confirmed by laboratory tests as described in the OIE Terrestrial Manual; OIE Reference Laboratories and WHO Collaborating Centres should continue their work on international harmonization of laboratory methods for the diagnosis and the quality control of vaccines as well as development/evaluation of new techniques and methodologies for rabies control; Laboratory twinning/training programmes should be encouraged to further improve diagnostic capability in laboratories in developing countries
Support for OIE Twinning Project for Tanzania Central Veterinary Laboratory and OIE Reference Laboratory on PPR	May 2011, ongoing	Tanzania Central Veterinary Laboratory	Information provided on OIE Twinning program to various Tanzanian officials including Head of Laboratory, Deputy Head
South Sudan Activities			

Event Title/Activity	Dates	Venue	Other Information
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Director of Disease and Vector Control participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Angola			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Quality Manager participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Ethiopia			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Laboratory Director participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Support for OIE Twinning Project for Ethiopian Central Veterinary Laboratory and OIE Reference Laboratory on FMD or PPR (TBD)	May 2011, ongoing	Ethiopia Central Veterinary Laboratory	Information provided on OIE Twinning program to Laboratory Director
Kenya			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Kabete Laboratory hosted and facilitated the training. Director of Veterinary Services, Assistant Director of Veterinary Services, Laboratory Technologists & Quality Assurance Manager participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.
Sudan			
Event Title/Activity	**Dates**	**Venue**	**Other Information**

Workshop on OIE standards on Collection & Shipment of Biological Samples	9-11Aug	Kabete, Nairobi Kenya	Laboratory Director participated (see Annex 7 for details). FAO collaboration: speaker/trainer. Standard and Guidance distributed: OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Atlas of Transboundary Animal Diseases, OIE Quality Standards and Guidelines for Veterinary Laboratories: Infectious Diseases.

South and Southeast Asia Regional Activities

Vietnam Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
USAID-EPT Country Work Planning meeting	20-21 June	Hanoi, Vietnam	
Country scoping visit	13-14 June	National Centre for Veterinary Diagnosis, Hanoi University of Agriculture, National Institute for Veterinary Research, Hanoi, Vietnam	Vietnam DG of Dept. Animal Health, Laboratory Director, technical staff. Technical advice provided on appropriate laboratory work flow, suggestions for improvement for biosafety and biosecurity. See 3.6.4S for additional information.
Country scoping visit	15-16 June	Regional Animal Health Office #6 (RAHO6), Ho Chi Minh, Vietnam	Vietnam Director and Head of RAHO6, various technical staff. Technical advice provided on appropriate laboratory work flow with suggestions for improvement for biosafety and biosecurity. See 3.6.4S for additional information.
4-Way Linking Project - Workshop	17 June	Department of Animal Health, Hanoi, Vietnam	Vietnam MoH and MARD. Mission results were shared including gaps in information sharing between Laboratory/Epidemiology departments, and Animal and Public Health sectors
Regional Laboratory Network Technical Advisory Group meeting	4-5 Aug	Bangkok, Thailand	Vietnam Laboratory Director. A consultative meeting to draft the 'Regional Framework for Laboratory Capacity Building and Networking in SE Asia'.
Workshop to identify priority zoonotic diseases in Viet Nam and map zoonoses activities of different organizations	11-12 Aug	La Thanh Hotel, Hanoi, Vietnam	Purpose: to identify and map zoonoses activities/ programmes by different organizations; identify priority zoonoses and to increase the coordination, collaboration and networking on zoonoses prevention and control among related stakeholders.
OIE Global Conference on Rabies Control	7-9 Sept	Seoul (South Korea)	Vietnam Laboratory Director. See 3.8.1S for additional information.
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Vietnam Laboratory Focal Point. Draft Vietnam Laboratory Strategic Plan. See 3.9.5S for additional information.
Cambodia Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
USAID-Cambodia	19 Aug	Phnom	

		Penh, Cambodia	
Country scoping visit	17-19 Aug	Phnom Penh, Cambodia	Cambodia Deputy Secretary General of the Ministry of Agriculture, Forestry and Fisheries. Vice Laboratory Director, technical staff. Technical/management advice provided on advocacy for improved veterinary legislation and institution quality management systems in the laboratory. See 3.6.4S for additional information.
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Cambodia Laboratory Focal Point. Draft Cambodia Laboratory Strategic Plan. See 3.9.5S for additional information.
Lao PDR Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
PREDICT technical meeting	26 Apr	Vientiane, Laos	Aim: to present proposed PREDICT activities to, and gain support of, laboratory managers and identify complementarities between PREDICT/IDENTIFY
Country scoping visit	26-28 Apr	NAHC, Vientiane, Laos	Lao DG of Dept. Livestock and Fisheries, Director, Head and Deputy Head of NAHC, technical staff. Technical advice provided on how to improve specimen submission, sample flow to the laboratories as well as methods of information sharing and examples of where and how to source assistance when needed. See 3.6.4S for additional information.
Country scoping visit	29 Apr	Sub-national laboratory, Luang Prabang, Laos	Lao technical staff. Technical advice provided on how to improve specimen submission, sample flow to the laboratories as well as methods of information sharing and examples of where and how to source assistance when needed. See 3.6.4S for additional information.
USAID-EPT Country Work Planning meeting	27 Apr	Vientiane, Laos	Country Work Plan Development
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Lao Laboratory Focal Point. Draft Lao Laboratory Strategic Plan. See 3.9.5S for additional information.
Philippines Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Informal Consultation on a Draft Asia Pacific Laboratory Action Plan (2011 – 2015) for Emerging Infectious Diseases	19-20 May	WHO-WPRO office, Manila, Philippines	See 3.7.1S for additional information
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Philippines Laboratory Focal Point. Draft Philippines Laboratory Strategic Plan. See 3.9.5S for additional information.

China Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Regional Laboratory Network Technical Advisory Group meeting	4-5 Aug	Bangkok, Thailand	China Laboratory Director. A consultative meeting to draft the 'Regional Framework for Laboratory Capacity Building and Networking in SE Asia'.
OIE Global Conference on Rabies Control	7-9 Sept	Seoul (South Korea)	China Laboratory Director. See 3.8.1S for additional information.
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	China Laboratory Focal Point. Draft China Laboratory Strategic Plan. See 3.9.5S for additional information.
Malaysia Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Regional Laboratory Network Technical Advisory Group meeting	4-5 Aug	Bangkok, Thailand	Malaysia Laboratory Director. A consultative meeting to draft the 'Regional Framework for Laboratory Capacity Building and Networking in SE Asia'.
OIE Global Conference on Rabies Control	7-9 Sept	Seoul (South Korea)	Malaysia Laboratory Director. See 3.8.1S for additional information.
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Malaysia Laboratory Focal Point. Draft Malaysia Laboratory Strategic Plan. See 3.9.5S for additional information.
Thailand Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
USAID-EPT Country Workplan meeting covering Laos and Thailand	23-24 June	Bangkok, Thailand	
USAID-EPT SE and South Asia Regional Work Planning meeting	12-13 July	Bangkok, Thailand	
IDENTIFY Country workplan meeting	1 Aug	Bangkok, Thailand	Meeting between FAO and OIE regional coordinators and WHO-Thailand country level coordinator to guide in development of WHO country level workplan
Country scoping visit	25 May	National Institute of Animal Health, Bangkok, Thailand	Thailand Director, Department Heads, technical staff. Technical advice provided on diagnostic testing for Nipah and West Nile Virus. See 3.6.4S for additional information.
Laboratory visit and ongoing engagement	20 July	National Institute of Animal Health (NIAH), Bangkok, Thailand	Meeting with technical staff after request for assistance to improve techniques for diagnosing WNV and Nipah virus.
Staff exchange for West Nile Virus	20 July	National Institute of	Thailand NIAH in discussions with OIE reference laboratories: Istituto

		Animal Health (NIAH), Bangkok, Thailand	Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale (IZS A&M) in Terumo, Italy; and Australian Animal Health Laboratory, Geelong, Australia for troubleshooting of diagnostic tests & for provision of expertise
Regional Laboratory Network Technical Advisory Group meeting	4-5 Aug	Bangkok, Thailand	Thailand Laboratory Director. A consultative meeting to draft the 'Regional Framework for Laboratory Capacity Building and Networking in SE Asia'.
Putting One Health to Work	9-10 Aug	Queen's Park Hotel, Bangkok, Thailand	Thailand senior-level technical staff from Public Health, Animal Health and Wildlife/Environment sectors to discuss experiences in developing mechanisms for cross sectoral collaboration; to draft a Regional Framework for a Communication Strategy against EIDs in Asia and the Pacific 2011-2016.
OIE Global Conference on Rabies Control	7-9 Sept	Seoul (South Korea)	Thailand Laboratory Director. See 3.8.1S for additional information.
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Thailand Laboratory Focal Point. Draft Thailand Laboratory Strategic Plan. See 3.9.5S for additional information.
Bangladesh Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Strategic Planning Workshop and Follow-up Consultative Missions	Ongoing	Geelong, Australia	Draft Bangladesh Laboratory Strategic Plan. See 3.9.5S for more information.
Nepal Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Consultative Workshop on Regional Epidemiology and Laboratory networking in the SAARC region	27-29 July	Radisson Hotel, Kathmandu Nepal	To share experiences in managing the priority diseases in the region (HPAI, FMD, PPR and brucellosis), to discuss & develop recommendations for improving disease management and information sharing, to present to ministries.
Laboratory Visit	29 July	Central Veterinary Laboratory, Kathmandu, Nepal	Nepal Laboratory Director, technical staff. Technical advice provided on diagnostic testing for Nipah and West Nile Virus. Technical advice was provided including improvement of laboratory work flow for improved biosafety and biosecurity, quality control and troubleshooting on PCR diagnostic testing. See 3.6.4S for more information.
OIE Global Conference on Rabies Control	7-9 Sept	Seoul South Korea	Nepal Laboratory Director. See 3.8.1S for additional information.
Strategic Planning Workshop & Follow-up Consultative Missions	Ongoing	Geelong, Australia	Draft Nepal Laboratory Strategic Plan. See 3.9.5S for more information.

Main challenges encountered

- Uncertainty over the OIE IDENTIFY Year 3 budget allocation and the request by USAID to delay or refrain from conducting activities in certain regions—made in the middle of budget Year 2—raised concern about whether and how activities should proceed as planned in Year 2. This has also complicated the planning process for Year 3 in the regions where implementation for Year 3 activities should begin.
- The OIE has built on existing and ongoing capacity building and networking activities in the South and Southeast Asia region, and the country-level mobilisation, political support, and awareness of the importance of these activities is already high, making advancement easier. On the other hand, the Congo Basin region still has some distance to travel; existing activities are often not country-driven, priorities is often not placed on the animal health laboratory function in each country, and general engagement and leadership is low. To this end, the OIE has attempted to advocate for the laboratory capacity and networking activities of the IDENTIFY project and the EPT Program as a whole to build more awareness for sustainable advancement in this realm. The OIE recognizes that we have been able to achieve more in the South and Southeast Asia region for these reasons in the first 2 years of the project, and are looking for ways to overcome the challenges related to the slower uptake of laboratory capacity building and networking activities in the Congo Basin region.
- Other EPT projects conduct some activities related to laboratory capacity building and there remains the challenge of accurately defining the roles of each of the projects and how to coordinate communications between them. Following discussions with USAID and PREDICT in the first half of the reporting period, we have better defined the roles and objectives of each project.
- IDENTIFY had always been envisioned and communicated as a regionally implemented program with individual country benefits. As USAID has emphasised the increasing importance of specific country-level activities, this has required a concentrated effort on behalf of the IDENTIFY project coordinators at HQ and in the regions.
    - An ongoing project management challenge is balancing the participation in USAID-sponsored country level meetings and planning activities and the implementation of the IDENTIFY project, both of which are fulfilled by a limited number of OIE IDENTIFY supported staff. Communication and coordination concerning country-level work plans and meetings among national colleagues, regional IDENTIFY coordinators, HQ IDENTIFY coordinators and other EPT partners is also an important challenge.
    - It was agreed in July 2011 in the Congo Basin region that regional IDENTIFY coordinators should be kept informed of the planning and proceedings of country-level EPT meetings through circulation of agendas and minutes, so that project coordinators may participate through teleconferencing or where possible, in person. It was agreed by USAID and EPT partners would make this effort to provide further coherence to regional activities.
- Existing joint FAO/OIE/WHO initiatives provide opportunities to benefit intersectoral collaboration at the country level. Discussions and information sharing has improved in the reporting period and provided information on each organisation's activities and progress. The same spirit is expected to prevail in the next reporting period. These efforts, however, have been tempered since June 2011, when USAID communicated that intersectoral collaboration should be considered a secondary priority to activities concretely focused on improving the diagnostic capacity of laboratories in countries.

- The IDENTIFY team has taken advantage of common attendance at regional meetings and conferences in order to conduct project meetings and activities. It is critical to adequately involve global and regional staff in project planning, document review, and coordinated responses to USAID queries. At times, this also necessitates intersectoral regional discussions. While the streamlining of these processes has been beneficial and attempts are being made to further improve the process, the time taken to conduct adequate consultation between project partners is critical for successful project development and implementation.
- For WHO, activities at the country level require coordination with the various Regional Offices. In the case of the S/SE Asia, this means dealing with two Regional Offices. This can lead to a prolonged decision-making process and can interject complexities for FAO and OIE in their collaborations with WHO HQ and regional offices.
- FAO, OIE, and WHO remain committed to close collaboration as a part of the IDENTIFY Project and beyond at global, regional, and country levels. As requested by USAID, the three organizations were required to submit separate work plans for Year 3 of the project. This change in procedure did disrupt the established planning process for Year 3, but new mechanisms were determined for efficient information sharing and tripartite planning.
- FAO, OIE and WHO have a long-standing commitment to build capacity to prepare for and respond to disease threats at the country level. To assist these efforts, a range of platforms have been developed. Some are collaborative and operate globally such as the 4-way linking and WHO-OFFLU collaborations. Others have been developed by individual organizations to cover a specific geographic region or topic such as the Asia Pacific Strategy for Emerging Diseases (APSED) and the Integrated Disease Surveillance and Response Strategy (IDSR), the Regional Veterinary Laboratory Networks, and the OIE PVS Pathway. The capacity building objectives of these platforms are fully compatible with those of the EPT program in general and the IDENTIFY project more specifically, and it was the expressed desire of USAID to build upon the existing platforms of the three organizations to expand the impact of the EPT funded activities. From the perspective of the three organizations it is logical to present a single coherent approach to capacity building to countries and as such, IDENTIFY activities would frequently be conducted as part of these existing platforms. One aim of this approach is to show the countries that the three organizations, USAID and other partners are working in a coordinated manner to achieve the best outcomes at the country level. Effective communication between all partners is important to deliver this coordinated support, and USAID support for these activities will be acknowledged in all cases.

Annex 1: Lists of IDENTIFY targeted animal and public health diseases including zoonoses

IDENTIFY Targeted Diseases: Congo Basin and SE Asia Regions (alphabetical)

For planning purposes only for the IDENTIFY Project

Jointly implemented by FAO, OIE and WHO

From SE Asia Animal Health Stakeholders Meeting, Bangkok, 20-21/01/2011	From Congo Joint Stakeholders Meeting, Entebbe, 02-04/11/2010	
SE Asia Animal Diseases	**Congo Animal Diseases**	**Congo Human Diseases**
	African Horse Sickness*	
African Swine Fever	**African Swine Fever**	
Anthrax	***Anthrax***	***Anthrax***
		Bacterial Meningitis
Brucellosis	***Brucellosis***	***Brucellosis***
Classical Swine Fever		
	Contagious Bovine Pleuropneumonia	
	Contagious Caprine Pleuropneumonia *	
	Cysticercoses*	
		Dengue
Foot and Mouth Disease	**Foot and Mouth Disease**	
Hemorrhagic Septicemia		
		Hepatitis
Influenza viruses	***Influenza viruses***	***Influenza viruses***
Leptospirosis	***Leptospirosis ****	***Leptospirosis***
		Malaria
	Monkey pox	**Monkey pox**
Newcastle Disease	**Newcastle Disease***	
Nipah		
Peste des Petits Ruminants	**Peste des Petits Ruminants**	
		Plague
Porcine Respiratory and Reproductive		
Rabies	***Rabies***	***Rabies***
		Rickettsiosis
Salmonella	***Bacterial enteric diseases***	***Bacterial enteric diseases***
Spongioform encephalopathies	**Spongioform encephalopathies***	
	Toxoplasmosis *	**Toxoplasmosis ***
	Trypanosomosis	**Trypanosomosis**
Tuberculosis	***Tuberculosis***	***Tuberculosis***
Viral haemorrhagic fevers	***Viral haemorrhagic fevers***	***Viral haemorrhagic fevers***
		Viral respiratory diseases
		Yellow Fever

* listed as diseases of secondary concern for Congo Region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

OIE Listed Animal Diseases for IDENTIFY : SE Asia Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Related other diseases, not OIE Listed
1	**African Swine Fever**	African Swine Fever	1	
2	***Anthrax***	Anthrax	2	
3	***Brucellosis***	Brucellosis (*Brucella abortus*)	3	
		Brucellosis (*Brucella melitensis*)	4	
		Brucellosis (*Brucella suis*)	5	
		Ovine Epididymitis (*Brucella ovis*)	6	
4	Classical Swine Fever	Classical Swine Fever	7	
5	**Foot and Mouth Disease**	Foot and Mouth Disease	8	
6	Haemorrhagic Septicemia	Haemorrhagic Septicemia	9	
7	***Influenza viruses***	Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	10	Swine Influenza +
		Equine Influenza	11	
8	***Leptospirosis***	Leptospirosis	12	
9	**Newcastle Disease**	Newcastle Disease	13	
10	Nipah	Nipah Virus Encephalitis	14	
11	**Peste des Petits Ruminants**	Peste des Petits Ruminants	15	
12	Porcine Respiratory and Reproductive Syndrome	Porcine Respiratory and Reproductive Syndrome	16	
13	***Rabies***	Rabies	17	
14	***Salmonella***	Fowl Typhoid †	18	*Campylobacter jejuni* +
		Pullorum Disease †	19	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	20	Verocytotoxigenic *Escherichia coli* ‡ +
15	**Spongioform Encephalopathies**	Bovine Spongiform Encephalopathy	21	Chronic Wasting Disease ‡
		Scrapie	22	
16	***Tuberculosis***	Bovine Tuberculosis	23	Avian Tuberculosis ‡ +
17	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	24	Marburg
		Epizootic Haemorrhagic Disease †	25	Lassa Fever
		Rift Valley Fever	26	Hendravirus ‡ +
		-		Ebola
		-		Hantavirus

† No designated OIE Reference Laboratory

+ Guidance available in OIE Terrestrial Manual

Bold: diseases appearing in at least 2 tables

‡ OIE Reference Laboratory designated

Italic : diseases appearing in 3 tables

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

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OIE Listed Animal Diseases for IDENTIFY : Congo Basin Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Potential other diseases, not OIE Listed
1	African Horse Sickness*	African Horse Sickness	1	
2	**African Swine Fever**	African Swine Fever	2	
3	***Anthrax***	Anthrax	3	
4	***Bacterial enteric diseases***	Fowl Typhoid †	4	*Campylobacter jejuni* +
		Pullorum Disease †	5	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	6	Verocytotoxigenic *Escherichia coli* ‡ +
5	***Brucellosis***	Brucellosis (*Brucella abortus*)	7	
		Brucellosis (*Brucella melitensis*)	8	
		Brucellosis (*Brucella suis*)	9	
		Ovine Epididymitis (*Brucella ovis*)	10	
6	Contagious Bovine Pleuropneumonia	Contagious Bovine Pleuropneumonia	11	
7	Contagious Caprine Pleuropneumonia *	Contagious Caprine Pleuropneumonia	12	
8	Cysticercoses*	Porcine Cysticercosis †	13	Bovine Cysticercosis +
		Echinococcosis/Hydatidosis	14	
9	**Foot and Mouth Disease**	Foot and Mouth Disease	15	
10	***Influenza Viruses***	Equine Influenza	16	Swine influenza +
		Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	17	
11	***Leptospirosis****	Leptospirosis	18	
12	Monkey Pox	-		
13	**Newcastle Disease***	Newcastle Disease	19	
14	**Peste des Petits Ruminants**	Peste des Petits Ruminants	20	
15	***Rabies***	Rabies	21	
16	**Spongioform Encephalopathies***	Bovine Spongiform Encephalopathy	22	Chronic Wasting Disease ‡
		Scrapie	23	
17	Toxoplasmosis*	-		+
18	Trypanosomosis	Dourine	24	
		Surra (*Trypanosoma evansi*)	25	
		Trypanosomosis (tsetse-transmitted)	26	
19	***Tuberculosis***	Bovine Tuberculosis	27	Avian Tuberculosis ‡ +
20	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	28	Marburg
		Epizootic Haemorrhagic Disease †	29	Lassa Fever
		Nipah Virus Encephalitis	30	Hendravirus ‡ +
		Rift Valley Fever	31	Ebola
		-		Hantavirus

* listed as diseases of secondary concern for Congo region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

† No designated OIE Reference Laboratory

‡ OIE Reference Laboratory designated

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

\+ Guidance available in OIE Terrestrial Manual

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Annex 2: Additional OIE IDENTIFY Project Activities and Project Coordinator Responsibilities

In addition to the coordination and technical responsibilities for each activity outlined in the present document, the OIE IDENTIFY Project Coordinators are also responsible for all aspects of the activities listed in the tables below, which require either no additional resources beyond staff support or only a limited budget.

OIE IDENTIFY ACTIVITIES & SUBACTIVITIES Project Coordinator Responsibilities	
Global	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1G	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1G	Project Coordinator – Headquarters
3.2.2G	Financial and Administrative Coordinator – Headquarters
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**
3.3.1G	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1G	Sharepoint-related Activities
3.4.2G	Communication, Documentation, and Resource Sharing
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1G	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1G	Ongoing Laboratory Mapping Activities
3.6.2G	PVS Documentation Review
3.6.7G	Laboratory Twinning Module Development
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**
3.7.1G	Annual Stakeholders' Event
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.1G	Participation in International/Regional Meetings/Conferences
3.8.2G	OIE Focal Point Training
3.8.3G	Participation in International/Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.1G	Development of Training/Workshops related to IDENTIFY key themes
3.9.2G	Biological Specimen Referral Activities
3.10	**Promote and support laboratory quality management**
3.10.1G	Glossary of OIE Standards and Resources for Countries

3.12	**Support and promote laboratory networks**
3.12.1G	Global/Regional Laboratory Network Support
3.12.2G	Regional Laboratory and Epidemiological Network Support
3.12.3G	Communication Pathway Reinforcement
3.12.4G	OIE Reference Centres Communication and Training Assistance for target countries
3.12.5G	Four-Way Linking Project
3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1G	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2G	Identification of OIE Twinning Parent Laboratories and Expertise
South and Southeast Asia	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1S	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1S	Project Coordinator - Bangkok
3.3	**Recruitment of staff to support IDENTIFY activities**
3.3.1S	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1S	Sharepoint-related Activities
3.4.2S	Communication, Documentation, and Resource Sharing
3.4.3S	Website Development
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1S	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1S	Ongoing Laboratory Mapping Activities
3.6.2S	PVS Documentation Review
3.6.4S	Visits to IDENTIFY Laboratories
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.2S	OIE Focal Point Training
3.8.3S	Participation in International/Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.2S	Biological Specimen Referral Activities
3.9.6S	Development of Training/Workshops related to IDENTIFY key themes
3.10	**Promote and support laboratory quality management**
3.10.1S	Glossary of OIE Standards and Resources for Countries
3.12	**Support and promote laboratory networks**
3.12.1S	Global/Regional Laboratory Network Support
3.12.2S	Communication Pathway Reinforcement
3.12.3S	Regional Laboratory and Epidemiological Network Support

3.12.4S	OIE Reference Centres Communication and Training Assistance for target countries
3.12.5S	Four-Way Linking Project
3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1S	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2S	Identification of OIE Twinning Parent Laboratories and Expertise
Congo Basin Region	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1C	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1C	Project Coordinator - SRR Gaborone
3.2.2C	Project Coordinator - SRR Nairobi
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**
3.3.1C	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1C	Sharepoint-related Activities
3.4.2C	Communication, Documentation, and Resource Sharing
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1C	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1C	Ongoing Laboratory Mapping Activities
3.6.2C	PVS Documentation Review
3.6.5C	Visits to IDENTIFY Laboratories
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.2C	OIE Focal Point Training
3.8.3C	Participation in Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.1C	Development of Training/Workshops related to IDENTIFY key themes
3.9.2C	Biological Specimen Referral Activities
3.10	**Promote and support laboratory quality management**
3.10.1C	Glossary of OIE Standards and Resources for Countries
3.12	**Support and promote laboratory networks**
3.12.1C	Global/Regional Laboratory Network Support
3.12.2C	Regional Laboratory and Epidemiological Network Support
3.12.3C	Communication Pathway Reinforcement
3.12.4C	OIE Reference Centres Communciation and Training Assistance for target countries
3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1C	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2C	Identification of OIE Twinning Parent Laboratories and Expertise

Annex 3: OIE IDENTIFY Project Performance Indicators

		OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Year-end results – Year 2			Project Target[4]	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
1[5]	1.1	IDENTIFY countries inform the OIE of exceptional epidemiological events (in the form of immediate notifications) for IDENTIFY targeted diseases within 24 hours of confirmation of diagnosis of the disease	Improved reactivity of notifications for exceptional epidemiological events	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	48	9	42	17	2011	<2	Immediate notifications
	1.2			Percentage of immediate notifications for which the submission time is shorter than 2 days	0%	74%	0%	0%	2011	100%	Immediate notifications
2	2.1	IDENTIFY countries report results of the first laboratory diagnosis within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	Improved reactivity of laboratory diagnosis for exceptional epidemiological events	Number of days between start of an exceptional event and first laboratory test	25	10	39	3	2011	<15	Immediate notifications
	2.2			Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	33%	82%	0%	100%	2011	75%	Immediate notifications
3	3.1	IDENTIFY countries use disease diagnosis confirmation services of OIE Reference Laboratories in the case of exceptional epidemiological events for IDENTIFY targeted diseases	Increased use of OIE Reference Laboratories for confirmation after diagnosis of an exceptional epidemiological event	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	NA	50%	100%	0%	2011	NA	Immediate notifications

[4] The targets listed here are OIE targets for all Member Countries. Each OIE Member Country has an obligation to follow the standards set by the World Assembly of Delegates, including reporting for OIE Listed diseases through immediate notifications, six-monthly reports, and annual reports. We maintain that improvement should be seen, but recognize that all targets may be difficult to reach during the project period, as the interventions are based principally on laboratory capacity building and networking activities for the IDENTIFY countries and there can be delays in the reporting process.

[5] Project indicators 1-6 have been developed by the OIE in order to measure increased laboratory and reporting performance of the IDENTIFY countries using WAHIS data.

	OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Year-end results – Year 2			Project Target[4]	Data Source
				Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
3.2	IDENTIFY countries report results of the additional laboratory tests within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	Improved reactivity of laboratory confirmation for exceptional epidemiological events	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days	NA	100%	100%	100%	2011	100%	Immediate notifications
4 4.1	IDENTIFY countries provide sufficient quantitative information for IDENTIFY targeted diseases that are present in their country	Complete quantitative information provided for diseases that are present in their country	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country	42%	80%	55%	70%	2nd semester 2010	100%	six-monthly reports
4.2			Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided	50%	68%	51%	67%	2nd semester 2010	100%	six-monthly reports
5	IDENTIFY countries provide sufficient qualitative information for IDENTIFY targeted diseases that are present in their country	Complete qualitative information provided for diseases that are present in their country	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided	25%	72%	36%	73%	2nd semester 2010	100%	six-monthly reports
6 6.1	IDENTIFY countries maintain sufficient laboratories capabilities to diagnose IDENTIFY targeted diseases	Increased availability of diagnostic method in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	62%	63%	69%	63%	2010	100%	Annual reports
6.2		Increased availability of OIE prescribed and/or alternative tests for international trade in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	47%	52%	50%	52%	2010	100%	Annual reports
6.3		Increased availability of advanced tests in national animal	Percentage of IDENTIFY targeted diseases for which advanced tests are available	37%	44%	37%	44%	2010	50%	Annual reports

		OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Year-end results – Year 2			Project Target[4]	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
			health laboratories	in national animal health laboratories							
	7[6]	IDENTIFY regions and countries have identified laboratories needing capacity building and have developed the list of targeted diseases	List of laboratories by region created	Number of hot spot regions for which IDENTIFY, with the agreement of relevant national authorities, has defined the laboratories targeted	0	0	1	1	2011	2	Stakeholders' Meetings Reports
8	8.1	IDENTIFY supported laboratories in hot spot countries in each region have received targeted capacity building according to their expressed needs	Protocols for laboratory practices and targeted diseases harmonised	Number of protocols harmonised or elaborated for laboratory practices for targeted diseases	0	0	0	0	NA	NA[7]	Mission reports; completed protocols/ SOPs
	8.2		Training for targeted disease diagnosis conducted	Number of trainings supported for targeted disease diagnosis	OP[8]	OP	OP	OP	OP	OP	OP
	8.3		Training on laboratory practices (e.g., biosecurity, equipment calibration, etc.) conducted	Number of trainings supported on laboratory practices (e.g., biosecurity, equipment calibration, etc.)	0	0	1	0	2011	3	Training reports; lists of participants
	8.4		Focused capacity building (e.g., twinning, quality assurance programme) occurred	Number of focused capacity building opportunities supported (e.g., twinning, quality assurance programme)	1	0	2	0	2011	4	Twinning Proposals; Special Project Proposals
	8.5		Laboratory procurement (e.g., equipment, reagents,	Number of focused capacity building opportunities supported (e.g., twinning,	0	0	1	0	2011	3	Approved Special Project

[6] The following project indicators were developed jointly by OIE, FAO, and WHO in the framework of the Laboratory Networking Strategy.

[7] Activities for this indicator were not carried out under Year 2, but fall under the OIE mandate and may be programmed in future years of the project.

[8] The OIE and FAO have complementary missions and set out from the beginning of the project to provide complementary and strategic activities in order to provide a holistic laboratory capacity building and networking package for the IDENTIFY project and the EPT Program. The OIE has not planned activities for all specific outputs, and has thus marked these indicators as 'OP' for 'Other Partners'.

	OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Year-end results – Year 2			Project Target[4]	Data Source
				Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
		etc.) occurred	quality assurance programme)							Proposals
8.6	IDENTIFY supported laboratories in hot spot countries in each region have received targeted capacity building according to their expressed needs	Biosafety/ Biosecurity equipment/service provided	Number of Biosafety/Biosecurity equipment/service provided[9]	0	0	0	0	NA	NA	Twinning/Special Project Invoices
8.7		Quality Assurance equipment provided	Number of Quality Assurance equipment provided[10]	0	0	0	0	NA	NA	Twinning/Special Project Invoices
8.8		Diagnostic, pathology, or other related equipment provided	Number of diagnostic, pathology, or other related equipment provided[11]	0	0	0	0	NA	NA	Twinning/Special Project Invoices
8.9		Other (documents, manuals, books, database access) provided	Number of documents, manuals, books, database access provided	0	0	52	36	2011	110	Documentation provision invoices
8.10		Reagents supplied	Number of reagents provided[12]	0	0	0	0	NA	NA	Twinning/Special Project Invoices
9 9.1	IDENTIFY-supported laboratories technical staff participate in regional and global conferences, trainings, and workshops on laboratory-related issues	Conferences, trainings, and workshops conducted	Number of global/regional conferences, trainings or workshops organized on laboratory activities	0	0	6	5	2011	22	Meeting reports
9.2		Participants supported to attend conferences, trainings, and workshops	Number of participants to global/regional conferences, trainings or workshops organized on laboratory activities	0	0	86	48	2011	270	Meeting lists of participants
10	IDENTIFY Laboratory	Laboratory staff	Number of outbreak	OP	OP	OP	OP	OP	OP	OP

[9] Supplies and equipment are planned to be provided to IDENTIFY laboratories only in the framework of OIE Twinning agreements and Special Project for focused capacity building. While a Special Project began in Year 2 (Uganda), the equipment had not been provided by year's end. The OIE will monitor and report on these indicators in the next biannual report to USAID due to USAID 30 Apr 2012.

[10] Refer to footnote 20.

[11] Refer to footnote 20.

[12] Refer to footnote 20.

	OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Year-end results – Year 2			Project Target[4]	Data Source
				Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
	personnel participate actively in outbreak epidemiological investigations in their countries	include in outbreak investigations	investigations during which laboratory people have been involved by country/region.							
11	IDENTIFY Laboratories have access to OIE Standards and guidance on laboratory quality and safety	OIE Standards and guidance documents provided	Number of OIE Standards and guidance documents provided to IDENTIFY laboratories	0	0	52	36	2011	110	Documenta-tion provision invoices
12	IDENTIFY laboratories collaborate with OIE Reference Laboratories and publish the results of their scientific work and research	Scientific publications published in peer-reviewed journals	Number of scientific publications as a result of collaborative work	0	0	0	0	2011	0	Peer-reviewed articles
13	IDENTIFY-supported laboratories increase sample throughput for IDENTIFY targeted diseases	Improved sample throughput	Number of samples/tests for 2 proxy targeted diseases (1 viral, 1 bacterial, TBD)	0[13]	0	0	0	NA	NA	Twinning/Special Project reports
14	IDENTIFY-supported laboratories participate in regional animal disease networks	Increased laboratory networking opportunities	Number of laboratories by region that have received networking support	0	0	14	12	2011	26[14]	Network list of participants
15	IDENTIFY countries use consistently existing regional platforms for animal disease reporting	Increased engagement in regional platforms	Number of participants to existing regional platform gatherings	0	0	34	4	2011	100	Mission reports
16	IDENTIFY countries appoint laboratory focal points to participate actively in regional and global networks	Laboratory focal points established	Number of laboratories by region that maintain or have established new focal points for international/global networks	NA[15]	0	NA	0	2011	10	Focal Point Training List of participants

[13] Activities for this indicator were not carried out under Year 2, but shall be undertaken and measured in subsequent years of the project.
[14] The OIE will strive to achieve this target on a yearly basis.
[15] This initiative will only be undertaken in South and Southeast Asia.

Annex 4: Assessment of baseline data for monitoring of IDENTIFY project indicators

Short Version (26/10/2011)

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Table 1: Description of performance indicators

		OIE Project Objective	Measurable output	OIE Project Indicator[16]	Project Baseline - 2nd Semester 2009		Year-end results – Year 2			Project Target[17]	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
1	1.1	IDENTIFY countries inform the OIE of exceptional epidemiological events (in the form of immediate notifications) for IDENTIFY targeted diseases within 24 hours of confirmation of diagnosis of the disease	Improved reactivity of notifications for exceptional epidemiological events	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	48	9	42	17	2011	<2	Immediate notifications
	1.2			Percentage of immediate notifications for which the submission time is shorter than 2 days	0%	74%	0%	0%	2011	100%	Immediate notifications
2	2.1	IDENTIFY countries report results of the first laboratory diagnosis within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	Improved reactivity of laboratory diagnosis for exceptional epidemiological events	Number of days between start of an exceptional event and first laboratory test	25	10	39	3	2011	<15	Immediate notifications
	2.2			Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	33%	82%	0%	100%	2011	75%	Immediate notifications
3	3.1	IDENTIFY countries use disease diagnosis confirmation services of OIE Reference Laboratories in the case of exceptional epidemiological events for IDENTIFY targeted diseases	Increased use of OIE Reference Laboratories for confirmation after diagnosis of an exceptional epidemiological event	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	NA	50%	100%	0%	2011	NA	Immediate notifications
	3.2	IDENTIFY countries report	Improved reactivity	Percentage of immediate	NA	100%	100%	100%	2011	100%	Immediate

[16] Project indicators 1-6 have been developed by the OIE in order to measure increased laboratory and reporting performance of the IDENTIFY countries using WAHIS data.

[17] The targets listed here are OIE targets for all Member Countries. Each OIE Member Country has an obligation to follow the standards set by the World Assembly of Delegates, including reporting for OIE Listed diseases through immediate notifications, six-monthly reports, and annual reports. We maintain that improvement should be seen, but recognize that all targets may be difficult to reach during the project period, as the interventions are based principally on laboratory capacity building and networking activities for the IDENTIFY countries and there can be delays in the reporting process.

		OIE Project Objective	Measurable output	OIE Project Indicator[16]	Project Baseline - 2nd Semester 2009		Year-end results – Year 2			Project Target[17]	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
		results of the additional laboratory tests within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	of laboratory confirmation for exceptional epidemiological events	notifications for which the time between the first and additional laboratory tests is shorter than 15 days							notifications
4	4.1	IDENTIFY countries provide sufficient quantitative information for IDENTIFY targeted diseases that are present in their country	Complete quantitative information provided for diseases that are present in their country	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country	42%	80%	55%	70%	2nd semester 2010	100%	six-monthly reports
	4.2			Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided	50%	68%	51%	67%	2nd semester 2010	100%	six-monthly reports
5		IDENTIFY countries provide sufficient qualitative information for IDENTIFY targeted diseases that are present in their country	Complete qualitative information provided for diseases that are present in their country	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided	25%	72%	36%	73%	2nd semester 2010	100%	six-monthly reports
6	6.1	IDENTIFY countries maintain sufficient laboratories capabilities to diagnose IDENTIFY targeted diseases	Increased availability of diagnostic method in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	62%	63%	69%	63%	2010	100%	Annual reports
	6.2		Increased availability of OIE prescribed and/or alternative tests for international trade in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	47%	52%	50%	52%	2010	100%	Annual reports
	6.3		Increased availability of advanced tests in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health	37%	44%	37%	44%	2010	50%	Annual reports

	OIE Project Objective	Measurable output	OIE Project Indicator[16]	Project Baseline - 2nd Semester 2009		Year-end results – Year 2			Project Target[17]	Data Source
				Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia	Date		
			laboratories							

1) Status of IDENTIFY targeted diseases in IDENTIFY countries[18]

The status of IDENTIFY targeted diseases in IDENTIFY countries[19] is available in six-monthly reports received and validated by the OIE as of 21 October 2011. Cameroon, Congo (Dem. Rep. of), Ethiopia, Sudan, Bangladesh, Cambodia, China, Philippines, Thailand and Vietnam had already sent the first 2011 six-monthly report to OIE; Gabon, Kenya, Uganda, Tanzania, Indonesia and Nepal sent the first 2011 six-monthly report but it has not yet been validated by OIE. All other IDENTIFY countries had not yet sent their first 2011 six-monthly report to OIE upon completion of this report, so information was only available from the second 2010 six-monthly report.

1.1) Congo Basin

Newcastle disease and contagious bovine pleuropneumonia were reported as present in all the countries. Peste des petits ruminants, Brucellosis due to *Brucella abortus*, foot and mouth disease, trypanosomosis, and rabies were reported as present in at least 10 of 12 countries). African swine fever, bovine tuberculosis, fowl typhoid, anthrax, and contagious caprine pleuropneumonia were reported by more than half of the countries. Porcine cysticercosis, Echinococcosis/hydatidosis, Pullorum disease, brucellosis due to *Brucella melitensis*, Rift Valley fever, Surra and leptospirosis were reported by fewer than 10 countries. Finally, African horse sickness and dourine were reported only by Ethiopia.

Bovine spongiform encephalopathy, brucellosis due to *Brucella suis*, Crimean Congo haemorrhagic fever, Epizootic haemorrhagic fever, equine influenza, highly pathogenic avian influenza, low pathogenic avian influenza, Nipah virus encephalitis, ovine epididymitis due to *Brucella ovis*, Salmonellosis due to *Salmonella abortus ovis* and scrapie were not reported by any Congo Basin country (Table 2), although they are listed as priority diseases for the Congo Basin region for the IDENTIFY Project, as adopted by stakeholders in November 2010 (please refer to Annex 1 of the 2nd Biannual report for the IDENTIFY project for the IDENTIFY targeted disease list for the Congo Basin region).

The interpretation of this data—in particular for the diseases less-frequently or not reported—should be made with caution, for the lack of reporting of a disease in a country doesn't mean that the disease is confirmed to not be present. Some diseases are not notifiable at the country level or surveillance programs do not exist, and therefore the capacity and/or resources at the country level to confirm presence or absence of a particular disease may not be available. For highly pathogenic influenza, the disease was notifiable and surveillance programs existed in most of the countries, therefore the absence of the disease in the region was probably true. However, for many of the other diseases, such as dourine, Crimean Congo haemorrhagic fever, and epizootic haemorrhagic disease or Nipah virus encephalitis, there were no existing surveillance programs in most of the countries and the disease was not notifiable. In these cases, we cannot know whether the disease was truly present or absent in some countries of the region - (for more detailed information by country, see Annex 1).

[18] This entire analysis and all of its parts is based on data extracted from WAHID as of 21 October 2011.

[19] Information was available for all the IDENTIFY targeted countries, except Equatorial Guinea (no report was sent to OIE between 2005 and 2011) and South Sudan (new country).

1.2) South and Southeast Asia

Haemorrhagic septicaemia, classical swine fever and foot and mouth disease were reported as present in 8 out of 10 countries). Rabies, brucellosis due to *Brucella abortus*, highly pathogenic avian influenza and Newcastle disease were reported by more than half of the countries. Anthrax, bovine tuberculosis, porcine respiratory and reproductive syndrome, Pullorum disease, leptospirosis, fowl typhoid, peste des petits ruminants and salmonellosis due to *Salmonella abortus ovis* were reported by fewer than 8 countries. Finally, brucellosis due to *Brucella suis* was reported by only one country (Malaysia).

African swine fever, bovine spongiform encephalopathy, Crimean Congo haemorrhagic fever, Epizootic haemorrhagic fever, equine influenza, low pathogenic avian influenza, Nipah virus encephalitis, ovine epididymitis due to *Brucella ovis*, Rift Valley fever and scrapie were not reported by any country (Table 3).

Similarly to the Congo Basin country data, the interpretation of the data—in particular for the diseases less-frequently or not reported—should be made with caution. In Malaysia, all the IDENTIFY targeted diseases were notifiable and surveillance programs existed, therefore the absence of the diseases in the region was probably true. However, in the other countries and for most of the diseases, there were no surveillance programs and the diseases were not notifiable. In these cases, we cannot know whether the disease was truly present or absent in some countries of the region (for more detailed information by country, see Annex 2).

Table 2: Status of IDENTIFY targeted diseases in IDENTIFY countries[20] of the Congo Basin region

CD: clinical disease	Limited: disease limited to one or more zones	Infection: Confirmed (no clinical disease)	LO: last occurrence	X: never reported	NI: no information

Diseases	DRC 2011[21]	Uganda 2010	Cameroon 2011	Gabon 2010	CAR 2010	Republic of Congo 2010	Rwanda 2010	Tanzania 2010	Angola 2010	Ethiopia 2011	Kenya 2010	Sudan 2011	Number of countries in which disease is present
Newcastle Disease	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	Limited	12
CBPP	Limited	CD	Limited	CD	Limited	CD	Limited	CD	CD	CD	CD	CD	12
PPR	Limited	CD	CD	CD	Limited	CD	Suspected	CD	X	CD	Infection	CD	11
Brucellosis (Brucella abortus)	CD	CD	LO : 2009	NI	CD	Suspected	CD	Infection	CD	CD	CD	Limited	10
FMD	Limited	CD	CD	X	CD	NI	Limited	CD	Limited	CD	CD	CD	10
Trypanosomosis	Limited	CD	CD	LO : unknown	CD	Suspected	CD	CD	CD	CD	Suspected	LO : 2010	10
Rabies	CD	CD	CD	CD	CD	NI	CD	CD	CD	CD	CD	LO : 2010	10
African Swine Fever	CD	CD	CD	X	CD	CD	Limited	CD	CD	NI	CD	X	9
Bovine Tuberculosis	Limited	Suspected	LO : 2009	NI	CD	Suspected	CD	CD	CD	CD	LO : unknown	LO : 2008	8
Fowl Typhoid	CD	Suspected	CD	LO : 2007	CD	NI	CD	CD	LO : unknown	CD	CD	NI	8
Anthrax	Limited	Limited	LO : 2010	NI	CD	NI	Limited	NI	CD	CD	CD	LO : 2010	7
CCPP	NI	LO : 2008	Suspected	NI	Suspected	NI	Suspected	CD	CD	CD	Limited	LO : 2006	7
Porcine Cysticercosis	CD	NI	CD	NI	LO : 2009	CD	Infection	Suspected	LO : 2008	X	Suspected	X	6

[20] Information was available for all the IDENTIFY targeted countries, except Equatorial Guinea (no report was sent to OIE between 2005 and 2011) and South Sudan (new country).

[21] Cameroon, Congo (Dem. Rep. of), Ethiopia, Sudan, Bangladesh, Cambodia, China, Philippines, Thailand and Vietnam had already sent the first 2011 six-monthly report to OIE; Gabon, Kenya, Uganda, Tanzania, Indonesia and Nepal sent the first 2011 six-monthly report but it has not yet been validated by OIE. All other IDENTIFY countries had not yet sent their first 2011 six-monthly report to OIE upon completion of this report (21 October 2011), so information was only available from the second 2010 six-monthly report.

Diseases	DRC 2011[21]	Uganda 2010	Cameroon 2011	Gabon 2010	CAR 2010	Republic of Congo 2010	Rwanda 2010	Tanzania 2010	Angola 2010	Ethiopia 2011	Kenya 2010	Sudan 2011	Number of countries in which disease is present
Echinococcosis /Hydatidosis	NI	Infection	LO : unknown	NI	NI	NI	NI	Infection	CD	Infection	Suspected	LO : unknown	5
Pullorum Disease	CD	NI	CD	LO : unknown	CD	NI	NI	LO : unknown	LO : unknown	CD	LO : unknown	LO : 2008	4
Brucellosis (Brucella melitensis)	NI	CD	NI	NI	NI	NI	Suspected	NI	LO : unknown	CD	LO : unknown	X	3
Rift Valley Fever	Limited	X	Suspected	X	NI	NI	LO : unknown	LO : 2007	X	LO : 2006	LO : 2007	LO : 2008	2
Surra	NI	NI	X	NI	X	NI	NI	NI	LO : unknown	CD	Suspected	LO : 2009	2
Leptospirosis	NI	NI	NI	Suspected	NI	Suspected	NI	NI	LO : 2006	NI	LO : unknown	NI	2
African Horse Sickness	NI	X	LO : unknown	NI	X	NI	NI	LO : unknown	LO : 2009	CD	LO : unknown	LO : 1993	1
Dourine	LO : unknown	NI	NI	NI	X	NI	NI	LO : unknown	LO : unknown	CD	LO : unknown	X	1
Ovine Epididymitis (Brucella ovis)	LO : unknown	LO : 2008	NI	NI	LO : unknown	NI	NI	NI	LO : unknown	LO : 2004	LO : unknown	LO : 2010	0
BSE	X	X	X	LO : unknown	X	X	X	NI	X	X	X	X	0
Brucellosis (Brucella suis)	NI	LO : 2008	NI	NI	NI	NI	LO : unknown	LO : unknown	LO : unknown	X	LO : unknown	X	0
CCHF	NI	X	X	NI	X	NI	X	LO : unknown	LO : unknown	X	X	X	0
Epizootic Haemorrhagic Disease	NI	NI	NI	NI	X	NI	NI	NI	LO : unknown	X	X	X	0
Equine Influenza	NI	NI	NI	NI	LO : unknown	NI	NI	LO : unknown	LO : unknown	X	LO : unknown	X	0
HPAI	LO : unknown	X	LO : 2006	X	LO : unknown	X	X	NI	X	X	X	LO : 2006	0
LPAI	NI	NI	LO : unknown	NI	NI	LO : unknown	NI	NI	NI	LO : 2006	NI	NI	0
Nipah	NI	X	X	NI	X	NI	X	NI	X	X	X	X	0
Salmonella abortusovis	NI	NI	NI	NI	LO : unknown	NI	LO : unknown	NI	LO : unknown	LO : 2004	LO : unknown	LO : unknown	0
Scrapie	NI	NI	X	LO : unknown	X	NI	NI	NI	X	X	X	X	0

Table 3: Status of IDENTIFY targeted diseases in IDENTIFY countries of the South and Southeast Asia region

CD: clinical disease	Limited: disease limited to one or more zones	Infection: Confirmed (no clinical disease)	LO: last occurrence	X: never reported	NI: no information

Diseases	Indonesia 2010[22]	Vietnam 2011	Cambodia 2011	Laos 2010	China 2011	Malaysia 2010	Thailand 2011	Philippines 2011	Bangladesh 2011	Nepal 2010	Number of Countries in which the disease is present
Haemorrhagic Septicemia	CD	CD	CD	CD	Limited	CD	LO : 2010	CD	CD	CD	9
FMD	LO : unknown	CD	CD	CD	CD	Limited	CD	LO : 2005	CD	CD	8
Rabies	CD	Limited	LO : unknown	CD	Limited	LO : 1999	CD	CD	CD	CD	8
Classical Swine Fever	CD	CD	LO : 2010	CD	Limited	Suspected	LO : 2010	CD	X	CD	7
Brucellosis (Brucella abortus)	CD	Suspected	NI	Suspected	Limited	Infection	CD	NI	Limited	LO : unknown	7
Newcastle Disease	CD	CD	LO : unknown	LO : unknown	Limited	CD	LO : 2004	CD	CD	CD	7
HPAI	CD	CD	CD	CD	LO : 2010	LO : 2007	LO : 2008	X	CD	CD	6
Anthrax	CD	Limited	NI	LO : 2009	Limited	LO : 1976	LO : 2000	Limited	CD	CD	6
Bovine Tuberculosis	NI	Suspected	LO : unknown	NI	Limited	CD	CD	X	Limited	Infection	6
PRRS	NI	Limited	LO : unknown	CD	Limited	Infection	CD	CD	X	X	6
Pullorum Disease	CD	CD	LO : unknown	CD	Limited	LO : 2008	LO : 2004	NI	CD	CD	6
Brucellosis (Brucella melitensis)	NI	NI	NI	Suspected	Limited	Infection	CD	NI	CD	NI	5
Leptospirosis	CD	CD	NI	NI	Limited	CD	LO : 2009	NI	CD	LO : 2004	5

[22] Cameroon, Congo (Dem. Rep. of), Ethiopia, Sudan, Bangladesh, Cambodia, China, Philippines, Thailand and Vietnam had already sent the first 2011 six-monthly report to OIE; Gabon, Kenya, Uganda, Tanzania, Indonesia and Nepal sent the first 2011 six-monthly report but it has not yet been validated by OIE. All other IDENTIFY countries had not yet sent their first 2011 six-monthly report to OIE upon completion of this report, so information was only available from the second 2010 six-monthly report.

Diseases	Indonesia 2010[22]	Vietnam 2011	Cambodia 2011	Laos 2010	China 2011	Malaysia 2010	Thailand 2011	Philippines 2011	Bangladesh 2011	Nepal 2010	Number of Countries in which the disease is present
Fowl Typhoid	NI	CD	NI	Suspected	Limited	LO : 1997	LO : unknown	NI	CD	LO : unknown	4
PPR	X	X	NI	X	LO : 2010	X	X	X	CD	CD	2
Salmonella abortusovis	NI	Suspected	NI	NI	Limited	LO : unknown	NI	X	LO : unknown	NI	2
Brucellosis (Brucella suis)	NI	NI	NI	NI	NI	Infection	LO : unknown	NI	LO : unknown	NI	1
African Swine Fever	X	X	X	X	X	X	LO : unknown	X	X	X	0
BSE	NI	X	NI	X	X	X	LO : unknown	X	X	X	0
CCHF	X	X	NI	NI	NI	X	NI	X	X	X	0
Epizootic Haemorrhagic Disease	X	NI	NI	NI	NI	X	NI	NI	X	X	0
Equine Influenza	X	LO : unknown	NI	NI	NI	LO : 1977	X	X	X	NI	0
LPAI	NI	NI	NI	NI	NI	LO : unknown	NI	NI	LO : unknown	LO : unknown	0
Nipah	NI	NI	NI	NI	NI	LO : 1999	X	X	LO : unknown	X	0
Ovine Epididymitis (Brucella ovis)	NI	X	NI	X	NI	LO : unknown	NI	X	X	NI	0
Rift Valley Fever	X	X	NI	X	NI	X	X	X	X	X	0
Scrapie	X	X	NI	X	X	X	NI	X	X	X	0

2) List of immediate notifications[23]

The World Animal Health Information System, better known as WAHIS, is an internet-based computer system that processes data on animal diseases in real-time and then informs the international community. The system consists of two components:

- an early warning system to inform the international community, by means of "alert messages", of relevant epidemiological events that occurred in OIE Members, and
- a monitoring system in order to monitor OIE Listed diseases (presence or absence) over time

The Early warning system

Whenever an important epidemiological event occurs in a Member country, the Member must inform the OIE by sending an Immediate Notification (for both terrestrial and aquatic animal listed diseases) which includes the reason for the notification, the name of the disease, the affected species, the geographical area affected, the control measures applied and any laboratory tests carried out or in progress.

To improve the scope and efficiency of the OIE's early warning system, Members should immediately notify OIE Headquarters of any event of epidemiological significance as defined in the Terrestrial Animal Health Code for terrestrial animals and in the Aquatic Animal Health Code for aquatic animals (Chapters 1.1 – Articles 1.1.3).

Once they have been received, verified and validated by the OIE, the immediate notifications are published on the OIE website (http://www.oie.int/en/animal-health-in-the-world/the-world-animal-health-information-system/the-oie-data-system/) and sent to the OIE-Info Distribution List, an electronic distribution list to facilitate and widen the dissemination of animal health information. This list is open to OIE Delegates of Members Countries, OIE Reference Laboratories and Collaborating Centres, international and regional organisations, and to any institution or individual interested in receiving such information by subscription.

After having informed the OIE of a significant epidemiological event by means of an immediate notification report, the Member must send weekly Follow-up Reports for monitoring purposes as it evolves. In all cases, the country must submit a final report to notify either that the event has been resolved or that the disease has become endemic. In both cases, the country will continue to submit information in its six-monthly reports if the disease is an OIE Listed disease.

The Monitoring system

Six-monthly reports provide information on the presence or absence of diseases on the OIE List and the prevention and control measures applied. For diseases reported as being present in a country/territory during a given six-month period, the country/territory in question must provide quantitative data on the number of outbreaks, susceptible animals, cases, deaths, animals destroyed and animals vaccinated. For diseases that are present and are notifiable in the country, the OIE recommends that countries provide quantitative data by month and by first administrative division. Countries/territories that so wish can enter their data in WAHIS each month during a given six-month period (i.e. without waiting until the end of the six-month period), thereby providing the international community with the most recent information on the diseases that are present and which Members consider are the most important.

[23] This analysis is based on data extracted from WAHID as of 21 October 2011.

In this respect, Members are given other options for entering information in WAHIS on diseases that are present: by month and for the whole country/territory, by first administrative level and for the entire six-month period, and by first administrative level for the whole country/territory. The choice of one of these options will depend on the national surveillance and monitoring systems in the country/territory in question and the type of information generated by these systems. These choices made by Countries and Territories will be reflected in the way the WAHID interface is presented whenever a request for information is made.

The two six-monthly reports of a given year are combined as part of the annual report for OIE-listed diseases. Moreover and in cooperation with the WHO and the FAO, Members are asked to complete it once a year with information on non-OIE listed diseases, the impact of zoonoses on humans, animal populations, Veterinary Services personnel, national reference laboratories and their performed diagnostic tests, and, when appropriate, vaccine manufacturers and vaccine production.

As an adjunct to the World Animal Health Information (WAHIS) on-line reporting System, the data and information provided by Members are accessible via the web interface WAHID (World Animal Health Information Database) and can be accessed by the public through the OIE website.

2.1) Congo Basin

There were 23 immediate notifications[24] from the Congo Basin IDENTIFY countries between 2005 and October 2011: African swine fever (5 notifications), peste des petits ruminants (4 notifications), contagious bovine pleuropneumonia and Rift Valley fever (3 notifications each). The other diseases reported in immediate notifications were highly pathogenic avian influenza, foot and mouth disease, anthrax (2 notifications each), African horse sickness and rabies (1 notification each).

2.2) South and Southeast Asia

There were 70 immediate notifications for Asia and South East Asia between 2005 and October 2011, mainly for highly pathogenic avian influenza (36 notifications) and foot and mouth disease (23 notifications). The other diseases reported in immediate notifications were porcine reproductive and respiratory syndrome (5 notifications), peste des petits ruminants (3 notifications), rabies (2 notifications), and equine influenza (1 notification).

The detailed list of immediate notifications submitted to the OIE by IDENTIFY countries in Congo Basin and South and Southeast Asia for the IDENTIFY targeted diseases is available in Annex 3.

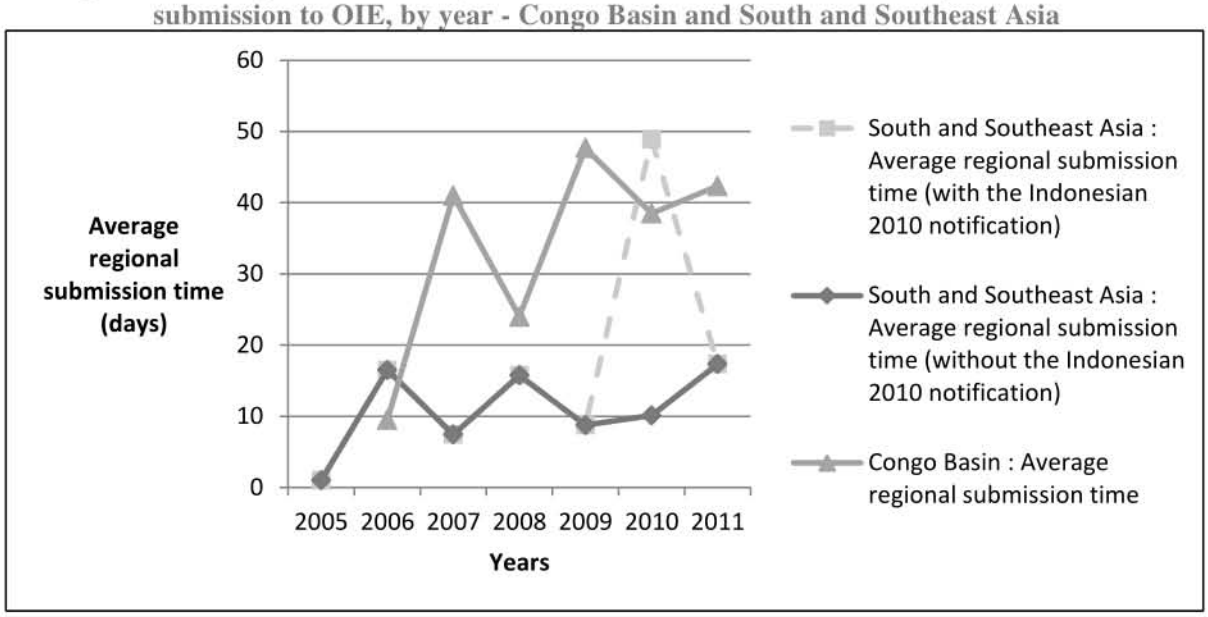
[24] The total number of immediate notifications submitted to the OIE may be less than the actual number of outbreaks in a given Member Country, as the report of an event depends on the availably of surveillance resources, in terms of technical capabilities and logistics. Some events may not be detected due to insufficient surveillance capacity for some diseases.

3) OIE Project Objective 1: Improved reactivity of notifications for exceptional epidemiological events[25]

3.1) Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE (Indicator 1.1)

The average number of days between confirmation of exceptional events and submission to OIE was 34.65 days for Congo Basin and the trend was increasing between 2005 and October 2011, and 14.06 days for East and Southeast Asia, with a stable trend between 2005 and October 2011 (Figure 1). In 2010, Indonesia submitted an immediate notification after 241 days, which artificially increased the average 2010 submission time; as a result, average number of days was also calculated excluding this instance.

Figure 1: Average number of days between the confirmation of en exceptional event and submission to OIE, by year - Congo Basin and South and Southeast Asia



Between 2005 and October 2011, 30% of the immediate notifications submitted by the countries of Congo Basin and 53% of the immediate notifications submitted by the countries of South and Southeast Asia were reported after OIE verification[26].

The average time between the confirmation of the events and the submission to OIE was shorter for notifications submitted after OIE verification in the two regions (14 days after OIE verification versus 35 days without OIE verification in Congo Basin, and 14 days after OIE verification versus 25 days without OIE verification in South and Southeast Asia). These results show the importance of the OIE verification process in obtaining timely and accurate event information.

[25] This analysis was based on data extracted from the immediate notifications submitted to OIE before 21/10/2011.

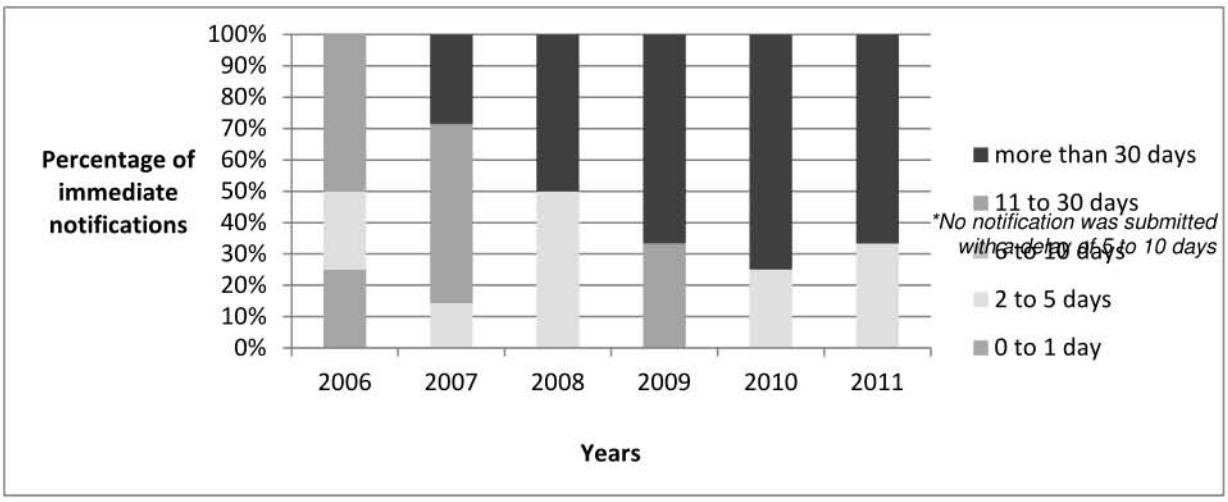
[26] The OIE searches actively for non-official information and rumours relating to animal health and public health. This information is evaluated in the context of the animal health situation prevailing in the country or region concerned and, where appropriate, verified with the Member Country or Territory for the purposes of official confirmation and potential publication.

3.2) Percentage of immediate notifications for which the delay of submission to OIE is shorter than 2 days (Indicator 1.2)

Figure 2 and 3 show the distribution of immediate notifications, depending on their submission time. OIE recommends the submission of immediate notifications within 24 hours of confirmation of the disease.

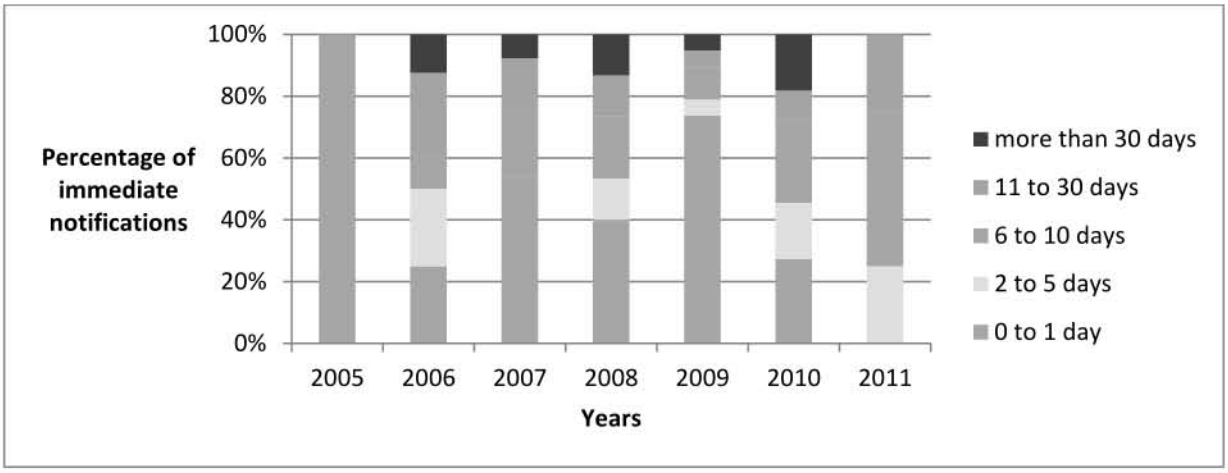
In Congo Basin, very few notifications were submitted to OIE with a delay shorter than 5 days. The percentage of immediate notifications with more timely submission times dropped over time, with more than 50% of notifications submitted to OIE with a delay longer than 30 days from 2008 to 2011 (Figure 2).

Figure 2: Distribution of immediate notifications according to the number of days between confirmation of the event and submission to OIE, by year - Congo Basin



In South and Southeast Asia, the percentage of immediate notifications with short submission times (0 to 5 days) remained over 50% between 2005 and 2009, but dropped during 2010 and 2011. However, the percentage of immediate notifications with very long submission times (more than 30 days) remained under 20% between 2005 and 2010 and was null for January to October 2011 (Figure 3).

Figure 3: Distribution of immediate notifications according to the time between confirmation of the event and submission to OIE, by year - South and Southeast Asia



4) OIE Project Objective 2: Improved reactivity of laboratory diagnosis for exceptional epidemiological events (Indicators 2.1 and 2.2)[27]

The number of days between the start of an exceptional event and the first laboratory test was analysed in order to measure the reactivity of countries for laboratory diagnosis. However, this indicator may be influenced by many factors, such as the importance of the clinical signs, and the results should be interpreted with caution.

At the country level, diseases can be diagnosed through basic or advanced methods, depending on the availability of equipment, supplies, and expertise in testing methods available, but the use of basic or advanced testing methods may not indicate the laboratory's overall laboratory capacity. Basic tests do not require as much material or supplies, are more rapidly executed, but often less precise than advanced methods. Since the time required to perform laboratory tests is different for basic[28] and advanced tests, all the analyses were performed separately for these two categories.

4.1) Congo Basin

In the IDENTIFY Congo Basin countries, laboratory diagnostic tests were performed for 21 out of the 23 events reported in immediate notifications. For 13 events, the disease was diagnosed with basic laboratory tests (8 in laboratories of the Congo Basin, 3 in a South African laboratory, 1 in France and 1 in Mali). For 8 events, the disease was diagnosed using advanced laboratory tests (4 in Europe, 3 in laboratories from the Congo Basin, of which one was an IDENTIFY targeted laboratory, and 1 in South Africa).

Figure 4 shows the diagnostic tests used for the first laboratory diagnosis. PCR and ELISA were each used in 23% of the immediate notifications, followed by c-ELISA (15%), virus isolation (15%), and others. Advanced tests were used as first laboratory tests in 46% of immediate notifications.

Figure 4: Methods used for the first laboratory test in immediate notifications - Congo Basin

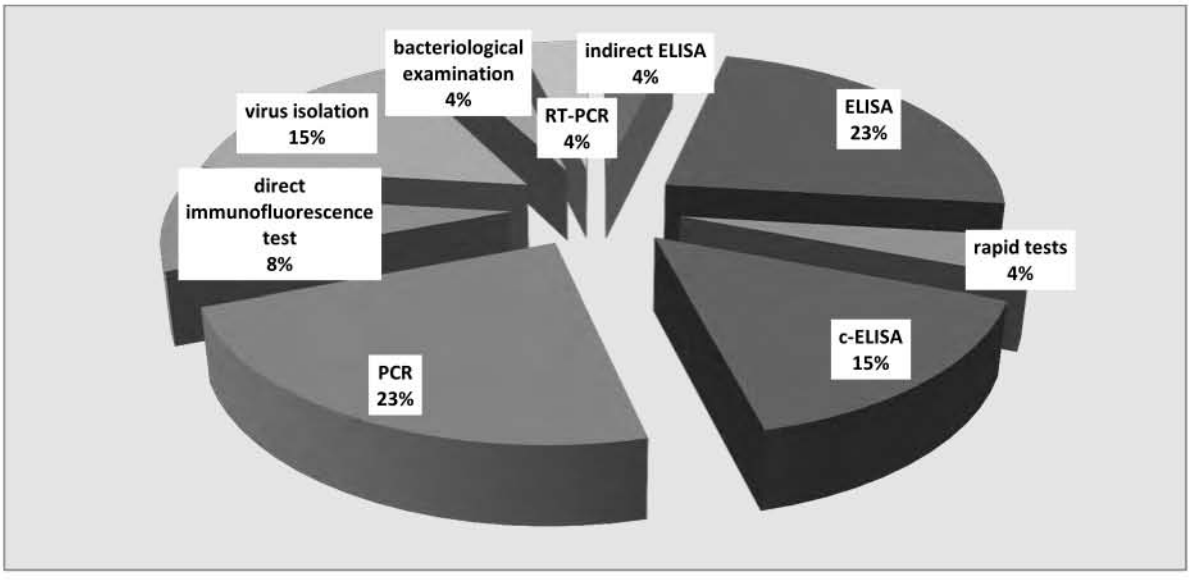


Figure 5 and 6 show the types of laboratories that carried out the first diagnostic tests (basic and advanced) for the immediate notifications between 2005 and October 2011. IDENTIFY supported laboratories performed both basic and advanced tests. OIE Reference Laboratories and other African countries' laboratories also perform tests for countries in the Congo basin.

[27] This analysis was based on data extracted from the immediate notifications submitted to OIE before 21/10/2011

[28] For the list of basic and advanced laboratory tests, refer to Annex 3.

Figure 5: Percentage and type of laboratories that carried out the first basic diagnostic tests - Congo Basin (13 immediate notifications)

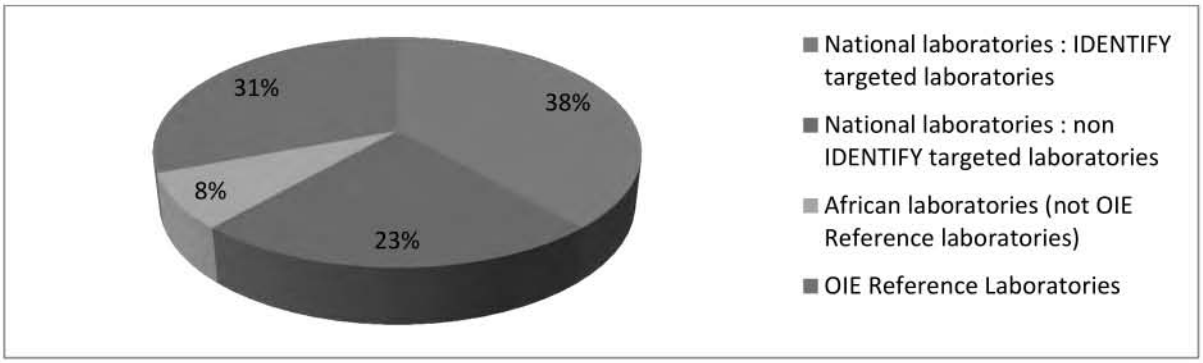
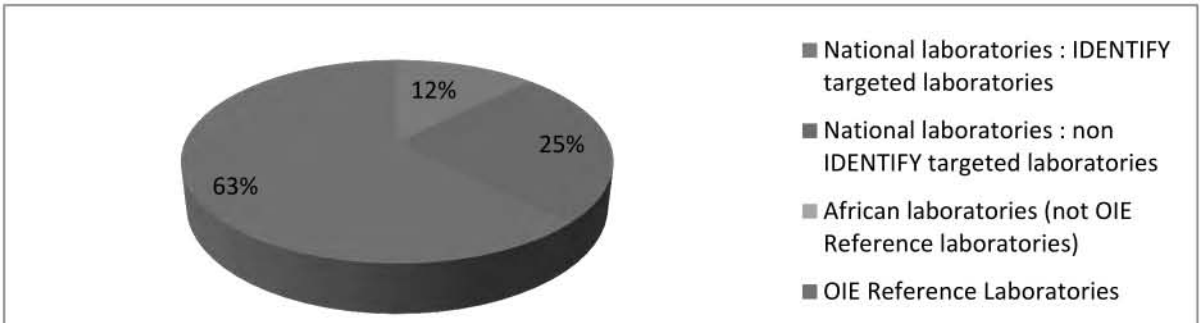


Figure 6: Percentage and type of laboratories that carried out the first advanced diagnostic tests - Congo Basin (8 immediate notifications)

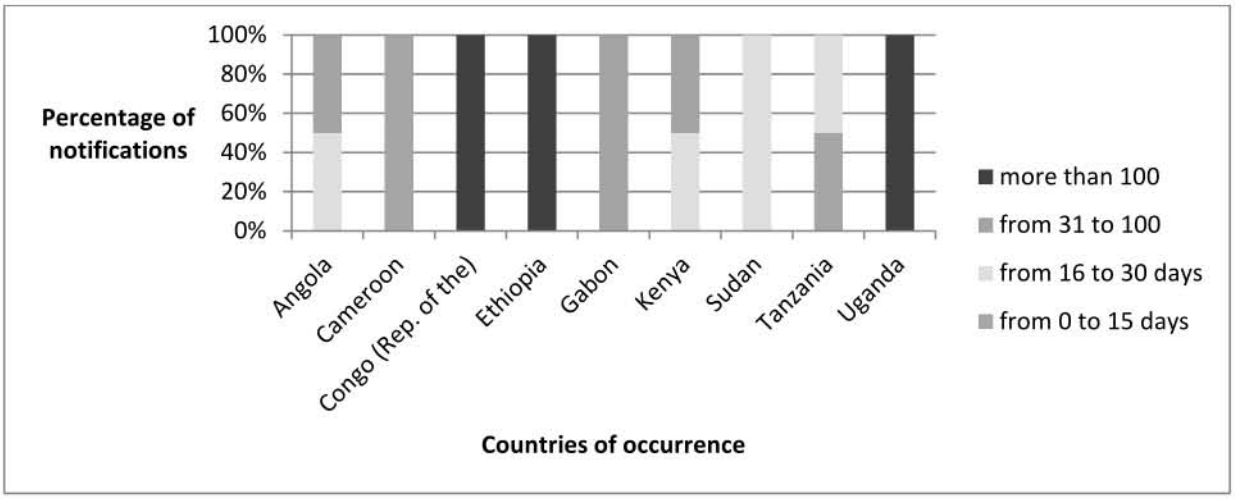


**No African laboratory (not in the Congo Basin and not OIE Reference Laboratory) carried out the first advanced diagnostic tests*

In Figure 7, the number of days between the start of the event and the first laboratory test was analysed by IDENTIFY targeted country for basic tests.
Some countries performed the first laboratory basic tests for all the exceptional events in less than 15 days, such as Cameroon and Tanzania.
In some other cases, the time between the start of the event and the first laboratory tests was longer than 100 days:

- Ethiopia performed the first laboratory tests in the South African OIE Reference Laboratory for African horse sickness in 2008 128 days after the start of the event; the delay was not explained.
- Uganda performed the first laboratory tests in its national laboratory 104 days after the start of the event for peste des petits ruminants in 2007. The delay was not explained, although OIE Animal Health Information Department noticed that this was the first time that a laboratory test for peste des petits ruminants was conducted in Uganda.
- In 2005, the Republic of Congo performed laboratory tests in an OIE Reference Laboratory for peste des petits ruminants in France 185 days after the start of the event; the delay was not explained.

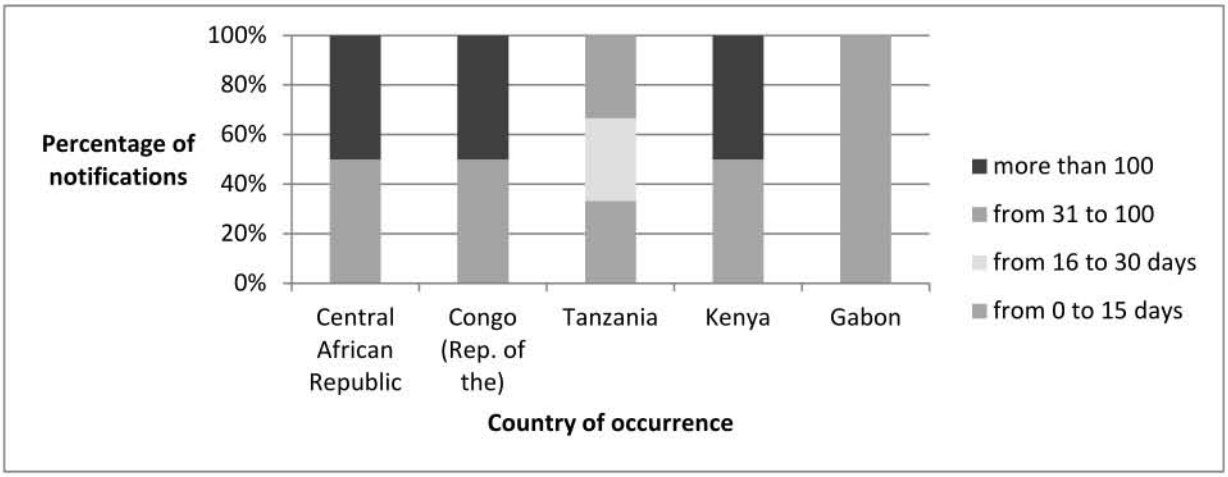
Figure 7: Number of days between the start of the event and the first laboratory tests, for basic tests – Congo Basin



In Figure 8, the number of days between the start of the event and the first laboratory test was analysed by IDENTIFY targeted country for the advanced tests. Some countries performed some first laboratories tests in less than 15 days, such as Tanzania and Kenya.
However, in most cases, the number of days between the start of the event and the first laboratory test was longer than 30 days, and in some cases, the delay before the first laboratory test was longer than 100 days:

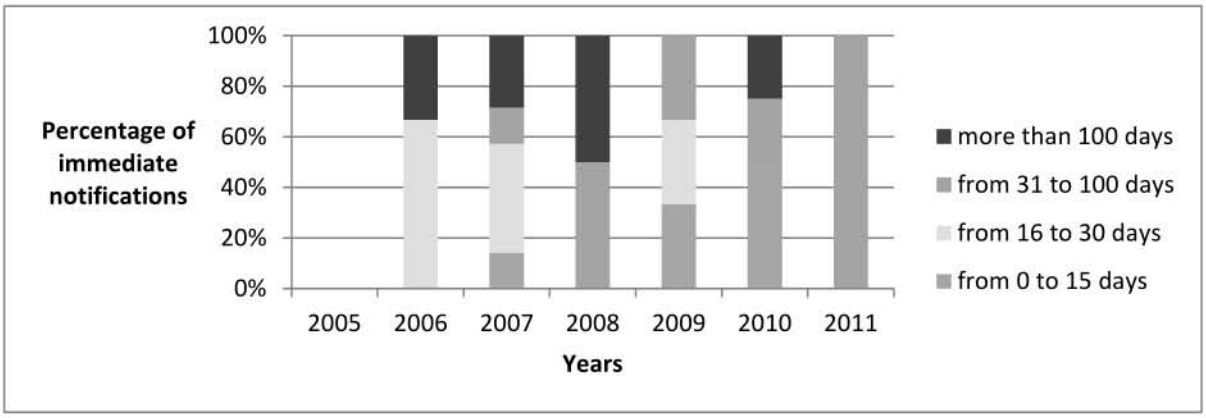
- It is interesting to note that the Pasteur Institute of Bangui, a public health laboratory in Central African Republic, carried out the advanced testing for an animal disease (African swine fever in 2010. Indeed, the national veterinary laboratory did not have the capability to perform tests for this disease in 2010, according to Central African Republic 2010 annual report. As specified in the report, the laboratory tests were not carried out immediately (the tests were performed 147 days after the start of the event) because the national veterinary laboratory did not have diagnostic kits for the disease.
- In 2006, Kenya requested an OIE Reference Laboratory in Spain to perform laboratory test results for African swine fever 131 days after the start of the event. Again, the delay was not explained.

Figure 8: Number of days between the start of the event and the first laboratory tests, for advanced tests – Congo Basin



The percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days was analysed by year, for the region. There was a high percentage of immediate notifications for which the first tests were performed more than 30 days after the start of the events each year, and a low percentage of notifications for which the laboratory tests were performed quickly (Figure 9).

Figure 9: Number of days between the start of an event and the first laboratory tests (basic and advanced), Congo Basin



4.2) South and Southeast Asia

Laboratory diagnostic tests were performed for 68 out of the 70 events reported in immediate notifications. For 7 events, the disease was diagnosed with basic laboratory tests (all in laboratories of South and Southeast Asia, of which 2 events were tested in IDENTIFY supported laboratories).
For 61 events, the disease was diagnosed by advanced laboratory tests (1 in Europe, 1 in USA and 59 in laboratories from the IDENTIFY countries, of which 12 events were tested in IDENTIFY supported laboratories).

Thirty six out of 68 events were HPAI events. Analyses were performed separately for highly pathogenic avian influenza and other diseases, since the avian influenza crisis in South Asia created a specific context of pandemic crisis, potentially influencing the laboratory response time.

4.2.1) Non HPAI data

Figure 10 shows the tests used for first laboratory tests. Virus isolation was used for 33% of the immediate notifications, then RT-PCR (27%), PCR (15%), ELISA (12%) followed by the other tests. Advanced tests were used as first laboratory tests in 84% of cases.
Other tests included: rapid tests, haemagglutination inhibition test, inoculation test, rRT-PCR, bacterial examination, direct fluorescent antibody test, Seller's test, liquid-phase blocking ELISA, histological test, gene sequencing and intravenous pathogenicity index, which account for 12% of the tests used.

Figure 10: Laboratory tests used for first tests, (non-HPAI) - South and Southeast Asia

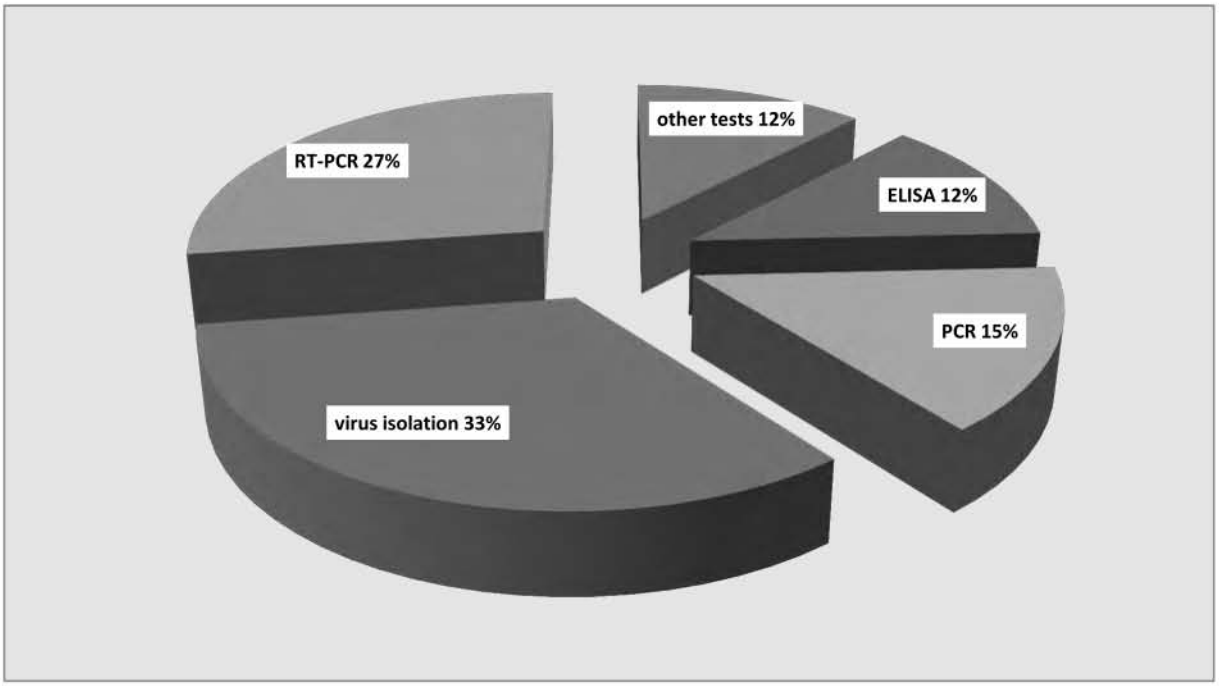
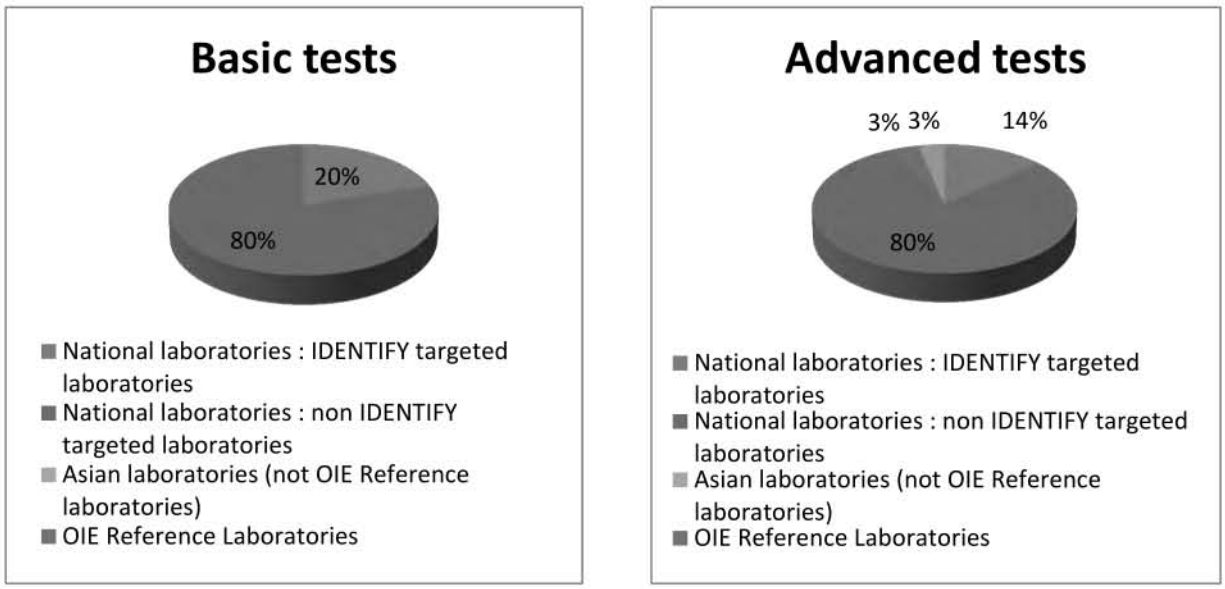


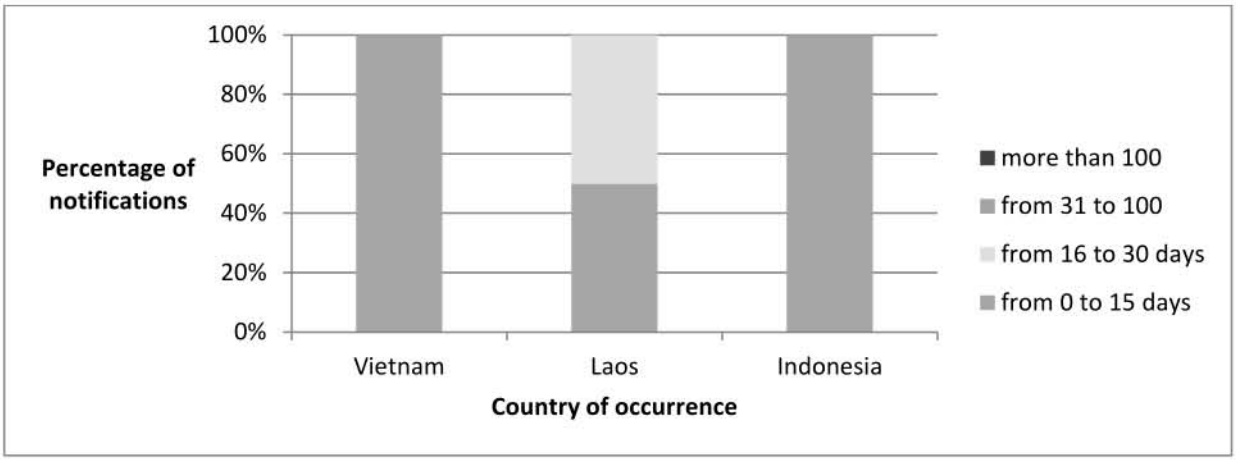
Figure 11 shows the type of laboratories that carried out the first diagnostic tests (basic and advanced) for the immediate notification events between 2005 and October 2011. IDENTIFY supported laboratories performed both basic and advanced tests for several diseases. One OIE Reference Laboratory and other international laboratories also performed tests for countries in the SEA region.

Figure 11: Type of laboratories that carried out the first basic and advanced diagnostic tests (non-HPAI) - South and Southeast Asia



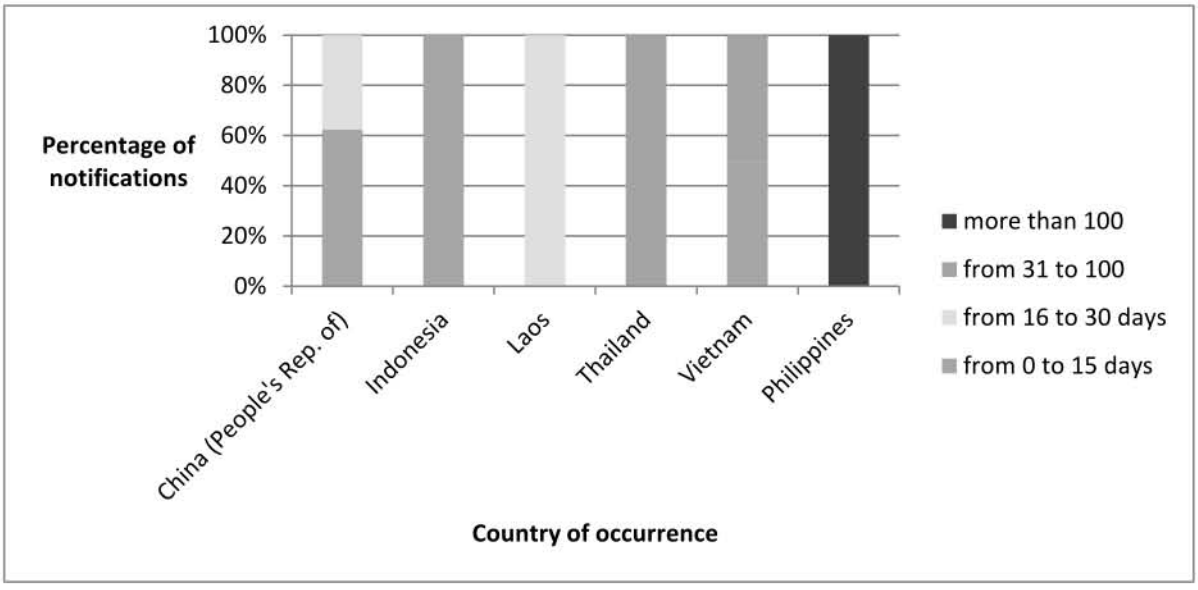
In Figure 12, the number of days between the start of the event and the first laboratory test was analysed by IDENTIFY targeted country for the basic tests.
All IDENTIFY countries performed the basic diagnostic tests less than 30 days after the start of the event. Vietnam and Indonesia performed the first laboratory test in less than 15 days after the start of the event.

Figure 12: Number of days between the start of the events and the first laboratory tests, for basic tests, non-HPAI– South and Southeast Asia



In Figure 13, the time between the start of the events and the first laboratory tests was analysed, by IDENTIFY targeted country, for the non HPAI advanced tests.
For most of the notifications, the number of days between the start of the event and the first laboratory test was shorter than 30 days. However, for one notification, the time between the start of the event and the first laboratory test was 112 days (porcine respiratory and reproductive disease in Philippines in 2008), but this delay was not explained.

Figure 13: Number of days between the start of the event and the first laboratory test, for non-HPAI advanced tests – South and Southeast Asia



4.2.2) HPAI data

Figure 14 shows the tests used for first laboratory tests. RT-PCR was used for 25% of the immediate notifications, then virus isolation (18%), rRT-PCR (13%), inoculation test (11%), haemagglutination inhibition test and rapid tests (9%), PCR (5%) followed by the other tests. Advanced tests were used as first laboratory tests in 92% of cases.
Other tests included: bacterial examination, direct fluorescent antibody test, Seller's test, liquid-phase blocking ELISA, histological test, gene sequencing and intravenous pathogenicity index, which account for 9% of the tests used.

Figure 14: Laboratory tests used for first tests, (HPAI) - South and Southeast Asia

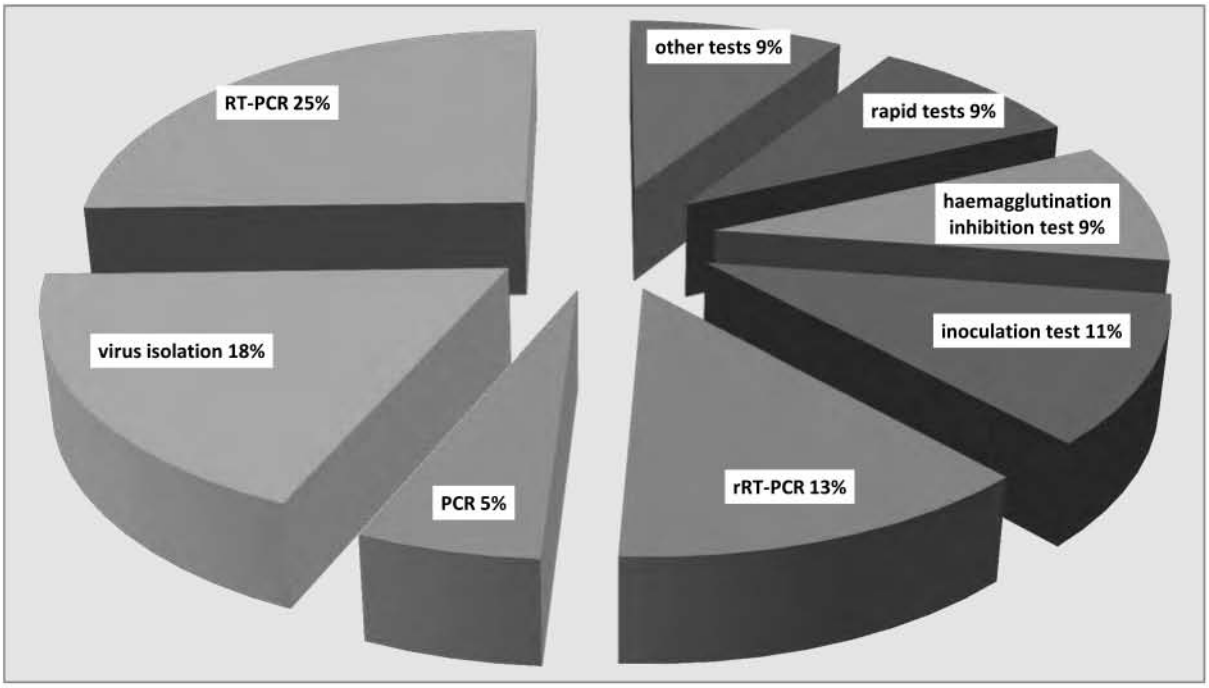
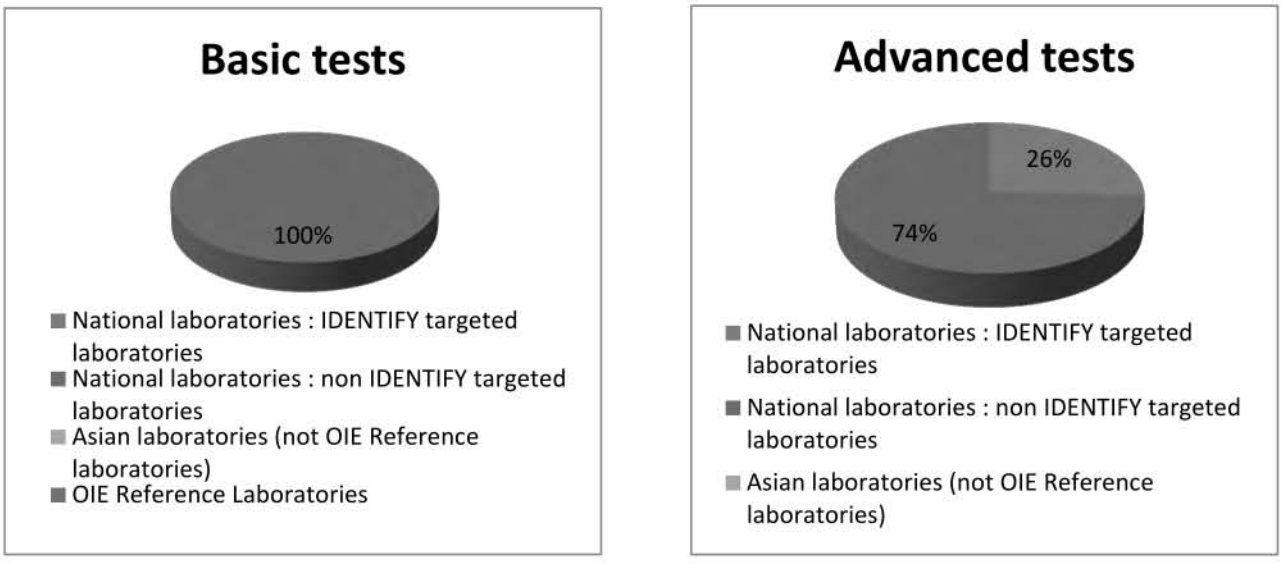


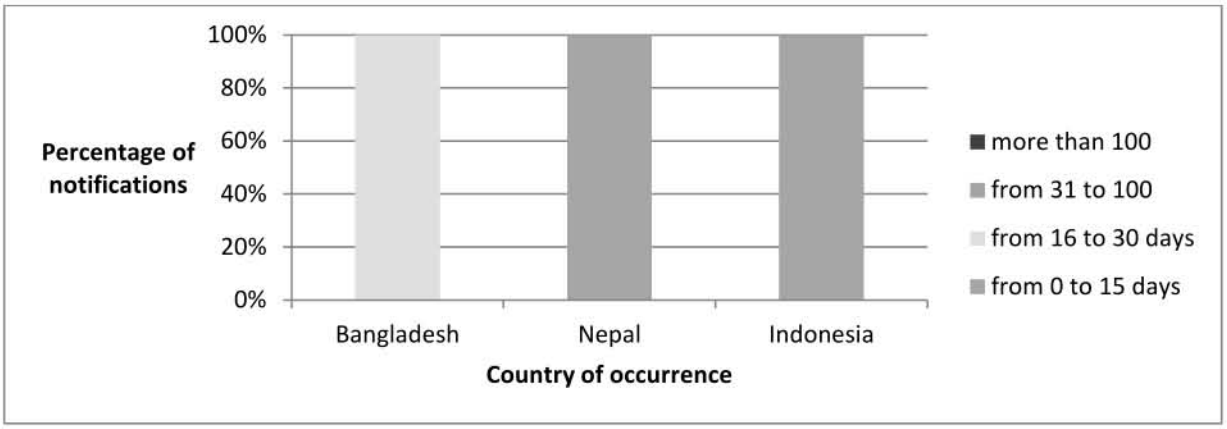
Figure 15 shows the type of laboratories that carried out the first diagnostic tests (basic and advanced) for the immediate notification events between 2005 and October 2011. IDENTIFY supported laboratories performed only advanced tests (no basic tests) for several diseases. No OIE Reference Laboratory and another international laboratories performed tests for countries in the SEA region for HPAI.

Figure 15: Type of laboratories that carried out the first, basic and advanced diagnostic tests (HPAI) - South and Southeast Asia



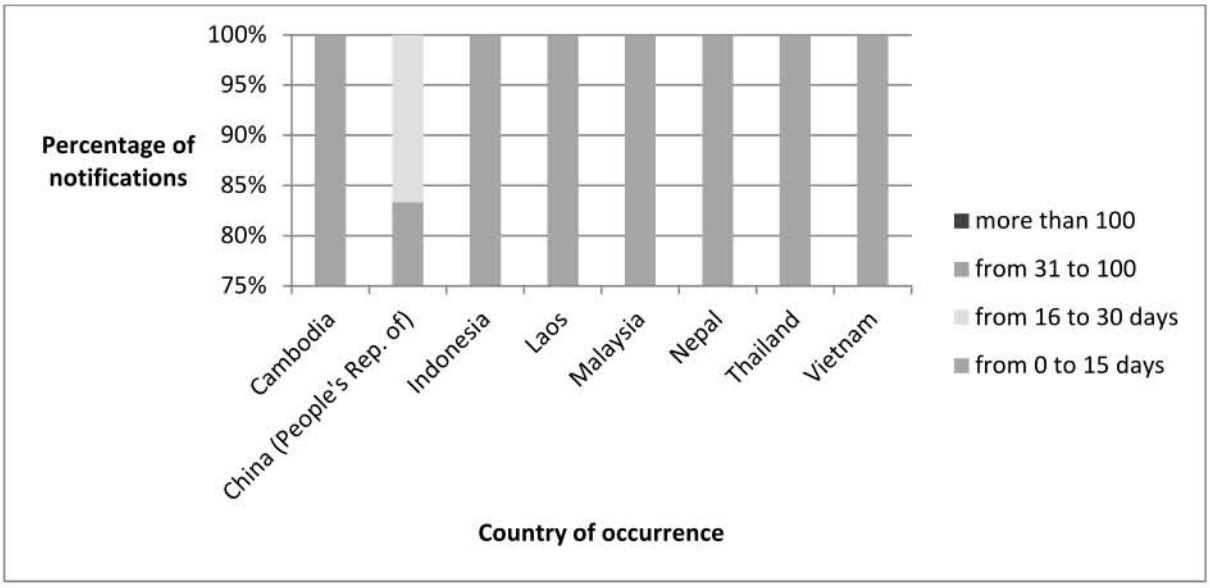
In Figure 16, the number of days between the start of the event and the first laboratory test was analysed by IDENTIFY targeted country for the basic tests. All IDENTIFY countries performed the basic diagnostic tests less than 30 days after the start of the event. Nepal and Indonesia performed the first laboratory test in less than 15 days after the start of the event.

Figure 16: Number of days between the start of the events and the first laboratory tests, for basic tests, HPAI– South and Southeast Asia



In Figure 17, the number of days between the start of the event and the first laboratory tests was analysed by IDENTIFY targeted country for the HPAI advanced tests.
All the first laboratory tests were performed in less than 15 days after the start of the events, except for one that was performed in less than 30 days.

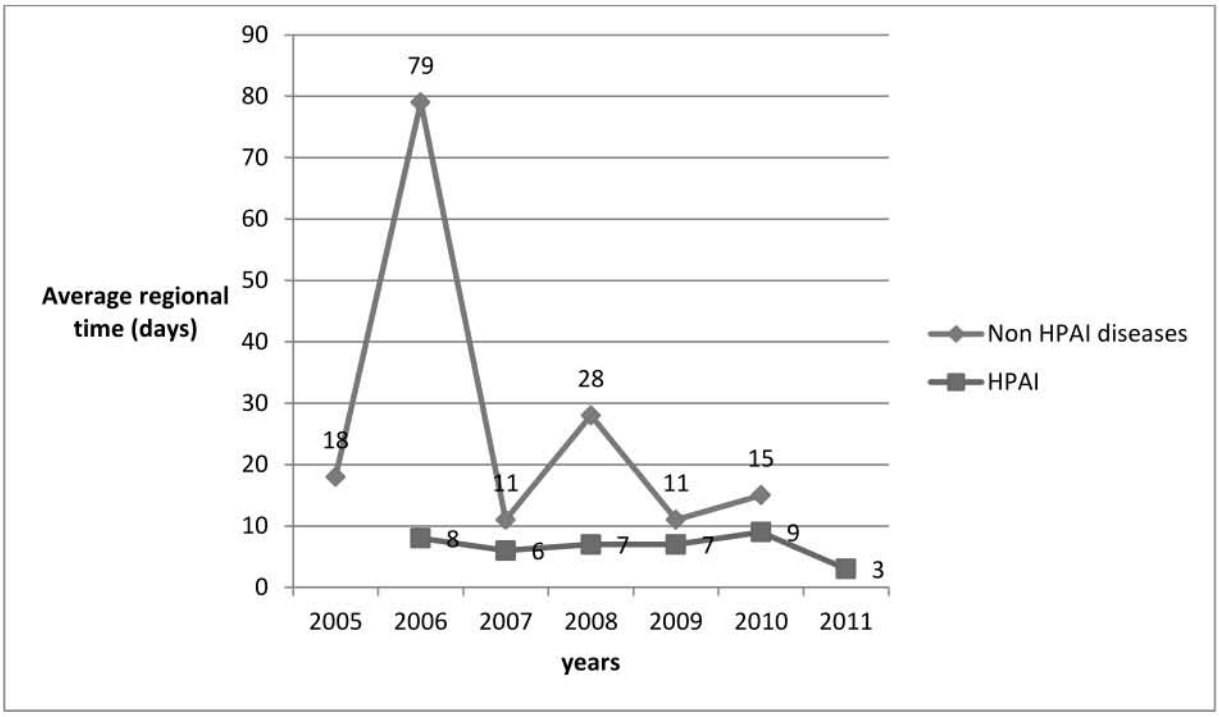
Figure 17: Number of days between the start of the event and the first laboratory test, for HPAI advanced tests – South and Southeast Asia



If we compare the timeliness results for HPAI and non-HPAI diseases in the same laboratories, results were always better for HPAI than for other diseases. This may reflect improved surveillance capabilities and focused capacity building for emergency situations, as during the avian influenza crisis.

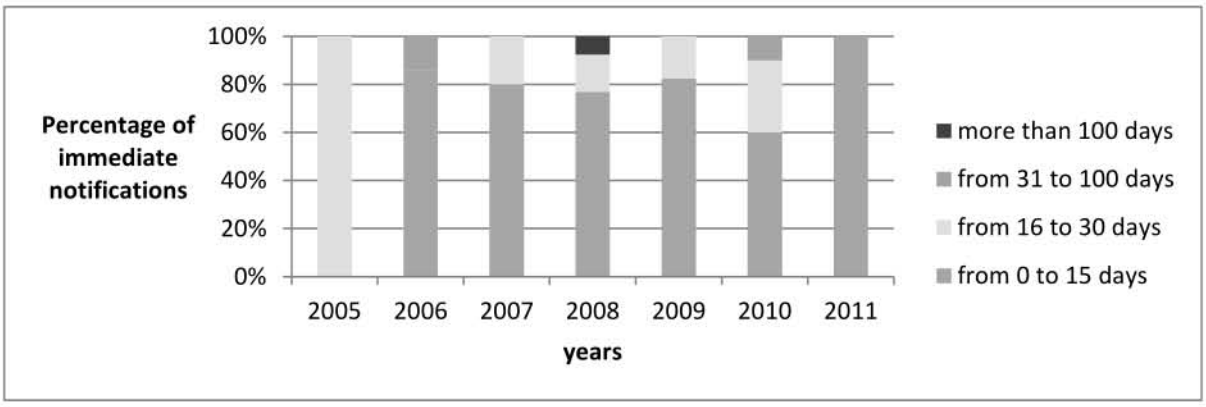
Figure 18 shows the average number of days at the regional level between the start of the event and the first laboratory tests by year for HPAI and non-HPAI diseases. The average number of days between the start of the event and the first laboratory tests was shorter for highly pathogenic avian influenza than for other diseases, although the trend for other diseases also improved.

Figure 18: Average number of days at the regional level between the start of the event and the first laboratory tests, by year, South and Southeast Asia



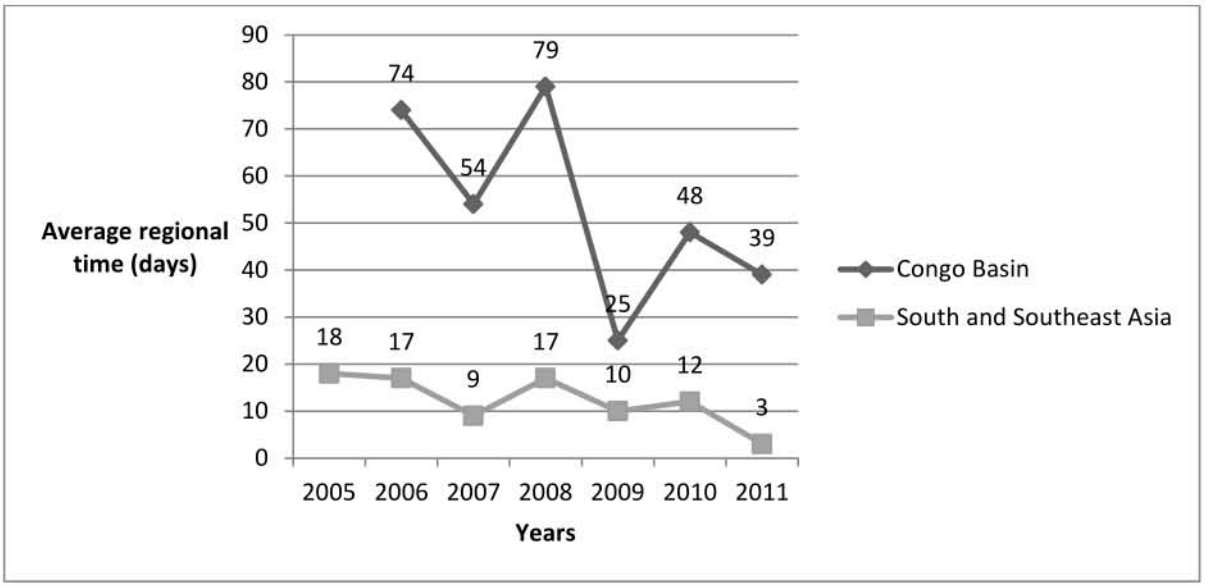
The results were analysed by year. For South and Southeast Asia, the results were much better than Congo Basin, with a high percentage of immediate notifications for which the first tests were performed less than 15 days after the start of the event, from 2006 to 2011 (Figure 19).

Figure 19: Number of days between the start of the event and the first laboratory tests (basic and advanced), South and Southeast Asia



In summary, Figure 20 shows the average number of days at the regional level between the start of the event and the first laboratory tests, by year comparing the Congo Basin and South and Southeast Asia regions. The trend seems to be improving between 2005 and 2011 for the two regions. However, the number of days required on average to perform the first test is much longer in Congo Basin than in South and Southeast Asia.

Figure 20: Average number of days at the regional level between the start of the events and the first laboratory tests by year, Congo Basin and South and Southeast Asia

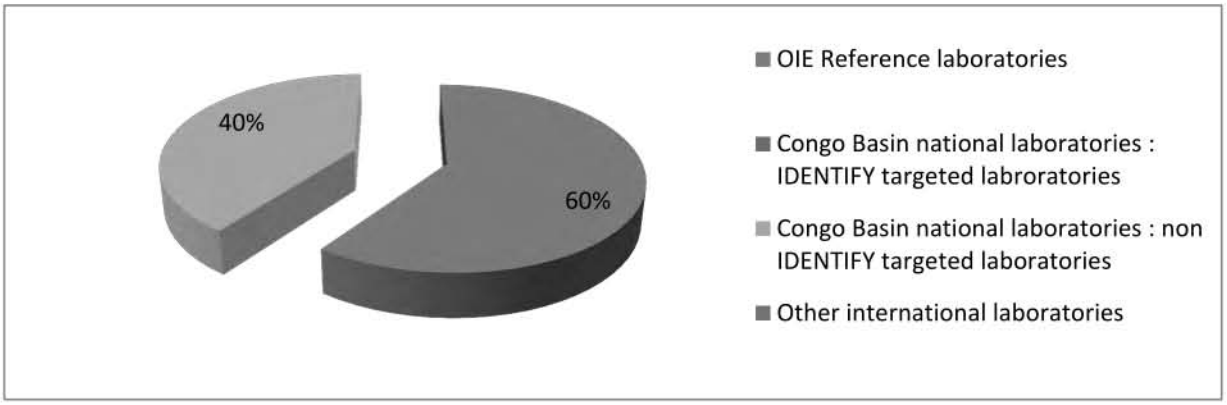


5) OIE Project Objective 3.1: Increased use of OIE Reference Laboratories for confirmation after diagnosis of an exceptional epidemiological event

Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory (Indicator 3.1)[29]

As presented in Figure 21, OIE Reference Laboratories carried out additional tests in Congo Basin region in the majority (60%) of cases. Some countries requested that additional tests be performed by other national laboratories in the region. No IDENTIFY targeted laboratory performed additional tests.

Figure 21: Types of laboratories used for additional tests - Congo Basin

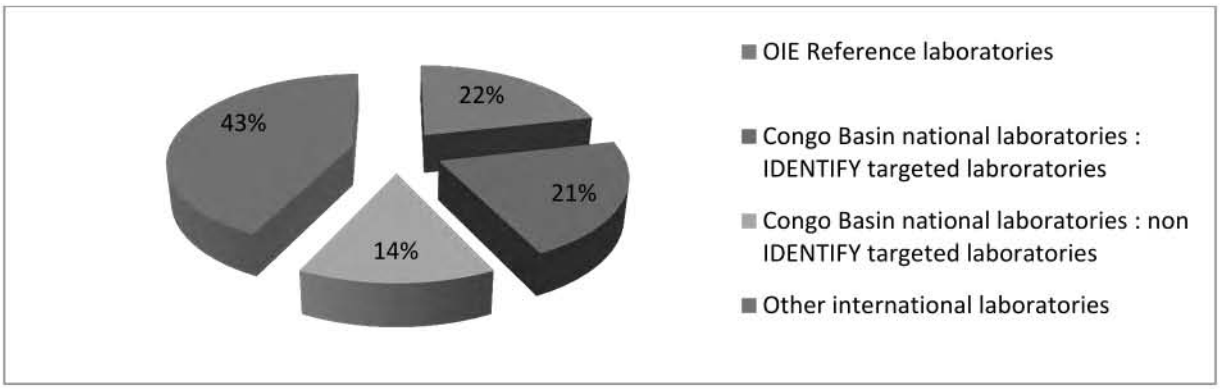


Conversely, OIE Reference Laboratories did not carry out many additional tests for events in South and Southeast Asia, although the utilisation of OIE Reference Laboratories for confirmatory testing has increased in the past 3 years. Additional tests were usually performed in national laboratories of

[29] This analysis was based on data extracted from the immediate notifications submitted to OIE before 21/10/2011

the region (in 35% of all cases), or in other international laboratories (such as Pasteur Institute) (Figure 22).

Figure 22: Types of laboratories used for additional tests – South and Southeast Asia

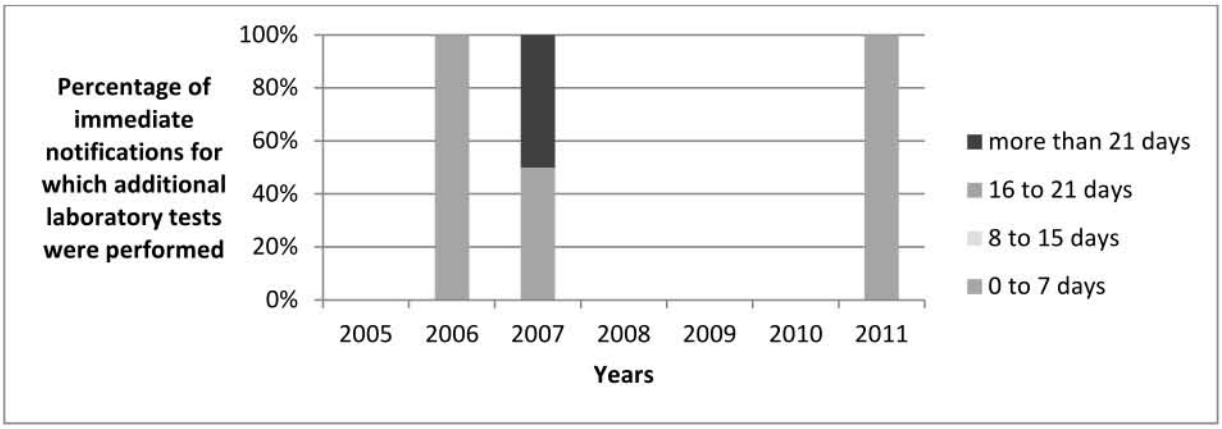


6) OIE Project Objective 3.2: Improved reactivity of laboratory confirmation for exceptional epidemiological events

Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days (Indicator 3.2)[30]

In both the Congo Basin and South and Southeast Asia regions, most additional tests were performed in less than 7 days after the first laboratory test (Figures 23 & 24). In Congo Basin, 100% of additional tests were performed in less than 7 days after the first laboratory test in 2006 and 2011.

Figure 23: Number of days between the first and additional laboratory tests, by year - Congo Basin



In South and Southeast Asia, 100% of additional tests were performed less than 7 days after the first laboratory test in 2008, 2009 and 2011. For some events, the time between laboratory tests was notably long:

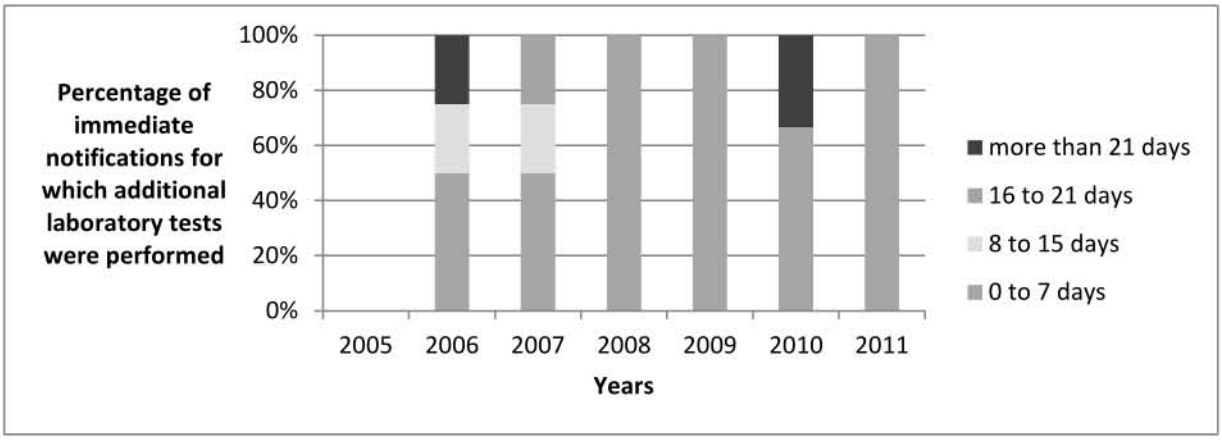
- In 2007, the national laboratory in Bangladesh requested Thailand (NIAH) to perform a confirmation test. This test was performed 22 days after the first test, despite the fact that NIAH had performed the same confirmation test in only 13 days, for a sample from Laos in 2006.

[30] This analysis was based on data extracted from the immediate notifications submitted to OIE before 21/10/2011

- The OIE Reference Laboratory of Weybridge performed a confirmation test within 23 days of the first laboratory test for Nepal in 2010, although it had performed confirmation tests for the same disease in 0 and 3 days in 2009 and earlier in 2010.

These delays seem to be more the consequence of lack of organisation and resources for sample shipment, rather than less-than-ideal laboratory capabilities.

Figure 24: Number of days between the first and additional laboratory tests, by year - South and Southeast Asia



7) OIE Project Objective 4: Complete quantitative information provided for diseases that are present in the country

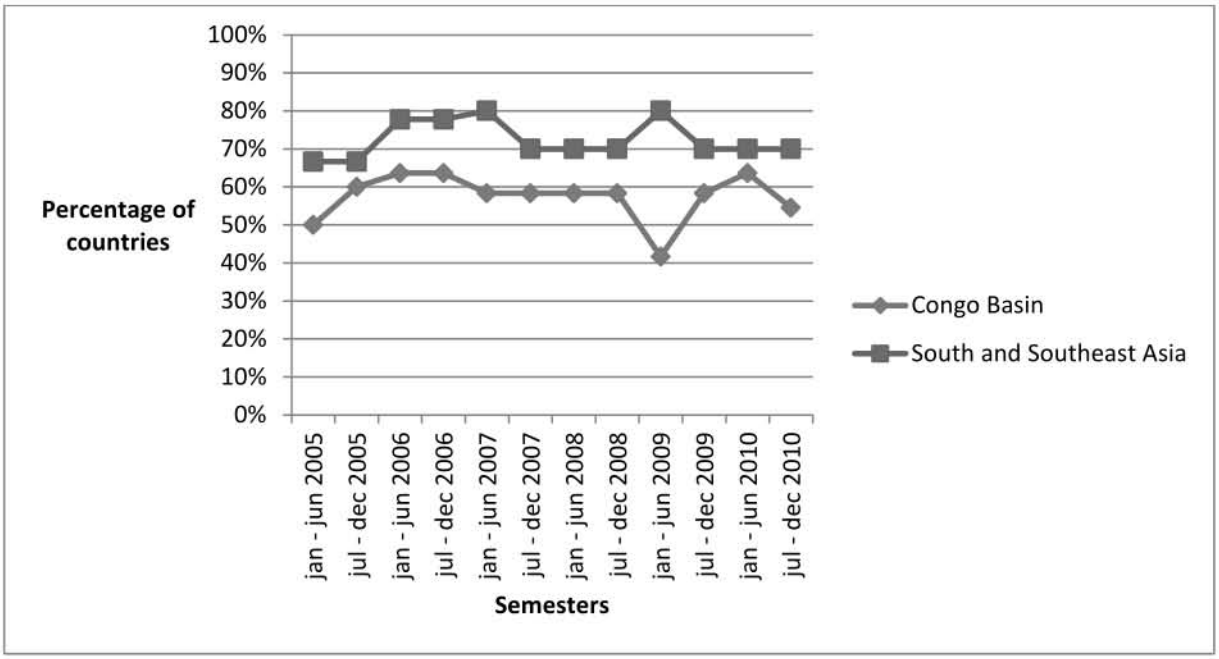
7.1) Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country (Indicator 4.1)[31]

In the six-monthly reports, countries are asked to provide quantitative information for the diseases which are present. OIE encourages Member countries to provide information (e.g. number of outbreaks, number of cases, deaths, destroyed animals, etc.) by month and by administrative division. However, some Member countries only provide quantitative information according to one of these two variables, or may provide information for the whole country as opposed to by administrative division. Some other countries provide no quantitative information at all.

For each region, the percentage of countries providing quantitative information for the IDENTIFY targeted diseases present was calculated. The percentage of countries providing quantitative data for the majority of the diseases present ranged between 42% and 64% in Congo Basin, with a stable trend. It ranged between 67% and 80% in South and Southeast Asia, also with a stable trend (Figure 25).

[31] This analysis was based on data extracted from 2005 to 2010 six-monthly reports received and validated by OIE as of 21/10/2011.

Figure 25: Percentage of countries providing quantitative information for the majority of the IDENTIFY diseases present



7.2) Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided (Indicator 4.2)

The percentage of IDENTIFY targeted diseases that were present and for which quantitative information was provided ranged between 38% and 56% in Congo Basin, with a relatively stable trend. It ranged between 59% and 75% in South and Southeast Asia, also with a relatively stable trend (Figures 26 and 27).

The quantitative level (month and/or administrative division) of the data submitted to OIE was evaluated for each country and semester. This information is not included in this report for brevity's sake, but is available upon request.

At the beginning of the IDENTIFY project (the second semester of 2009) in the Congo Basin region:

- 4 countries provided quantitative information for more than the two thirds of IDENTIFY targeted diseases: Angola (quantitative information for 100% of IDENTIFY targeted diseases), Sudan (100%), Cameroon (83%) and Central African Republic (67%)
- 5 countries provided quantitative information for more than one third of IDENTIFY targeted diseases: Gabon (50%), Kenya (50%), Tanzania (50%), Ethiopia (47%) and the Republic of Congo (38%)
- 3 countries provided quantitative information for less than one third of IDENTIFY targeted diseases: Rwanda (33%), Uganda (25%) and the Democratic Republic of Congo (7%)

At the beginning of the IDENTIFY project (the second semester of 2009) in the South and Southeast Asia region:

- 7 countries provided quantitative information for more than the two thirds of IDENTIFY targeted diseases: Cambodia (quantitative information for 100% of IDENTIFY targeted diseases), Indonesia (100%), Malaysia (100%), Thailand (100%), Nepal (86%), China (83%) and Vietnam (64%)

- 3 countries provided quantitative information for less than the third of IDENTIFY targeted diseases: Philippines (20%), Bangladesh (11%) and Laos (0%)

Figure 26: Percentage of IDENTIFY targeted diseases that were present and for which quantitative information was provided - Congo Basin

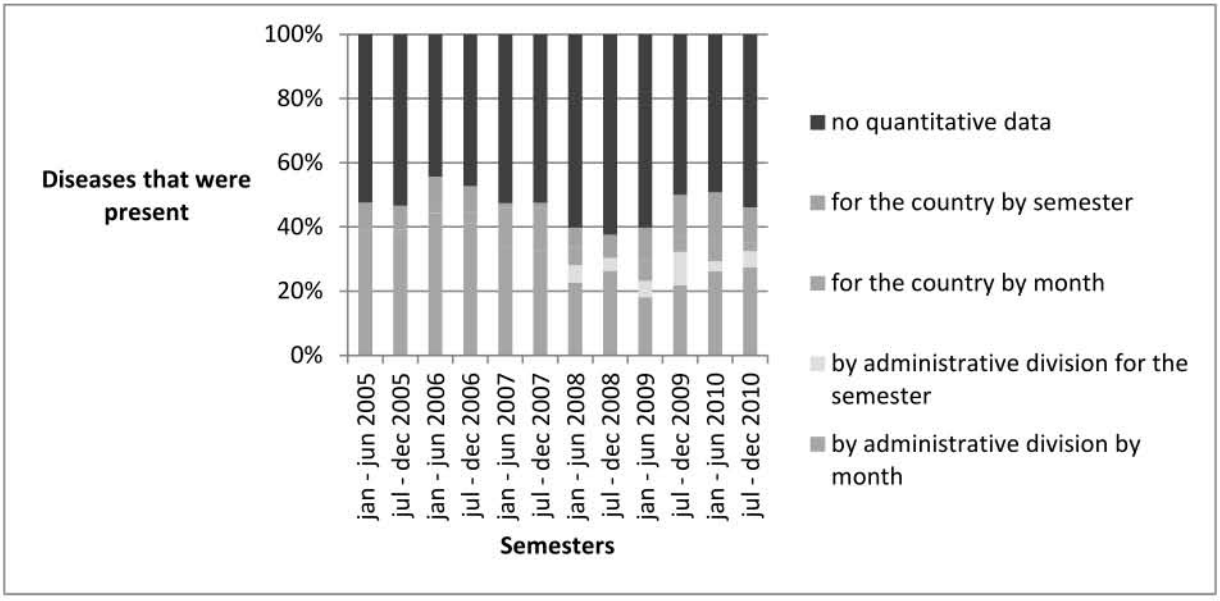
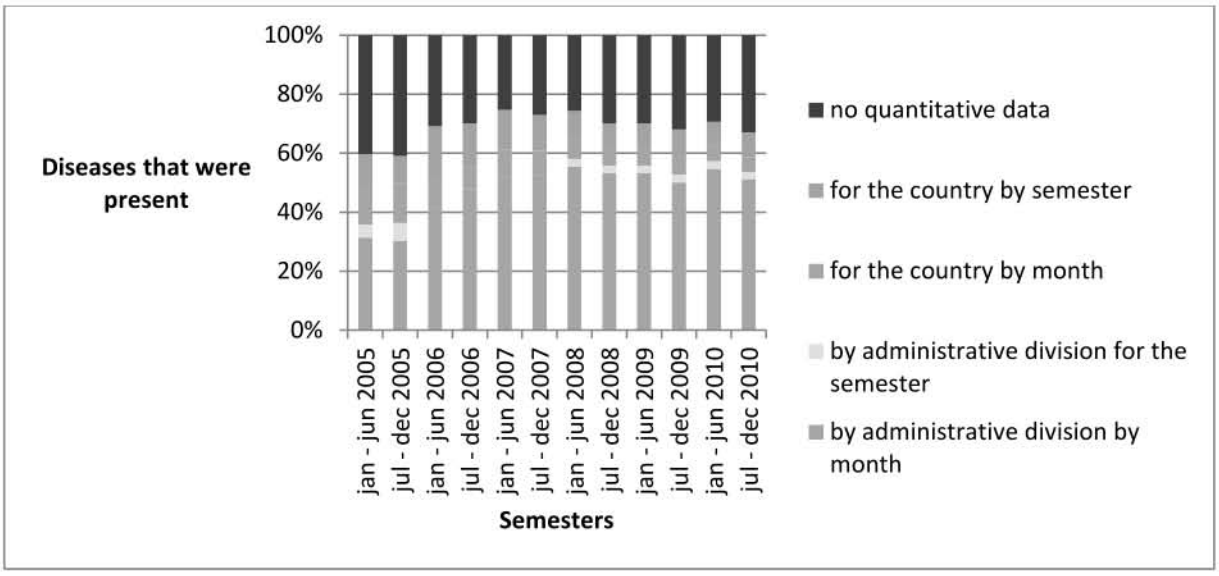


Figure 27: Percentage of IDENTIFY targeted diseases that were present and for which quantitative information was provided - South and Southeast Asia



In the Congo Basin, the diseases for which the most quantitative information was provided were:

- Rabies
- Foot and mouth disease
- Contagious bovine pleuropneumonia
- Newcastle disease
- Peste des petits ruminants
- Anthrax
- African Swine fever

In South and Southeast Asia, the diseases for which the most quantitative information was provided were:

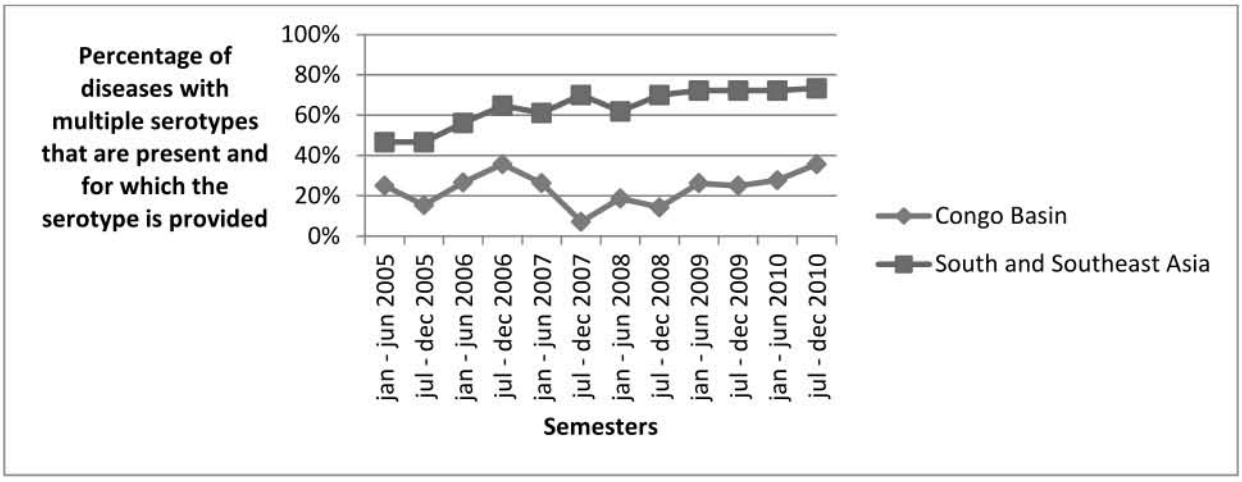
- Highly pathogenic avian influenza
- Foot and mouth disease
- Haemorrhagic Septicemia
- Newcastle disease
- Classical swine fever
- Anthrax
- Rabies

8) OIE Project Objective 5: Completed qualitative information for diseases that are present

Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided (Indicator 5)[32]

In the six-monthly reports, countries are asked to provide information for the serotype of the present diseases. However, some countries may not always provide this information, if they were unable to identify the serotype, or if they did not fully complete the six-monthly report.
There were six IDENTIFY targeted diseases with multiple existing serotypes (foot and mouth disease, rabies, highly pathogenic avian influenza, African horse sickness, equine influenza and low pathogenic avian influenza). We analysed the percentage of these diseases that were present and for which the information about the serotype was provided, in Figure 28.
Countries of the Congo Basin provided information for the serotype of 7% to 36% of these diseases, with an increasing trend since 2007. Countries of South and Southeast Asia provided more information (47% to 73% of the diseases) with an increasing trend since 2005.

Figure 28: Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes, that were present and for which the information about the serotype was provided

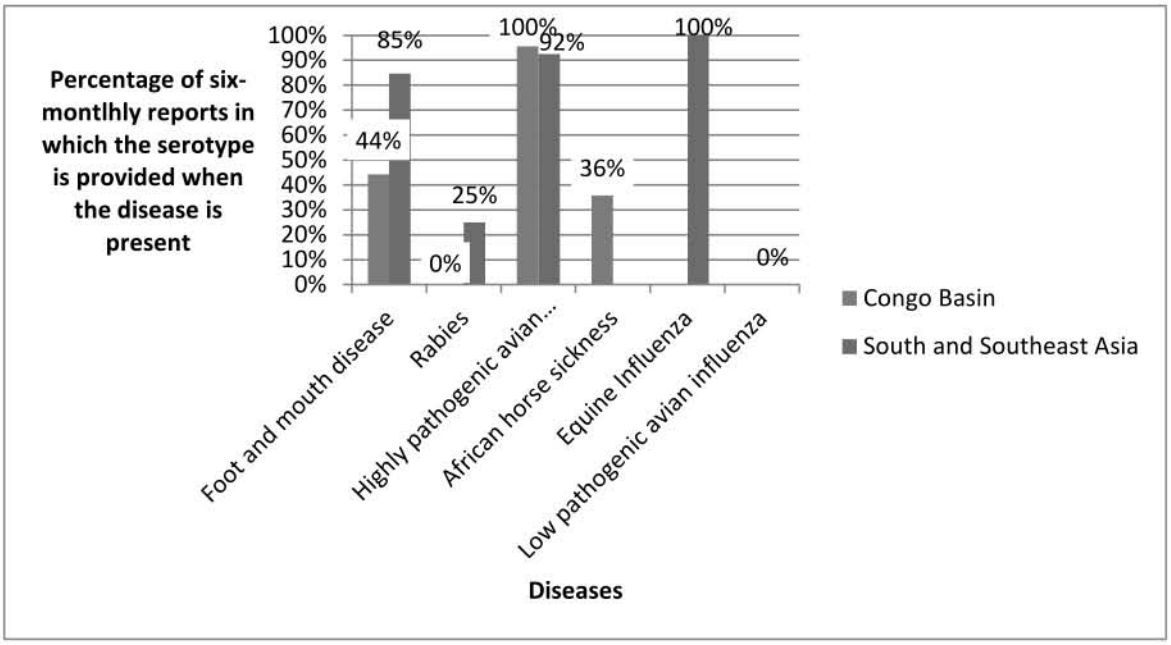


The most reported diseases among these six diseases were: foot and mouth disease, rabies and African horse sickness in Congo Basin; foot and mouth disease, rabies and highly pathogenic avian influenza in South and Southeast Asia. The percentage of six-monthly reports in which the serotypes were

[32] This analysis was based on data extracted from 2005 to 2010 six-monthly reports received and validated by OIE as of 21/10/2011.

provided when the diseases were present is shown in the Figure 29 for the two regions. For highly pathogenic avian influenza and equine influenza, the serotypes were specified in more than 90% of the six-monthly reports in the two regions.
The results were different for foot and mouth disease between South and Southeast Asia (the serotype was specified in 85% of the six-monthly reports) and Congo Basin (44% of the six-monthly reports), even though the disease was reported in many countries of the two regions. In South and Southeast Asia, the serotype for rabies was often not provided and the serotype for low pathogenic avian influenza was never provided. In Congo Basin, the serotypes for foot and mouth disease and African horse sickness were not often provided, and the serotype for rabies was never provided.

Figure 29: Percentage of six-monthly reports in which the serotype is provided when the disease is present



9) OIE Project Objective 6.1: Increased availability of tests in national animal health laboratories [33]

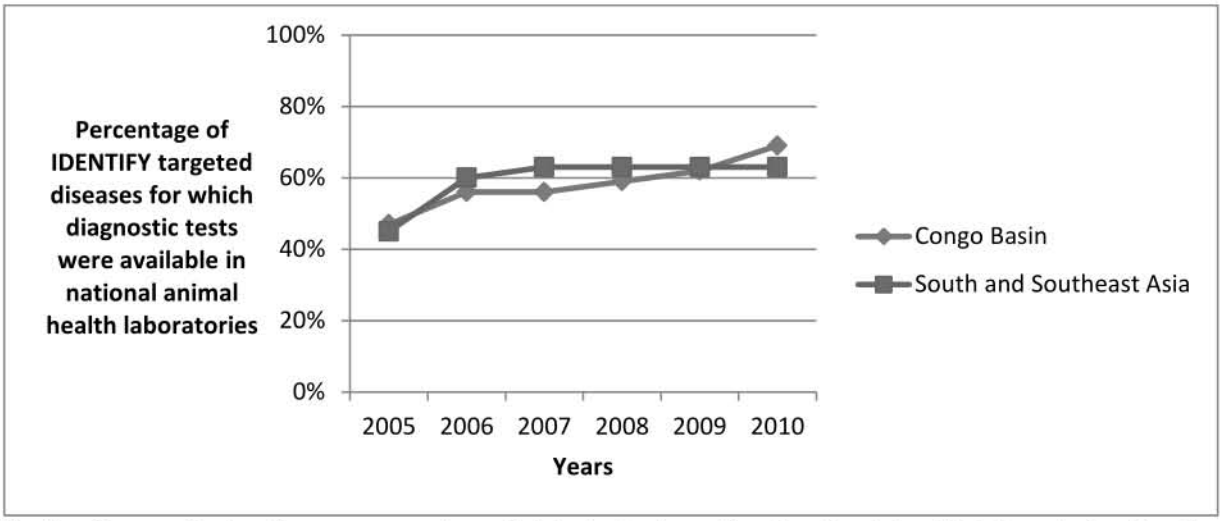
Information on national animal health laboratories' capabilities provided by the IDENTIFY countries to OIE in their annual reports from 2005 to 2010 was analysed. The OIE Member Countries were asked to provide information for their national animal health laboratories and their diagnostic capabilities on OIE Listed diseases. The percentage of IDENTIFY targeted diseases for which diagnostic tests were available in the national animal health laboratories was analysed.

The diagnostic capabilities continuously increased in the two IDENTIFY targeted regions (Figure 30). There are 32 IDENTIFY targeted diseases in the Congo Basin. For 47% of them, diagnostic tests were available in the national animal health laboratories of the region in 2005. This percentage increased to 69% in 2010.

[33] This analysis was based on data extracted from 2005 to 2010 annual reports received and validated by OIE on the 21/10/2011.

There are 27 IDENTIFY targeted diseases in South and Southeast Asia. For 45% of them, diagnostic tests were available in the national animal health laboratories of the region in 2005. This percentage increased to 63% in 2010.

Figure 30: Percentage of IDENTIFY targeted diseases for which diagnostic tests were available in national animal health laboratories



In the Congo Basin, there were not available tests in national animal health laboratories for the following diseases:

- African horse sickness
- Crimean Congo haemorrhagic fever
- Dourine
- Epizootic haemorrhagic disease
- Equine influenza
- Nipah Virus encephalitis
- Ovine epididymitis (*Brucella ovis*)
- Pullorum disease
- Scrapie
- Surra (*Trupanosoma evansi*)

In South and Southeast Asia, there were not available test in national animal health laboratories for the following diseases:

- African swine fever
- Brucellosis (*Brucella suis*)
- Crimean Congo haemorrhagic fever
- Epizootic haemorrhagic disease
- Equine influenza
- Nipah Virus encephalitis
- Ovine epididymitis (*Brucella ovis*)
- Rift Valley fever
- Salmonellosis (*Salmonella abortusovis*)
- Scrapie

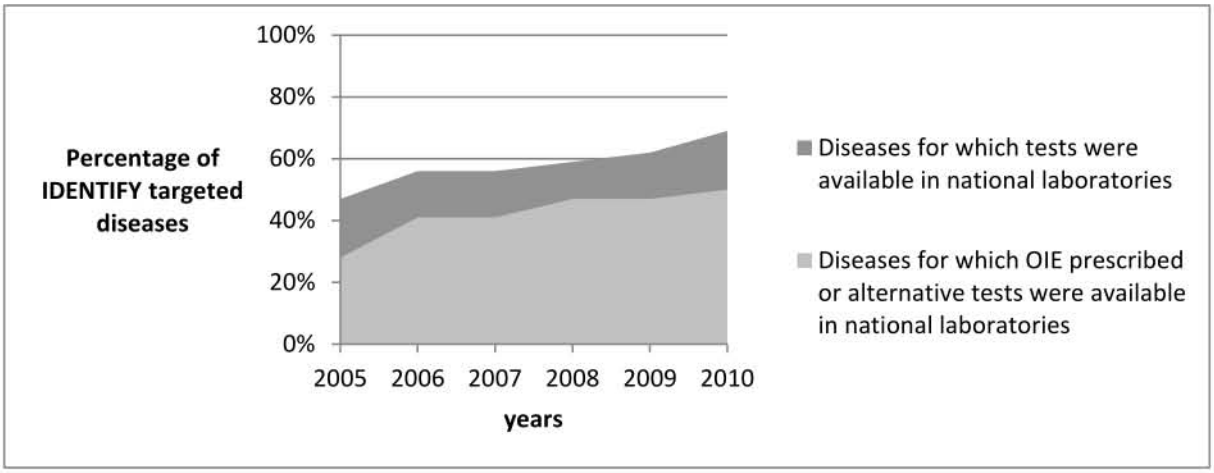
10) OIE Project Objective 6.2: Increased availability of OIE prescribed and/or alternative tests for international trade in national animal health laboratories [34]

The conformity of diagnostic tests available in national animal health laboratories to the OIE Standards and prescribed[35] tests for international trade was analysed. The conformity increased with the increase of testing capabilities in the two IDENTIFY regions (Figures 31 and 32).

In the two regions, most of the available tests were in line with the OIE Standards and prescribed or alternative tests for international trade. 60% to 80% of the available tests were in line with the OIE Standards and prescribed or alternative tests for international trade in the national laboratories of the Congo Basin and 68% to 83% of the available tests were OIE Standards and prescribed or alternative tests for international trade in the national laboratories of South and Southeast Asia.

The IDENTIFY supported laboratories in the Congo Basin report sufficient laboratory capability to perform diagnostic tests for 20 IDENTIFY targeted diseases (62%), of which 16 methods are in line with OIE Standards and prescribed or alternative tests for international trade (50% of IDENTIFY targeted diseases), according to the 2010 annual reports.

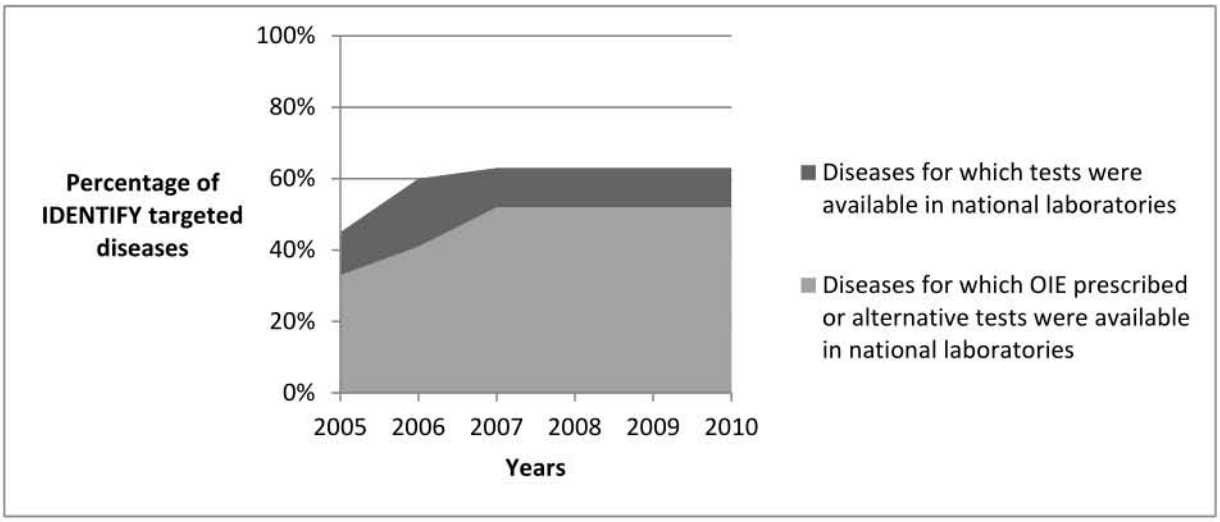
Figure 31: Percentage of IDENTIFY targeted diseases for which OIE Standards and prescribed tests for international trade were available, Congo Basin



The IDENTIFY supported laboratories in South and Southeast Asia are capable of performing diagnostic tests for 17 IDENTIFY targeted diseases (63%), of which 10 methods are in line with OIE Standards and prescribed or alternative tests for international trade (37% of IDENTIFY targeted diseases), according to the 2010 annual reports.

[34] This analysis was based on data extracted from 2005 to 2010 annual reports received and validated by OIE on the 21/10/2011.
[35] Please visit the website of the OIE Manual for Diagnostic Tests and Vaccines for Terrestrial Animals http://www.oie.int/fileadmin/Home/eng/Health_standards/tahm/0.02_PRESCRIBED_TESTS_2008.pdf.

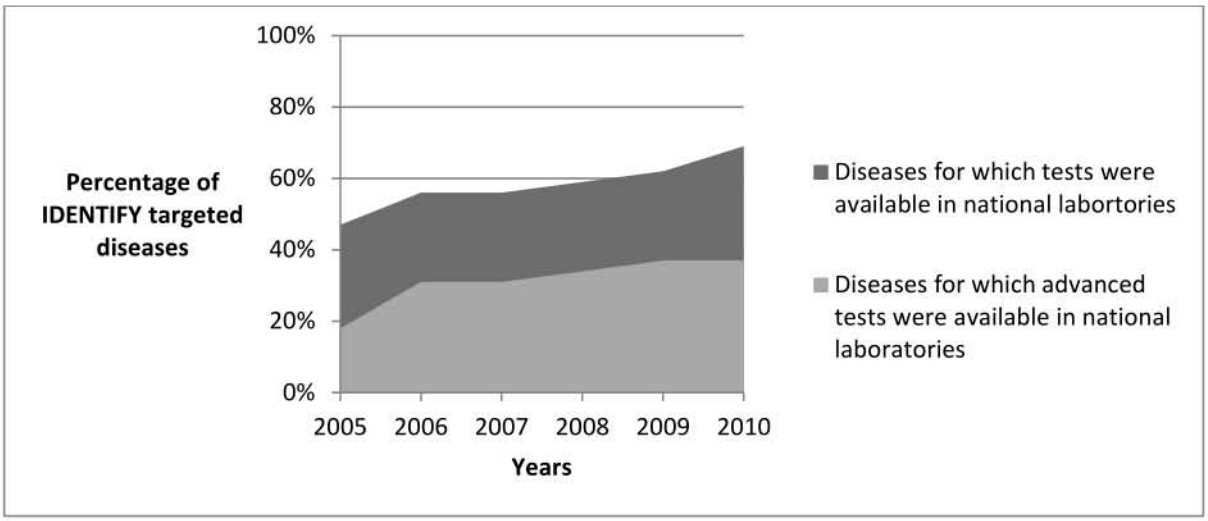
Figure 32: Percentage of IDENTIFY targeted diseases for which OIE Standards and prescribed tests for international trade were available, South and Southeast Asia



11) OIE Project Objective 6.3: Increased availability of advanced tests in national animal health laboratories[36]

The availability of advanced diagnostic tests in national laboratories was analysed. The list of advanced and basic tests is available in Annex 4. The availability of advanced testing methods increased in the Congo Basin region between 2005 and 2010, but for most of the IDENTIFY targeted diseases; no advanced test was available (Figure 33).

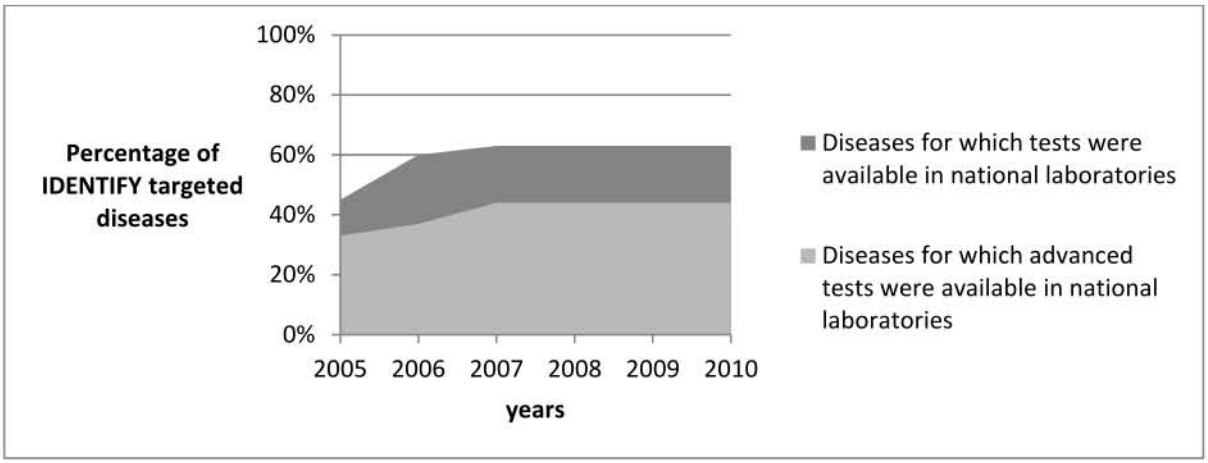
Figure 33: Percentage of IDENTIFY targeted diseases for which advanced tests were available, Congo Basin



In South and Southeast Asia, there were advanced tests available for approximately 40% of the IDENTIFY targeted diseases, with a stable trend in recent years (Figure 34).

[36] This analysis was based on data extracted from 2005 to 2010 annual reports received and validated by OIE on the 21/10/2011.

Figure 34: Percentage of IDENTIFY targeted diseases for which advanced tests were available, South and Southeast Asia



Detailed testing capabilities for each IDENTIFY country are available in Annex 5 (2010 data).

Conclusion

This analysis was performed for several purposes: 1) to better understand the surveillance, reporting, and laboratory capacity trends in the Congo Basin and South and Southeast Asia regions since 2005[37], 2) to establish IDENTIFY project baselines and targets for the supported countries for the project period, beginning 1 Oct 2009, and 3) to better inform OIE IDENTIFY project activities by addressing gaps in laboratory capability.

Surveillance, reporting, and laboratory capacity trends in the Congo Basin and South and Southeast Asia regions since 2005

For nearly every indicator (see Tables 1 & 4), South and Southeast Asia countries perform at a higher level than the Congo Basin countries. Submission time of immediate notifications was close to the target for South and Southeast Asia countries, but the performance of the Congo Basin countries has some room for improvement. Concerning the timeliness of diagnostic tests, South and Southeast Asia has achieved the project target, but the Congo Basin countries could see improvement. Both regions called upon the OIE network of laboratory expertise, the OIE Reference Laboratories and Collaborating Centres, and in some instances they performed additional tests.

South and Southeast Asia countries consistently provide more quantitative information by administrative division and by month on the animal disease situation in their countries, but Congo Basin countries sometimes lack sufficient quantitative information to be able to draw conclusions on the actual disease situation. This lack of quantitative information is likely due to a lack of internal communication or organisation, insufficient technical and logistic resources, or lack of political will to conduct surveillance certain IDENTIFY targeted diseases.

When it comes to national animal health laboratory capability, both regions have increased the scope of available laboratory tests and methods since 2005. Laboratory tests are available for most of the IDENTIFY targeted diseases in both regions, and most of these tests are consistent with OIE Standards and prescribed or alternative tests for international trade. Of existing laboratory capacity, most laboratories offer tests are basic tests, and the availability of advanced testing methods through focused capacity building and networking for IDENTIFY targeted diseases may be increased.

IDENTIFY project baselines and targets for the supported countries for the project period

For the detailed information on the performance of the IDENTIFY countries in both regions, please refer to Tables 1 & 4. The OIE will report on the evolution of these indicators each year end of the IDENTIFY project.

OIE IDENTIFY project activities to improve laboratory capacity and networking

A number of concrete activities in the laboratories have been implemented by the OIE project team for the benefit of the Congo Basin and South and Southeast Asia national animal health laboratories:

- Workshop on OIE Standards for shipment of biological specimens
- Focused capacity building in the framework of the Special Project for Uganda NADDEC

[37] Data is available electronically in WAHID from 2005 to present.

- Participation in the OIE Global Conference on Rabies Control
- Laboratory visits and capacity building support plan development for IDENTIFY countries
- Planning for staff exchanges on West Nile Virus between NIAH Thailand and OIE Reference Laboratory Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale, Terumo, Italy
- Development of the PVS Pathway Pilot Laboratory Mission
- Exploration of the Tanzania Central Veterinary Laboratory Twinning project on PPR with CIRAD
- Preparation for Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region

For many national animal health laboratories, these activities are unique opportunities for improvements that complement other capacity building efforts provided by partners. These initiatives have contributed to better networking leading to the ultimate goal of timely and accurate diagnosis of diseases. The OIE is responding to observed and expressed needs of Laboratory Directors and advocating for the crucial role of national animal health laboratories in effective public and veterinary health systems in the principle of "One Health". There is an expressed need by National Animal Health Laboratory Directors for more support in the following areas:

- Laboratory strategic planning
- PVS laboratory missions
- Laboratory focal points nomination and advocacy at policy level
- Focused capacity building in the framework of Twinning Projects and Special Projects
- Laboratory Director's Forum continued support (Laboratory Director-led)
- More opportunities for cross-sectoral exchange and partnership, such as during the Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region
- Occupational Health and Safety (OH&S) in Animal Health laboratories
- Quality Management Systems in National Animal Health laboratories
- South East Asia Rabies Networking opportunities

The IDENTIFY project approach has always been to attempt to identify cross-cutting areas in laboratory capacity building and networking that will have the greatest effect on disease diagnosis in general, instead of taking a disease-based approach. The activities listed above, especially Occupational Health and Safety (OH&S), Quality Management Systems, Rabies Networking opportunities, proficiency testing, and standard operating procedure harmonization, will fulfill the IDENTIFY project goals and train animal health laboratory technicians to be able to more rapidly and accurately diagnose IDENTIFY diseases.

In addition, the ultimate aim of the IDENTIFY project is to link together a global network capable of more rapidly and accurately diagnosing known and emerging pathogens. In order to address the gaps in laboratory capacity in the countries of both regions, the OIE has developed activities to target laboratory networking as a key component of the strategy for improving the rapid and accurate detection of known animal disease and emerging threats.
The OIE is continuing to further develop this analysis to better describe the speed and accuracy of laboratory results and reporting, the link between diagnosis, confirmation, and reporting, and the challenges related to laboratory diagnosis to achieve the objective of more timely and accurate detection of known diseases and emerging threats in the hot spot regions.

Table 4: Summary of IDENTIFY Project performance indicators

		OIE Project Indicator	Project Baseline (2nd Semester 2009)		Project Target[38]	Results		
			Congo Basin	South and Southeast Asia		Year	Congo Basin	South and Southeast Asia
1	1.1	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	48	9	<2	2005	NA	1
						2006	9	16
						2007	41	7
						2008	24	16
						2009	48	9
						2010	38	10
						2011	42	17
	1.2	Percentage of immediate notifications for which the submission time is shorter than 2 days	0%	74%	100%	2005	NA	100%
						2006	25%	25%
						2007	0%	54%
						2008	0%	40%
						2009	0%	74%
						2010	0%	27%
						2011	0%	0%
2	2.1	Number of days between start of an exceptional event and first laboratory test	25	10	<15	2005	NA	18
						2006	74	17
						2007	54	9
						2008	79	17
						2009	25	10
						2010	48	12
						2011	39	3
	2.2	Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	33%	82%	75%	2005	NA	0%
						2006	0%	86%
						2007	14%	80%
						2008	0%	77%
						2009	33%	82%
						2010	50%	60%
						2011	0%	100%
3	3.1	Percentage of immediate notifications for which additional laboratory tests were		50%		2005	NA	NA
						2006	100%	0%

[38] The targets listed here are OIE targets for all Member Countries. Each OIE Member Country has an obligation to follow the standards set by the World Assembly of Delegates, including reporting for OIE Listed diseases through immediate notifications, six-monthly reports, and annual reports. We maintain that improvement should be seen, but recognize that these targets may be difficult to reach during the project period, as the interventions are based principally on laboratory capacity building and networking activities for the IDENTIFY countries.

		OIE Project Indicator	Project Baseline (2nd Semester 2009)		Project Target[38]	Results		
			Congo Basin	South and Southeast Asia		Year	Congo Basin	South and Southeast Asia
		performed by an OIE Reference Laboratory				2007	33%	0%
						2008	NA	0%
						2009	NA	50%
						2010	NA	66%
						2011	100%	0%
	3.2	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 day		100%		2005	NA	NA
						2006	100%	50%
						2007	50%	50%
						2008	NA	100%
						2009	NA	100%
						2010	NA	66%
						2011	100%	100%
4	4.1	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country	42%	80%	100%	1rst semester 2005	50%	67%
						2nd semester 2005	50%	67%
						1rst semester 2006	64%	78%
						2nd semester 2006	64%	78%
						1rst semester 2007	58%	80%
						2nd semester 2007	58%	70%
						1rst semester 2008	58%	70%
						2nd semester 2008	58%	70%
						1rst semester 2009	42%	80%
						2nd semester 2009	58%	70%
						1rst semester 2010	64%	70%
						2nd semester 2010	55%	70%
	4.2	Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided	50%	68%	100%	1rst semester 2005	52%	60%
						2nd semester 2005	53%	59%
						1rst semester 2006	44%	69%
						2nd semester 2006	47%	70%
						1rst semester 2007	53%	75%
						2nd semester 2007	53%	73%
						1rst semester 2008	60%	74%
						2nd semester 2008	62%	70%
						1rst semester 2009	60%	70%
						2nd semester 2009	50%	68%
						1rst semester 2010	49%	71%
						2nd semester 2010	51%	67%

	OIE Project Indicator		Project Baseline (2nd Semester 2009)		Project Target[38]	Results		
			Congo Basin	South and Southeast Asia		Year	Congo Basin	South and Southeast Asia
5		Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided	25%	72%	100%	1rst semester 2005	25%	47%
						2nd semester 2005	15%	47%
						1rst semester 2006	27%	56%
						2nd semester 2006	36%	65%
						1rst semester 2007	26%	61%
						2nd semester 2007	7%	70%
						1rst semester 2008	19%	62%
						2nd semester 2008	14%	70%
						1rst semester 2009	26%	72%
						2nd semester 2009	25%	72%
						1rst semester 2010	28%	72%
						2nd semester 2010	36%	73%
6	6.1	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	62%	63%	100%	2005	47%	45%
						2006	56%	60%
						2007	56%	63%
						2008	59%	63%
						2009	62%	63%
						2010	69%	63%
	6.2	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	47%	52%	100%	2005	28%	33%
						2006	41%	41%
						2007	41%	52%
						2008	47%	52%
						2009	47%	52%
						2010	50%	52%
	6.3	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health laboratories	37%	44%	50%	2005	18%	33%
						2006	31%	37%
						2007	31%	44%
						2008	34%	44%
						2009	37%	44%
						2010	37%	44%

Annex 1: Existing surveillance programs in IDENTIFY countries, by targeted diseases not reported to WAHIS – Congo Basin

NI: Disease for which no Information has been provided | No: the disease is not notifiable and there is no surveillance program

Diseases	DRC 2011	Uganda 2010	Cameroon 2011	Gabon 2010	Central African Republic 2010	Republic of Congo 2010	Rwanda 2010	Tanzania 2010	Angola	Ethiopia 2011	Kenya 2010	Sudan 2011
African Horse Sickness	NI.	surveillance program	surveillance program	NI.	no (the disease was notifiable in 2007 and 2008)	NI.	NI.	disease notifiable and existing surveillance program	surveillance program (the disease was notifiable in 2005)	disease not notifiable (the disease was notifiable from 2005 to 2009)	disease notifiable since 2005 and existing surveillance program	notifiable disease since 2005
Dourine	no (the disease was only notifiable in 2006-2007)	NI.	NI.	NI.	no (the disease was notifiable in 2007 and 2008)	NI.	NI.	no	no	disease not notifiable (the disease was notifiable from 2005 to 2009)	disease notifiable since 2005 and existing surveillance program	no
Ovine Epididymitis (Brucella ovis)	no	surveillance program	NI.	NI.	no	NI.	NI.	NI.	no (the disease was notifiable in 2005)	surveillance program	surveillance program	notifiable disease since 2008
Bovine Spongiform Encephalopathy	notifiable disease since 2006	surveillance program	no	no	no (the disease was notifiable in 2007 and 2008)	no	notifiable disease since 2006	notifiable disease	notifiable disease since 2005	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2005 and existing surveillance program	no
Brucellosis (Brucella suis)	NI.	no	NI (the disease was notifiable in 2007)	NI.	NI (the disease was notifiable in 2007 and 2008)	NI.	disease notifiable and existing surveillance program	disease notifiable and existing surveillance program	no (the disease was notifiable in 2005)	surveillance program	surveillance program	no
Crimean–Congo Haemorrhagic Fever	NI.	no	surveillance program	NI.	no	NI.	no	no	no	no	surveillance program	no

Diseases	DRC 2011	Uganda 2010	Cameroon 2011	Gabon 2010	Central African Republic 2010	Republic of Congo 2010	Rwanda 2010	Tanzania 2010	Angola	Ethiopia 2011	Kenya 2010	Sudan 2011
Epizootic Haemorrhagic Disease	NI.	NI.	NI.	NI.	no	NI.	NI.	NI.	no	no	surveillance program	no
Equine Influenza	NI.	NI.	NI.	NI.	no (the disease was notifiable in 2007 and 2008)	NI.	NI.	no	no (the disease was notifiable in 2005)	surveillance program	surveillance program	no
Highly Pathogenic Avian Influenza in birds	notifiable disease since 2006	disease notifiable since 2007 and existing surveillance program	disease notifiable since 2007 and existing surveillance program	disease notifiable since 2007 and existing surveillance program	no (the disease was notifiable in 2007 and 2008)	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2006 and existing surveillance program	notifiable disease	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2008 and existing surveillance program
Low Pathogenicity notifiable Avian Influenza in poultry	NI.	NI.	disease notifiable and existing surveillance program	NI.	NI.	disease notifiable and existing surveillance program	notifiable disease since 2007	NI.	NI.	surveillance program	notifiable disease since 2005	NI.
Nipah Virus Encephalitis	NI.	no	no	NI.	no	NI.	no	NI.	notifiable disease	no	surveillance program	no
Salmonellosis (Salmonella abortusovis)	NI.	NI.	NI.	NI.	no (the disease was notifiable in 2007 and 2008)	NI.	notifiable disease	NI.	no (the disease was notifiable in 2005)	surveillance program	surveillance program	no (the disease was notifiable in 2008 and 2009)
Scrapie	NI (the disease was notifiable in 2006 and 2007)	NI.	surveillance program	no	no (the disease was notifiable in 2007 and 2008)	NI.	notifiable disease	NI.	notifiable disease	disease notifiable and existing surveillance program	disease notifiable and existing surveillance program	no

Annex 2: Existing surveillance programs in IDENTIFY countries, by targeted diseases not reported to WAHIS – South and Southeast Asia

NI: Disease for which no Information has been provided | No: the disease is not notifiable and there is no surveillance program

Diseases	Indonesia 2010	Vietnam 2011	Cambodia 2011	Laos 2010	China 2011	Malaysia 2010	Thailand 2011	Philippines 2011	Bangladesh 2011	Nepal 2010
Brucellosis (Brucella suis)	NI.	NI.	NI.	NI (the disease was notifiable in 2008 and 2009)	NI (the disease was notifiable from 2006 to 2009)	disease notifiable since 2008	disease notifiable and existing surveillance program	NI.	disease notifiable since 2009 and existing surveillance program	NI.
African Swine Fever	no	surveillance program	no	notifiable disease since 2009	No	disease notifiable since 2009 and existing surveillance program	surveillance program	No	no	surveillance program (the disease was notifiable in 2005)
Bovine Spongiform Encephalopathy	NI (the disease was notifiable in 2005 and 2006)	surveillance program	NI.	no	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2005 and existing surveillance program	disease notifiable and existing surveillance program	No	no	surveillance program
Crimean–Congo Haemorrhagic Fever	no	no	NI.	NI.	NI.	disease notifiable since 2008 and existing surveillance program	NI.	No	no	no
Epizootic Haemorrhagic Disease	no	NI.	NI.	NI.	NI.	disease notifiable and existing surveillance program	NI.	NI.	no	no
Equine Influenza	no	surveillance program (the disease was notifiable from 2007 to 2010)	NI.	NI.	NI (the disease was notifiable in 2008 and 2009)	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2005 and existing surveillance program	No	no	NI.

Diseases	Indonesia 2010	Vietnam 2011	Cambodia 2011	Laos 2010	China 2011	Malaysia 2010	Thailand 2011	Philippines 2011	Bangladesh 2011	Nepal 2010
Low Pathogenicity notifiable Avian Influenza in poultry	NI.	NI.	NI.	NI.	NI.	disease notifiable since 2005 and existing surveillance program	NI.	NI.	disease notifiable since 2009 and existing surveillance program	surveillance program
Nipah Virus Encephalitis	NI.	NI.	NI.	NI.	NI.	disease notifiable since 2006 and existing surveillance program	disease notifiable since 2006 and existing surveillance program	No	disease notifiable since 2009 and existing surveillance program	surveillance program
Ovine Epididymitis (Brucella ovis)	NI.	surveillance program	NI.	no	NI.	disease notifiable since 2006 and existing surveillance program	NI (the disease was notifiable in 2005)	No	no	NI.
Rift Valley Fever	no	surveillance program	NI.	no	NI.	disease notifiable since 2008 and existing surveillance program	surveillance program	No	no	surveillance program (the disease was notifiable in 2005 and 2006)
Scrapie	no	surveillance program	NI.	no	disease notifiable since 2005 and existing surveillance program	disease notifiable since 2008 and existing surveillance program	NI.	No	no	surveillance program

Annex 3: List of immediate notifications

List of immediate notifications submitted to OIE by the IDENTIFY countries of Congo Basin

Country	disease	date of submission to OIE	Following OIE verification
Angola	Rabies	24/04/2009	yes
	Foot and mouth disease	04/06/2009	no
Cameroon	Highly path. avian influenza	12/03/2006	no
Central African Republic	Contagious bov. pleuropneumonia	05/09/2007	no
	African swine fever	11/12/2010	no
Congo (Dem. Rep. of the)	Foot and mouth disease	26/05/2006	no
	Anthrax	22/04/2011	no
Congo (Rep. of the)	Peste des petits ruminants	27/07/2006	no
	Contagious bov. pleuropneumonia	20/09/2010	no
Ethiopia	African horse sickness	19/09/2008	no
Gabon	Contagious bov. pleuropneumonia	20/01/2011	yes
Kenya	Rift Valley fever	09/01/2007	no
	Peste des petits ruminants	16/01/2007	no
	African swine fever	04/05/2007	yes
	African swine fever	04/03/2011	no
Sudan	Highly path. avian influenza	19/04/2006	yes
	Rift Valley fever	11/11/2007	yes
Tanzania	Rift Valley fever	12/02/2007	yes
	African swine fever	06/03/2008	yes
	Peste des petits ruminants	27/01/2009	no
	African swine fever	08/12/2010	no
Uganda	Peste des petits ruminants	31/07/2007	no
	Anthrax	04/08/2010	no

List of immediate notifications submitted to OIE by the IDENTIFY countries of South and Southeast Asia

Country	disease	date of submission to OIE	Following OIE verification
Bangladesh	Highly path. avian influenza	30/03/2007	yes
Cambodia	Highly path. avian influenza	14/04/2006	yes
	Highly path. avian influenza	12/04/2007	yes
	Highly path. avian influenza	25/12/2008	yes
	Highly path. avian influenza	28/12/2009	yes
	Highly path. avian influenza	05/02/2010	yes
	Highly path. avian influenza	07/02/2011	yes

Country	disease	date of submission to OIE	Following OIE verification
	Highly path. avian influenza	28/07/2011	no
	Highly path. avian influenza	01/08/2011	no
China (People's Rep. of)	Foot and mouth disease	13/05/2005	yes
	Highly path. avian influenza	20/04/2006	no
	Foot and mouth disease	19/01/2007	no
	Porcine reproductive/respiratory syndr	09/05/2007	no
	Peste des petits ruminants	27/07/2007	no
	Equine influenza	05/11/2007	no
	Foot and mouth disease	14/03/2008	no
	Highly path. avian influenza	20/06/2008	yes
	Peste des petits ruminants	11/07/2008	no
	Foot and mouth disease	12/11/2008	no
	Highly path. avian influenza	19/12/2008	yes
	Foot and mouth disease	22/01/2009	no
	Foot and mouth disease	22/01/2009	no
	Highly path. avian influenza	10/02/2009	yes
	Foot and mouth disease	12/02/2009	no
	Foot and mouth disease	25/03/2009	no
	Foot and mouth disease	02/04/2009	no
	Foot and mouth disease	25/04/2009	no
	Foot and mouth disease	30/04/2009	no
	Foot and mouth disease	07/05/2009	no
	Foot and mouth disease	15/05/2009	no
	Highly path. avian influenza	17/05/2009	no
	Foot and mouth disease	22/05/2009	no
	Foot and mouth disease	22/05/2009	no
	Foot and mouth disease	08/06/2009	no
	Rabies	26/06/2009	yes
	Foot and mouth disease	25/11/2009	no
	Foot and mouth disease	22/01/2010	no
	Foot and mouth disease	01/03/2010	no
	Peste des petits ruminants	02/06/2010	no
	Highly path. avian influenza	02/07/2010	no
Indonesia	Highly path. avian influenza	25/09/2006	no
	Rabies	18/12/2008	yes
	Rabies	08/10/2010	no
	Highly path. avian influenza	26/04/2011	no
Laos	Highly path. avian influenza	04/08/2006	yes
	Highly path. avian influenza	19/02/2007	no
	Foot and mouth disease	21/12/2007	no
	Highly path. avian influenza	14/02/2008	no
	Highly path. avian influenza	14/09/2008	yes
	Anthrax	20/10/2008	no

Country	disease	date of submission to OIE	Following OIE verification
	Foot and mouth disease	13/11/2008	no
	Highly path. avian influenza	26/02/2009	yes
	Highly path. avian influenza	14/05/2010	no
	Porcine reproductive/respiratory syndr.	06/07/2010	no
Malaysia	Highly path. avian influenza	23/02/2006	no
	Highly path. avian influenza	11/06/2007	yes
Nepal	Highly path. avian influenza	16/01/2009	yes
	Highly path. avian influenza	05/02/2010	no
	Highly path. avian influenza	05/12/2010	no
Philippines	Porcine reproductive/respiratory syndr.	10/12/2008	yes
Thailand	Highly path. avian influenza	27/07/2006	yes
	Highly path. avian influenza	16/01/2007	no
	Highly path. avian influenza	24/01/2007	no
	Highly path. avian influenza	24/01/2008	no
	Highly path. avian influenza	10/11/2008	no
	Porcine reproductive and respiratory syndrome	30/11/2010	no
Vietnam	Foot and mouth disease	24/05/2006	yes
	Highly path. avian influenza	19/12/2006	no
	Porcine reproductive/respiratory syndr	11/04/2007	no
	Foot and mouth disease	18/07/2007	yes
	Highly path. avian influenza	12/03/2008	yes

Annex 4: List of basic and advanced tests

Basic tests	Advanced tests
Agar-gel precipitation test	Bacteriological examination
Anatomo-pathological examination	Complement fixation test
Competitive ELISA	Fluorescent antibody virus neutralization
Direct fluorescent antibody test	Haemagglutination inhibition test
Direct immunofluorescence test	Inoculation test
ELISA	Intravenous pathogenicity index test
ELISA 3ABC	Pathogen isolation by egg inoculation
Haemagglutination test	PCR
Histological test	rRT-PCR
Histopathological examination	RT- PCR
IgM-capture ELISA	Seroneutralization test
Immunocapture ELISA	Virus isolation
Immuno histochemical test	Virus neutralisation test
Immunoperoxidase monolayer assay	Virus sequencing
Indirect ELISA	Western Blotting
Indirect fluorescent antibody test	
Indirect sandwich ELISA	
Liquid-phase blocking ELISA	
Microscopic agglutination test	
Neutralising peroxidase linked assay	
Optical microscopy	
Parasitological examination	
Plate agglutination test	
Rapid serum agglutination	
Rapid tests	
Rose Bengal test	
Tuberculin test	
Tube agglutination test	
Seller's test	

Annex 5: Laboratory testing capabilities for IDENTIFY targeted diseases

Laboratory tests:

AGID	Agar-gel-immunodiffusion
c-ELISA	Competitive ELISA
CFT	Complement fixation test
DIF	Direct immunofluorescence test
ELISA	Enzyme-linked immunosorbent assay
FAT	Direct fluorescent antibody test
FAVN	Fluorescent antibody virus neutralization
HA	Haemagglutination test
HIT	Haemagglutination inhibition test
IFA	Indirect fluorescent antibody test
IVPI	Intravenous pathogenicity index test
MAT	Microscopic agglutination test
NPLA	Neutralising peroxidase linked assay
PCR	Polymerase chain reaction
RBT	Rose Bengal test
rRT-PCR	real-time reverse transcriptase/polymerase chain reaction
RT- PCR	Reverse transcription polymerase chain reaction
SNT	Seroneutralization test
TAT	Tube agglutination test
VNT	Virus neutralisation test

Laboratory testing capabilities for IDENTIFY targeted diseases in the Congo Basin

Country	Name of the laboratory[39]	Laboratory testing capability	Tests by disease available or performed by laboratory
Angola	Laboratório Regional de Veterinária de Luanda	Brucellosis (Brucella abortus)	RBT[40]
		Trypanosomosis	optical microscopy
Cameroon	Laboratoire National Vétérinaire (LANAVET)	African swine fever	ELISA
		Anthrax	pathogenic agent isolation on culture
		Bovine tuberculosis	tuberculin test
		Brucellosis (Brucella abortus)	CFT
			RBT
		Contagious bov. pleuropneumonia	ELISA
			pathogenic agent isolation on culture
			PCR
			CFT
		Foot and mouth disease	ELISA
			AGID
		Highly path. avian influenza	HA
			HIT
			RT-PCR
			c-ELISA
		Newcastle disease	AGID

[39] The laboratories highlighted in blue are the IDENTIFY targeted laboratories.
[40] The tests highlighted in green are those in line with the OIE Standards and prescribed or alternative tests for international trade.

Country	Name of the laboratory[39]	Laboratory testing capability	Tests by disease available or performed by laboratory
			c-ELISA
			HA
			HIT
			PCR
		Peste des petits ruminants	c-ELISA
			PCR
			SNT
		Rabies	IFA
		Salmonellosis (S. abortusovis)	pathogenic agent isolation on culture
CAR	Laboratoire Central Vétérinaire (LACEVET)	Bovine tuberculosis	bacteriological examination
		Brucellosis (Brucella abortus)	RBT
		Brucellosis (Brucella melitensis)	RBT
		Brucellosis (Brucella suis)	RBT
		Contagious bov. pleuropneumonia	c-ELISA
			CFT
		Highly path. avian influenza	AGID
			HA
			HIT
		Newcastle disease	HIT
		Peste des petits ruminants	c-ELISA
			ELISA
		Rabies	DIF
		Trypanosomosis	parasitological examination
DRC	Laboratoire Vétérinaire Central de Kinshasa	Brucellosis (Brucella abortus)	bacteriological examination
		Porcine cysticercosis	ELISA
Ethiopia	National Animal Health Diagnostic and Investigation Center	Anthrax	pathogenic agent isolation on culture
			PCR
		Bovine tuberculosis	tuberculin test
		Brucellosis (Brucella abortus)	CFT
			ELISA
			PCR
			RBT
		Brucellosis (Brucella melitensis)	CFT
			ELISA
			RBT
		Contagious bov. pleuropneumonia	CFT
			ELISA
		Echinococcosis/hydatidosis	parasitological examination
		Foot and mouth disease	ELISA 3ABC
			indirect sandwich ELISA
			liquid-phase blocking ELISA
		Highly path. avian influenza	AGID
			HA
			HIT
			pathogen isolation by egg inoculation
			rapid tests
			RT- PCR

Country	Name of the laboratory[39]	Laboratory testing capability	Tests by disease available or performed by laboratory
		Newcastle disease	pathogen isolation by egg inoculation
		Peste des petits ruminants	c-ELISA
			RT- PCR
		Rift Valley fever	IgM-capture ELISA
		Salmonellosis (S. abortusovis)	pathogenic agent isolation on culture
		Trypanosomosis	ELISA
			parasitological examination
	National Veterinary Institute	Brucellosis (Brucella abortus)	CFT
			RBT
		Contagious bov. pleuropneumonia	CFT
			indirect ELISA
		Contagious cap. pleuropneumonia	CFT
			indirect ELISA
		Foot and mouth disease	ELISA
		Newcastle disease	HIT
		Peste des petits ruminants	ELISA
Gabon	Laboratoire National Vétérinaire de Libreville	African swine fever	c-ELISA
		Contagious bov. pleuropneumonia	CFT
		Highly path. avian influenza	AGID
		Newcastle disease	HIT
		Peste des petits ruminants	indirect ELISA
Kenya	Central Veterinary Laboratories Kabete	Anthrax	optical microscopy
		Bovine tuberculosis	tuberculin test
		Brucellosis (Brucella abortus)	CFT
			ELISA
			RBT
		Brucellosis (Brucella melitensis)	CFT
			ELISA
			RBT
		Contagious bov. pleuropneumonia	CFT
		Contagious cap. pleuropneumonia	CFT
		Fowl typhoid	optical microscopy
		Highly path. avian influenza	PCR
		Leptospirosis	ELISA
		Newcastle disease	PCR
			virus isolation
		Peste des petits ruminants	ELISA
		Rabies	FAT
		Trypanosomosis	optical microscopy
	Foot & Mouth Disease Laboratory Embakasi	Foot and mouth disease	no information
RC	Laboratoire de Diagnostic Veterinaire de Brazzaville	Bovine tuberculosis	tuberculin test
		Brucellosis (Brucella abortus)	RBT
		Brucellosis (Brucella melitensis)	RBT
		Highly path. avian influenza	AGID
		Low pathogenic avian influenza (poultry)	AGID
		Newcastle disease	HIT
		Peste des petits ruminants	c-ELISA
		Porcine cysticercosis	parasitological examination

Country	Name of the laboratory[39]	Laboratory testing capability	Tests by disease available or performed by laboratory
Rwanda	Laboratoire National de Rubirizi	no IDENTIFY targeted disease capacity	
	Laboratoire Satellite de Nyagatare	no information	
Sudan	Central Veterinary Research Laboratories	Brucellosis (Brucella abortus)	RBT
		Contagious bov. pleuropneumonia	c-ELISA
		Contagious cap. pleuropneumonia	CFT
		Foot and mouth disease	ELISA
		Highly path. avian influenza	rapid tests
			RT- PCR
		Newcastle disease	HIT
		Peste des petits ruminants	c-ELISA
			immunocapture ELISA
		Rabies	FAVN
		Rift Valley fever	IgM-capture ELISA
		Trypanosomosis	parasitological examination
Tanzania	Central Veterinary Laboratory	African swine fever	indirect ELISA
		Anthrax	histopathological examination
		Bovine brucellosis	ELISA
		Contagious bov. pleuropneumonia	CFT
			ELISA
		Foot and mouth disease	indirect sandwich ELISA
			RT-PCR
		Highly path. avian influenza	HIT
		Newcastle disease	ELISA
			HIT
		Peste des petits ruminants	c-ELISA
			immunocapture ELISA
		Rabies	IFA
Uganda	National Diagnostic and epidemiology laboratory - Entebbe	African swine fever	indirect ELISA
		Anthrax	bacteriological examination
		Brucellosis (Brucella abortus)	rapid serum agglutination
		Brucellosis (Brucella melitensis)	rapid serum agglutination
		Contagious bov. pleuropneumonia	c-ELISA
		Echinococcosis/hydatidosis	anatomo-pathological examination
		Foot and mouth disease	indirect ELISA
		Peste des petits ruminants	immunocapture ELISA
		Rabies	histopathological examination

Laboratory testing capabilities for IDENTIFY targeted diseases in South and Southeast Asia

Country	Name of the laboratory[41]	Laboratory testing capability	Tests by disease available or performed by laboratory
Bangladesh	Bangladesh Livestock Research Institute, Savar, Dhaka	no information	
Cambodia	National Veterinary Research Institute	Highly path. avian influenza	HIT[42]
			inoculation test
China (People's Rep. of)	National Avian Influenza Reference Laboratory, Harbin Veterinary Research Institute, China Academy of Agricultural Sciences	Highly path. avian influenza	HA
			HIT
			virus isolation
			virus sequencing
	National Bovine Spongiform Encephalopathy Reference Laboratory, China Animal Health and Epidemiology Centre	Bovine spongiform encephalopathy	Immuno-histochemical test
			western blotting
	National Foot and Mouth Disease Reference Laboratory, Lanzhou Veterinary Research Institute, China Academy of Agricultural Sciences	Foot and mouth disease	ELISA
			PCR
			virus isolation
Indonesia	Disease Investigation Centre Maros	Brucellosis (Brucella abortus)	CFT
		Newcastle disease	HA
			HIT
			histopathological examination
		Rabies	FAT
			Seller's test
	Disease Investigation Centre Region II Bukittinggi	Anthrax	ELISA
		Brucellosis (Brucella abortus)	CFT
			RBT
		Classical swine fever	ELISA
		Foot and mouth disease	ELISA
		Haemorrhagic septicaemia	ELISA
		Highly path. avian influenza	AGID
			ELISA
			HA
			HIT
			PCR
		Newcastle disease	AGID
		Porcine reproductive/respiratory syndr.	ELISA
		Pullorum disease	rapid tests
		Rabies	FAT
			ELISA
			histological test
			Seller's test
	Disease Investigation Centre Region III Lampung	Brucellosis (Brucella abortus)	CFT
			RBT
		Newcastle disease	HA
			HIT
	Disease Investigation Centre Region V	Brucellosis (Brucella abortus)	CFT

[41] The laboratories highlighted in blue are the IDENTIFY targeted laboratories.
[42] The tests highlighted in green are those in line with the OIE Standards and prescribed or alternative tests for international trade.

Country	Name of the laboratory[41]	Laboratory testing capability	Tests by disease available or performed by laboratory
	Banjar Baru		RBT
		Classical swine fever	ELISA
			Immuno-histochemical test
		Foot and mouth disease	ELISA
		Highly path. avian influenza	HA
			HIT
			histopathological examination
			Immuno-histochemical test
			PCR
		Newcastle disease	HA
			HIT
			histopathological examination
		Pullorum disease	HA
			histopathological examination
		Rabies	FAT
			ELISA
			histopathological examination
			Seller's test
	Disease Investigation Centre Subang	Brucellosis (Brucella abortus)	CFT
			RBT
		Highly path. avian influenza	HA
			HIT
			inoculation test
		Newcastle disease	HA
			HIT
			inoculation test
		Rabies	ELISA
			FAT
			Seller's test
	Disease Investigation Centre Yogyakarta	Brucellosis (Brucella abortus)	CFT
			RBT
	Disease investigation Centre Denpasar	Brucellosis (Brucella abortus)	CFT
		Newcastle disease	HA
			HIT
			histopathological examination
		Rabies	Seller's test
	Disease Investigation Centre Region I Medan	Brucellosis (Brucella abortus)	CFT
			RBT
		Newcastle disease	HA
			HIT
			histopathological examination
		Rabies	direct fluorescent antibody (FAT) test
			Seller's test
Laos	National Animal Health Centre	Foot and mouth disease	ELISA
		Porcine reproductive/respiratory syndr.	real-time PCR
Malaysia	Regional Diagnostic Veterinary	Foot and mouth disease	ELISA

Country	Name of the laboratory[41]	Laboratory testing capability	Tests by disease available or performed by laboratory
	Laboratory		ELISA 3ABC
			PCR
	Veterinary Research Institute	Bovine spongiform encephalopathy	histopathological examination
		Brucellosis (Brucella abortus)	CFT
		Brucellosis (Brucella melitensis)	CFT
		Classical swine fever	ELISA
		Highly path. avian influenza	agar-gel precipitation test
			HA
			HIT
			pathogen isolation by egg inoculation
			PCR
			rapid tests
		Newcastle disease	agar-gel precipitation test
			HA
			HIT
			pathogen isolation by egg inoculation
			PCR
			rapid tests
Nepal	Central Veterinary Laboratory	Anthrax	pathogen isolation on cell culture
		Bovine tuberculosis	tuberculin test
		Classical swine fever	FAT
		Fowl typhoid	pathogenic agent isolation on culture
		Haemorrhagic septicaemia	pathogenic agent isolation on culture
		Highly path. avian influenza	ELISA
			HA
			HIT
			rRT-PCR
			RT-PCR
		Low pathogenic avian influenza (poultry)	HA
			rapid tests
			RT-PCR
		Newcastle disease	c-ELISA
			HA
			HIT
			pathogen isolation by egg inoculation
		Peste des petits ruminants	AGID
			c-ELISA
		Pullorum disease	pathogenic agent isolation on culture
			plate agglutination test
		Rabies	FAT
			histopathological examination
	National Avian Diagnostic Laboratory	Highly path. avian influenza	no information
	National FMD and Tads Laboratory	Foot and mouth disease	ELISA
	National Veterinary Investigation Centre, Veterinary Research Institute	Bovine brucellosis	RBT
Philippines	Philippine Animal Health Centre	Foot and mouth disease	ELISA

Country	Name of the laboratory[41]	Laboratory testing capability	Tests by disease available or performed by laboratory
		Pullorum disease	rapid tests
		Rabies	FAT
	Regional Animal Disease Diagnostic Laboratory - CARAGA	Classical swine fever	ELISA
		Newcastle disease	ELISA
	Regional Animal Disease Diagnostic Laboratory - III	Classical swine fever	FAT
		Newcastle disease	HIT
		Rabies	FAT
	Regional Animal Disease Diagnostic Laboratory - V	Rabies	FAT
	Regional Animal Disease Diagnostic Laboratory - XI	Newcastle disease	HA
Thailand	National Institute of Animal Health	Anthrax	pathogenic agent isolation on culture
		Bovine brucellosis	TAT
		Bovine spongiform encephalopathy	immunohistochemical test
		Bovine tuberculosis	tuberculin test
		Cap/ovi brucel. (not B. ovis)	TAT
		Classical swine fever	FAT
		Foot and mouth disease	virus isolation
		Haemorrhagic septicaemia	pathogenic agent isolation on culture
		Highly path. avian influenza	pathogen isolation by egg inoculation
		Leptospirosis	MAT
		Newcastle disease	virus isolation
		Peste des petits ruminants	c-ELISA
		Porcine brucellosis	TAT
		Rabies	FAT
Vietnam	National Centre for Veterinary Diagnosis	Classical swine fever	ELISA
			NPLA
			rRT-PCR
			RT-PCR
			virus isolation
		Foot and mouth disease	ELISA
			ELISA 3ABC
			liquid-phase blocking ELISA
			rRT-PCR
			RT-PCR
			virus isolation
		Highly path. avian influenza	HIT
			IVPI
			rRT-PCR
			RT-PCR
			virus isolation
			VNT
		Newcastle disease	HIT
			rRT-PCR
			virus isolation
		Porcine reproductive/respiratory syndr.	ELISA
			immunoperoxidase monolayer assay
			rRT-PCR

Country	Name of the laboratory[41]	Laboratory testing capability	Tests by disease available or performed by laboratory
			RT-PCR
			virus isolation
	National Reference Laboratory for Avian Influenza	Highly path. avian influenza	no information

Annex 5: Third Laboratory Directors' Forum Meeting, Kuala Lumpur, Malaysia, 18 Oct, Agenda, Concept Note, and Draft Regional Strategic Framework

Time	Topic	Chair
0800 – 0830	Registration	
0830 – 0850	Opening remarks *Dr Aziz Jamaluddin Department of Veterinary Service, Malaysia* *Dr Pawin Padungtod, FAORAP* *Dr Andrew Davis, OIE SRR SEA*	Dr Jamaluddin
0850 – 0900	Introduction of participants	
0900 – 0930	Background of the Laboratory Directors'' Forum and Introduction of new members *Dr Ramlan Mohamed, VRI (Malaysia)*	
	Presentation and Discussion	
Session 1	Regional Framework for Laboratory Capacity Building and Networking in SE Asia	
0930 – 1030	Draft Regional Framework for Laboratory Capacity Building and Networking in SE Asia *Dr Vimol Jirathanawat, NIAH (Thailand)*	
1030 – 1100	Morning Break	
Session 2	Roles and responsibilities of regional leading laboratories	Dr Vimol
1100 – 1130	FMD regional leading laboratory *Dr Panithan Thongtha, FMD RRL (Thailand)*	
1130 – 1200	CSF leading laboratory *Dr Ngo Thanh Long, RAHO 6 (Viet Nam)*	
1200 – 1230	HPAI leading laboratory *Dr Ramlan Mohamed, VRI (Malaysia)*	
1230 – 1330	Lunch	
Session 3	Regional Guiding Principles for Diagnosis of Priority Diseases	Dr Ramlan
1330 – 1400	Regional Guiding Principles for Diagnosis of FMD *Dr Kingkarn Boonsuya Seeyo, FMD RRL (Thailand)*	
1400 – 1430	Regional Guiding Principles for Diagnosis of CSF *Dr Ngo Thanh Long, RAHO 6 (Viet Nam)*	
1430 – 1500	Regional Guiding Principles for Diagnosis of HPAI *Dr Ramlan Mohamed, VRI (Malaysia)*	
1500 – 1530	Afternoon Break	
1530 – 1630	Conclusion and recommendation	

Background

The Laboratory Directors' Forum meeting was initiated in 2010 under the support from Japan International Cooperation Agency (JICA). The initial members of the forum were countries involved in the JICA Animal Disease Control Project including Cambodia, Lao PDR,

Malaysia, Myanmar, Thailand and Viet Nam. The goal of the Laboratory Directors' Forum meeting is to provide a forum to discuss problems and issues related to the national veterinary diagnostic laboratories and networks of Cambodia, Lao PDR, Malaysia, Myanmar, Thailand, and Vietnam; and act as a coordinating platform for the national veterinary diagnostic laboratories of the region to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

The first Laboratory Directors' Forum meeting during 16-17 July 2010 was hosted by the Department of Veterinary Services (DVS) in Ipoh, Malaysia and the second meeting during 2-3 December 2010 was hosted by the Department of Livestock Development (DLD) in Bangkok, Thailand. Aside from discussing technical problems and issues during these two meetings, the Forum also agreed upon the mechanism through which to collaborate, and the roles and responsibilities of the regional leading laboratories for Foot and Mouth Diseases (FMD), Classical Swine Fever (CSF) and Highly Pathogenic Avian Influenza (HPAI).

It was agreed in the second meeting that the third Laboratory Directors' Forum meeting should be organized in Viet Nam as the remaining Country with regional leading laboratory, which has not yet hosted the meeting. However, because there will be a Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region in Kuala Lumpur from 19-21 October 2011, it was considered more efficient to have the third Laboratory Directors' Forum meeting in close association with this Meeting on Laboratory Strengthening in Kuala Lumpur, Malaysia

The third Laboratory Directors' Forum meeting is proposed to be hosted by the Malaysia Department of Veterinary Service in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE). The main objective of this meeting is to keep the directors of key national laboratories updated on the ongoing activities related to laboratory capacity building and laboratory networking in Southeast Asia. In this occasion, it is proposed to bring in the new members to the forum from China, Indonesia and the Philippines.

Objectives

To update the laboratory directors on the progress of and get advice to improve the following issues:

a) Regional framework for animal health laboratory capacity building and networking in SE Asia;
b) Roles and responsibilities of regional leading laboratories for FMD, CSF and HPAI; and
c) Regional guiding principles for diagnosis of priority diseases: FMD, CSF and HPAI.

Expected Participant

A total of 16 laboratories are expected to participate in this meeting including laboratory directors from national animal health and leading laboratories from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Viet Nam; Australian Animal Health Laboratory (AAHL), Japan National Institute of Animal Health (NIAH), FAO, OIE and USAID. List of expected participants is included.

Expected Outcomes

1. The Laboratory Directors' Forum agreement on;

- Regional Framework for Laboratory Capacity Building and Networking in SE Asia
- Roles and responsibilities of the regional leading laboratories
- Regional Guiding Principles for Diagnosis of FMD, CSF and PRRS

2. Recommendations to improve the regional framework for capacity building and networks, leading laboratories and regional guiding principles as well as the way forward to gain political support at national and regional levels.

Expected Participant

Organization / Laboratory	Country
1. National Veterinary Research Institute (NaVRI)	Cambodia
2. China Animal Health and Epidemiology Center (CAHEC)	Qingdao,China
3. Langzhou Veterinary Research Institute	Lanzhou, China
4. China Animal Diseases Control Center (CADCC)	Beijing, China
5. Yunnan Animal Science and Veterinary Institute	Kunming, China
6. Directorate of Animal Health (DAH)	Indonesia
7. National Animal Health Center (NAHC)	Lao PDR
8. Veterinary Research Institute (VRI)	Malaysia
9. Livestock Breeding and Veterinary Department (LBVD)	Myanmar
10. Philippine Animal Health Center (PAHC)	Philippines
11. National Institute of Animal Health (NIAH)	Thailand
12. FMD Regional Reference Laboratory (RRL)	Thailand
13. National Center for Veterinary Diagnosis (NCVD)	Viet Nam
14. Regional Animal Health Office No.6 (RAHO6)	Viet Nam
15. Australian Animal Health Laboratory (AAHL)	Australia
16. Japan National Institute of Animal Health (NIAH)	Japan
17. FAO Regional Office for Asia and the Pacific (RAP)	
18. FAO Rome	
19. OIE Sub-Regional Representative for SE Asia (SRR SEA)	
20. OIE Tokyo	
21. OIE Paris	
22. USAID	

Draft Strategic Framework for Animal Health Laboratory Capacity Building and Networking in Asia

Drafted by IDENTIFY country National Laboratory Directors at the Regional Laboratory Network Technical Advisory Group Meeting, 4-5 Aug 2011, to be adopted at the Third Laboratory Directors' Forum Meeting, Kuala Lumpur, Malaysia, 18 October 2011

Key Strategic Element	Component	Activity
1. Establish a Coherent Framework for Laboratory Services	a) National Laboratory Policy and (regional) plan	Support development of laboratory strategy and sustainability plans and management structure. Note: PVS Pathway provides support at the national level.
	b) National/Regional Regulatory Mechanisms	Two-pronged approach: 1) Support laboratories in step-wise process needed to achieve certification with focus on understanding how/why these lead to improvements in lab diagnostics and reporting; 2) Support in-country certification mechanisms to be fully functional (e.g. engage providers to determine training in region and availability for support, and target in-country technical experts to engage in certification process).
	c) National Laboratory Focal Point	2 focal persons where possible – one involved in policy (e.g. lab director); was proposed to have a technical person from National Lab as well to address technical issues. For countries with complex laboratory structures, propose initial in-country discussions to determine most appropriate engagement Note: there will be upcoming nominations for an OIE Laboratory Focal point (in development)
	d) Regional coordination Mechanism	Support laboratory director's meetings. Define minimum guidelines for different tiers/levels of laboratories ***Regional coordination mechanisms for TADs should under the umbrella of GF-TADS and consistent with its guiding principles****
2. Finance Laboratory Services in a Sustainable Manner	a) Financing strategy and plan is in place	Support development or refinement of laboratory strategy and financial sustainability plans. Advocacy for support of laboratory director's recommendation on policies. Advocacy for adequate support of laboratory e.g. equipment maintenance.

Key Strategic Element	Component	Activity
	b) Capacity for Cost-effectiveness Analysis	Support to develop a monitoring and evaluation structure based on laboratory function that enables cost analysis at country level. Note: PVS laboratory tool as a country level tool that can access needed information.
3. Build Capacity for Laboratory Services	a) Physical Infrastructure and Equipment	Support regular use, maintenance and calibration of equipment through; training of staff to perform in-house maintenance for basic equipment.
	b) Human Resources	Ensure adequate laboratory competencies and identify succession plan and career paths for laboratory staff.
	c) Procurement and Supply Management	Support for logistics planning for procurement and supply. Develop harmonized specifications for reference reagents needed to detect priority diseases.
	d) Laboratory Networks	Support national, regional and international meetings Expand database of expertise (e.g. OIE Reference Lab list) to include regional resources such as regional leading laboratories, academic institutions, etc.
	e) Transport of Specimens	Support for sample referral; provision of IATA packaging/shipment costs; and training (e.g. IATA certification every 2 years of at least one person in each national lab). Identify regional couriers willing to ship samples.
	f) Information Systems and Communication	Promote use of existing information gathering platforms such as WAHIS/ARAHIS, EMPRESi/EMPRESi-Asia and Promed; Support national, regional and international meetings, develop regional database of expertise
4. Assure the Quality of Animal Health Laboratory Services	a) Management commitment and Quality Policy	Advocacy for quality management system (QM). Facilitate regional coordination mechanism for relevant QM components. Note: PVS Pathway provides support for strategic planning at country level.
	b) Training of Human Resources	Areas of important competencies include classical virological and bacteriologic techniques, developing standardized reagents and rapid tests for priority diseases.
	c) Development and maintenance of a Quality System	Quality management: support development of a quality system; including LIMS, promoting use of internal quality controls – provision of standardized reference reagents by reference laboratory. External quality assurance: Promote engagement with an external proficiency testing program – provision of testing panel and analysis by regional reference laboratory;

Key Strategic Element	Component	Activity
5. Promote platform for communication between national animal health laboratory services, as part of the overall veterinary service, and stakeholders	a) Engagement with all stakeholders including field staff, epidemiologists and private sector) and communication of animal health services (community awareness)	Facilitate communications among stakeholders Promote rapid disease reporting Trainings and workshops to bring together stakeholders.
6. Improve Laboratory Safety	a) Biosafety/Biosecurity	Biosafety/biosecurity advocacy; Support risk assessment and training, Support development of laboratory-specific guidelines for biosafety (e.g. for achieving directional airflow for infectious agents - utilise existing guidelines - HPAI); Support for improved laboratory design and workflow through renovation
	b) Occupational Health and Safety	Support risk assessment and training (e.g. provision of consultant to do risk assessment); Advocacy for Occupational Health and Safety program including routine staff vaccination; Develop regional specialist (e.g. biosafety professional) through training.
	c) Waste Management, including environmental concerns	Provide advice on waste management procedures, risk assessments
7. Support Research and promote guidelines for humane use of animals in Laboratory Settings	a) Research and development	Promote engagement and of laboratory staff in entire research process. Develop laboratory staff skill and promote engagement in scientific communication. Promote platform for regional research collaborations.
	b) Access to updated and newly developed technology	Promote participation in international scientific meetings/conferences. Support subscriptions to on-line literature service

Annex 6: Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, Kuala Lumpur, Malaysia, 19-21 Oct, Agenda and Concept Note

Date/Time	Topic	Facilitator / Speaker
Day 1: Wednesday 19 October 2011		
Opening and Introduction		
0800 – 0830	Registration	
0830 – 0945	Opening	
0945 – 1015	Break	
1015 – 1115	Key note address *Professor Hiroshi Kida, Hokkaido University*	Dr CK Lee
1115 – 1125	FAO Regional Strategy on Emerging Diseases *Dr Subhash Morzaria, FAO ECTAD RAP*	
1125 – 1135	OIE Performance Veterinary Services (PVS) Pathway *Dr Ronello Abila, OIE SRR SEA*	
1135 – 1145	Asia regional Strategy for Emerging Disease *Dr Takeshi Kasai, WHO/WPRO*	
1145 – 1200	Security Briefing	
1200 – 1300	Lunch	
Animal Health Session 1 Introduction and Update from Network Laboratories		
1300 - 1330	Introduction to new laboratories in the network 10 minute presentation providing general background as well as topics outlined for other laboratories • China Animal Health and Epidemiology Center • Langzhou Veterinary Research institute • Yunnan Animal Science and Veterinary Institute	Dr Andrew Davis
1330 – 1340	Introduction to Poster session	
1340 – 1430	Poster presentation for each laboratory (including both regional and partner laboratories) with information on: • Significant updates from each laboratory e.g. renovations, new equipment, trainings, expansion of range of tests available/ diagnostic expertise • Overall diagnostic through-put in past 12 months characterized by species, sample type and test type for the top five diseases addressed by the laboratory • Salient research activities ongoing in past 12 months	
1450 – 1500	Summary of update and collaboration	
1500 – 1530	Break	
Animal Health Session 2 Strategic Planning (Key Framework Element 1)		
1530 – 1550	Strategic Planning for Laboratories *Dr Andrew Davis, OIE SRR SEA and Dr Jennifer Lasley, OIE Paris*	Dr Ronello Abila
1550 – 1630	Strategic Planning group work: • Identification of planning that already is in place and proposed future development of any existing plans • Identification of gaps in this planning process • Linkage of needs and available support from partners with specific activities	
1630 – 1700	Report from Strategic Planning Group Work	
Day 2: Thursday 20 October 2011		
0900 – 0930	Review of first day output *Dr Andrew Davis, OIE SRR SEA*	

0930 - 1000	Outcomes from Laboratory Directors' Forum meeting *Dr Ramlan Mohamed, Veterinary Research Institute*	
Animal Health Session 3 Quality Assurance (Key Framework Element 4)		
1000 – 1020	Proficiency Testing – steps required to establish rounds and experiences in the region (HPAI, CSF and PRRS) *Dr Gemma Carlile, Australian Animal Health Laboratory*	Dr Chris Morrissey
1020 – 1050	Break	
1050 – 1130	Proficiency Testing group work: • Discussion/listing of priority diseases for which PT testing is required • Achieving sustainability of PT programs • Partner discussion/listing of areas in which they could assist • Linkage of needs and available support with specific activities	
1130 – 1200	Report from Proficiency Testing Group Work	
1200 – 1300	Lunch	
Animal Health Session 4 Biosafety (Key Framework Element 6)		
1300 – 1320	Current biosafety situation and way forward *Dr Teck Mean Chua, Asia Pacific Biosafety Association*	Dr Teck Mean Chua
1320 – 1400	Biosafety group work: • Using HPAI as a model, discussion on hazard analysis and identification of critical control points from sample arrival through to sample/reagent disposal • Partner discussion/listing of areas in which they could assist in capacity building • Linkage of needs and available support with specific activities	
1400 – 1430	Report from Biosafety Group Work	
1430 – 1500	Break	
Animal Health Session 5 Occupational Health and Safety (Key Framework Element 4)		
1500 – 1520	Occupational Health and Safety in the Laboratory Setting *Dr Gliceria Derrota, White Cliff International Health and Safety Services*	Dr Gliceria Derrota
1520 – 1600	Group Work: • Identification of hazards in laboratory workplace; • Evaluate the risk and specify what has been done or need to be done to avoid the risk; • Identification of gaps on the health and safety of employees; • Establishment of health and safety policy in laboratories.	
1600 – 1630	Report from Occupational Health and Safety Group Work	
1630 – 1700	Conclusion and Recommendation	
Day 3: Friday 21 October 2011		
0900-1000	Conclusion of Separate Animal and Public Health Meetings	
1000-1030	Break	
1030-1040	Summary from Public Health Laboratories Meeting	Representative from Public Health
1040-1050	Summary from Animal Health Laboratories Meeting	Representative from Animal Health
1050-1105	Discussion	
Joint Session 1 Addressing Common Issues		

1105-1230	Participants separate into 4 groups with both AH and PH in each group. - Laboratory Biosafety - Standard Assays and Reagents for Priority Zoonoses - Guidelines for Joint Laboratory Investigation - Information Sharing	
1230-1330	Lunch	
1330-1420	Presentation of outcomes from group discussion	
Joint Session 2 One Health		
1420-1440	Sharing of Information – 4-Ways Linking Project *Dr Filip Claes, FAO Rome*	
1440-1500	Laboratory support for wildlife diseases surveillance and investigation *Dr. Joko Pamungkas, Primate Research Center*	
1500-1510	Antimicrobial Resistance *Dr CK Lee, WPRO*	
1510-1520	IDENTIFY *Dr Mia Kim FAO Rome*	
1520-1550	Break	
1550-1620	Laboratory Strengthening One Health –Discussion-	
Joint Session 3 Way Forward		
1620 – 1700	Recommendation and Closing	

Background

A large proportion of new, emerging, or re-emerging diseases affecting humans in recent years have originated in animals, revealing the vulnerability of an increasingly interconnected world to the global impact of new emergent diseases. The speed with which diseases can emerge and spread presents serious public health, economic, and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in geographic areas where disease threats are likely to emerge.

Recognizing this need, the United States Agency for International Development (USAID) has launched an Emerging Pandemic Threats (EPT) Program that seeks to aggressively pre-empt or combat diseases that could spark future pandemics; the IDENTIFY project is a component of this program that is focused on laboratory capacity building, strengthening and creating new linkages across existing networks. The ultimate aim of the five-year IDENTIFY project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to the World Organisation for Animal Health (OIE) on listed animal diseases and unusual epidemiological events or emerging diseases as required by the OIE Terrestrial animal Health Code, and investigating events of potential international public health concern and reporting to The World Health Organization (WHO) as required by the International Health Regulations (IHR).

Apart from USAID, the European Union (EU) also provides support to address new, emerging and re-emerging diseases through the Regional Collaborative Programme on Highly Pathogenic Emerging Diseases (HPEDs) to establish Regional Support Unit, Regional Epidemiology Network and Regional Laboratory Network in association with the Association of Southeast Asian Nations (ASEAN). These technical units are expected to provide support

to the surveillance, diagnosis and control of HPEDs to ASEAN and its member states in a sustainable manner in the future.

Using the One Health Approach, the Food and Agriculture Organization of the United Nations (FAO), OIE, WHO are coordinating global and regional activities to address health risks at the human-animal-ecosystems interface through multi-sectoral cooperation and strong partnership. The basis of this cooperation has been strengthened with the issuance in April 2010 of the Tripartite Concept Note of the FAO/OIE/WHO collaboration in "sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces".

To initiate closer working relationships between staff of the public health and animal health laboratories, the three organizations have agreed to hold parallel meetings of representatives of country leading laboratories from both sectors on the 3rd week of October. The meeting will invite all countries in South East Asia, plus China, Japan, Korea and Australia. The meeting will be funded through the USAID-IDENTIFY project, and the Highly Pathogenic Emerging Diseases (HPEDs) project funded by the European Union (EU).

This year's animal health laboratory network meeting is a follow-up one to the FAO/OIE Sub-Regional Laboratory Network for HPAI Diagnosis in Southeast Asia that met in Ipoh, Malaysia in October 2010 addressing both policy/strategy and technical issues relating to HPAI diagnosis in the sub-region. The above-mentioned meeting in last year agreed that the HPAI Laboratory Network and its activities represent a strong model for ongoing laboratory networking and capacity building activities targeted more broadly to include other transboundary animal diseases (TADs) and emerging/re-emerging infectious diseases (EIDs). This year, both in continuation and building on the work achieved through this network, taking into account previous recommendations, the scope of the meeting will be expanded to include TADs and EIDs, and to broaden and link into other networks. Participants will include directors of national animal health laboratories as well as others representing policy/strategy or technical issues, donors and regional partners. On the final day, participants from the public health sector will join the meeting to expand discussions and create collaborative links under the One Health approach.

Objectives

1. Provide a forum for animal and public health laboratory staff to engage with their peers in issues related to laboratory diagnosis and investigation
2. Agreement on the Regional Framework for Animal Health Laboratory Capacity Building and Networking
3. Introduce concepts and receive update from partners on progress in areas of policy, strategic planning for laboratories, biosafety, occupational health and safety, as well as the use of a Quality Management system as an overall guiding structure
4. Identify list of priority zoonoses
5. Identify areas for collaboration between animal health and public health based on the list of priority zoonoses

Expected Participants

19-20 October 2011 – Approximately 50 participants are expected to participate including laboratory directors and technical representatives from national animal health and leading

laboratories from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Viet Nam; Australian Animal Health Laboratory (AAHL), Japan National Institute of Animal Health (NIAH), FAO, OIE and USAID

21 October 2011 – As well as the participants from the preceding two days, additional participants will include similar level representatives from ASEAN plus 3 countries and Mongolia. List of expected participants from the Animal Health Sector is included.

Expected Outputs

1. Update on technical issues related to animal health regional laboratory network
2. Regional Framework for Animal Health Laboratory Capacity Building and Networking
3. Report from discussion and group work on collaboration between public health and animal health sectors

Expected Outcomes

1. Sharing case materials and experience on technical issues related to laboratory diagnosis and field investigation
2. Regional Framework for Animal Health Laboratory Capacity Building and Networking agreed
3. Demonstration of progress regarding Animal Health laboratory policy issues at the national level and progress toward strategic planning
4. Areas for collaboration between regional laboratory networks across human and animal health are identified or strengthen

Expected Participants

Organization / Laboratory	Country	Number of Participants
23. National Veterinary Research Institute (NaVRI)*	Cambodia	2
24. China Animal Health and Epidemiology Center (CAHEC)*	China	2
25. Langzhou Veterinary Research Institute*	China	2
26. China Animal Diseases Control Center (CADCC)*	China	2
27. Yunnan Animal Science and Veterinary Institute*	China	2
28. Directorate of Animal Health (DAH)*	Indonesia	2
29. National Animal Health Center (NAHC)*	Lao PDR	2
30. Veterinary Research Institute (VRI)*	Malaysia	2
31. Livestock Breeding and Veterinary Department (LBVD)*	Myanmar	2
32. Philippine Animal Health Center (PAHC)*	Philippines	2
33. National Institute of Animal Health (NIAH)*	Thailand	2
34. FMD Regional Reference Laboratory (RRL)*	Thailand	2
35. National Center for Veterinary Diagnosis (NCVD)*	Viet Nam	2
36. Regional Animal Health Office No.6 (RAHO6)*	Viet Nam	2
37. ASEAN Secretariat*	Indonesia	1
38. Department of Animal Health	RO Korea	1

39. Department of Agriculture and Agri-Food	Brunei	1
40. Agri-Food and Veterinary Authority of Singapore	Singapore	1
41. Australian Animal Health Laboratory (AAHL)	Australia	1
42. Japan National Institute of Animal Health (NIAH)	Japan	1
43. Asia Pacific Biosafety Association (APBA)	Singapore	1
44. Center for Disease Control and Prevention		1
45. PREDICT		1
46. RESPOND		1
47. PREVENT		1
48. USAID RDMA		1
49. USAID Lao PDR		1
50. USAID Cambodia		1
51. USAID Viet Nam		1
52. USAID Indonesia		1
53. USAID Philippines		1
54. US Department of Agriculture		1
55. European Commission		1
56. Asia Pacific Biosafety Association		1
57. FAO Regional Office for Asia and the Pacific (RAP)		3
58. FAO Rome		1
59. OIE Sub-Regional Representative for SE Asia (SRR SEA)		3
60. OIE Tokyo		1
61. OIE Paris		1
Total		56

* Participation cost covered by the organizers

Annex 7: Workshop on OIE Standards for collection and shipment of biological specimens, Nairobi, Kenya, 9 – 11 August 2011: Terms of Reference, Agenda, and List of Participants

1. Background

FAO, WHO and OIE, recognize the importance of collaboration and cooperation on issues related to the animal-human ecosystem interface. As a result, the three organizations are collaborating to support the strengthening of laboratory diagnostic capacity, disease surveillance, and reporting, and cross-sectoral collaboration and partnerships between the animal and human health sectors with an emphasis on the One Health approach in the Congo Basin region through the IDENTIFY Project supported by USAID.

The OIE has developed Standards published in the Terrestrial Animal Health Code, chapter 5.8. on "*International transfer and laboratory containment of animal pathogens*". The Manual of Diagnostics Tests and Vaccines for Terrestrial Animals, chapter 1.1.1 on collection and shipment of diagnostic specimens outlines critical areas to be addressed. These two reference documents outline the types of samples to be collected for different species from live animals and at post mortem. Information to accompany samples to the laboratories, preservation methods, packaging, and transport are also discussed in detail in these two documents. Sample size determination is also discussed in the OIE Standards. The four different categories of pathogens are also described in the Manual.

The diagnostic capacity of national veterinary laboratories is gradually improving within the African region but the region still has relatively few OIE Reference Laboratories compared to other regions. The region has eleven (11) OIE Reference Laboratories in four countries (Botswana, Morocco, Senegal and South Africa) which are all far from Central Africa. Other OIE Reference Laboratories outside the African region, such as in Europe and the Americas, do serve the Central African region. Therefore it becomes critical for national veterinary laboratories to be well-versed on requirements for the safe shipment of specimens to reference laboratories.

Diagnostic laboratories expect to receive appropriate samples that arrive in good condition. The laboratories should be informed prior to the arrival of samples. Shipments must be made in accordance with rules concerning dangerous goods for the particular mode of transport. Reference laboratories do have guidelines based on OIE Standards, for example on how to package samples before shipment, and some do provide containers at no cost to receive samples. As for air transport, the International Civil Aviation Organization (ICAO) provides technical instructions for the safe transport of dangerous goods by air, reflected in the International Air Transport Association (IATA) Dangerous Goods Regulations. Courier companies are critical in the safe transport of these specimens to reference laboratories and have additional requirements to guarantee biosecurity to pose minimum risk to the health of staff and the environment.

2. Objectives

The goal is to build veterinary laboratory capacity on the safe shipment of samples to OIE Reference Laboratories.

The specific objective is to improve laboratory technicians' skills in diagnostic sample collection, packaging, storage and international air shipment in compliance with OIE international animal health standards and related regulations.

3. Expected Outcomes

At the end of the workshop, participants will be able to:

- Better understand the OIE Standards on the transport of samples to OIE Reference Laboratories as identified in the OIE Manual and Code;
- Better understand requirements for transportation of biological samples as identified by ICAO;
- Properly identify and forward samples collected, including preservation (cold chain);
- Classify specimens/samples into different categories approved at the international level;
- Properly store samples before analysis and send them to a Reference Laboratory;

- Fill in appropriate documentation related to sample transportation;
- Better understand the hazards related to improper packaging and transportation of samples;
- Describe general sample accession procedure at the laboratory (for lab technicians);
- Transport infectious substances and be able to:
    - Describe the applicable regulations and classifications defined by the IATA Dangerous Goods Regulations;
    - Demonstrate the ability to apply relevant IATA Dangerous Goods Regulations for the purpose of classifying, documenting, packing, and labeling infectious substances for shipment by international air.

4. Methodology

Training will be conducted through a workshop comprised of lecture presentations followed by practical exercises and group discussion.

5. Training Module Content

5.1 Knowledge of OIE Standards on transport of biological specimens from the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals and the Terrestrial Animal Health Code

- International transfer and laboratory containment of animal pathogens
- Collection and shipment of diagnostic specimens

5.2 Transport of animal health samples by air (IATA Dangerous Goods Regulations)

- Overview of IATA Dangerous Goods Regulation (DGR)
- Classifying infectious substances for international air shipment;
- Documentation for international air shipment;
- Packing infectious substances for international air shipment
- Labeling packages for international air shipment

6. Participants

6.1 Target participants:

Laboratory technicians responsible for sample reception and dispatching to reference laboratories. These are technicians who are involved with receiving samples from field services, epidemiologists, and investigators and allocate them to the various laboratories and to dispatch samples for testing to reference laboratories, often internationally.

6.2 Participating countries:

French-speaking countries	English-speaking countries
Cameroon	Rwanda
Central African Republic	Uganda
Democratic Republic of Congo	Tanzania
Equatorial Guinea	Angola
Gabon	Ethiopia
Republic of Congo	Kenya
	Sudan
	South Sudan

(1 participant per country; 14 participants)

7. Venue and dates

Venue: Nairobi, Kenya
The duration of each workshop will be 2.5 working days, 9 – 11 August 2011.

8. Collaborating Partners: FAO, WHO-AFRO, BVI, OVI, USAID and Department of Veterinary Services CVL Kabete.

Training workshop on OIE Standards for collection and shipping of samples
Nairobi, Kenya, 9 – 11 August 2011

Time	Day 1: 9 August 2011	Speaker
08:00-09:00	Registration	Grace Omwega
09:00-09:45	Official Opening Session Welcome Remarks Director, KABETE Veterinary Laboratory OIE Sub Regional Representative for East and Horn of Africa Official opening address - OIE Delegate, Kenya Group Photo	Facilitator: DVS Nairobi Dr W. Masiga Dr Peter M. Ithondeka
09:45-10:15	Coffee Break	
10:15–10:35	Introduction to OIE Manuals and Codes	Dr N. Mapitse
10:35-10:45	Discussion	
10:45-11:30	OIE Standards: Preservation, Packaging, Shipment, Certificates (air, land, sea)	Dr G. Thobokwe
11:30-11:45	Certification for export of specimens	Dr G. Thobokwe
11:45-12:15	FAO Reference Laboratories and FAO Technical Assistance Programs	Dr Joseph Litamoi
12:15-14:00	Lunch	
14:00-17:00	Practical session: Packaging of laboratory samples for transportation to Reference Laboratories including description of all practical information (costs, suppliers, forms, etc.)	Dr G. Thobokwe

Time	Day 2: 10 August 2011	Speaker
09:00-10:30	KABETE Veterinary Laboratory, 1st presentation (Disease-specific)	KABETE Veterinary Laboratory
10:30-11:00	Coffee Break	
11:00-11:30	IATA requirements. Two categories of samples: Hazard and biological samples.	Dr Anna Rose Ademun Okurut
11:30-12:00	Transport, biosafety and disinfection Safe Handling, Packaging & Shipping of Infectious Substances	Alex Gikandi, Medsurg healthcare
12:00-14:00	Lunch	
14:00-17:00	Practical session: Identify-targeted diseases selected in Entebbe (e.g. HPAI, PPR) Including description of all practical information (costs, suppliers, forms, etc.)	KABETE Veterinary Laboratory

Time	Day 3: 11 August 2011	Speaker
08:30-09:20	KABETE Veterinary Laboratory, 2nd presentation	KABETE Veterinary Laboratory
09:20-09:30	Discussion	
09:30-10:00	Introduction to OIE Reference Laboratories	Dr N. Mapitse
10:00-10:30	The OIE Laboratory Twinning Programme	Dr W. Masiga
10:30-11:00	Coffee Break	
11:00-11:30	Mandates and Activities of an OIE Reference Laboratory	OIE Reference Laboratory (BVI, Botswana)
11:30-12:00	Courier companies' requirements*	DHL, Mr Kamau
12:00-12:15	Event Evaluation	

12:15 – 12:45	Closing	
12:45-14:00	Lunch	
14:00	Departure	

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Annex 8: Training course on WAHIS and WAHID implementation for focal points for wildlife: Terms of Reference[43]

OIE Sub-Regional Representation (SRR) for Eastern Africa (EA)

OIE / SRR-EA **CAPACITY-BUILDING PROGRAMME 2011**

BACKGROUND

The OIE Sub-Regional Representation (SRR) for Eastern Africa (EA) was established in 2009 and has since 2011 initiated a programme of capacity-building, targeting staff of veterinary services, in the EAC region, and beyond.

As far as the Africa region is concerned, three OIE Sub-Regional Representations in Gaborone, Tunis and Nairobi as well as the Regional Representation in Bamako, are now currently benefiting from funds from the European Commission Directorate DG-SANCO (Health and Consumers) through the *"Better Training for Safer Food"* (BTSF) programme, under which part of the present training course is funded.

In addition, nine (9) countries in Central Africa benefit from funds under the IDENTIFY project of the *Emerging Pandemic Threats* programme. As far as OIE in Africa is concerned, this project is coordinated by the OIE SRR-SA in Gaborone (Dr Neo Mapitse). The following 6 countries will benefit from this training course under the auspices of IDENTIFY : Cameroon, Central African Republic, Congo (Dem. Rep), Congo (Rep), Equatorial Guinea, and Gabon.

This is the third workshop dealing with WAHIS and WAHID (and the second dealing with wildlife) in Africa, and the second seminar organised directly by the OIE Sub-Regional Representation, in close collaboration with OIE Regional Representation for Africa in Bamako, Mali and the OIE Headquarters in Paris, France. The first workshop funded under the BTSF Africa programme was the joint training of OIE focal points for animal diseases notification and for aquatic animal diseases from Southern Africa only (Lilongwe, Malawi, April 2009). The second one was again a joint training of OIE focal points for animal diseases notification and for aquatic animal diseases, but for selected countries across Africa (Gaborone, Botswana, August 2010).

In line with the OIE's overall mandates of ensuring transparency in the global animal disease situation, encouraging international solidarity in the control of animal diseases, and collecting, analysing and disseminating veterinary scientific information, this training workshop will deal with issues concerning wildlife and international reporting of animal diseases, in particular diseases of wildlife.

OBJECTIVES OF THE WORKSHOP

The objective of the workshop is to improve the capacity of OIE *Wildlife Focal Points* (WFP) in particular for the gathering and interpretation of data through the reporting of wildlife diseases to the OIE using the online reporting system WAHIS (Wild).

This proposal results from two developments over the past months and years :

(a) diseases of wildlife remain under-reported, in general terms, and in particular to the OIE. Reticence to report diseases of wildlife is fuelled by misconceptions about the impact of such declarations on a country's disease status for farm animals. Radical and unjustified trade

[43] The Terms of Reference are the same for the Francophone and Anglophone seminars.

barriers imposed by some countries following such declarations have contributed to this reticence.

(b) the OIE has developed a string of measures to enhance the timely and transparent reporting of diseases, occurring in wildlife. This led in a first stage to a fully revised version of the annual questionnaire and will lead very shortly to the launch of WAHIS-Wild, a dedicated web-module for reporting of wildlife diseases or major epidemiological events.

These new developments must be explained to the focal points for animal diseases notification, but in particular to the wildlife focal points who need to provide the Veterinary Authority with the required epidemiological data.

Hence, the workshop will target the focal points on wildlife. While some of these focal points are veterinary officers from within the veterinary administration (Directorate of Veterinary Services) and within the Ministry-in-charge of veterinary matters, others may be very unfamiliar with the OIE and WAHIS requirements, as they might be assuming duties in other Ministries altogether. Typical case is when wildlife disease issues are governed under e.g. the Ministry of Tourism or the Ministry of Environment and Natural Resources. While these focal points understand that they are expected to report wildlife disease events to the OIE Delegate, they might be unaware of which diseases are OIE listed, and under which circumstances reporting (immediate or otherwise) is required. Therefore, the content of the present training course will be regarded as "basic", focusing on understanding the requirements of the WAHIS reporting system in respect of animal diseases, without over-emphasising the actual processes involving data-entry into WAHIS (usually entirely entrusted to the sanitary information management focal point). This training course will target countries that have not benefited from specific training on wildlife diseases reporting (all African countries) and that are likely to benefit from this particular training (in terms of important wildlife resources).

The present training course will target English-speaking focal points from Members in sub-saharan Africa, while the French – speaking focal points will be invited to attend the exact same training course in Botswana from November 28 to December 1, 2011.

METHODOLOGY

1. General concept

It is proposed that this Workshop consist of hands-on practice with activities directly relevant to the work of OIE *Wildlife Focal Points* (WFP), interspersed with lectures and demonstrations associated with these activities.
WFP are assumed to have participated in Workshop 1 and/or to have recently read the Training Manual prepared for Workshop 1. That Training Manual would be provided to all participants in Workshop 2 at least two weeks in advance of Workshop 2 in each OIE region. OIE also may wish to provide a few pages of written material about the role and Terms of Reference of WFP.
Training Manual n° 2: It is anticipated that a training manual will be created for this Workshop and will contain the key information presented in lecture format during the Workshop. This Training Manual can be provided in electronic (PDF file) format. Also provided will be the various data files, the WAHIS six-monthly report, the OIE WAHIS-Wild spreadsheet that simulates data entry into WAHIS-Wild, and other files and information that may be needed during the

Workshop or afterward for reference. All these files can be placed on a flash-drive given to each participant.
Technical requirements : the venue should provide seating for all active participants at round tables seating 6-8 people. There should be sufficient electrical outlets at these tables for all participants, and each participant should arrive with a laptop computer which uses Microsoft Windows (versions to be specified) operating systems. A large projection screen should be resent and visible by all tables. A speaker's podium and speaker's computer should be available for use at the podium. This computer should have access to a high-speed internet connection so that internet sites can be used during lectures and demonstrations [44]
Seating of participants will be arranged in advance so as to keep people using the same language together but otherwise to seek to cause each table to contain people from countries that differ in their size, wealth and sophistication of their veterinary services.

2. Seminar outline

2.1. Review of OIE structure and Role of Wildlife Focal Points

OIE staff will spend 30 minutes welcoming participants, and reminding WFP about their role and Terms of Reference.

2.2. Review of Scenarios' Surveillance Data

A case scenario is presented by an instructor. An imaginary country (we can use some section of Canada for this) wishes to undertake a program of general wildlife disease surveillance. It has certain reasons for doing this, certain objectives it has established for the program. These are explained to the participants. The components of a general disease surveillance program are reviewed (from Workshop 1) in lecture format.
The Instructor leads participants in a discussion of the various options Country X may have to set up its surveillance program, coving all components of general disease surveillance. Instructor provides facts and information about Country X as these are needed during the discussion. The discussion is directed develop a set of recommendations by the participants concerning how Country X could set up and operate a general surveillance program to meets its objectives.

2.3. Review of Scenarios' Surveillance Data

Participants now receive a set of data from a year of the surveillance program they have just developed and recommended for Country X. In fact, there will be three different sets of surveillance data, each table of participants will use the same data set but all three data sets will be used by different tables (There may be 2 or more tables using the same data set, depending on the number of participants). The data will be in the form of an Excel spreadsheet and each will contain about 100 disease occurrences. Data will include host species (common name and Latin name), age, sex, date found dead or sick, number of animals affected, cause of death, other diagnostic findings, latitude and longitude of location where animal was found. Data will be only for terrestrial animals – birds and mammals. Each data set will be constructed to show some different patterns of surveillance and of disease/pathogen occurrence. These differences will provide interest and contrast in presentations and discussions at the end of the day.

[44] *It would be excellent if ALL participant computers could have wireless access to the Internet with sufficient bandwidth that ALL could connect at high speed at the same time.*

Participants review their data sets individually and/or with neighbours. They are asked to look for problems – missing data, duplicate entries, etc., and also to look for points of interest.

Participants are asked to determine if any of the data should be reported to the OIE. This then leads to a presentation/lecture about what diseases/pathogens in wild animals must be reported to the OIE, the List of diseases/pathogens, the criteria for listing pathogens, where to find the most up-to-date OIE Disease list on the OIE website and in the printed Code, and the criteria for identifying important epidemiological events that also must be reported to the OIE, and the diseases/pathogens to be reported to WAHIS-Wild on a voluntary basis once per year,

The data sets will each contain one or more OIE List diseases/pathogens and each will contain diseases/pathogens for WAHIS-Wild. The participants will be helped to identify these and then told the correct procedure for notifying the CVO of any List diseases.

Participants now are given detailed instruction on how to use WAHIS-Wild. Each then will practice reporting diseases/pathogens from their data sets on the spreadsheet version of WAHIS-Wild. *[[The spreadsheet version of WAHIS-Wild used will be constructed so that the Listed Disease data for wildlife in Country X already are on the spreadsheet, as will be the case for the on-line version that WFP actually will use. The on-line version will be demonstrated also. There also should be one Listed disease entry that is different on WAHIS-Wild than in the surveillance data spreadsheet, and this will be used to advise WFP on what to do in this case – to check with CVO to find out which data are correct.]*

2.4. Finding Information on WAHIS and WAHIS-Wild

OIE staff demonstrate on the OIE website how information about disease occurrences can be searched for and retrieved, and the range of information that is available. WFP should be provided with power-point slides with screen shots and clear instructions showing how to search for and retrieve this disease occurrence information.

2.5. Further Review of Scenarios' Surveillance Data

Participants are asked to manipulate the surveillance data in various ways that may be useful to them. They are first advised to save a copy of the data file and to manipulate a new copy, in case they make a big mistake and lose data. They are encouraged to sort data in different ways – by date, by species, etc and shown how to do so. They are shown how to display data selections as simple graphs or charts – number of animals by month, etc. The objective is for WFPs to be able to look at data in these ways without needing special assistance.

- They are shown a free-ware program that converts Lat/Long coordinated to the format used by Google Earth (Earth Point) and then shown how to use the new file to map their data on Google Earth.
- Participants will be encouraged to work together or separately and map, sort, chart etc their data sets to explore the data. This continues during the break. Maps of the data will also be made in advance and distributed since internet may not be available on all computers.
- After the break, each table will be asked to hold a discussion about their surveillance data: the strengths, weaknesses, points of interest, aspects that may require further investigation or clarification, etc. (Note – there will be three different data sets in use but only one at each table)
- Each table will prepare and present their map, graphs and/or other findings and the main points of their discussion of strengths and weaknesses in their data to all participants during the last hour (if there are too many tables of participants,

perhaps only one presentation of each data set will be sufficient, and tables not presenting on Day 1 can present on Day 2)

2.6. Review of Day 1 main points and Introduction to Day 2

Instructor(s) reviews main points of general wildlife disease surveillance and introduces and compares these with targeted disease surveillance, which is the topic of day 2.

2.7. Targeted Wildlife Disease Surveillance Case Scenarios

Similar to 2.2 (above) - A case scenario is presented by an instructor. An imaginary Country X (we can use the same section of Canada as for Day 1 scenarios) wishes to undertake a program of targeted wildlife disease surveillance for three different pathogens. It has certain reasons for doing so for each one, certain objectives it has established for the program. These are explained to the participants. Instructor leads a general discussion about design of surveillance programs for Country X for each of these pathogens. Pathogens will be selected to present different kinds of challenges.

2.8. Selecting Diagnostic Tests

A number of issues raised in the discussion of design of targeted surveillance programs now are covered in lecture format, followed, in some cases, by participants solving problems or doing exercises on the topic, as listed in the Workshop Plan. OIE staff will provide information on sources of diagnostic test in the region where the workshop is offered. This section also would include general information about access to the OIE Manual on line and in print (demonstration of finding it and using it on line), an explanation of the terms of reference of OIE reference laboratories and of collaborating centres, (perhaps also FAO Reference laboratories). Specific information should be provided about reference laboratories available within the region in which the workshop is given, and the range of expertise of each.

2.9. Pathogen Prevalence

Lecture and exercises by participants about estimation of pathogen prevalence from surveillance data. This will include determining the sample size required for various objectives, incorporating diagnostic test performance into the estimate of prevalence and how prevalence can influence the predictive value of a diagnostic test.

2.10. (Targeted Wildlife Disease Surveillance Case Scenarios - continued)

We return to the targeted surveillance program for 3 pathogens to be carried out by Country X, the objectives of the surveillance programs, and come to a general consensus on the appropriate design for each, incorporating what has been learned about choosing diagnostic tests, sample size, etc).

2.11. Data from Country X Targeted Surveillance

Each table of 6-8 participants receives data from one of the targeted surveillance programs. Instructor(s) remind them how to estimate prevalence and confidence around prevalence and to map their data, and each participant does so (maps will be provided if Internet is not available). Participants then discuss the surveillance results within each table/group and prepare a presentation to the other participants on their thoughts and observations. These are then presented in plenary. [It may be desirable to have only half of the tables/groups make presentations on Day 1 and the other half on Day 2]

2.12. Wildlife Disease Surveillance in Region

We will invite someone from the region who is well versed in wildlife disease surveillance to give an overview of wildlife disease surveillance activities in the region, any networks among surveillance programs or wildlife disease scientists that may exist, and major wildlife disease issues in the region, including those important to wildlife conservation, domestic animals

and public health. This presentation should be interesting, full of pictures and regional information. The right person to present this in each region must be chosen carefully.

2.13. Data Management and databases in disease surveillance

A presentation on managing surveillance data and the features WFP may want in a data management system.

2.14. General Discussion on Wildlife Disease Surveillance in Region

General discussion about the workshop, surveillance and disease reporting to OIE, etc, led by OIE staff.

2.15. Communication Opportunities - Networks, Associations

Continuation of general discussion, but with a focus on maintaining communication among the region's WFP and also with other groups in the Region relevant to WFP activity.

2.16. Closing Events– presented by OIE

TARGET GROUP

The target group consists of 23 OIE national focal points on wildlife, as designated by their respective OIE delegates, from the following countries :

ENGLISH SPEAKING PARTICIPANTS

1. Angola
2. Botswana
3. Eritrea
4. Ethiopia
5. Gambia
6. Ghana
7. Kenya
8. Lesotho
9. Liberia *
10. Malawi
11. Mozambique
12. Namibia
13. Nigeria
14. Rwanda **+
15. Sierra Leone
16. Somalia
17. South Africa
18. Sudan
19. Swaziland
20. Tanzania+
21. Uganda+
22. Zambia
23. Zimbabwe

From a budgetary and logistical (computers) perspective, no more than 20 participants are expected to attend.

(*) Liberia is not an OIE Member but is eligible under the BTSF programme.

(**) Rwanda is also listed under the French-speaking programme and may choose either training course (but not both).

EXPECTED OUTPUTS

It is expected that the present training course will lead to a better understanding of wildlife surveillance and notification and should result in more and improved online submissions of immediate and scheduled notifications of wildlife diseases, to the OIE. The Malawi training seminar in April 2009 and to a lesser extent, the training seminars organised in Tunisia, in December 2009 and in Botswana in August 2010, have demonstrated that training efforts do lead to better and increased reporting, both for terrestrial and aquatic animal diseases.

TENTATIVE DATES AND DURATION OF THE WORKSHOP

Duration of the workshop : 4 days
Tentative dates : October 4 - 7th, 2011
Host Country : Kenya
Host institution : OIE Sub-Regional Representation for Eastern Africa (SRR-EA) Nairobi

LANGUAGE : The training course will be conducted in English only.

Estimated number : 20 participants + 4 invited observers (below) = 24 attendants
(of which 23 are to be supported by OIE budget).

INVITED OBSERVERS

1. Representative from the OIE Regional Representation for Africa (1)
2. Representative from the OIE Sub-Regional Representation for Southern Africa (1)
3. Representative from the OIE Regional Commission for Africa (1)
4. Representative from the EAC Secretariat (1)

INVITED TRAINERS (5)

1. Representatives from the OIE Information Department (1)
2. Representatives from the OIE Scientific and Technical Department (1)
3. Representative from the OIE Collaborating Centre on Wildlife (2)
4. Representative from the OIE Working Group on Wildlife or representative from the region (regional expert) (1)

TENTATIVE PROGRAMME (ENGLISH SPEAKING PARTICIPANTS)

Day > Date Time	Tuesday 4 Oct	Wednesday 5 Oct	Thursday 6 Oct	Friday 7 Oct

08:00-10:00	Opening session and presentations of participants (30') Session 1 : General presentations regarding the OIE	Small group presentations Session 5 : Targeted wildlife disease surveillance	Field visit	Small group presentations Session 7 : Wildlife disease surveillance in the region
10:00-10:30	Health Break	Health Break	Health Break	Health Break
10:30-13:00	Session 2 : The Terrestrial Code and design of a general surveillance programme > case scenario	Session 6 : The Terrestrial and Aquatic Manuals and selecting diagnostic tests Pathogen prevalence (30')	Field visit : cont'd	Session 8 : OIE activities related to wildlife : current directions and future perspectives Conclusions and closure
13:00-14:00	Lunch	Lunch	Lunch	Lunch
14:00-16:00	Session 3 : notification of wildlife diseases	Session 5 : cont'd Targeted wildlife disease surveillance > case scenarios	Field visit : cont'd	**Departures of participants and trainers**
16:00-16:30	Health Break	Health Break	Health Break	Health Break
16:30-18:00	Session 4 : Practical use of WAHIS and WAHIS - Wild Small group session	Session 5 : cont'd Targeted wildlife disease surveillance > case scenarios Small group session	Free	**Departures of participants and trainers**

Annex 9: Uganda Special Project Description



THE REPUBLIC OF UGANDA

PROPOSAL

SPECIAL PROJECT FUND REQUEST FOR A COLLABORATIVE PROJECT BETWEEN THE NATIONAL ANIMAL DISEASE DIAGNOSTICS AND EPIDEMIOLOGY CENTRE (NADDEC), UGANDA, AND THE INSTITUTE FOR ANIMAL HEALTH (IAH), PIRBRIGHT, UK

Submitted to the Office International Des Epizooties (OIE)

INITIAL PROPOSAL SUBMITTED MARCH 2011
REVISIONS SUBMITTED SEPTEMBER 2011

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Background:

The Ministry of Agriculture Animal Industry and Fisheries (MAAIF) is responsible for the improved livestock health, production and marketing. It is a requirement by World Organization for Animal Health (OIE) that in order to access lucrative international and sometimes local livestock/livestock product markets, animal diseases must be controlled as per stipulated standards. In Africa, for example, it is only 3 countries (Swaziland, Botswana & South Africa) that can export meat and only from disease free zones. It is a very well known fact that a number of animals and poultry die regularly or their production is significantly impacted due to a number of disease outbreaks including; foot-and-mouth disease, contagious bovine pleuro-pneumonia, lumpy skin disease, African Swine Fever, contagious caprine

pleuro-pneumonia, brucellosis, rabies, tuberculosis, anthrax, trypanosomosis, theileriosis, anaplasmosis, goat pox, newcastle disease and bluetongue. The epidemiology and impact of such diseases in most African countries is poorly understood due to lack of appropriate capacity for early disease detection, reporting and treatment/control. This has lead to continued proliferation and propagation of a number of diseases across countries and continents with resultant huge costs of suppressing occurrence. For example, it is known that in less than the last two years, Uganda imported vaccines to the tune of 390,00 doses of foot and mouth disease, 189,000 doses of contagious bovine pleuro-pneumonia, 600,000 doses of contagious caprine pleuro–pneumonia, 1,258,500 doses of peste des petits ruminants, 400,000 doses of newcastle disease in chickens, 200,000 doses of infectious bursal disease and 120,000 doses of rabies–incurring very huge expenditure without significant success in exterminating the diseases.

The high prevalence and incidence of livestock diseases has made livestock farming and veterinary practice less productive for national and international investment, yet there is huge potential for increasing livestock production given the large areas of highly productive agricultural land available which can be developed to fill the glaring global gaps and demand for animal proteins. It is estimated that Uganda's livestock population consists of 11.4 million cattle, 12.5 million goats, 3.4 million sheep, 3.2 million pigs, 37.4 million chickens, 1.5 million ducks and 0.35 million turkeys (Livestock Census, 2008). Even with a number of challenges it is estimated that the annual livestock production is about 1.24 billion litres of milk, 165,976 tonnes of beef, 18,611 tonnes of pork, 32,990 tonnes of goat meat and mutton, and 20,725 tonnes of poultry meat, and it is projected that the demand will more than double in the next twenty years due to the steady increase in human population density and the growing regional and international markets. Over the past decade, the government of Uganda has been implementing a number of programmes aimed at eradication of extreme poverty and hunger, in line with Millennium Development Goal number one.

The proposed project is a pre-requisite for the attainment of the required capacity and potential for strategic disease control and access to better markets. It is extremely timely as it supplements the concept of setting up Disease Controlled Zones (DCZs) targeting meat export within the next five to ten years. The proposed interventions will directly feed into the National Development Strategy and Investment Plan (DSIP) Sub-programme 1.3 (Pest and disease control); components 3 (surveillance & reporting), 4 (diagnosis) & 7 (the traceability system). In Uganda, animal disease diagnostics and epidemiology is governed by the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC), under the Department of Livestock Health and Entomology.

The National Animal Disease Diagnostics and Epidemiology Centre (NADDEC) in Entebbe, Uganda is currently participating in an OIE Laboratory Twinning Project with the Institute for Animal Health with the aim to enhance capacity for laboratory diagnosis of a number of important diseases including Peste des petits ruminants (PPR), Bluetongue, sheep pox, goat pox, lumpy skin disease and foot-and-mouth disease. Being a landlocked country and bordering a number of other countries including Kenya, Tanzania, Rwanda, Democratic Republic of Congo and Sudan, NADDEC hoped to develop itself into a regional hub and reference centre for control of a number of livestock diseases in the Eastern and Central African region.

The current OIE-funded Twinning Project aims at providing training and interactions between the parent lab in the UK and the candidate lab in Uganda, however this project cannot fully address the gaps in diagnostic capacity required. For this reason we are applying for these Special Project funds which are aimed to complement the OIE Twinning Project by providing the added capacity necessary to support the NADDEC into the future so it can

become a truly international centre for disease diagnosis and control within the East and Central African region.

This request for Special Project funds detailed below aims to build upon the existing collaborative relationship between the Institute for Animal Health, Pirbright, United Kingdom, and the NADDEC, MAAIF, Uganda to improve the accurate and timely diagnosis of animal diseases in Uganda. In addition to achieving this improvement in the ways outlined below, the Special Project will also complement the activities that the two partners are already in the process of undertaking through the OIE Laboratory Twinning Project:

(1) Stimulating sample flow from the districts in the field to the national veterinary laboratory through training and equipping the veterinary services. Currently many disease outbreaks in Uganda go undiagnosed so is essential to stimulate the flow of samples between the field and the diagnostic laboratory. In this way the vets and farmers will gain trust and confidence in the ability of the national reference lab to provide timely and accurate diagnosis, so that relevant control measures can be rapidly initiated. The lab will also gain from this increased flow of samples and the ministry will have a clearer idea about which diseases are having the most impact on livestock in Uganda. This will help policy makers to prioritise funding into areas with most need which will have a direct affect on improving the control of livestock diseases and the livelihoods of rural farmers.

(2) Setting up and standardizing a national serum and virus bank for improved testing, initiating research projects and collaborations with other institutions

(3) Providing capacity for the early disease detection and diagnosis of livestock diseases through efficient and effective national veterinary surveillance and diagnostic systems

(4) Augmenting the laboratory's capacity to standardize and evaluate selected serological and molecular tests and set up tissue culture facilities for virus isolation, beyond the established objective in the existing OIE Laboratory Twinning initiative.

(5) Refurbish existing animal facilities which will open up the possibility of using animal infections to develop diagnostic material and test vaccines through animal experiments.

(6) Purchase of essential equipment in order to increase the diagnostic capacity of the lab and enable further tests to be carried out.

(7) Evaluating and streamlining the existing laboratory quality management and biosecurity standards

(8) Stimulating further national and international collaborations for enhanced disease diagnosis and effective control in the Eastern and Central African region.

Project Time frame: October 1 2011 through September 2013

This project will contribute to the existing laboratory capacity and fits in well with the plans of the Ministry of Agriculture (MAAIF) in Uganda to;

- Establish BSL3 laboratory

- Refurbish and update the general physical infrastructure including the fence, pavements and the compound of NADDEC.
- Refurbish the 'nutrition' laboratory and make it functional for food and feeds residue analysis
- Put in place appropriate storage facilities for equipment and supplies,
- Renovate the library and stock it with relevant books, and recruit a librarian,
- Reactivate the production of animal diseases vaccines at NADDEC
- Increase number of researchers and students benefiting from NADDEC,
- Evaluate the staffing levels and fill the existing gaps,
- Propose a specific core budget to cater for the activities of the centre,
- Improve staffing levels: both technical and support staff
- Collaborate with private, national and international institutions in animal disease control activities, e.g. Makerere University, NALIRRI, FAO, IAEA, OIE, and World Referral Laboratories (WRL) in various animal disease control activities.

Existing collaborating Partners and Agencies

- Food and Agricultural Organization (FAO)
- OIE
- World Health Organization (WHO)
- Uganda Wildlife Authority (UWA)
- Ministry of Health
- Uganda Virus Research Institute
- Government Chemist Laboratory
- Uganda National Bureau of Standards (UNBS)
- Uganda National Council of Science and Technology (UNCST)
- Faculty of Veterinary Medicine, Makerere University
- Makerere University Institute of Environment and Natural Resources (MUIENR)
- Office of the Prime Ministre (OPM), Republic of Uganda

Additional Projects at MAAIF

- OIE Laboratory Twinning Project (MAAIF-IAH) on Improvement of Disease Diagnosis

- Uganda Meat Export Development Project (UMED)-Norway
- Transboundary Animal Diseases in East Africa –Research on FMD (DANIDA)
- International Atomic Energy Agency (IAEA)
- Vaccines for Control of Neglected Animal Diseases (VACNADA)
- PPR Vaccine Research-adaptation for endemic countries –CDLID (BBSRC)
- Japan International Cooperation Agency (JICA)
- Animal and Human Influenza Project (AHIP)-WB
- National Livestock Productivity Improvement Project (NLPIP)
- Pan African Control for Epizootics (PACE)-EU
- Support Integrated National Action Plans (SPINAP)-EU
- African Swin Fever Uganda (ASFUG)-Sweden
- Livestock Wildlife Diseases of Eastern Africa (LWDEA)-DANIDA
- Livestock Disease Control (LDC)- Government of Uganda

Proposed Budget for the OIE Special Project

Special Project Funds request for Laboratory Special Project arrangements between NADDEC, MAAIF in Uganda and the IAH, Pirbright in United Kingdom (2011 - 2013)			
Activity/Item Description	**Quantity**	**Rate (£)**	**Amt (£)**
1. Capacity building for improved disease investigations, field sampling, laboratory studies and disease control operations in line with OIE Laboratory Twinning Arrangements - Training workshop of national & district veterinary/laboratory staff in Entebbe-to stimulate sample flow from the field			
Venue Hire (120 persons) for 3 days	3	262	786
Meals (Lunch, Tea and Water)	120 x 3 days	7.90	2844
Vehicle Hire for field visits	2 x 3 days	79	237
Transport to and from meeting	120 x 2	12.60	3024
Per-diem Allowances (accommodation / dinner)	120 x 3 days	28	10000
Training materials: printing, photocopying, folders		LS	526
Return Flights London-Entebbe (Two experts)	2	800	1600
Visa, medication etc	2		140
Daily Allowance (Two Experts)	2 X 5 days	205	2050
Correspondences, Communications and workshop assistance		LS	790
Sub-total			**21997**
2. Targeted field sample collection and establishment of the National Sample Bank			
2.1 Field Trips for sample collection			
Per-diem daily allowance (Staff from Entebbe)	5 days x 5 trips x 2 staff	28	1400
Per diem daily allowance (District Staff)	5 days x 5 trips x 2 staff	6	300
Fuel	300 lts x 5 trips	1	1500
Vehicle Servicing	5 x trips	52	260
Sub-total			**3460**
2.2 Procurement of key disease surveillance, sample storage and laboratory materials			
Sample/reagent refridgerator (+4°C) (Double door)	1		2632
Sample freezer (-86°C) with sample boxes/racks	1		7670
Racking and boxes for existing freezers in NADDEC			3485
Cryovials (1.5 - 2ml) Simport 2ml self standing cryovials	15000		1741

Cryostore boxes 9 x 9 for 81 Simport 2ml vials as quoted	To store 15000		810
Vacutainer tubes (with clot activator) 15000	15000		1468
Vacutainer tubes (with EDTA) 15000	15000		1284
Vacutainer Needles 20,000	20000		3420
Plastic guards 500	500		100
Outbreak sample collection and sample shipment to NADECC. Field boxes and ice packs			9500
GPS	2	790	1580
Screw cap microfuge tubes with lids (sample storage)	15000		400
Protective wear and disinfectants: gloves, coveralls, gum boots etc.			1900
2 x labelling machines	2		636
Labels	20		200
Computer (Sample reception and tracking)	1		1052
Printer (Sample reception and tracking)	1		525
Shipment & Clearance of equipments, materials, samples and reagents			10000
Sub-total			**48400**
3. Laboratory capacity improvement and test evaluation			
3.1 Procure key serological diagnostic kits/reagents (PPR, goat /sheep pox, BT, LSD and FMD)	LS	LS	12600
3.2 Procure key molecular diagnostic kits/reagents (PPR, goat /sheep pox, BT, LSD and FMD)	LS	LS	12600
3.3 Procurement of key equipment			
Reverse Osmosis water purification system	1		3109
Autoclave	1		1056
3.4 Set up the tissue culture section			
Cell Lines (BHK, Vero, IBRS)		LS	5000
Media for cell culture and Foetal Calf Serum (FCS)		LS	2000
Liquid Nitrogen Tank (25 L)		1	538
Nitrogen gas refill for 1 year	12	33	396
Cell Culture Flasks (25cm3 plastic)	200		163
Cell Culture Flasks (75cm3 plastic)	100		316

Plastic pipettes (various sizes)	2000		400
Refrigerator for cell culture	2	946	1892
Air conditioner, room partitions and furnishes for cell culture section		LS	4410
3.5 Undertake critical repairs and furbishment to labs and animal facilities		LS	10000
Power Stabilisers and UPS's to protect molecular biology and reagent sample storage equipment			10000
Sub-total			**64480**
4. Improvement of laboratory standards, biosecurity and test quality			
4.1 **Expert visit:** Audit and advise on key laboratory biosecurity and quality standards			
Return Flights London-Entebbe (Two experts)	2	800	1600
Visa, medication etc	2		140
Daily Allowance (Two Experts)	2 X 5 days	205	2050
Sub-total			**3790**
Overall TOTAL			**£142127**

Current Capacity for recommended diagnostic tests of important diseases for international trade

DISEASE	RECOMMENDED TEST	ALTERNATIVE TEST(S)	CAPACITY
Foot and Mouth disease	ELISA, VN	CF	Yes (ELISA)
Rinderpest	ELISA	VN	Yes (ELISA)
Peste des petits ruminants	VN	ELISA	Yes (ELISA)
Contagious Bovine Pleupneumonia (CBPP)	CF	ELISA	Yes (CFT)
Lumpy skin disease	-	VN	No
Rift Valley Fever	-	HI, ELISA, PRN	Yes (ELISA)
Blue Tongue	Agent id, AGID,	VN	No
African Swine Fever	ELISA	IFA	Yes (ELISA)
Newcastle Disease	-	HI	Yes (Rapid kit)
Anthrax	-	Slide	Yes (Agent id)
Echinococcosis/Hydotidosis	-	PM	Yes (PM)
Leptospirosis	-	MAT	No
Rabies	VN	IFA	Yes (IFAT)
Heartwater	-	ELISA, IFA Slide	Yes (Agent id)

Trichinellosis	Agent id	ELISA	Yes (PM)
Bovine Brucellosis	BBAT, CF, ELISA	FPA	Yes (SAT,
Bovine genital	Agent id.		No
Bovine Tuberculosis	Tuberculin test	-	No
Enzootic bovine Leukosis	AGID, ELISA	-	No
Infectious Bovine	VN, ELISA, Agent	-	No
Trichomoniasis	Agent id.	Mucus agg.	Yes (Agent id)
Bovine Anaplasmosis	-	CF, Agg. Card	Yes (Agent id)
Bovine Babesiosis	-	ELISA, IFA,	Yes (Agent id)
Cysticercosis	-	Agent id.	Yes (PM)
Dermatophilosis	-	Slide	Yes (Agent id)
Theiloriosis	Agent id., IFA	-	Yes (Agents id,
Haemorrrhagic Septicaemia	-	Agent id.	No
Bovine Spongyform	-	-	No
Ovine Epididymitis	CF	ELISA	No
Caprine and Ovine	BBAT, CF	Brucellin test	Yes (SAT)
Contagious Caprine	CF	-	No
Porcine Brucellosis	BBAT	ELISA, FPA, VN	No
Trasmissible Gastroenteritis	-	VN, ELISA	No
Infectious Bursal Disease	-	AGID, ELISA	No
Marek's disease	-	AGID	No
Avian Mycoplasmosis	-	Agg., HI	No
Fowl typhoid and Pullorum	-	Agg., Agent id.	Yes (Culture,
Avian infectious bronchitis	-	VN, HI, ELISA	No
Avian infectious Laryngeotrachitis	-	AGID, VN, ELISA	No
Avian tuberculosis	-	Tuberculin test,	No
Fowl cholera (avian	-	Slide	Yes (Agent id)
Myxomatosis	-	Agid, AGID, CF,	No
Malignant Cattarrhal Fever	-	VN, IFA, PCR	No
Salmonellosis	-	Agent id., Slide	Yes (Agent id)
Bovine Virus Diarrhoea	Agent id.	-	No
Trypanosomiasis (Tsetse	-	IFA, Slide	Yes (Agent id)
Nairobi Sheep Disease	-	-	No
Scrapie	-	-	No
Fowl Pox	-	-	No
Mange	-	Agent id.	Yes (Agent id)



Semiannual Report

ABRIDGED

OIE Contribution to the IDENTIFY Project

Reporting institution:
The World Organisation for Animal Health (OIE), IDENTIFY Project Partner

Reporting period: 1 April - 30 September 2013

Regional component: Global

Countries: 2 "hot spots", by USAID category:
- **Congo Basin:** Democratic Republic of Congo, Uganda, Cameroon, Gabon, Republic of Congo, Rwanda, Tanzania, Central African Republic
- **South and Southeast Asia:** Indonesia, Vietnam, Cambodia, Lao People's Democratic Republic, Thailand, China, Malaysia, Philippines

Project title: IDENTIFY, OIE contribution
Budget: No new budget for Year 3 or Year 4; carry-over budget only from Years 1 & 2

Effective starting date: January 2010
Planned end date: 30 September 2014

Context of the project
This project is part of a complex program—Emerging Pandemic Threats (EPT)—designed by USAID and aimed to find and implement mechanisms to detect disease emergences, especially from wildlife. The One Health concept is an important component of the whole program. The IDENTIFY project is implemented jointly by the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO).

Objectives of the project
The IDENTIFY project is intended to strengthen diagnostic capacities through the development of laboratory networks spanning animal and human sectors with the ultimate aim of enabling countries to meet international obligations for disease reporting. Accurate and timely detection of known pathogens should facilitate the rapid recognition of newly emerging pathogens. International reference laboratories capable of fully characterizing the emerging pathogens are an integral part of these networks. For a list of targeted diseases, see ***Annex 1***.
The project focuses on several parts of the world defined by the USAID as "hot spots" for emerging diseases where they are more likely to happen: Congo Basin and Southeast Asia.
The project will collaborate with the other arms of the EPT program: PREDICT, RESPOND, PREVENT, and USAID's DELIVER project. Each project has a defined work plan with activities and sub-activities to which every project team has agreed upon their level of participation (support, participate or lead).

Planned activities
For the description of planned outputs, activities and sub-activities, refer to the Final OIE IDENTIFY Year 4 Work Plan (submitted to USAID on 31 Aug 2012, approved by USAID on 5 Oct 2012).

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Annex 15 Participant report from laboratory exchange programme for NIAH/OIE Ref Lab on Classical Swine Fever Virus (Thailand to Germany)
Annex 17 Final report of NADDEC Special Project

[1] Some annexes have been removed from this abridged version for ease of sharing, as they have been transmitted to USAID by other means.

Acronyms & Abbreviations

AAHL	Australian Animal Health Laboratory
AH	Animal Health
AOTR	Agreement Officer's Technical Representative
A-PBA	Asia - Pacific Biosafety Association
ARC	Agricultural Research Council
ASEAN	Association of Southeast Asian Nations
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
AusAID	Australian Agency for International Development
BVI	Botswana Vaccine Institute
CAHEC	China Animal Health and Epidemiology Center, Qingdao, China
CAR	Central African Republic
CFIA	Canadian Food Inspection Agency
CIDA	Canadian International Development Agency
CVL	Central Veterinary Laboratory
DAFF	Department of Agriculture, Fisheries and Forestry, Australia
DFAIT	Department of Foreign Affairs, Trade and Development, Canada
DFID	Department for International Development, United Kingdom
DRC	Democratic Republic of Congo
EIDs	Emerging/Re-emerging Infectious Diseases
EPT	Emerging Pandemic Threats
EU	European Union
EURL	European Union Reference Laboratory
FAO	Food and Agriculture Organization of the United Nations
FAO-ECTAD	Food and Agriculture Organization of the United Nations Emergency Center for Transboundary animal diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific
FCO	Foreign and Commonwealth Office, United Kingdom
FMD	Foot and Mouth Disease
FVO	Federal Veterinary Office, Switzerland
GF-TADs	Global Framework for Transboundary Animal Diseases
GLEWS	FAO/OIE/WHO Global Early Warning Systems for Animal Diseases including Zoonoses
HPAI	Highly Pathogenic Avian Influenza
HQ	Headquarters
IAEA	International Atomic Energy Agency
IHR	International Health Regulations
LACEVET	Laboratoire Central Vétérinaire de Bangui
LANAVET	Laboratoire National Vétérinaire, Garoua, Cameroon
Lao PDR	Lao People's Democratic Republic
LCVK	Laboratoire Vétérinaire de Kinshasa, DRC
LNVL	Laboratoire National Vétérinaire de Libreville, Gabon
LVBD	Laboratoire de diagnostic vétérinaire de Brazzaville, Republic of Congo
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MOU	Memorandum of Understanding
NADDEC	National Animal Disease Diagnostics and Epidemiology Centre, Entebbe, Uganda
NAHL	National Animal Health Laboratory, Lao PDR
NaVRI	National Veterinary Research Institute, Cambodia
NCVD	National Center for Veterinary Diagnosis, Vietnam

NIAH	National Institute of Animal Health, Thailand
NVL	National Veterinary Laboratory
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health
OVI	Onderstepoort Veterinary Institute, South Africa
PAHC	Philippine Animal Health Center, Philippines
PPE	Personal Protective Equipment
PPR	Peste des Petits Ruminants
PT	Proficiency Testing
PVS	OIE Performance of Veterinary Services Pathway
PSVS	AusAID-funded Project on Strengthening Veterinary Services
QA	Quality Assurance
QM	Quality Management
RAB	Rwanda Agricultural Board
RAHC	Regional Animal Health Centres
RAHO6	Regional Animal Health Office Number 6, Vietnam
RARDA	National Veterinary Laboratory, Rubirizi, Kigali, Rwanda
SADC	Southern African Development Community
SEACFMD	Southeast Asia and China Foot and Mouth Disease Campaign
SOP	Standard Operating Procedures
SRR-SEA	Sub-regional Representation of Southeast Asia
STD	Scientific and Technical Department
TADs	Transboundary Animal Diseases
TVLA	Tanzania Veterinary Laboratory Agency, Temeke, Dar es Salaam, Tanzania
UK	United Kingdom
USA	United States of America
USAID	U.S. Agency for International Development
USDA	United States Department of Agriculture
VRI	Veterinary Research Institute, Malaysia
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office
YASVI	Yunnan Animal Science and Veterinary Institute, Kunming, China

Introduction:
Main progress made towards the achievement of project outcomes

The OIE IDENTIFY project has made important contributions to the EPT Program during this reporting period. In Year 4, the OIE provided **direct technical assistance for 27 distinct activities benefitting 13 IDENTIFY Animal Health Laboratories**.

IDENTIFY Laboratory Year 4 Achievements under the OIE component, by IDENTIFY Project Objective

1. *Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases*

- Infrastructure improvements, improved capacity for increased sample flow, focused disease detection capacity building, equipment, and consumables procurement, in the framework of the Special Project for the **National Animal Disease Diagnostics and Epidemiology Centre (NADDEC) of Uganda**.

- Increased capacity of Veterinary Services field personnel in porcine, avian, and bovine animal sample collection during the national field-based sample collection and management workshop implemented by the Pirbright Institute, United Kingdom under the Special Project for **NADDEC Uganda**. This effort was further boosted by procurement and distribution of PPEs, cooler boxes, ice packs and related equipment to field veterinary personnel (cross-referenced with Objective 3).

- Increased competency for laboratory technicians in Rift Valley Fever diagnostics acquired during an intersectoral hands-on training hosted by the Tanzania Veterinary Laboratory Agency (TVLA), welcoming 20 participants from **both the animal and public health laboratories** from 11 countries, including **Tanzania and DRC**.

- Improved rabies diagnosis and laboratory quality management through a proficiency testing exercise for rabies diagnosis (FAT technique) at the **Laboratoire National Vétérinaire (LANAVET) of Cameroon, Laboratoire Vétérinaire de Kinshasa (LCVK) of DRC, Tanzania Veterinary Laboratory Agency (TVLA) of Tanzania and NADDEC Uganda** conducted by the OIE Reference Laboratory for Rabies, Onderstepoort Veterinary Institute (OVI), South Africa (cross-referenced with Objective 3).

- On-the-job training (~~–~~Mini Twinning Projects") opportunities in the form of laboratory staff exchanges between a national animal health laboratory and an OIE Reference Laboratory or OIE Collaborating Centre (cross-referenced with Objective 4):

    - **Philippine Animal Health Center (PAHC) of the Philippines**
        - One staff sent to the Poultry Diagnostic Research Center of the University of Georgia, USA for support and training for Avian Mycoplasmosis.
        - One staff sent to **National Institute of Animal Health (NIAH), Thailand** for support and training for Leptospirosis and Brucellosis.
    - **NIAH Thailand**
        - One staff sent to Institute of Virology of the University of Veterinary Medicine of Hannover, , Germany for support for Classical Swine Fever.
    - **NADDEC Uganda**

- Three staff sent to the Pirbright Institute, United Kingdom for support and training for Peste des Petits Ruminants (PPR), Foot and Mouth Disease (FMD) and Capripox diagnostics.
- One staff sent to the Pirbright Institute, United Kingdom for a short course on laboratory quality management systems.

2. *Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations*

- Draft strategic plans developed and action plans drafted by each of National Animal Health Laboratories during the National Animal Health Laboratory Strategic Planning Workshops (cross-referenced with Objective 3). Participants included the laboratory director and staff of the national laboratory, the directors of regional/provincial laboratories, key players from various divisions such as the department of animal health and production, the Ministry of health and academia who work closely with the national animal health laboratory. During the workshop process, invited experts, OIE and EPT partners are also invited to provide comments and recommendations on the strategies and action plans developed by the participants. In the first three quarters of Year 4, five in-country workshops have been conducted at:
  - **National Veterinary Research Institute (NaVRI) of Cambodia**
  - **NIAH Thailand**
  - **National Center for Veterinary Diagnosis (NCVD) and Regional Animal Health Office Number 6 (RAHO6) of Vietnam**
  - **National Animal Health Laboratory (NAHL) of Lao PDR**
  - **PAHC Philippines**
- IDENTIFY project performance indicators on **IDENTIFY targeted diseases** in **IDENTIFY countries** monitored through the World Animal Health Information Database.
- Ongoing support to **all OIE National Laboratory Focal Points** in **Southeast Asia** and nomination of National Laboratory Focal Points in the **Congo Basin** region (cross-referenced with Objective 4).

3. *Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System*

- Provided Ministry of Agriculture decision makers with information to allocate appropriate resources to the National Animal Health Laboratory and to make strategic decisions to support accurate and timely diagnosis, while ensuring the sustainability of the laboratory system through the implementation of the Pilot PVS Pathway Laboratory Missions (cross-referenced under Objective 2). While traditional laboratory assessments simply score laboratory capacity based on a fixed time in space but are unable to address problems encountered in a sustainable way, the OIE PVS Laboratory Tool evaluates the current situation based on OIE international standards, fixes goals and strategic benchmarks for progress, and provides guidance based on best practices and international standards.
  - **NAHL Lao PDR** in October-November 2012. This mission was implemented in Lao PDR in order to rationalize recent investments made in the NAHL, to better understand the resources it would need in order to run efficiently, and to plan for the financial maintenance of these investments. Since NAHL had already implemented the Pilot PVS Pathway Laboratory mission and as a result was more aware of

strategic, management, human resources, and financial issues related to laboratories, they were able to better and more quickly advance in the development of their strategic plan. The involvement of senior staff from relevant ministries and key partners in the strategic planning process was crucial as the laboratory staff gained valuable insight from those who had also joined in the PVS Pathway Laboratory mission. The strategic planning activity and PVS Pathway Laboratory mission, both developed thanks to the IDENTIFY Project, go hand in hand and give animal health laboratories the tools to advance and reach their goals.

- **TVLA Tanzania** in May 2013. The PVS Pathway Laboratory mission provided guidance to TVLA in determining the essential human, physical and financial resources, given recent restructuring and reorganization of the laboratory into an independent agency structure.

4. *Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities*

- Continuing coordination and support for the animal health laboratory directors of **NaVRI Cambodia, China Animal Health and Epidemiology Center (CAHEC) and Yunnan Animal Science and Veterinary Institute (YASVI) of China, BBalitvet Indonesia, NAHL Lao PDR, Veterinary Research Institute (VRI) of Malaysia, PAHC Philippines, NIAH Thailand, and NCVD and RAHO6 Vietnam** was provided in alignment with the ASEAN Regional Framework for laboratory capacity building and networking, through the mechanism of the Laboratory Director's Forum held in Na Trang City, Vietnam, 10-11 October 2012.

- Continuing coordination and support for the Regional Technical Advisory Group Meeting, held in Bangkok, Thailand 30-31 July 2012.

- Preparation and coordination with FAO, ASEAN and host-country for the 2013 Regional Animal Health Laboratory Technical Advisory Group and the First ASEAN Laboratory Directors' Forum, 29 October – 1 November 2013 at the Phoenix Hotel Yogyakarta, Indonesia.

Activities undertaken during the reporting period
(1 April - 30 September 2013)

Project Administration and Coordination Activities (Global and Regional)

Activity 3.1: Ongoing tripartite project management and coordination, monitoring, and planning

GLOBAL

- In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO, and with the IDENTIFY AOTR at USAID, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.
- The three partners, FAO, OIE, and WHO, continued the monthly rotating Secretariat system in order to most effectively and rapidly handle communication with program partners, day-to-day operations, and logistic arrangements. This system also applies to document creation, revision and meeting hosting. The OIE hosted the IDENTIFY Secretariat in April, July, and September 2013.
- An IDENTIFY Tripartite meeting was attended by OIE in Lyon in June 2013, combined with the annual USAID IDENTIFY meeting.

CONGO

- In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

SE ASIA

- In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

Table 1: OIE and Tripartite Internal communication and coordination (including communication with USAID)

Type of Communication/ Coordination	Dates	Additional Information
Global		
Regular teleconferences (TC)	monthly Apr-Sept	Project management and planning; biannual reporting; M&E indicators and Data Calls ; Year 5 Work Plans
Report Submission to USAID	30 Apr	OIE IDENTIFY contribution semi-annual report for Year 4
Face-to-face meetings	26-27 Jun	Project management with a focus on activity planning based on Year 4 work plans; M&E framework and Data Calls; Regional coordination
TC with IDENTIFY AOTR, USAID/ PREDICT	29 Apr	Coordination of IDENTIFY/PREDICT presentations for the SEA EPT meeting in June
TC with IDENTIFY AOTR, USAID/W	11 Apr 14 May 23 Aug	Work Plan development, important Year 5 deadlines, Data Call, Project management and planning

Face-to-face meetings with IDENTIFY AOTR, USAID/W	27 Jun	Project management with a focus on activity planning based on Year 4 work plans; M&E framework and Data Calls; Regional coordination; Year 5 Work Plan development process
EPT Program meetings	-	No meeting occurred during this reporting period
Congo Basin		
TC between OIE HQ and OIE Regional Coordinator	Monthly Apr-Sept	Project management and activity planning; Progress reports on implementation of project activities; Preparations for project-related meetings
Face-to-face meetings with OIE HQ and OIE regional teams	29 May	To discuss activities proposed, provide updates on implementation and roles and responsibilities
TC between OIE Regional Project Staff	Biweekly August - September	Discussions on the OHCEA 1st International One Health Conference
EPT Program Regional Meeting, Kampala, Uganda.	10-12 July	Review of Y4 and Y5 planning. Discussions on advancement of One Health at national and regional levels.
Face-to-face meetings between FAO and OIE	12 July	Discussions on potential areas of collaboration, joint activities and joint country missions
Face-to-face meetings between WHO AFRO and OIE	12 July	Progress regarding the Africa WHO Member Countries' Regional Zoonotic Diseases Control Strategy
Meetings with other regional partners (e.g. AU –IBAR, etc.)	8 May	First Coordination meeting of SADC/FAO ECTAD/OIE/AU-IBAR
	24 May	Coordination meeting of AU-IBAR/FAO ECTAD/OIE in East Africa
	1 August	Coordination meeting of AU-IBAR/FAO ECTAD/ OIE and other partners in East Africa
	22 August	Second Livestock Coordination meeting of SADC and Regional Technical Partners (FAO ECTAD/OIE/AU-IBAR)
SE Asia		
TC between OIE HQ and OIE regional team	Monthly Apr-Sept	Project management and planning
Face-to-face meetings between FAO and OIE	30 April	Side meeting to EPT country meeting in Lao PDR. Discussion on past activities that have been done for NAHL
	14-18 May	Side meetings to Strategic Planning workshop for PAHC, Manila, Philippines
	30 May	Side meeting of EPT country meeting in Lao PDR. Discussion on past activities that have been done for NAHL and activities to be implemented by FAO/OIE in Year 5
	25-26 June	Side meetings with FAO national officer at the Cambodian Zoonotic Diseases Strategic Plan Development Workshop, Phnom Penh

	4 July	Discussion and planning of the 2013 Lab TAG and ASEAN Laboratory Directors' Forum meetings
	26 July	FAO/OIE meeting at FAO RAP office, Thailand
	7 & 9 August	Side meetings with FAO national officer at the EPT country meeting, Vietnam
	19 August	Side meeting to EPT country meeting Lao PDR
	25-27 September	Side meetings to Post Planning Workshop Follow-Up Activity for NaVRI, Cambodia
Face-to-face meetings between OIE and WHO	4-6 June	Side meetings to Second Meeting on Laboratory Strengthening for Emerging Infectious Diseases (EIDs) In the Asia Pacific Region, Manila
	16 August	Meeting with National Institute of Health (NIH) and WHO country officers on possibility of cooperation on AH-PH workshops in Year 5
	21-22 August	Side meetings with WHO national officer at the Regional Meeting on Zoonotic Diseases, Thailand
Face-to-face meetings with OIE HQ and OIE regional team	18-20 June	EPT Regional meeting and Tripartite meeting in Bangkok, Thailand
Face-to-face meetings between Tripartite partners	17 May	Side meeting of Strategic Planning workshop for PAHC, Manila, Philippines
	18-19 June	EPT Regional Meeting, Bangkok, Thailand
	20 June	Side meeting after the EPT Regional Meeting, Bangkok, Thailand
	30-31 July	Side meetings to EPT country meeting for Thailand and Malaysia (held in Bangkok)
	9 August	Side meeting to EPT country meeting, Hanoi, Vietnam

Table 2: 3.1: External project communication and coordination (including communication with EPT Partners)

Dates	Event Title	Venue	Organizer(s)	Other Information
Congo Basin				
10-12 July	Uganda country level EPT Planning meeting	Kampala, Uganda	EPT country coordinator	Monthly activities targeting Uganda

23-25 September	OHCEA[2] 1st International One Health Conference	Addis Ababa Ethiopia	OHCEA	OIE Approach to One Health
26 September	FAO OHCEA One Health Workshop	Addis Ababa Ethiopia	FAO/OHCEA	Presentation of One Health country case studies and OIE Approach
SE Asia				
30 April	EPT country meeting	Vientiane, Lao PDR	USAID	Country-level project review and planning
2-3 May	H7N9 Technical and Programmatic Coordination Meeting	Bangkok, Thailand	USAID/FAO	Exchange and update of information on H7N9 situation in China
6-7 May	USAID Partners Meeting	Guangzhou, China	USAID	Updates across projects, identify critical gaps, and harmonize complementary activities during development of annual work plans and discussion of recent avian influenza A (H7N9) events in China
30 May	EPT country meeting	Vientiane, Lao PDR	USAID	Country-level project review and planning
4-6 June	Second Meeting on Laboratory Strengthening for Emerging Infectious Diseases (EIDs) In the Asia Pacific Region	Manila, Philippines	WHO WPRO	Exchange and update of information of a national public health laboratory work plan for the surveillance of and rapid response to EID
18-19 June	EPT Regional Meeting	Bangkok, Thailand	USAID	Project review and planning
24 June	Technical and Policy Discussion on the Prevention and Control of Avian Influenza A	Bangkok, Thailand	USAID, MoAC (Thailand) and MoH (Thailand), FAO, OIE, WHO, CDC	Share the lessons learned from actions undertaken by Gov. of China on H7N9 crisis, discuss risks and scenarios of the H7N9 situation in

[2] One Health Central and Eastern Africa

	(H7N9) in Asia			the region and the possible mitigation measures in short-, medium- and longer-term. Participants were representatives from AH-PH sectors of each SE Asian government and related international organizations
25-26 June	Cambodian Zoonotic Disease Strategic Plan Development Workshop	Phnom Penh, Cambodia	USAID	Draft Strategic Plan for Zoonoses Control in Cambodia Work Plan 2014-2018
30 July	EPT Thailand country meeting	Bangkok, Thailand	USAID	Country-level project review and planning
31 July	EPT Malaysia country meeting	Bangkok, Thailand	USAID	Country-level project review and planning
9 August	EPT country meeting	Hanoi, Vietnam	USAID	Country-level project review and planning
13-15 August	South East Asia Regional Wildlife Health Capacity Assessment & Networking Forum	Bangkok, Thailand	RESPOND, USAID	Brought together ASEAN government agencies with oversight over wildlife health and conservation, universities and other organizations that contribute to strengthening capacity in wildlife health
19 August	EPT country meeting	Vientiane, Lao PDR	USAID	Country-level project review and planning
20-22 August	Regional Meeting on Zoonotic Diseases	Chiang Mai, Thailand	WHO-SEARO	To strengthen national and regional capacity for prevention and control of zoonoses
30 September	Celebration of World Rabies Day	Kampong Cham, Cambodia	MoH (Cambodia)	WRD celebration will be held at Ta Ngal Village, Kvet Thom Commune, Precy Chhor District, Kampong Cham. The village is under — Healthy Livestock,

				Healthy Village, Better life" supported by World Bank

Activity 3.2: Recruitment of staff to support IDENTIFY activities

GLOBAL

- Ongoing employment of Global OIE IDENTIFY Project Coordinator, OIE HQ, Paris.
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 4 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the global activities in ***Annex 2***, which require either no additional resources beyond staff support or only a limited budget.
- Ongoing employment of Global OIE IDENTIFY Financial and Administrative Coordinator, OIE HQ, World Animal Health and Welfare Fund, Paris
  - The OIE IDENTIFY Financial and Administrative Coordinator is responsible for all financial aspects related to administrative activities, including financial reporting, budgets, official communications with USAID, and Work Plan development.

CONGO

- Ongoing employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Gaborone
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 4 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the Congo activities in ***Annex 2***, which require either no additional resources beyond staff support or only a limited budget.
- Ongoing employment of Regional OIE IDENTIFY Project Support, OIE SRR Nairobi
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 4 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the Congo/East Africa activities in ***Annex 2***, which require either no additional resources beyond staff support or only a limited budget.

SE ASIA

- Employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Bangkok
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 4 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the South and Southeast Asia activities in ***Annex 2***, which require either no additional resources beyond staff support or only a limited budget.

Activity 3.3*:* Preparation and review of global, regional, and country-level work plans and other project documents

GLOBAL

- The OIE IDENTIFY Year 5 Work Plan was submitted to USAID and FAO on 29 Aug. The OIE was still awaiting approval of this work plan as of 30 September 2013.
- The first semiannual report for Year 4 (1 Oct 2012-31 Mar 2013) was prepared by OIE and submitted to USAID on 30 Apr 2013.
- Preparation of the second semiannual report for Year 4 (1 Apr - 30 Sept 2013) began in September. The present report on activities conducted is due to USAID on 31 Oct 2013.

CONGO

- Discussions were initiated between the regional IDENTIFY Focal Points (FAO/OIE/WHO) concerning collaboration and Year 5 work plans during the project period.
- The regional and country work plans for Year 5 were developed in June and July and draft plans were presented to USAID at the Annual Regional Program Meeting in Kampala, Uganda in July 2013.
- Preparation of the second semiannual report for Year 4 began in September 2013.

SE ASIA

- The Year 4 Work Plan activities were refined and planning began in consultation with country-level laboratory representatives and in collaboration with FAO and WHO to reflect country needs and various meeting recommendations.
- Preparation of the second semiannual report for Year 4 began in September 2013.

Activity 3.4*:* Communication tool development and resource building

CONGO

- There is regular contact and exchange of information on activities implemented between OIE IDENTIFY coordinators (Gaborone and Nairobi) and laboratory directors through existing regional networks.
- The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings.
- The IDENTIFY regional coordinators initiated a tripartite poster –FAO, OIE and WHO Laboratory Programme in Africa" to improve communication to the stakeholders regarding tripartite activities in the Congo Basin. The poster is currently undergoing review.
- Activities of the OIE in relation to the IDENTIFY project have been posted and maintained on the OIE Africa website[3] to contribute to USAID, EPT Program, and IDENTIFY project visibility. Upcoming events, reports and updates on IDENTIFY project activities are posted on the pages including reference materials.

SE ASIA

- There is regular contact on activities implemented between the OIE IDENTIFY coordinator in Bangkok and laboratory directors through existing laboratory networks.
- The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings, as well as with USAID and EPT Partners.
- A specific web page for the IDENTIFY project has been maintained on the OIE Sub-regional representation's website[4] to contribute to USAID, EPT Program, and IDENTIFY project visibility.
- The quarterly SEACFMD newsletter outlines activities undertaken by the OIE Sub-Regional Representation for South East Asia; the first issue of 2013 presented IDENTIFY activities (see ***Annex 3***), including the strategic planning workshops for NAHL Lao PDR and PAHC Philippines as well as the introduction of the new IDENTIFY Project Coordinator for Southeast Asia.

[3] At: http://www.rr-africa.oie.int/en/news/20121010.html
[4] At: http://www.srr-seasia-oie.com/programs/identify

Activity 3.5*:* Annual review of the Laboratory Networking Strategy and Project Monitoring and Evaluation Framework

GLOBAL

- **3.5.1G:** The OIE IDENTIFY Project Team along with its two partner organisations further elaborated the IDENTIFY project performance indicators and end of project targets in the project period.
    - USAID launched a Monitoring and Evaluation (M&E) initiative in Nov 2011 and requested the IDENTIFY Partners to further refine their performance indicators. FAO/OIE/WHO reviewed these indicators and integrated them into the EPT/IDENTIFY Project Indicators Framework requested by USAID (see ***Annex 4***). This document provides the framework for monitoring project progress and laboratory capacity over the project period.
    - The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity in the hot spot regions of the IDENTIFY project are housed within WAHID and IDENTIFY project documents. The analysis of the data has already provided valuable baseline and midterm information and historical trend information to OIE, and will inform OIE, FAO, and WHO of the actual situation as the project progresses.
    - In the latest data call submitted to USAID, some improvements of the results for IDENTIFY-targeted laboratories and targeted countries since 2009 was observed for all the IDENTIFY Project Indicators measured.
    - As a result, the methodology has been improved. FAO, OIE, and WHO worked together with USAID to keep only the most informative data, and remove all the indicators that seemed unclear.
- The OIE developed a tool to extract more easily information from the World Animal Health Information Database (WAHID). This tool facilitated the extraction of WAHID data for the measurement of the performance indicators for the Monitoring and Evaluation (M&E) initiative, and facilitated other analyses of WAHID data.

CONGO

- The OIE, FAO and WHO held coordination meetings in July in order to identify common areas of collaboration and joint interventions. OIE and FAO identified areas such as joint capacity assessment missions, communications enhancement and field to laboratory support documents.
- OIE actively participated in the OHCEA One Health conference and subsequent meetings to facilitate participating countries implementation of One Health.
- In the efforts to advance one Health at regional and national levels, OIE shared information with the delegations of Uganda and Rwanda regarding OIE programs under the PVS Pathway that can be used to advance One Health. These include –A Guide to Veterinary Education Twinning Projects" and –OIE Guidelines on Veterinary Education Core Curriculum".

SE ASIA

- The OIE, FAO and WHO held coordination meetings in June in order to identify common areas of collaboration and joint interventions.
- Presented M&E results at the Annual regional meeting in June 2013 (see ***Annex 5***).

Technical Capacity Building Activities

Activity 3.6[5]: Follow-up of laboratory mapping exercise activities

GLOBAL

- The refinement of the project performance indicators and end-of-project targets (of the Tripartite M&E framework) continued throughout this reporting period. The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity and the laboratory function's impact on field activities, including surveillance and control measures, in the hot spot regions of the IDENTIFY project have been reviewed and discussed with all partner organizations and USAID.
    - The utility and reliability of each indicator have been analyzed and described, so that the results can be fully understood and well interpreted.
    - The number of indicators have been reduced, in order to keep only the most powerful and informative indicators in relation with the IDENTIFY project.
    - For some indicators, further explanations and analysis will be performed in order to better reflect the situation in IDENTIFY targeted countries.
    - These analyses will mostly be for the IDENTIFY project Objective 2 in relation to disease reporting in a timely manner.
    - The OIE maintained a contract with a Veterinary Epidemiologist, having perfect knowledge of the functioning of the surveillance system of the OIE (World Animal Health Information System, WAHIS), to conduct this sub-activity.
- The descriptive analysis of the World Animal Health Information Database (WAHID) for IDENTIFY priority diseases, countries, and laboratories continued throughout this reporting period. This included conduct of the analysis, preparation of the results and the report, development of tables, graphs, and maps.
    - In the latest Data Call, OIE conducted an analysis of laboratory capacity based on the most recent reports received by the OIE from IDENTIFY countries and of their evolution since the official start of the IDENTIFY Project (Oct 2009).
    - Improvements of the results for IDENTIFY-targeted laboratories and targeted countries since 2009 was observed for all the IDENTIFY Project Indicators measured.
    - OIE examined surveillance and control actions for IDENTIFY targeted diseases implemented by IDENTIFY countries in comparison with regional and global means and trends in order to establish a qualitative score and target areas in need of additional capacity building efforts. These areas are linked to laboratory capacity building because laboratory results inform the implementation of and methods chosen for surveillance and control.
    - A computer programmer assisted the Animal Health Information Department to conduct the above-described analyses. A web-based tool was developed, facilitating automatic data extraction from the WAHIS Database. Numerous automatic extractions have been developed, which assist WAHID to more efficiently and quickly access and analyze emerging and normative IDENTIFY-targeted disease information. Having usable datasets allows easier analysis of zoonotic disease situation in a routine and *ad hoc* manner.
- Implementation and further development of the Pilot OIE PVS Pathway Laboratory Mission and Tools, the veterinary laboratory component of the OIE PVS Pathway,

[5] For information on the activities at the country level conducted during this reporting period, please see individual country achievement tables on **pg. 26**.

occurred during the reporting period. This activity aims to develop and implement a specific decision making tool and mission, requested by national veterinary services, for the assessment of the National Animal Health Laboratory System to meet the needs of the National Veterinary Services objectives as identified in the PVS Gap Analysis Mission. Outcomes of this activity will allow national Veterinary Services decision makers to better allocate appropriate budgets to the National Animal Health Laboratory and better advocate for sufficient resources to support accurate and timely diagnosis of IDENTIFY priority animal diseases.

- After the first pilot mission in Lao PDR 27 Oct-6 Nov 2012, the PVS Pathway Laboratory Mission Manual and Tools were refined based on the experience of the expert team.
- The second PVS Pathway Laboratory mission was planned and executed in Tanzania with the Tanzania Veterinary Laboratory Agency 5-19 May 2013.
- The manual, methodology and tools for the Pilot OIE PVS Pathway Laboratory Mission were revised following the second pilot mission.
- Following internal validation procedures, the pilot tools were provided to the Biological Standards Commission of the OIE and comments and revisions were proposed and integrated. Concurrently, a peer review process with OIE-certified PVS Pathway and OIE PVS Pathway Laboratory Experts took place.
- Validation of the tool will occur at the next meeting of the Commission in early 2014.
- Planning occurred late in the project period to develop the PVS Pathway Laboratory Mission expert training projected for early Year 5 (not financed by this project).
- The OIE maintained a contract with an OIE-certified PVS Pathway Expert (not financed by this project) and Laboratory Experts to work with the IDENTIFY team to conduct this sub-activity.

- Further curriculum development of the second phase of the pilot National Focal Point Training for Veterinary Laboratories continued during the reporting period. Formally establishing an institutional link—that goes beyond just the training of individuals—between OIE National Focal Points for Veterinary Laboratories and CVOs speaks to the strong support for the use of laboratory diagnostic information for notifying exceptional events to the OIE, an important aim of the IDENTIFY project, as well as contributing to increased disease transparency in the world.
  - In July 2013 all OIE Delegates were invited to nominate a National Focal Point for Veterinary Laboratories with follow up communications occurring at the regional and sub-regional representations level in September.
  - As of 30 Sept, 75% of SE Asian countries and 25% of Congo Basin countries had nominated a National Focal Point for Veterinary Laboratories.

CONGO

- Communication and follow-up concerning the Pilot PVS Pathway Laboratory Mission with the Tanzanian Delegate occurred during the reporting period. Follow-up with the Tanzania Veterinary Laboratory Agency (TVLA) led to acceptance of Tanzania to request the pilot mission and it was conducted 5-19 May 2013. This will benefit TVLA and give strategic, organizational, and financial options on how to best position the national laboratory to offer services to the country and the region based on current and prospective demand for laboratory services.
- Laboratories were requested to update their testing/diagnostic capacities on the OIE WAHIS/WAHID system.

Table 3: 3.6: National Animal Health Laboratory Visits			
Dates	**Venue**	**Organizer(s)**	**Other Information**
Congo			
9-18 April	TVLA, Dar es Salaam, Tanzania	OIE, TVLA, OVI	Rift Valley Fever Training
5-19 May	TVLA, Dar es Salaam, Tanzania	OIE, TVLA	Pilot PVS Pathway Laboratory Mission
14-16 May	Rwanda	OIE	Country Mission : PVS Pathway status, meeting with RAB staff and OIE National Focal Points on their responsibilities and mandates
13 June	TVLA, Dar es Salaam, Tanzania	OIE	Meeting with Head of the Centre of Infectious Diseases and Biodiversity (CITB- TVLA) on LoA, training workshop and visit to new laboratory to review progress of new laboratory (CIDB) and infrastructure.
SE Asia			
30 April	NAHL, Vientiane, Lao PDR	OIE, NAHL	Laboratory visit, review of and comments on past activities, discussion with key staff for Year 5 activities
10 June	NIAH, Bangkok, Thailand	OIE, NIAH	Meeting with director and keys staff and discussion of past and planned activities
25 June	NaVRI, Phnom Penh, Cambodia	OIE, NaVRI	Meeting with key staff and discussion of past and planned activities
7 August	NCVD, Hanoi, Vietnam	OIE, NCVD	Meeting with key staff and discussion of past and planned activities
8 August	RAHO6, Ho Chi Minh City, Vietnam	OIE, RAHO6	Meeting with director and discussion of past and planned activities

Activity 3.7*:* Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

CONGO

- The concept note on Rift Valley Fever (RVF) developed by the OIE SRR led to secured funding for training, held in April 2013, of laboratory technicians in the diagnosis of the disease. A training program, invitations to speakers and participants, certificates of training and related materials were developed and training laboratory identified as Tanzania Veterinary Laboratory Agency`s Centre for Infectious Diseases and Biotechnology in Dar es Salaam. 26 participants from animal health and public health laboratories from: Angola, Botswana, Eritrea, Ethiopia, **Democratic Republic of Congo**, Madagascar, Malawi, Mauritius, Mozambique Namibia, **Tanzania**, Zambia and Zimbabwe were invited. Trainers were from OIE Reference Laboratory for RVF, OVI in

South Africa, CDC Kenya, Sokoine University and TVLA of Tanzania (see ***Annex 6*** for training report and evaluations).

- The OIE worked with FAO regarding OIE's contribution to the FAO OHCEA Workshop ―One Health Country Case Studies" that was held in Addis Ababa, Ethiopia, 26 September 2013. The OIE facilitated the group discussions to develop road maps and highlighted the OIE tools available for the advancement of One Health. OIE Delegates of Democratic Republic of Congo and Djibouti were present among participants from other countries (Republic of Congo, Ethiopia, Gabon, Kenya, Rwanda, Tanzania, and Uganda). This was very useful as the countries presented a complete picture of their approaches to the One Health concept and their experiences (see ***Annex*** 7).

SE ASIA

- The 2013 Regional Animal Health Laboratory Technical Advisory Group (Lab-TAG) meeting was under preparation and to be held 29-30 October in Yogyakarta, Indonesia. The meeting will discuss the progress in integrating the Regional Laboratory Network (RLN) within ASEAN, existing RLN laboratory capacity building programs, and issues related to the avian influenza H7N9 virus. In addition, as 2014 marks the final year of the USAID Emerging Pandemic Threats (EPT) Program and the European Union Highly Pathogenic Emerging Diseases (HPED), the meeting will provide a good opportunity for discussion of achievements of these projects and future direction of the RLN laboratory capacity building program and potential funding resources (see ***Annex 8***).
- Since the ―Regional Strategic Framework for Laboratory Capacity Building and Networking in ASEAN" was endorsed by ASEAN in August 2013, the Laboratory Directors' Forum is now designated the ASEAN Laboratory Directors' Forum. The meeting for the First ASEAN Laboratory Directors' Forum was under preparation and to be held 31 October - 1 November in Yogyakarta, Indonesia. In alignment with the progress on engagement of the ASEAN Strategic Framework for Laboratory Capacity Building and Networking, the ASEAN Laboratory Directors' Forum will be held for the first time in close consultation with the ASEAN Secretariat and convene the directors of the national veterinary laboratories from all of the ASEAN member states (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Singapore, Thailand, and Viet Nam) (see ***Annex 9***).
- OIE implemented with country partners from the Veterinary Services and National Laboratory Services three Strategic Planning Workshops (see ***Table 4*** and Activity 3.9 for additional information) in which stakeholders came together to discuss the long-term vision, goals and strategies for their national animal health laboratories.
    - NCVD, Vietnam (see ***Annex 10*** for report)
    - NAHL, Lao PDR (see ***Annex 11*** for report)
    - PAHC, Philippines (see ***Annex 12*** for report)
- Planning and coordination for upcoming Strategic planning workshops occurred during the reporting period. The workshop reports will be available in the next semi-annual report for the OIE IDENTIFY Project.
    - CAHEC, China, planned for 9-12 October 2013
    - YASVI, China, planned for early 2014
    - VRI, Malaysia, planned for mid-2014
- The Follow-up Strategic Planning workshop was developed and implemented with country partners from the Veterinary Services and National Laboratory Services at NaVRI, Cambodia on 26-27 September. The workshop report will be available in the next semi-annual report for the OIE IDENTIFY Project.

- Planning and coordination for the upcoming Follow-up Strategic Planning workshop occurred during the reporting period for NAHL, Lao PDR in December 2013. The workshop report will be available in the next semi-annual report for the OIE IDENTIFY Project.

Table 4: 3.7S: National Animal Health Laboratory Strategic Planning and Follow-up Workshops in Southeast Asia

Dates	Event Title	Venue	Comments
1-5 April	Strategic Planning Workshop for NAHL	Vientiane, Lao PDR	Workshop to develop draft 5-year Strategic Plan for NAHL. Participants included representatives from NAHL, Public Health and Education sectors, and staff from Provincial offices. Observers/ commentators included WHO and CDC
14-18 May	Strategic Planning Workshop for PAHC	Manila, Philippines	Workshop to develop draft 5-year Strategic Plan for PAHC. Participants included representatives from PAHC and RADDLs. Observers/ commentators included FAO and WHO
26-27 September	Follow-Up Strategic Planning Workshop Activity for NaVRI	Prea Sihanouk, Cambodia	Revised draft strategic plan and identified key activities to support AI diagnostic laboratory capacity of NaVRI

Activity 3.8*:* Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Table 5: 3.8: Support of country representatives in international and regional meetings/conferences

Dates	Event Title	Venue	Organizer(s)	Participating IDENTIFY Countries	Other Information
Congo Basin					
3-5 April	SADC Epidemiology and Informatics Sub Committee Meeting I	Gaborone, Botswana	FAO	DRC, Tanzania	Rabies Strategy
10-12 June	Workshop on PPR Prevention and Control in the SADC region	Dar es Salaam, Tanzania	OIE / FAO	DRC, Tanzania	Regional PPR strategy
SE Asia					
8-19 April	Laboratory Staff Exchange: 2 Week Training Program for the training in techniques for the diagnosis of Classical Swine Fever	EURL, Hannover, Germany	OIE	NIAH, Thailand	As well as training in diagnostic techniques, the exchange provided to opportunity to engage in the OIE Network of Expertise

					and discuss future capacity building activities including OIE Laboratory Twinnings
29-30 October	The 2013 Regional Animal Health Laboratory Technical Advisory Group (Lab-TAG) meeting	Yogyakarta, Indonesia	OIE, FAO	NIAH, VRI, NCVD, RAHO6, FMD Reference laboratory	under preparation
31 October-1 November	First ASEAN Laboratory Directors' Forum	Yogyakarta, Indonesia	OIE, FAO	All ASEAN laboratories	under preparation

CONGO

- Information on planned trainings for Year 4 of the project was shared between FAO/OIE/WHO and other EPT partners including through the Central Desktop. Opportunities for joint trainings and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.

SE ASIA

- Information on planned trainings for Year 4 of the project was shared between FAO/OIE/WHO. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.

Activity 3.9*:* Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

CONGO

- A training workshop on the diagnosis of RVF for laboratory technicians from both the veterinary and public health sectors was conducted in Tanzania for 22 participating countries. Training involved both sectors so as to enhance collaboration between the sectors at the national level, which was thoroughly appreciated by the participants. This contributed to the advancement of One Health approach in the diagnosis of RVF which is a reemerging disease in East and southern African countries. The disease was identified as a priority under viral hemorrhagic fevers by the Congo Basin Countries. The objective of the training was to enhance the participating laboratories' ability to detect RVF, report timeously and adopt appropriate biosafety and biosecure measures while conducting zoonotic diseases using international standards. Training involved both presentations and practical exercises on testing procedures using Enzyme Linked Adsorbent Assay (ELISA), Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), culture and virus isolation. Participants were briefed on international standards of the OIE and WHO, biosafety and biosecurity. The presence of Experts from OIE Reference Centres allowed the participants to be aware of these centres in the case of confirmation of the disease in

case their country had no capacity. Networking between the technicians of both sectors at the country level was enhanced and established at the regional level.

- Participants from Cameroon, Central African Republic, Democratic Republic of Congo, Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Kenya, Rwanda, Sudan, Tanzania and Uganda were trained on the new version of the OIE's *World Animal Health Information System* (WAHIS) and corresponding *Database* (WAHID). The regional training seminar targeted OIE National Focal Points for the notification of animal diseases and was held in Nairobi, Kenya. A record number of 48 countries took part in the three-day course, including, non-Member Country South Sudan.

SE ASIA

- As part of the follow-up to the initial training workshop for appointed OIE National Focal Points for Veterinary Laboratories for IDENTIFY countries (as well as the remainder of ASEAN+3 countries), in support to the Pilot National Focal Point for Veterinary Laboratories Programme and Network, OIE has maintained ongoing email contact with National Focal Points to encourage them to follow the progress of the OIE Biological Standards Commission and engage in the OIE Laboratory Standards/Guidelines setting/updating process. The aim of the programme is to provide the opportunity, among other aspects, of good governance concepts to OIE Members, to explain and clarify the role and responsibilities of the OIE National Focal Points nominated by the OIE Delegate, and to facilitate consistency and harmonization amongst OIE Members when assigning duties to these officials.
- OIE organized several Strategic Planning workshops in the Southeast Asia IDENTIFY laboratories in collaboration with country Governments (see Activity 3.7 and Table 4 for additional information).
    - The IDENTIFY-supported workshops set out to develop strategic, long-term plans for the management, resourcing and future development of the laboratories within existing frameworks.
    - These workshops also provided the opportunity for staff to gain experience and training in strategic planning techniques including strategic evaluation of the organization, stakeholders, and the laboratory's role and responsibility within the country's Veterinary Services. The specific objective of the workshops was to develop a 5-year strategic plan for each laboratory and on the final day of each workshop, a draft plan is presented to the group. Further refinement of these Strategic Plans will occur in consultation with the participants, facilitators, observers and commentators. These workshops have been well-received and there was a high level of enthusiasm and engagement by participants.
- In 2012 and in cooperation with FAO and WHO Bangladesh country officers, discussions between Animal Health (AH) and Human Health (HH) authorities at the national level occurred to confirm the possibility to hold a 4-Way Linking Project related to avian influenza country workshop in Bangladesh. The Ministry of Health and Family Welfare and the Ministry of Fisheries and Livestock both approved the project.
    - A review mission to Bangladesh is planned and will take place 16-23 November 2013.
    - Participants to this mission are representatives of the Tripartite organisations and will be the project launch in Bangladesh. It aims to map the national systems and infrastructure for epidemiologic and laboratory investigations in the animal and human health sectors; identify strengths and linkages among the four information streams; identify gaps as well as key areas for strengthening; and engage the national partners.
    - In order to both model cross-sectoral collaboration and take advantage of different expertise, the mission team will jointly conduct all visits to both animal health and

human health institutions (HH and AH offices and laboratories, universities, avian influenza reference centres, etc.).

- All existing documentation including national policy and strategies, results of previous assessments, including FAO field missions, OIE PVS missions, WHO IHR missions, and assessments conducted by external experts, will be reviewed. Mission debriefings will be held at the end of the mission so that key partners from the four streams, as well as FAO, OIE, and WHO, funding partners, in-country international development agencies, and other stakeholders can discuss and confirm that the mapping is accurate. Priority gaps to be addressed in the workshop will be identified, and ideas about the workshop itself will be defined.

- OIE supported three staff members from National Animal Health Laboratories in IDENTIFY countries to gain experience and technical guidance from OIE Reference Laboratories (laboratory staff exchanges). The objective of this activity is provide the opportunity for the laboratory to refine/learn new diagnostic techniques, engage with the global network of expertise, and to better understand any issues surrounding the development and maintenance of techniques/expertise for the diagnosis of the diseases.
  - One staff member from PAHC, Philippines visited the OIE Reference Laboratory for Avian Mycoplasmosis: University of Georgia Poultry Diagnostic & Research Centre (UG), Athens, USA during 8-26 Oct. UG provided on the job training in aspects of molecular diagnosis culture, serology for mycoplasma, as well as result interpretation. (see ***Annex 13***)
  - One staff member from PAHC, Philippines visited the OIE Twinning Candidate Laboratory for Brucellosis: NIAH, Bangkok, Thailand during 7-25 January 2013. NIAH provided on the job training in aspects of diagnosis of both Brucellosis and Leptospirosis.(see ***Annex 14***)
  - The organization of one more staff exchange has been underway during this reporting period and was implemented in 8-19 April. This exchange involves one staff member from NIAH, Thailand to visit the OIE Reference Laboratory for Classical Swine Fever, University of Veterinary Medicine, Hannover, Germany. (see ***Annex 15***)

Activity 3.10*:* Promote and support laboratory quality management

CONGO

- Support for participation in a Proficiency Testing exercise to confirm quality of results for rabies was continued with OIE Reference Laboratory for Rabies OVI-ARC, South Africa. The following activities have occurred:
  - Veterinary import permits from 16 participating countries were received by OVI ARC and follow up communication occurred with other laboratories;
  - Reagents/panel of sample plates were dispatched to 16 laboratories by courier to the laboratories that had provided import permits (Uganda, Nigeria, Sudan, Congo, Tanzania, Malawi, Botswana, Lesotho, Swaziland, Zimbabwe, Namibia, Democratic Republic of Congo, Mozambique, Zambia, Allerton Provincial Laboratory, South Africa, Cameroon).
  - Documents (import permits, acknowledgement and report forms) have been sent to all participating laboratory directors.
  - A preliminary report has been produced though there were two outstanding results to be received.

- The main observation was that for the 2012 proficiency test (PT) exercise, the sensitivity and specificity were found to be **86.8%** and **78.0%** respectively compared with 80% and 65.4% for the 2011 PT exercise. The specificity and sensitivity of the actual test (FAT) is approximately 100% and between 99.2% and 99.9%. Although the sensitivity and specificity results show a remarkable improvement from the 2011 exercise, the performance of 5 laboratories warrants backstopping missions since there are more challenging issues. Republic of Congo was still to conduct the test and submit results at the end of the reporting period. Other countries will be followed up to participate in the next round. The preliminary proficiency testing report is included as ***Annex 16***.

- The PT exercise will be followed up by backstopping missions in some struggling IDENTIFY countries in Year 5.

SE ASIA

- Aiming to provide an overall Quality Management structure within the laboratory by working with the Laboratory Focal Point to promote the overriding principles of Quality Assurance (QA) the OIE plans engage a consultant to develop or strengthen the Laboratory's Quality Manual aligned with the OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases in several IDENTIFY Laboratories in Year 5. This quality management system activity proposes to assist less developed laboratories to improve general quality assurance within OIE guidelines and to guide more developed laboratories in obtaining a level of performance acceptable for accreditation. In-country consultation with each national animal health laboratory to conduct a risk assessment and make recommendations to establish/enhance their QMS tailored to the laboratory's situation based upon the OIE guidelines has already occurred in two countries: Cambodia and Thailand. In late 2013, a mission to the national animal health laboratory of Vietnam, Lao PDR, Malaysia, or the Philippines is targeted to occur given funding.

Activity 3.11*:* Provision of laboratory equipment and supplies in a coordinated manner

Procurement activities under the OIE IDENTIFY Project occur only in the framework of OIE Twinning Projects (Special Projects, see 3.13)

Activity 3.12*:* Support and promote laboratory networks

CONGO

- Discussions were held between the IDENTIFY project coordinator and Onderstepoort Veterinary Institute and the Pirbright Institute concerning their potential involvement in various IDENTIFY activities including rabies diagnosis. Botswana Veterinary Institute has shown interest in Twinning with Cameroon (LANAVET) on capacity building on FMD diagnosis. Botswana temporarily suspended the proposal in order to strengthen the laboratory aspect due to staff changes. Discussion between the laboratories will continue in October.
  - Pirbright Institute concluded their focused laboratory capacity building project with NADDEC, an extension of the existing OIE Twinning Project on improved diagnostic capacity.
  - Detailed discussions with OVI-ARC OIE Reference Laboratory for Rabies and Rift Valley Fever were held regarding their input on the PT exercise and backstopping

missions, and diagnostic trainings planned in Years 4 & 5. OVI participated as an OIE Expert in the RVF training in April in Dar es Salaam.

- Nominations for OIE National Focal Points for Laboratories was made and reminders were sent to the OIE Delegates to nominate the Laboratory focal points which will create a network within the region and at the national level (see 3.6.6 G).

Table 6: 3.12: OIE support for networks for improving laboratory capacity and networking in hot spot regions

Dates	Event Title	Venue	Organizer	Other Information
Congo Basin				
3-5 April	SADC Epidemiology and Informatics Sub Committee Meeting I	Botswana	FAO	Tanzania and DRC attended the meeting where Tanzania provided updates and linkages from the East Africa Epidemiology network
14-16 May	FMD sample submission to OIE Reference Laboratory	Rwanda	OIE	Establishment of linkages between BVI and Rwanda (RAB) on submission of FMD samples
16-19 July	Joint EAREN and EARLN Network meeting	Bujumbura, Burundi	FAO	OIE participation and technical support to network activities
25-27 June	Regional Training workshop of OIE National Focal Points for animal disease reporting	Kenya	OIE	Focal points were trained on the new version of WAHIS/WAHID to improve disease reporting
SE Asia				
29-30 October	The 2013 Regional Animal Health Laboratory Technical Advisory Group (Lab-TAG) meeting	Yogyakarta, Indonesia	OIE, FAO	· under preparation · NIAH, VRI, NCVD, RAHO6, FMD Reference laboratory
31 Oct-1 Nov	First ASEAN Laboratory Directors' Forum	Yogyakarta, Indonesia	OIE, FAO	· under preparation · All ASEAN laboratories

- The SADC Rift Valley Fever Working Group meeting, though not sponsored by OIE IDENTIFY, offered the OIE the opportunity to outline the linkages between the OIE Reference Laboratory for RVF ARC – OVI and national/central veterinary laboratories and the support it should offer under its mandate as the OIE Reference Laboratory. The Reference Laboratory diagnostic capacity was discussed and will benefit all OIE Member Countries, including IDENTIFY countries and their National Laboratories. The development of the animal health component of the regional RVF Control strategy is guided by OIE international standards. OIE works closely with SADC in developing the strategy.
- OIE Reference Laboratories and Collaborating Centres in the African region are prepared to offer expertise on diseases and technical areas relevant to the region. The OIE will continue working with the IDENTIFY laboratories to link up expertise with needs of the IDENTIFY laboratories in the form of focused capacity building and training opportunities:

- The Botswana Vaccine Institute (BVI) has pledged its support to the activities of national veterinary laboratories in the Congo Basin through availing their expertise to upcoming meetings, technical support to FMD sample collection, preservation, shipping, documentation and diagnostics. BVI is ready to provide expertise for various activities of the OIE IDENTIFY Project with respect to the multiple disease expertise available. Recently linkages were established and FMD samples from Rwanda were sent to BVI for diagnosis.
- Onderstepoort Veterinary Institute (OVI) has pledged its support to the activities of national veterinary laboratories in the Congo Basin through availing their experts, technical support for sample collection, documentation and diagnostics. OVI is ready to provide expertise for various activities of the OIE IDENTIFY Project with respect to the multiple disease expertise available.

Activity 3.13*:* Support and promote laboratory twinning initiatives and partnerships

GLOBAL

- Discussions on several potential OIE Laboratory Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases (see Sub-activity 3.13.1C). OIE Twinning projects are approved and overseen at the HQ level with involvement from regional counterparts. The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.

CONGO

- Discussions about several potential OIE Laboratory Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases.
  - Botswana/Cameroon on FMD, temporarily suspended the proposal in order to strengthen the laboratory aspect.
  - France/Tanzania on PPR, in the advanced stages of the process
  - Kenya and Spain on ASF
  - Sudan and UK on Brucellosis
  - France/South Africa/Ethiopia on RVF
- The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.
- The OIE Laboratory Twinning Program, in support of the advancement of the laboratory networks and diagnostic capacity, was discussed with stakeholders in technical meetings of veterinary laboratories and epidemiology networks of Southern and Eastern African countries, regional and international conference where laboratory capacity building was discussed.
- The Special Project for focused laboratory capacity building for NADDEC in Entebbe, Uganda in the framework of the Special Project for Additional Support for OIE Laboratory Twinning Projects concluded during this project period (see ***Annex 17***).
  - The aim of this IDENTIFY activity is to improve the accurate and timely diagnosis of animal diseases in Uganda and in the Congo Basin region by stimulating sample flow from the districts in the field to the national veterinary laboratory through training on disease identification.

- Additionally, the project aims to set up and standardize a national serum and virus bank for improved testing, initiating research projects and collaborations with other institutions; provide capacity for the early disease detection and diagnosis of livestock diseases through efficient and effective national veterinary surveillance and diagnostic systems; augment the laboratory's capacity to standardize and evaluate selected serological and molecular tests and set up tissue culture facilities for virus isolation; conduct proficiency testing exercises; refurbish existing animal facilities and improve laboratory biosafety and which will open up the possibility of using animal infections to develop diagnostic material and test vaccines through animal experiments; purchase essential equipment in order to increase the diagnostic capacity of the laboratory and enable further tests to be carried out; evaluate and streamline the existing laboratory quality management, biosecurity and biocontainment standards and implement various measures to improve biosecurity level of the facilities; stimulate further national and international collaborations for enhanced disease diagnosis and effective control in the Eastern and Central African region; and collaborate with Kenya on FMD testing and with UVRI and Makerere University. Makerere University Veterinary Faculty was also used for other diagnostic tests.

Activities undertaken during the reporting period, by country

Congo Basin Regional Activities

Democratic Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Rabies PT exercise on FAT	Oct 2012 – Apr 2013	CVL-Kinshasa	Satisfactory performance Follow up recommended
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Training Workshop on Rift Valley Fever Diagnostics for Laboratory Technicians	15-18 Apr	Dar es Salaam	Two participants (AH and PH laboratories) were trained.
Appoint OIE National Focal Point for Laboratories	Sept	Kinshasa	Communications to remind the Delegate to make a nomination
Uganda Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Uganda country level EPT Planning meetings	July	Kampala Uganda	Submission of planned activities to the EPT Coordinator and partners present to share proposed activities for improved coordination and potential collaboration
Rabies PT exercise on FAT	Oct 2012 – Apr 2013	NADDEC	Satisfactory performance Follow up recommended
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Assistance to develop a laboratory sample submission guide	July	NADDEC	Initial discussion s and information exchange to identify priority diseases
Cameroon			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Rabies PT exercise on FAT	Oct 2012 – Apr 2013	LANAVET	Satisfactory performance
Gabon			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Rabies PT exercise on FAT	Oct 2012 – Sept 2013	LVBD	Testing still pending due to staffing issues and development of competencies for the FAT
OIE regional workshop for	25-17 June	Nairobi,	Improvement of animal disease

focal points on Animal Disease reporting		Kenya	reporting
Rwanda			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Rabies PT exercise	Oct 2012 – Apr 2013	ARB Laboratory Kigali	To be followed up, will participate in the third round of PT.
FMD sample referral procedures	14-16 May	RAB Laboratory Kigali	Samples submitted to BVI for diagnosis and establishment of referral laboratory to collaborate on FMD sample confirmation
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Tanzania Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Rabies PT exercise on FAT	Oct 2012 – Apr 2013	TVLA	Excellent performance noted
Training Workshop on Rift Valley Fever Diagnostics for Laboratory Technicians	15-18 Apr	Dar es Salaam	One participant trained
Pilot PVS Laboratory mission	5-19 May	TVLA, Dar es Salaam	Strategic and organizational options concerning the laboratory function developed
Laboratory visit TVLA	13 June	TVLA, Dar es Salaam	Meeting with Head of the Centre of Infectious Diseases and Biodiversity (CITB- TVLA) on LoA; Training workshop and visit to new laboratory to review progress of developing new laboratory (CIDB) and infrastructure
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting
Appoint OIE National Focal Point for Laboratories	Sept	Dar es Salaam	Communications to remind the Delegate to make a nomination
Central African Republic			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
OIE regional workshop for focal points on Animal Disease reporting	25-17 June	Nairobi, Kenya	Improvement of animal disease reporting

Southeast Asia Regional Activities

Indonesia			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
-	-	-	-
Vietnam			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Laboratory Visit NCVD	7 August	Hanoi	Meeting with key staff and discussion of past and planned activities
Laboratory Visit RAHO6	8 August	Ho Chi Minh City	Meeting with laboratory manager and discussion of past and planned activities
EPT country meeting	9 August	Hanoi	Country-level project review and planning
Cambodia			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Laboratory Visit NaVRI	25 June	Phnom Penh	Meeting with key staff and discussion of past and planned activities
Cambodian Zoonotic Disease Strategic Plan Development Workshop	25-26 June	Phnom Penh	Draft Strategic Plan for Zoonoses Control in Cambodia Work Plan 2014-2018
Post Planning Workshop Follow-Up Activity for NaVRI	26-27 September	Prea Sihanouk	Revised draft strategic plan and identified key activities to support AI diagnostic laboratory capacity of NaVRI
Celebration of World Rabies Day (WRD)	30 September	Kampong Cham	WRD celebration held at Ta Ngal Village, Kvet Thom Commune, Precy Chhor District, Kampong Cham. The village is under —Healthy Livestock, Healthy Village, Better Life" supported by World Bank
Lao PDR			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Strategic Planning workshop for NAHL	1-5 April	Vientiane	Workshop to develop draft 5-year Strategic Plan for NAHL. Participants included representatives from NAHL, Public Health and Education sectors, staff from Provincial offices. Observers included WHO and CDC
EPT country meeting	30 April	Vientiane	Country-level project review and planning
EPT country meeting	30 May	Vientiane	Country-level project review and planning
EPT country meeting	19 August	Vientiane	Country-level project review and planning
Thailand			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
H7N9 Technical and Programmatic Coordination Meeting	2-3 May	Bangkok	Exchange and update of information on H7N9 situation in China
Laboratory Visit NIAH	10 June	Bangkok	Meeting with laboratory director and key staff and discussion of past and planned activities
EPT Regional Meeting	18-19 June	Bangkok	Project review and planning

Technical and Policy Discussion on the Prevention and Control of Avian Influenza A (H7N9) in Asia	24-26 June	Bangkok	Share the lessons learned from actions undertaken by Gov. of China on H7N9 crisis and discuss risks and scenarios of the H7N9 situation in the region and the possible mitigation measures in short-, medium- and long-term. Participants were representatives from AH-PH sectors of each Asian government and related international organizations
EPT country meeting	30 July	Bangkok	Country-level project review and planning
South East Asia Regional Wildlife Health Capacity Assessment & Networking Forum	13-15 August	Bangkok	Bring together ASEAN government agencies with oversight over wildlife health and conservation, universities and other organizations that contribute to strengthening capacity in wildlife health
Regional Meeting on Zoonotic Diseases	20-22 August	Chiang Mai	To strengthen national and regional capacity for prevention and control of zoonoses
China			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
USAID Partners Meeting	6-7 May	Guangzhou	Updates across projects, identified critical gaps, and harmonized complementary activities during development of annual work plans and discussion of recent avian influenza A (H7N9) events in China
Malaysia			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
EPT country meeting	31 July	Bangkok	Country-level project review and planning
Philippines			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Strategic Planning workshop for PAHC	14-18 May	Manila	Workshop to develop draft 5-year Strategic Plan for NAHL. Participants included representatives from PAHC and RADDLs. Observers included FAO and WHO
Second Meeting on Laboratory Strengthening for Emerging Infectious Diseases (EIDs) in the Asia Pacific Region	4-6 June	Manila	Exchange and update of information of a national public health laboratory workplan for the surveillance of and rapid response to EID

Planned Activities to be undertaken during the next reporting period

The OIE Year 5 Work Plan proposes activities benefiting IDENTIFY laboratories in the "hotspot" regions in the areas of laboratory detection, disease reporting, quality, and networking and contributes to IDENTIFY and EPT goals, objectives, and deliverables. The OIE aims to further strengthen sanitary information reporting by Member Countries and by the end of the project year, improvements are expected in the short-term, from confirmation by the national animal health laboratories and OIE Reference Centres to official disease reporting by the OIE Delegate, with accurate and timely disease reporting and feedback to stakeholders.

There is an expressed need by project beneficiaries for more technical support in these areas (as described in the OIE IDENTIFY Year 5 Work Plan):

- Analysis of the demand and the existing or potential offering of services for laboratory veterinary analysis at the national level, and a presentation of the range of sustainable management, organizational, budgetary and financial solutions, with different options and their costs, including human and physical resources estimates through the implementation of the PVS Pathway Laboratory Mission in **one laboratory in Congo Basin and one laboratory in Southeast Asia**, final selection underway.

- Better understanding of the strategic planning process, methods, and tools, use of planning tools and techniques for the preparation of short- and medium-term organizational plans, team-building and teamwork through exposure to multi-functional laboratory units, development of vision, goals and strategies, and preparation of a draft strategic plan and action plan for the animal health laboratory through National Animal Health Laboratory Strategic Planning Workshops in **CAHEC Qingdao** in October 2013 and **YASVI Yunnan** in April 2014 in **China** and **VRI Malaysia** in early 2014. This initiative gives VS and the laboratory tools to use in discussions with stakeholders, partners, investors, clients, and external donors and projects to determine the most meaningful and aligned contributions that both the laboratory can make to a project and the donor can contribute to the laboratory.

- Further development and planning for the laboratory's Strategic Plan and Action Plan and presentation to stakeholders through continued support in the implementation of National Animal Health Laboratory Strategic Plans during follow-up workshops in **NaVRI Cambodia** (26-27 September 2013), **NAHL Lao PDR** (9-10 December 2013), **NCVD and RAHO6 Viet Nam** (2014), **NIAH Thailand** (2014) and **PAHC Philippines** (2014).

- Increased awareness of results and recommendations of related global and regional advisory meetings in the region of laboratory importance, review of the progress of activities under the Framework of Regional Laboratory Networks such as the OIE Laboratory Strategic Planning Initiative, PVS Pathway Laboratory Missions, and the Pilot Programme for OIE National Focal Points for Veterinary Laboratories, and to review the issues related to the Emergence of Avian Influenza (H7N9) virus and the role of the Forum on the emergence of infectious disease in the region as well as increased accessibility to advanced diagnostic techniques and expertise through networking opportunities offered through participation in the 5th Laboratory Directors' Forum Meeting, 31 October-1 November 2013, Jogjakarta, Indonesia, for **all Southeast Asia laboratories.**

- Increased awareness of the latest standards and practices in terms of biosafety, biosecurity, and quality assurance through the participation of one national staff in the 9th Asia-Pacific Biosafety Association Conference, for **all Southeast Asia laboratories**.

- Increased awareness on the emergence of the Avian Influenza (H7N9) virus, future direction of the RLN laboratory capacity building programs in the next 5 years, in alignment with the strategic goals of the Regional Strategic Framework for Laboratory Capacity Building and

Networking in Southeast Asia, and possible resource immobilization in a coordinated manner as well as increased accessibility to advanced diagnostic techniques and expertise for the directors of the national animal health laboratories of **Malaysia, Thailand and Vietnam** through networking opportunities offered through Regional Laboratory Technical Advisory Group Annual Meeting, 29-30 October, Yogyakarta, Indonesia.

- Improved disease diagnostic capacity as a result of on-the-job training of national animal health laboratory staff during a staff exchange program with OIE Reference Centres for IDENTIFY diseases and as requested by the country for **NCVD Vietnam, NaVRI Cambodia, NAHL Lao PDR, NIAH Thailand, VRI Malaysia, and PAHC Philippines.**

- Increased awareness of the current capacity of **Laboratoire Central Vétérinaire (LACEVET) of Central African Republic** through the implementation of a laboratory mission to assess the status of diagnostic equipment and infrastructure following civil unrest and looting onsite.

- Recommendations for Quality Management system improvement by working with the Laboratory Director and OIE Laboratory Focal Point to promote the overriding principles of Quality Assurance (QA) to develop or strengthen the Laboratory's Quality Manual aligned with the *OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases* through the implementation of Quality Management Systems laboratory missions in **NCVD and RAHO6 Vietnam, NAHL Lao PDR, VRI Malaysia, and PAHC Philippines** using a high-level approach to Quality Management.

- Improved quality and throughput of appropriate samples submitted from the field to the laboratory for disease diagnosis, strengthening the linkage between sub-national/satellite/other sector laboratories and the central diagnostic animal health laboratory, and increased transparency improving confidence in laboratory results produced as more appropriate and quality samples are tested through the development of the —Laboratory sample submission guide for priority diseases" for **all Congo Basin country laboratories**.

- Curriculum development and planning of the first OIE National Focal Point Training for **Veterinary Laboratories**, to occur in the **Congo Basin.**

- Curriculum development and planning of the second cycle of the OIE National Focal Point Program for **Veterinary Laboratories**, to occur in **Southeast Asia.**

- Ongoing engagement of and support for the OIE Focal Point for Veterinary Laboratories of **all Congo Basin and Southeast Asia laboratories.**

- Improved rabies diagnosis and laboratory quality management through a second proficiency testing exercise for rabies diagnosis (FAT technique) with **Cameroon, DRC, Republic of Congo, Rwanda and Uganda** national animal health laboratories conducted by the OIE Reference Laboratory for Rabies, Onderstepoort Veterinary Institute (OVI), South Africa (cross-referenced with Objective 3).

- Standard Operating Procedures harmonization following the second round of Rabies Proficiency Testing for **Uganda and Cameroon** to be conducted by Rabies Experts from the OIE Reference Centre for Rabies, Onderstepoort Veterinary Institute, South Africa.

- Backstopping assistance following the second round of Rabies Proficiency Testing for **DRC, Rwanda, Uganda, Cameroon, and Republic of Congo** to be conducted by Rabies Experts from the OIE Reference Centre for Rabies, Onderstepoort Veterinary Institute, South Africa.

We maintain a collaborative tripartite IDENTIFY project team at the HQ and regional levels. The fruits of project planning in the previous period are ripe as the country beneficiaries work to accomplish project goals for more rapid and accurate diagnosis of targeted diseases. The joint

regional activities have set an important precedent for regional intersectoral collaboration between organizations; tripartite regional activities have activated regional engagement and have encouraged increased communication.

IDENTIFY Activity OIE Component	Responsibility	FY13 Q1 OCT-DEC 13	FY13 Q2 JAN-MAR 14	FY13 Q3 APR-JUN 14	FY13 Q4 JUL-SEP 14
IDENTIFY Objective 1: Laboratory Detection					
Second round of Proficiency Testing in Fluorescent Antibody Technique for Rabies	OIE SRR Gaborone				
Backstopping missions for rabies diagnosis following second round of Proficiency Testing	OIE SRR Gaborone				
Standard Operating Procedures harmonisation for rabies diagnosis following second round of Proficiency Testing	OIE SRR Gaborone				
Laboratory mission to assess the status of diagnostic equipment and infrastructure	OIE SRR Gaborone				
Laboratory sample submission guide for priority diseases	OIE SRR Gaborone				
IDENTIFY Objective 2: Disease Reporting, Policy & Guidance					
Curriculum development of the first and second cycles of the National Focal Points Program for Veterinary Laboratories	OIE HQ; OIE SRR Gaborone				
Ongoing support for the National Focal Points Program for Veterinary Laboratories	OIE SRR Gaborone				
IDENTIFY Objective 3: Laboratory Quality					
PVS Pathway Laboratory Mission implementation	OIE HQ; OIE SRR Gaborone				
IDENTIFY Objective 4: Laboratory Networking					
Animal Health Laboratory participation in regional laboratory meetings to advance One Health Approach country road map: strengthening linkages between veterinary and public health	OIE SRR Gaborone				

Planned Activities to be undertaken during the next reporting period: Southeast Asia region

IDENTIFY Activity OIE Component	Responsibility	FY13 Q1 OCT-DEC 13	FY13 Q2 JAN-MAR 14	FY13 Q3 APR-JUN 14	FY13 Q4 JUL-SEP 14
IDENTIFY Objective 1: Laboratory Detection					
Staff Exchange Program with OIE Reference Centres	OIE SRR Bangkok; OIE HQ				
IDENTIFY Objective 2: Disease Reporting, Policy & Guidance					
Curriculum development of the first and second cycles of the National Focal Points Program for Veterinary Laboratories	OIE HQ				
Ongoing support for the National Focal Points Program for Veterinary Laboratories	OIE SRR Bangkok				
Development of Animal Health Laboratory Strategic Plans	OIE SRR Bangkok				
Implementation of Animal Health Laboratory Strategic Plans and Action Plans	OIE SRR Bangkok				
IDENTIFY Objective 3: Laboratory Quality					
Animal Health Laboratory staff participation in the 9th Asia-Pacific Biosafety Association Conference	OIE SRR Bangkok				
Quality Management Systems Consultations	OIE HQ; OIE SRR Bangkok				
PVS Pathway Laboratory Mission implementation	OIE HQ; OIE SRR Bangkok				
IDENTIFY Objective 4: Laboratory Networking					
5th Laboratory Directors' Forum Meeting, 29-30 October 2013, Jogjakarta, Indonesia	OIE SRR Bangkok				
Regional Laboratory Technical Advisory Group Annual Meeting, 29-30 October, Yogyakarta, Indonesia	OIE SRR Bangkok				

Main challenges encountered

- An ongoing project management challenge is balancing the participation in USAID-sponsored country level meetings and planning activities and the implementation of the IDENTIFY project, both of which are fulfilled by a limited number of OIE IDENTIFY supported staff and under increasing project budget restrictions. Communication and coordination concerning country-level work plans and meetings among national colleagues, regional IDENTIFY coordinators, HQ IDENTIFY coordinators and other EPT partners is also an important challenge.

Annex 6: Rift Valley Fever Diagnosis Training Report and evaluations, April 2013, Tanzania

REPORT AND SUBMISSION OF DOCUMENTS RELATED TO TRAINING ON RIFT VALLEY FEVER (RVF) DIAGNOSIS FOR LABORATORY TECHNICIANS

9-18 APRIL 2013

CONDUCTED AT THE CENTER FOR INFECTIOUS DISEASES AND BIOTECHNOLOGY DAR ES SALAAM, TANZANIA

1. Background.

RVF is a re-emerging disease in most of the eastern and southern African countries because of the spread of the vector largely due to climate change and human alteration of the natural environment. The occurrence of the first confirmed outbreaks of RVF among humans and livestock outside Africa, in the Arabian Peninsula in 2000, carries the implication of further spread of infection into non-endemic RVF areas since the causative agent, RVF virus (RVFV), is capable of utilizing a wide range of mosquito vectors. The disease is mainly found in countries of sub-Saharan Africa and in Madagascar. The recent outbreaks recorded in Mauritania are an example of further spread in view of prevailing favourable epidemiological factors. Rift Valley fever is usually amplified in ruminant hosts and the RVF virus can also be transmitted by other vectors, including many mosquito species and possibly other biting insects such as ticks and midges. The virus can be transmitted *in utero* to the foetus.

RVF is a peracute or acute febrile, mosquito-borne, zoonotic viral disease that can cause severe disease in domestic animals and humans and is most commonly associated with mosquito-borne epidemics during years of unusually heavy rainfall and sustained flooding. The disease usually presents in an epizootic form over large areas of a country and is characterized by fever, severe illness, high rates of abortions and neonatal mortality, high morbidity and mortality rate in domestic animals primarily in sheep, goats and cattle. Susceptibility of different breeds to RVF varies considerably. Humans are highly susceptible to the RVF virus and may become infected with RVF: by being bitten by infected mosquitoes; through contact with blood, other body fluids or tissues during killing, skinning and cutting of infected animals; or by consumption of raw milk or uncooked meat from infected animals. Humans working in slaughter facilities, laboratories and hospitals are at risk of acquiring infections. Infection through aerosol transmission of RVF virus has occurred in the laboratory environment. People with RVF typically have either no symptoms or a mild illness associated with fever and liver abnormalities. However, in some patients the illness can progress to hemorrhagic fever (which can lead to shock or hemorrhage),

encephalitis, which can lead to headaches, coma, or seizures, or ocular disease. Patients who become ill usually experience fever, generalized weakness, back pain, dizziness, and extreme weight loss at the onset of the illness. RVF is categorized as a viral haemorrhagic fever by the World Health Organisation (WHO) and is an OIE listed disease and must be reported when identified.

The 2012 Inter Regional Conference for Middle East and Horn of Africa which was held in Kenya under the auspices of the FAO & OIE *Global Framework for the progressive control of Trans-boundary Animal Diseases* (GF-TADs) reassessed the current situation, challenges and options for prevention and control of RVF in the area around the Red Sea and the Indian Ocean. A similar seminar following the re-emergence of RVF in Southern Africa was held in 2009 in South Africa to build a broad consensus between partners and identify existing gaps in capacity and opportunities and to create awareness for the development of tools for better control of RVF. Topics discussed in the recent conference included diagnostic tools, early warning and rapid response models. The Conference recommended that countries develop targeted surveillance and control strategies, and enhance inter-sectoral collaboration through the nomination of dedicated contact persons in respective Ministries. The conference also recommended that FAO and OIE assist in the transfer and capacity building of appropriate Early Warning Systems to regional institutions.

The various RVF laboratory test methods available and their purpose were also discussed at this Inter Regional Conference. Confirmation of the disease can be done by identification of the causative agent through virus propagation (in cell cultures or laboratory animals), identification of the nucleic acids through reverse transcriptase polymerase chain reaction. Viral antigen detection through can be achieved through virus neutralisation tests, immunofluorescent staining of impression smears of liver, spleen brain or infected cell cultures; or by the demonstration of virus in serum, taken during the febrile stage of the disease, by enzyme immunoassay or immunodiffusion. The presence of characteristic histopathological lesions in the liver assists in the diagnosis. Serological tests can be used to confirm the disease as infected animals develop specific antibodies that may become demonstrable by VN as early as 3 days following infection and after 6–7 days by enzyme-linked immunosorbent assay, and by haemagglutination inhibition. Serological tests used less often include immunofluorescence, complement fixation and immunodiffusion. Laboratory tests are often a challenge in SADC and other affected countries in Africa.

Against this background, it is considered important and appropriate to strengthen capacity in SADC Member States to diagnose RVF and in particular acquiring latest diagnostic tests and techniques available and in use in the region in line with the international standards. In so doing, Member States will be better placed to identify the disease and therefore contribute to improved surveillance, transparent reporting and better disease management. Diagnosis of RVF can be made from clinical signs but

2. General Objective.

To improve capacity for the prevention, detection, and control of animal diseases and zoonoses in priority regions through access to high quality diagnostic testing and technical knowledge.

3. Objective.

The specific objective of this training workshop was to enhance laboratory skills and knowledge on Rift Valley Fever of the latest diagnostic tests and techniques available and in use in the region.

4. Methodology.

The workshop was conducted through hands-on training and technical presentations of methods followed by practical laboratory-based sessions. Experts from the OIE Reference Laboratory for RVF (ARC OVI) and Center for Disease Prevention and Control (CDC) Kenya complemented the local Tanzania Veterinary Laboratory Agency and University of Sokoine staff. Experts and laboratory technicians were available to troubleshoot with the trainees where there were difficulties in conducting the specific tests.

A previous training was conducted in 2008 in Tanzania for six (6) SADC member countries, most at risk for the disease: DRC, Madagascar, Malawi, Mozambique, Zambia and Zimbabwe. This training will review and build upon those competencies acquired and add new competencies related to the most up-to-date techniques in use in the region and in line with OIE international standards.

Botswana, Malawi, Namibia, Zambia, Zimbabwe and one participant from Tanzania attended the first session and the remainder of the other countries Angola, Democratic Republic of Congo, Eritrea, Madagascar, Mauritius, Mozambique plus one participant from Tanzania participated in the second session in the following week due to capacity constraints.

5. Participants.

Trainees from animal health and public health laboratories of the OIE Member Countries of SADC (Angola, Botswana, Democratic Republic of Congo, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe) will be invited, as well as from Eritrea. Two participants per country were invited (1 each from veterinary and public health laboratories) (See participants list Annex 1).

Annex 1: List of participants

SN	Country	Trainee	TITLE		
1	Botswana	SEKABA Shono Onkarabile	Miss	ssekaba@gov.bw	Botswana National Veterinary Laboratory
2	DRC	TSHINGUTA Charlotte Londji	Mrs	ppyana@yahoo.fr	Institut National de Recherche Biomédicale (INRB)

3	DRC	PATIENT Pyana Pati	Dr	charl_tshinguta@yahoo.fr	LABOVET Kinshasa
4	Eritrea	TIKIE Tsighe Kifleyessus	Mr	ktsige11@gmail.com	National Animal and Plant Health Laboratory
5	Eritrea	HIDRU Aron Tecle	Mr	aronmara@yahoo.com	Ministry of Health-National Health Laboratory
6	Kenya	NJENGA Moses Kariuki	Dr	knjenga@ke.cdc.gov	Centres for Disease Control & Prevention
7	Madagascar	ANDRIAMANDIMBY Soa Fy	Dr	soafy@pasteur.mg	Institut Pasteur Madagascar
8	Madagascar	RABENARIVAHINY René	Dr	rabenarivahiny@yahoo.fr	Veterinary Laboratory
9	Malawi	DAKA Patricia Sangalakula	Miss	gilsonnjunga@yahoo.co.uk	Ministry of Agriculture
10	Malawi	JERE Sandy Winfield	Mrs	sandywjere@yahoo.com	National Public Health Laboratories
11	Mauritius	LOWTUN Bibi Samima	Mrs	shamimah08@gmail.com	Ministry of Agro-Industry & Food Security
12	Mauritius	YONG SOK KOW Denise	Mrs	srughooput@mail.gov.mu	Central Health Laboratory
13	Mozambique	MAPACO Lorenço Paulo	Dr	lpmapaco@gmail.com	Agricultural Research Instituto of Mozambique
14	Mozambique	PINTO Gabriela Carmo	Dr	gabbydocarmo@gmail.com	Ministry of Health
15	Namibia	ZAIRE Georgina Ndjambi	Mrs	ndjambi@yahoo.com	Central Veterinary Laboratory
16	Namibia	RITTMANN Roxanne	Miss	roxi8805@yahoo.com	Namibia Institute of Pathology
17	South Africa	LUBISI Baratang Alison	Dr	LubisiA@arc.agric.za	Virology, ARC OVI
18	Tanzania	MWAFULANGO Eliah Ambele	Mr	ambeleeliah@yahoo.com	NHLQATC
19	Zambia	KANGWA Lombe Henry	Mr	henrylombekangwa@yahoo.com	Central Veterinary Research Institute
20	Zambia	MAZOMBWE Nasana Maboshe	Mrs	nmazombwe@yahoo.com	Food and Drugs Control Laboratory
21	Zimbabwe	TSHABALALA Priscilla Tembinkosi	Mrs	priscillat24@gmail.com	Central Veterinary Laboratory
22	Zimbabwe	BEREJENA Chipo	Mrs	cberejena@gmail.com	Department of Medical Microbiology, University of Zimbabwe

Annex 2: Course Outline:

TRAINING ON RVF DIAGNOSIS FOR SADC COUNTRIES LABORATORY PERSONNEL AT CIDB LABORATORY, DAR ES SALAAM, TANZANIA APRIL 2013

TIME	EVENT	RESPONSIBILITY
	Day 1	
08.00 – 08.30	Registration and opening session	TVLA and others
08.30 - 09.30	Introduction to international standards on RVF:	
	OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals WHO International Health Regulations	Lubisi K. Njenga
09.30 – 10.30	Overview, sampling procedures, animals and humans biosafety and biosecurity of RVF	Ngeleja & Yongolo
10.30 – 11.00	***Health Break***	
11.00 – 11.40	General Principles of RVF Diagnostic tests (animals & human)	Lubisi
11.40 - 12.10	Presentation on principles of RVF ELISA	K. Njenga
12.10 – 13.00	Presentation on principles of RT-PCR	Sallu
13.00 – 14.00	***Health Break***	***All***
14.00 – 15.00	RVF culturing presentation and start of culturing exercise	Lubisi
15.00 - 16.00	RNA Extraction presentation and practice Virus isolation	Sallu Lubisi
16.00 – 16.30	***Health Break***	
16.30 – 17.00	RNA Extraction presentation and practice Virus isolation, continued	Trainers
	Day 2	
08.00 – 10.30	RVF ELISA start RT-PCR, continued	Julius and Joshua Sallu
10.30 – 11.00	***Health Break***	
11.00 – 13.00	RVF ELISA finish RT-PCR, continued	Julius and Joshua Sallu
13.00 – 14.00	***Health Break***	
14.00 – 16.00	RT-PCR Preparation & use of gels presentation & practice, (continued) RVFV isolation practice (under supervision)	Sallu Lubisi
16.00 – 16.30	***Health Break***	
16.30 – 17.00	Preparation of gels & visualization of amplicons in gels (demonstration) RVFV isolation practice under supervision, continued	Sallu
	Day 3 (trainees to work under supervision)	
08.00 – 10.20	Start ELISA	For all laboratory work, Trainees under supervision
10.20 – 10. 50	***Health Break***	
10.50 – 12.30	RVF ELISA, continued Start RNA Extraction practice	
12.30 – 13.30	***Health Break***	
13.30 – 16.00	RVF ELISA Start RT-PCR	
16.00 – 16.30	***Health Break***	
16.30 – 17.00	RT- PCR	
	Day 4 (trainees to work under supervision)	
08.00 – 10.20	Preparation of gels and visualization of amplicons in gels Visualize cultures	For all laboratory work, Trainees under supervision
10.20 – 10.45	***Health Break***	
10.45 – 12.30	Visualisation of gels and troubleshooting	
12.30 – 13.30	***Health Break and***	
13.30 – 15.00	Troubleshooting	
15.00 – 16.00	Training assessment , issuing certificates and closure	
16.00	***Tea and Departure***	

Coordination

Preparation for smooth arrival and departure of the participants was done prior their arrival through emails with the personnel of the OIE Sub Regional Office in Gaborone, and where necessary with the training participants. The OIE Sub Regional Representation for Southern Africa office in Gaborone was responsible for purchase and sending of tickets to the participants. Communication regarding this aspect was done between the Representation and TVLA. An information sheet developed with TVLA containing details of training and lodging was sent to the participants in advance. It was necessary to facilitate some trainees to urgently obtain visa on arrival in Dar es Salaam particularly for trainees from Eritrea who Tanzania immigration required they had visa in advance but there was no other alternative but to get visa on arrival considering the limited time left. The delayed nomination and registration by Eritrea resulted in late issue of entry visas and tickets to ensure participation.

Other coordination aspects like provision of required items in the laboratory, hotel advance payments, meals were a little constrained due to delay in obtaining funds but were well managed. Funds for training were not available on the expected dates due to errors on banking details resulting in funds not being delivered to TVLA accounts. This severely affected the preparations for the training as well as the conduct of the training itself. TVLA availed money for training from one of it's' bank accounts operating under local currency. This greatly relieved the financial pressure during the training.

Training

The training was conducted in two phases as scheduled. Except for one participant from Zambia who arrived a day late, all participants of the both phases first phase arrived as scheduled and were picked from the airport by TVLA drivers and were sent to Nikko Tower Hotel.

Training material including standard operating procedures were not provided on time as expected from the trainers. Materials provided and for take home included operating procedures for testing.

Virus isolation was constrained hence mice inoculation test was used. The two brands of RVF vaccines were successfully used instead of unavailable RVF virus. For the second phase, day old mice were unavailable and one week old mice were used but due to the age and route of inoculation used, the results were not as fast as when intracranial route was used in the day old mice.

Training Evaluation

Answer yes (1) or no (2) to the following questions and give comments where applicable	Average given by participants	Best score (desired)
Did you improve your knowledge on RVF diagnosis with this training?	1.07	1
Are there topics that you think useful that **were not Included** in the program	1.00	2

of the training?		
Did you find that something was redundant in the programme (too long presentations, too long discussion, already available knowledge ...)?	1.73	2
If yes, can you summarize what could have been avoided?	0.00	0
Did you find that the training program and organisation was deficient in some aspects, and if yes could you advise us to improve them (for example laboratory facilities, lecture facilities, documentation /paperwork, hotels and meals)?	1.25	2
Do you think that you can perform RVF diagnosis in your country/laboratory, based on the kits/reagents used during the training, if these will become available?	1.11	1
Would you or a colleague of you be available to spend more time (one month for example) in another laboratory to increase your expertise on use of diagnostic assays and interpretation, with the possibility to test samples collected for RVF outbreak investigation and surveillance in your country?	0.93	1
If not, why (not needed, personnel difficulties, other reasons?)	0.00	0
Did you have serious problems in understanding/communication due to languages	1.73	2
To the following questions, give the score 1 to 5 where 1 = poor; 2 = insufficient; 3 = sufficient; 4 = good; 5 = excellent		
Oral presentations/theory		
How would you qualify the content of the oral presentations/theory?	4.27	5
Virus isolation		
How would you qualify the content of the oral presentations/theory?	4.20	5
Has the time spent on the subject been sufficient according to your opinion?	3.00	5
Remarks/suggestions		
ELISA Inhibition (multispecies, also testing human specimens)		
How would you qualify the practical exercises/network?	3.53	5
Has the time spent on the subject been sufficient according to your opinion?	3.53	5
Remarks/suggestions		
ELISA IDVet (competitive multispecies for animals excluding humans)		
How would you qualify the practical exercises/network?	4.20	5
Has the time spent on the subject been sufficient according to your opinion?	3.40	5
Remarks/suggestions		
RNA extraction		
How would you qualify the practical exercises/network?	4.20	5
Has the time spent on the subject been sufficient according to your opinion?	4.20	5
Remarks/suggestions	0.00	
Conventional PCR (gel electrophoresis inclusive)		
How would you qualify the practical exercises/network?	4.40	5
Has the time spent on the subject been sufficient according to your opinion?	3.53	5
Remarks/suggestions		
Organisational aspects		
Laboratory facilities	4.20	5
Lecture facilities	4.20	5
Health break facilities (toilets/rest rooms)	3.40	5
Documentation/paperwork	3.73	5
Hotel and meals	4.00	5

Remarks/suggestions		
Hospitality aspects		
Drivers	4.67	5
Trainers foreigners	4.60	5
Trainers Local	4.33	5
Supporting staff	4.27	5
Meal caterers	3.80	5
Remarks/suggestions		
Other remarks/comments		

Annex 11: Country Level Workshop To Develop Strategic Plan For National Animal Health Laboratories: National Animal Health Laboratory (NAHL) Lao PDR, April 2013

World Organisation for Animal Health

COUNTRY LEVEL WORKSHOP TO DEVELOP STRATEGIC PLAN FOR NATIONAL ANIMAL HEALTH LABORATORIES

National Animal Health Laboratory (NAHL) LAO PDR

[FINAL REPORT & DRAFT STRATEGIC PLAN]

April 2013

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SECTION 1

Final Report
Country Level Workshop to Develop Strategic Plan for National Animal Health Laboratories

National Animal Health Laboratory (NAHL), Lao PDR

BACKGROUND

The draft strategic plan 2013-2018 of NAHL is shown in Annex-1.

B1: The results yielded from performance evaluation of Veterinary Service (VS) of National Animal Health Laboratories and OIE's partners in Asia – Pacific Region show that often national laboratories lack of strategic plan to guide development and enhance capacity of the laboratories. To address this deficit, OIE organized a 5-day strategic planning workshop to uplift capacity of laboratory directors. This workshop was held at the University of Melbourne, Australia. The workshop provided principles and tools that enable the directors to develop strategic plans in the respective countries.

B2: Feedback OIE received from the 5-day workshop in Australia was positive. OIE's partners and the national laboratory directors were in view that assistance from OIE to develop strategic plans for each national laboratory was needed. To start capacity enhancement on strategic planning, OIE decided to conduct strategic planning workshops for national laboratories in Cambodia, Thailand and Lao. OIE contracted strategic planning consultants/facilitators from the Asian Institute of Technology (AIT), Thailand to conduct the workshops.

B3: The third workshop was conducted for the National Animal Health Laboratory (NAHL), Department of Livestock and Fisheries (DLF), Ministry of Agriculture and Forestry (MoAF), Lao P.D.R. This workshop was organized for 5 days from 1st to 5th April 2013. It was held at the conference center of Lao PDR's Electricity Authority, Nam Ngum-1 Dam, Thalat, Vientiane. 24 participants participated in the workshop. Number of participants and respective organizations are:

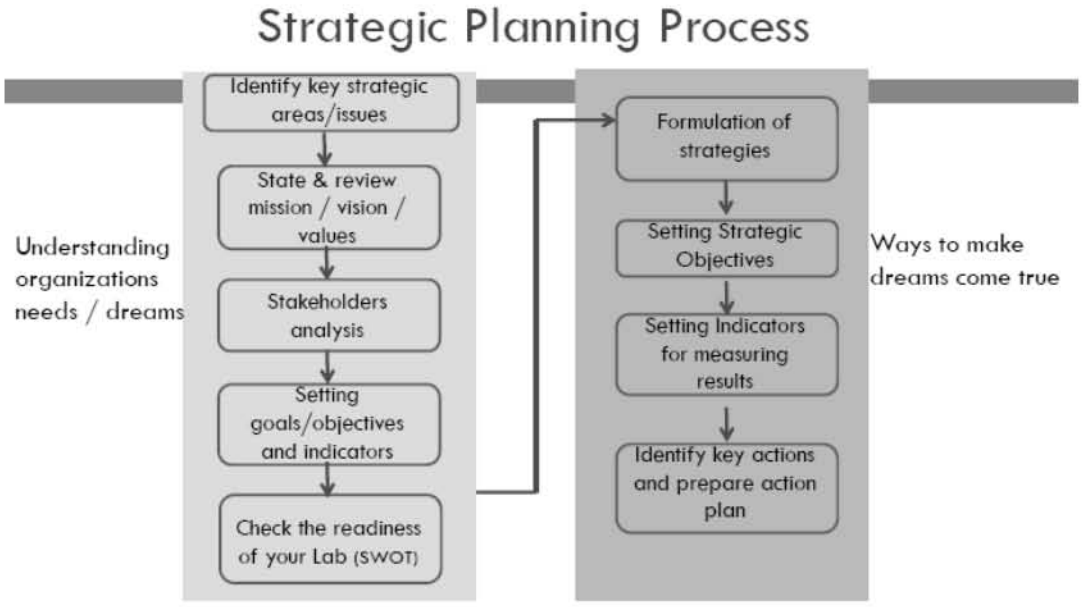
National Animal Health Laboratory	11
Provincial Livestock and Fisheries Division	8
Animal Health Division	1
Livestock and Veterinary Legislation Division	1
Faculty of Agriculture, National University of Laos (NUOL)	1
Veterinary Vaccine Production Centre	1
National Centre for Laboratory and Epidemiology, Ministry of Health	1

NAHL's Director, Dr. Bounlom Douangngeun also participated in the workshop. Full list of participants is given in the Annex-2.

Apart from three OIE staff, observers from WHO and the Center for Diseases Control and Prevention (CDC) joined the workshop and provided comments and suggestions.

B4: In consultation with Dr. Agnes Poirier, HPED Programme Coordinator; Dr. Jaruwan Kampa, IDENTIFY Program Coordinator and Dr. Andrew Davis, former OIE Project Coordinator (now serves as Veterinary Pathologist at AAHL-CSIRO), the consultants developed strategic planning workshop agenda. The agenda was prepared to ensure suitability of planning processes according to the existing ability of participants. The workshop agenda intentionally set tone of preparedness to enable NAHL

management and all staff to carry out similar exercises in future. The logical flow of exercises to support strategic planning workshop in Lao P.D.R. is shown below:



The actual workshop schedule that shows input sessions and planning activities is given in Annex-3

B5: To supplement input sessions delivered by lead facilitator, PowerPoint handouts titled Strategic Planning Overview and Process were given to all participants. The contents in the handouts were translated in Lao. In addition to the presentation, the consultants also provided reading materials on strategic planning and examples of strategic plan developed by other laboratories. The reading materials were used as reference during planning process. Likewise, exercise sheets and templates used for formulation of strategies and action plan were provided in workshop folders that OIE distributed to participants. The exercise sheets and templates are given in Annex-4.

B6: This report contains three (3) sections. The first section describes processes of the workshop, facilitators' observations and recommendations. The second section contains NAHL's Draft Strategic Plan 2013-2018. Contents in the strategic plan were compiled from records and notes taken during input sessions, group exercises, group discussions as well as from the observers. The last section contains list of participants, list of teams, actual workshop schedule and exercise sheets and working templates. The consultants amended and edited the strategies, strategic objectives and action plans according to suggestions from observers.

B7: It is recommended that OIE shares this report to key actors of NAHL and OIE's observers so that they can provide feedback and advice before finalization of the strategic plan. It is expected that NAHL continues the same process to solidify the plan and prioritize key strategic initiatives to be implemented accordingly.

PROCESS

P1: OIE's coordinator provided relevant extracts of the OIE Performance of Veterinary Services (PVS) Gap Analysis and OIE PVS Laboratory Mission Reports to the consultants to review before preparation for the workshop. The consultants studied technical and service capability of NAHL for better understanding of current

situations of the center. The report also indicates key areas for improvement addressed by respondents during the PVS surveys. Additionally, the consultants reviewed papers, which describe important components of governance and management of public veterinary laboratories that are essential for the effective delivery of a diagnostic service. This conceptual information helps understanding macro level management of the laboratories.

The information in the PVS gap analysis helped the consultants to identify key management and technical aspects that NAHL has to address in the deliberation of the strategic plan. Those key issues were also elaborated by the participants throughout the planning sessions.

P2: The participants were grouped into four (4) small teams. The members of each team were selected randomly. The selection ensured appropriate distribution of genders, positions and organizations. In the process, all teams were tasked to brainstorm, discuss and do hands-on planning exercises. The teamwork atmosphere helped creating working-together environment, which is often lacking in government organizations. Smaller teams give more opportunity for interaction to exchange ideas, listen to views from others, hence, agreeing on common interests / issues. List of four (4) team members are shown in Annex-5.

P3: Dr. Bounkhouang Khambounheuang, Director General of the Department of Livestock and Fisheries, presided in the opening session and stated that his management will support implementation of NAHL's strategies. He also addressed importance of support the center will receive from OIE in the future. He has confirmed roles and responsibilities of NAHL to serve as a nucleus for veterinary laboratory analyses.

P4: At the beginning of the session, Dr. Bounlom Douangngeun, the Director of NAHL presented background information of the center. The presentation highlighted organization structure and functions of NAHL mandated by the government. He also informed the audience about challenges of NAHL being national laboratory for diseases diagnostic service in Lao P.D.R.

Dr. Bounlom provided information on critical areas that NAHL has to address when preparing strategic plan. However, this information was drawn from OIE's gap analysis findings which were viewed from the international partners. Therefore, this planning workshop gave opportunity to people working in and with NAHL to share ideas and discuss important areas for improvement. The participants were allowed to carefully analyze problems from internal and external perspectives. Finally, the planning exercises helped them to clearly visualize challenges and have consensus on the issues / key areas NAHL aims to overcome.

P5: NAHL has its clear mandate under command and supervision of DLF/MoAF. The mandate is the Mission of NAHL which is informing stakeholders and public "why NAHL does exist". Since the mission is already available, the facilitator needed only to inform the participants and repeatedly mentioned that the strategic plan should be in line with the mandate and be within the scope of functions given by government authority.

P6: Since NAHL was established, it has not had its "Vision Statement" which is the long term aims of "What NAHL Wants To Become". The vision statement was formulated by identifying core values that guide NAHL to perform its duties and implement strategies. Each member of the teams was tasked to identify values, behaviors and system/process of NAHL. Ultimately, the core values would lead to build

organizational culture. During the exercise, the facilitator showed VDO presentation about core values of one private company to make clear understanding on definitions of core values of organization.

P7: Core Value / Culture: The teams identified 5 Core Values of NAHL, namely: accountability, acceptance/international recognition, information sharing, commitment, and dependability. The values were used as foundation to build 5-year vision of NAHL in the later steps.

P8: Vision Statement: In formulating vision statement, the whole class was tasked to work together to write the statement. The facilitator asked the NAHL Director to assign two participants to serve as moderators to conduct vision statement formulation exercise. Dr. Watthana Theppangna and Dr. Khamphouth Vongxay were selected to moderate this exercise. This approach was purposely used for creating sense of belonging of the Vision Statement. It is very important to recognize that Vision of NAHL belongs to everyone and it has to be appreciated by key stakeholders. Later, the participants had agreed on the NAHL vision statement, which is:

"NAHL is the national technical reference center on animal diseases and livestock products testing providing accountable and efficient services complying with regional and international standards"

This visionary goal statement was used as reference points when the participants formulated strategic plan in the later steps. The strategies must have values that drive performance to achieve the vision.

P9: Stakeholder Analysis: It is known that NAHL has to work closely with various government organizations, communities, farmers and private companies. In strategic planning, they had to understand characteristics and natures of each stakeholder in term of "their expectation FROM NAHL" and "their contribution TO NAHL". The stakeholder analysis exercise allowed the participants to realize importance and influence of stakeholders on implementation of strategies. In the large group, the participants identified and listed NAHL's stakeholders. Twenty two (22) stakeholders were identified. Later, the facilitator assigned each team to analyze 5-6 stakeholders and shared with the large group.

P10: SWOT Analysis: ZOPP technique was used in this exercise. Each team was assigned to identify each element of SWOT (strengths, weaknesses, opportunities and threats) and share with the large group. Observations and comments were also elaborated by teams and observers because they are familiar with NAHL's current status and limitations needed to be treated.



The SWOT analysis results guided identification of strategies. Each pair of SWOT elements indicates four (4) types of strategies NAHL should pursue in future:

Strength / Opportunity	→	Aggressive Strategy
Opportunity / Weakness	→	Diversifying Strategy
Weakness / Threat	→	Turnaround Strategy
Strength / Threat	→	Defensive Strategy

P11: Goals Setting: Following vision statement exercise and identified key strategic areas, the participants were asked to identify goals of NAHL. The goals were identified and written applying SMART Principle – Specific, Measureable, Attainable, Realistic and Timeline. The teams brainstormed and presented the goals statements. After team presentation, all teams' goals were compiled and consolidated. The facilitator and participants' representative co-facilitated the discussion to revisit the goals and solidify taking into consideration comments, suggestions and views from participants and the observers. Originally, twenty (20) goals were identified. After consolidation exercise, the participants had agreed to accept six (6) important goals they aim to achieve in the next 5 years.

The goals of NAHL are:

- Centralized database and laboratory analysis information system
- Compliance with international quality assurance system and standards
- Strengthened network and collaboration / coordination at international and national level
- Increased human resource capacity and specialization
- Enhanced governance and management practices
- Expansion of research and development activities

P12: Objectives Setting: In this step, participants practiced setting objectives. The facilitator conducted mini-input session on definitions, characteristics and techniques to write objectives of the organization. The objectives indicate means to achieve the goals and guide identification of actions to reach the vision. The facilitators gave examples of objectives written by other laboratories. The same "SMART" Principle was used as guidance to formulate objectives.

P13: Strategizing and Strategic Objectives: In the strategizing exercise, each team was assigned to formulate strategies in response to two goals. The teams formulated the strategies according to guiding questions: "how NAHL use the strengths to exploit opportunities to achieve its vision in the next 5 years" and "how NAHL use the opportunities to strengthen the weaknesses". After identifying strategies, the teams formulated strategic objectives, which guide them to identify action plans.

P14: Key Performance Indicator (KPI): The KPI exercise sensitized participants to keep in mind that monitoring and evaluation of actions being taken to achieve results are very important. The facilitator mentioned that "If you cannot evaluate it, you cannot manage it". Key performance indicator is one of the tools used for measurement of performance of individual, team, organization and project. The facilitator guided participants by giving reading materials contained with examples of KPI to help participants to formulate KPI for their actions plan.

P15: Action Plan: To execute strategies, NAHL needs to have clear action plan that states "What" Actions to be taken to meet objectives, "Why and When" each action should be carried out and "Who" will be focal person / team responsible to take leading role

to implement the actions. Participants worked in teams and identified actions under each strategies using action plan template.

P16: Final Presentation – Strategies, Strategic Objectives, Action Plans and KPIs: On the last day of the workshop, each team was given 20 minutes to present and elaborate final outputs namely: Strategies, Strategic Objectives, Actions and KPIs. After presentation, team members noted comments and suggestions from commentators and incorporated them into the strategic plan.

Panel of commentators composed of:

Dr. Agnes Poirier, OIE-Project Coordinator
Dr. Jaruwan Kampa, OIE-IDENTIFY
Dr. Andrew Davis, former OIE Coordinator
Dr. Chantanee Buranathai, OIE-Japan
Dr. Bounheuang Kounnavong, Director General of DLF
Dr. Pawin Padungtod, CDC
Dr. Bounheuang Kounnavong, CDC

The output from this 5-day workshop is NAHL's Draft Strategic Plan 2013-2018 (Annex-1). Indeed, the plan needs further deliberation with key actors of NAHL, its partners and stakeholders. The draft plan provides suffice skeleton that NAHL family can carry on in making the strategic plan realized by 2018.

LIST OF PARTICIPANTS

No.	Name	Position
1	Dr. Bounlom Douangngeun	Director of National Animal Health Center (NAHL)
2	Mr. Sengphet Somsanith	Director of Vaccine Production Center
3	Dr. Sounthone Vongthilath	Director of Livestock and Veterinary Legislation Division
4	Dr. Chintana Chanthavisouk	Deputy Director, Animal Health Division
5	Dr. Phengphet Vorachith	Deputy Director of National Center of Animal Health Laboratory
6	Dr. Phouvong Phommachanh	Deputy Chief of National Animal Disease Diagnostic Laboratory, NAHL
7	Dr. Khamphouth Vongxay	Deputy Chief of National Animal Disease Diagnostic laboratory, NAHL
8	Dr. Watthana Theppangna	Senior Veterinary Officer, NAHL
9	Dr. Thongphoun Theungphachanh	Chief of National Animal Product Quality Control Laboratory, NAHL
10	Ms. Malayphet Bounmy	Acting Director
11	Mr. Bounleuam Sihachack	Head of laboratory
12	MsChamsamone Phounsavath	Deputy of Livestock and Fisheries Office of Laungprabang
13	MsLatsamy Pheiwthavyphon	Acting Director
14	Mr. Sengphet Phakeovilay	Director
15	Ms. Manida Sansuthum	Technical Officer
16	Ms. Somnith Keobounngeun	Acting Director
17	Mr. Hongthong Chimmasan	Director
18	Mr. ThongchanhSosouk	Director, National Center for Laboratory and Epidemiology (NCLE)
19	Ms. Phetlamphone Meeduangchanh	Senior Laboratory Officer, NCAHL
20	Ms. Vilayvanh Soukvilay	Senior Laboratory Officer, NCAHL
21	Ms. Somphaivanh Chanthavong	Senior Laboratory Officer, NCAHL
22	Mr. Chattouphone Keokhamphet	Senior Laboratory Officer, NCAHL
23	Dr. Vannaphone Putthana	Lecturer on Veterinary Medicine
24	Ms. Chittaphone Phounmanolath	Admin staff(workshop assistant)

WORKSHOP SCHEDULE

DATE/TIME	MON 1 APRIL 2013	TUE 2 APRIL 2013	WED 3 APRIL 2013	THU 4 APRIL 2013	FRI 5 APRIL 2013
0830-0900	Registration	Review of previous day outputs			0900…
0900-1000	Opening / Orientation Intro of participants Presentation on NAHL and Lao P.D.R. PVS Gap Analysis	Review key points for Vision formulation Teams exercise: Formulate NAHL's Vision Statement	Input session – Stakeholders Analysis Teams exercise: SWOT Analysis and Presentation	Teams exercise: Formulation of strategic objectives and action plans	Presentation of strategic plan
1000-1030	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
1030-1115	Teams exercise: Review key issues & challenges of NAHL	Exercise: Consolidate of Vision Statement	Assessing Internal capability, challenges and limitations (SWOT Analysis)	Presentation & Discussion	Presentation of strategic plan
1115-1200	Input session: Organization Values / Culture Teams exercise: Organizational Values	Presentation & Discussion	Presentation of NAHL's SWOT and Q & A		
1200-1300	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break
1300-1430	Presentation & Discussion on NAHL's Values Selection of core values	Input session: Goals, Goals Setting and Objectives ("SMART" PRINCIPLE)	Input session – Strategies strategic objectives, action, plans and Key Performance Indicators (KPI)	Finalization of strategies, action plans and KPI	Presentation of Strategic Plan
1430-1500	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
1500-1600	Input session: Mission, Vision and Goals, and Examples from animal health labs	Prioritization of goals	Teams Exercise: Formulation of strategies & prioritization of strategies	Teams presentation of strategies and action plans	Program closing
1600…		Selection of NAHL's goals	Presentation of prioritized strategies Evening: Refinement of strategies	Evening: Prepare PowerPoint presentation	Return to Vientiane

Annex 12: Country Level Workshop To Develop Strategic Plan For National Animal Health Laboratories: Philippine Animal Health Centre (PAHC) and Regional Animal Disease Diagnosis Laboratories (RADDLs), Philippines, May 2013

World Organisation for Animal Health

COUNTRY LEVEL WORKSHOP TO DEVELOP STRATEGIC PLAN FOR NATIONAL ANIMAL HEALTH LABORATORIES

Philippine Animal Health Centre (PAHC) and Regional Animal Disease Diagnosis Laboratories (RADDLs), Philippines

[FINAL REPORT & DRAFT STRATEGIC PLAN]

May 2013

Abbreviations

ASEC	Assistant Secretary
BAI	Bureau of Animal Industries
DBM	Department of Budget and Management
DoA	Department of Agriculture
FAO	Food and Agriculture Organization
GLP	Good Laboratory Practices
LIMS	Laboratory Information Management System
LGU	Local Government Unit
MoH	Ministry of Health
OIE	World Organization for Animal Health
OIE-PVS	OIE Tool for the Evaluation of the performance of Veterinary Services
PED	Porcine Epidemic Diarrhoea
PAHC	Philippines Animal Health Centre
PhilAHIS	Philippines Animal Health Information System
PVO	Provincial Veterinary Office
RADDLs	Regional Agriculture Department Diagnostic Laboratories
RITM	Research Institute for Tropical Medicine
USD	United States Dollar
VS	Veterinary Service(s)

Final Report
Country Level Workshop to Develop Strategic Plan for National Animal Health Laboratories

Philippine Animal Health Centre (PAHC), Philippines

BACKGROUND

The draft strategic plan 2013-2018 of PAHC/RADDLs is shown in Section 2

B1: The results yielded from performance evaluation of Veterinary Service (VS) of National Animal Health Laboratories and OIE's partners in Asia – Pacific Region show that often national laboratories lack of strategic plan to guide development and enhance capacity of the laboratories. To address this deficit, OIE organized a 5-day strategic planning workshop to uplift capacity of laboratory directors. This workshop was held at the University of Melbourne, Australia. The workshop provided principles and tools that enable the directors to develop strategic plans in the respective countries.

B2: Feedback OIE received from the 5-day workshop in Australia was positive. OIE's partners and the national laboratory directors were in view that assistance from OIE to develop strategic plans for each national laboratory was needed. To start capacity enhancement on strategic planning, OIE decided to conduct strategic planning workshops for national laboratories in Cambodia, Lao PDR and Thailand. OIE contracted strategic planning consultants/facilitators from the Asian Institute of Technology (AIT), Thailand to conduct the workshops.

B3: The forth workshop was conducted for the Philippine Animal Health Centre (PAHC), Bureau of Animal Industry (BAI), Department of Agriculture. This workshop was organized for 5 days from 14th to 18thMay 2013. It was held at Luxent Hotel, Quezon City, Manila. There were 26 participants participated in the workshop. Number of participants and respective organizations are:

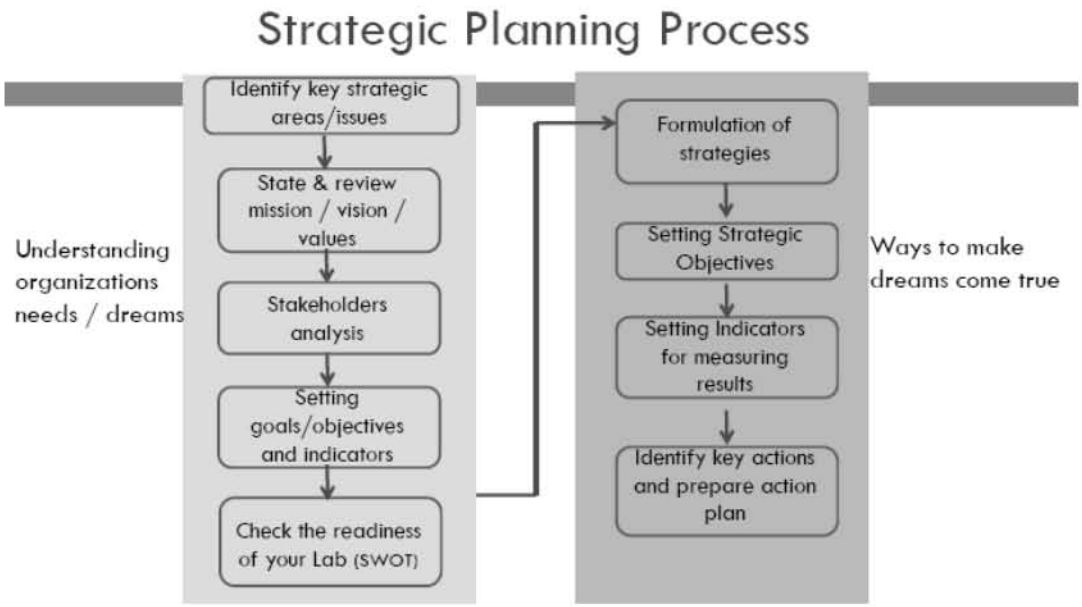
Philippine Animal Health Centre (PAHC)	14
Regional Animal Disease Diagnostic Laboratories (RADDLs)	12

Full list of participants is given in the Annex-1.

Apart from three OIE staff, observers from FAO and WHO Regional Office joined the workshop and provided comments and suggestions.

B4: In consultation with Dr. Ronello Abila, OIE Sub-Regional Representative, South-East Asia and Dr. Jaruwan Kampa, IDENTIFY Program Coordinator, the consultants developed strategic planning workshop agenda. The agenda was prepared to ensure suitability of planning processes according to the existing ability and practical experience of participants. The workshop agenda intentionally set tone of preparedness to enable PAHC management and all staff to carry out similar exercises in future. It also aimed to create sense of belonging of the plan amongst PAHC and RADDLs staff. Importantly, the planning exercises serve as initial interaction between PAHC and RADDLs people.

The logical flow of exercises to support strategic planning workshop in Philippines is shown below:



The actual workshop schedule that shows input sessions and planning activities is given in Annex-2

B5: To supplement input sessions delivered by lead facilitator, PowerPoint handouts titled Strategic Planning Overview and Process were given to all participants. In addition to the presentation, the consultants also provided reading materials on strategic planning and examples of strategic plan developed by other laboratories. The reading materials were used as reference during planning process. Likewise, exercise sheets and templates used for formulation of strategies and action plan were provided in workshop folders that OIE distributed to participants. The exercise sheets and templates are given in Annex-3.

B6: This report contains three (3) sections. The first section describes processes of the workshop, facilitators' observations and recommendations. The second section contains PAHC's Draft Strategic Plan 2013-2018. Contents in the strategic plan were compiled from records and notes taken during input sessions, group exercises, group discussions as well as from the observers. The last section contains list of participants, list of teams, actual workshop schedule and exercise sheets and working templates. The consultants amended and edited the strategies, strategic objectives and action plans according to suggestions from observers.

B7: It is recommended that OIE shares this report to key actors of BAI, PAHC / RADDLs and OIE's observers so that they can provide feedback and advice before finalization of the strategic plan. It is expected that PAHC / RADDLs continues the same process to solidify the plan and prioritize key strategic initiatives to be implemented accordingly.

PROCESS

P1: The consultants noted the recommendation from the PVS report that "the strategic planning should clearly documents the purpose of the veterinary service, identify gaps in the current system and specify the objectives that must be met to carry out their required role. A detailed operational work plan should then be developed and costed so that the government of Philippines in association with international support

may progressively implement the plan". This statement was used as global guideline for designing workshop activities.

P2: Dr. Ronello Abila, OIE Sub Regional Representative, SEA and Dr. Jaruwan Kampa, IDENTIFY Coordinator provided relevant extracts of Performance of Veterinary Services (PVS) Gap Analysis and the OIE PVS Mission Reports to the consultants to review before the preparation of the workshop. The consultants studied technical and service capability of PV service organizations in the Philippines for better understanding of current context so that the input sessions and activities could be contextualized. The reports also describe key areas for improvement addressed by PVS working group during the surveys. Additionally, the consultants reviewed documents and papers related to facts and on-going attempts to strengthen VS in the Philippines. The information is essential for selection of contents and effective delivery of workshop activities.

The information in the PVS gap analysis helped the consultants to identify key management and technical aspects that the national laboratory, e.g. PAHC, and the regional laboratories, e.g. Regional Animal Diseases Diagnostic Laboratories (RADDLs), have to address in the deliberation of strategic plan. Those key issues were also elaborated by the participants throughout the planning sessions.

P3: During the meeting in Bangkok, Dr. Abila clearly mentioned that the workshop would give opportunity for the PAHC and RADDLs to start interaction. This comment was due to the fact that cooperation in laboratory diagnostic duties needs to be strengthened. This fact is also one of key success factors in the VS of the country.

P4: The participants were grouped into four (4) small teams. The members of each team were selected randomly. The selection ensured appropriate distribution of genders, positions and organizations. In the process, all teams were tasked to brainstorm, discuss and do hands-on planning exercises. The teamwork atmosphere helped creating working-together environment, which is often lack in government organizations. Smaller teams give more opportunity for interaction to exchange ideas, listen to views from others, hence, agreeing on common interests / issues. List of four (4) team members are shown in Annex-4.

P5: In his opening remarks, Dr. Davinio P. Catbagan, Assistant Secretary, Department of Agriculture (DoA) addressed important policies on livestock and poultry productions that help increasing competitiveness of the Philippines in the world markets. On-going initiatives that promote the livestock industries' competitiveness are being carried out such as development of rural livestock and poultry enterprises, post-production services and development of animal products and other value-adding products.

Dr. Catbagan also mentioned that this workshop was at the right timing to support concerns about veterinary laboratories operation and services. The authority and capability of the Veterinary Services (VS) should be able to identify and record pathogenic agents, including those relevant for public health, that can adversely affect animals and animal products.

P6: Dr. Emelinda L. Lopez, Officer-in-Charge of the Animal Health Division presented relevance extract titled "OIE PVS Pathway and Evaluation of the Philippine Veterinary Services". The materials which she presented highlights key processes that OIE conducted the evaluation and what are roles of PAHC and other VS institutions get involved in the evaluation. Dr. Lopez shared results from gap analysis and national priorities to improve performance of laboratories.

Following Dr. Lopez's presentation, Chief of PAHC, Dr. Magdalena S. Cruz shared findings from in-house planning exercise which PAHC did in December 2012. From the exercise, PAHC identified seven (7) areas of concerns namely: Infrastructure, laboratory equipment & paraphernalia, manpower, capacity building, proficiency testing/procurement and ISO certification. These materials helped a lot in facilitating problem analysis and key areas for improvement.

P7: The facilitators showed BAI's mission to the participants in order to align the strategic plan with that mandates. The mission is: "BAI is responsible to make the livestock farmer, in particular, and the farming sector, in general profitable through the formulation of policies and programs designed to accelerate the industries; and the provision of adequate technical services in animal health, feed quality promotion, livestock production technology, marketing, research and development, post production technology and human resources development."

P8: The facilitators gave overview and highlighted key elements of BAI's vision to familiarize them with the long term direction of PAHC's higher authority. This was to support formulation of PAHC's vision statement. Ultimately, the vision of PAHC should serve achieving the vision of BAI. The vision of BAI is: "vibrant, globally competitive, welfare-friendly animal industries providing livelihood opportunities and securing livestock and poultry products' availability, affordability, quality, and safety under a sustainable environment."

These processes were very useful because it helped the participants to visualize and remember clear mandates of the national laboratory.

P9: The mandate stated in P8 is the Mission of PAHC, which is informing stakeholders and public "why PAHC does exist". Since the mission is already available, the facilitator needed only to inform the participants and repeatedly mentioned that the strategic plan should be in line with the mandate and be within the scope of functions given by government authority.

P10: Since PAHC was established, it has not had its "Vision Statement" which is the long term aims of "What PAHC Wants To Become". It is important to note that the new vision should address collaborative roles and accountability of both PAHC and RADDLs. Everyone comprehended that PAHC and RADDLs should work as one entity to provide quality veterinary service. Their functions should be harmonized and operations should be streamlined.

P11: The vision statement was formulated by identifying core values that guide PAHC/RADDLs to perform its duties and implement strategies. Each member of the teams was tasked to identify values, behaviors and system/process of PAHC. Ultimately, the core values would lead to build organizational culture. During the exercise, the facilitator showed VDO presentation about core values of one private company to make clear understanding on definitions of core values of organization.

P12: <u>Core Value / Culture:</u> The teams identified 7 Core Values of PAHC/RADDLs, namely:

- Commitment;
- Integrity;
- Reliability / Dependability;
- Resilience;
- Responsive to the needs of clientele;
- Openness; and
- Resourceful

The values were used as foundation to build 5-year vision of PAHC/RADDLs in the later steps.

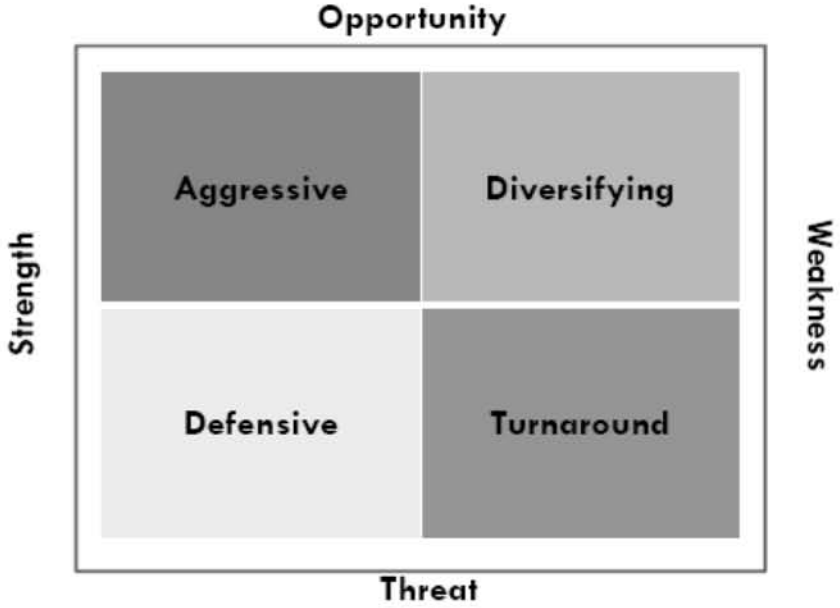
P13: Vision Statement: In formulating vision statement, the whole class was tasked to work together to write the statement. The facilitator asked the PAHC's Chief, Dr. Cruz to assign two participants to serve as moderators to conduct vision statement formulation exercise. Dr. Sylvanna R. Sison and Dr. Archie P. Lluz were selected to moderate this interactive session. This approach was purposely used for creating sense of belonging of the Vision Statement. It is very important to recognize that Vision of PAHC/RADDLs belongs to everyone and it has to be appreciated by key stakeholders. Later, the participants had consensus on the vision statement, which is:

"A centre of excellence committed to provide quality veterinary diagnostic services compliance to international standards and responsive to the needs of a dynamic animal industry."

This visionary goal statement was used as reference points when the participants formulated strategic plan in the later steps. The strategies must have values that drive performance to achieve the vision.

P14: Stakeholder Analysis: It is known that PAHC has to work closely with various government organizations, communities, farmers, private companies and industries. In strategic planning, they had to understand characteristics and natures of each stakeholder in term of "their expectation FROM PAHC/RADDLs" and "their contribution TO PAHC/RADDLs". The stakeholder analysis exercise allowed the participants to realize importance and influence of stakeholders on implementation of strategies. In the small teams, the participants identified and listed PAHC and RADDLs's stakeholders. Twenty two (22) stakeholders were identified and analyzed. Later, the facilitator assigned each team to analyze 5-6 stakeholders and shared with the large group.

P15: SWOT Analysis: ZOPP technique was used in this exercise. Each team was assigned to identify each element of SWOT (strengths, weaknesses, opportunities and threats) and share with the large group. Observations and comments were also elaborated by teams and observers because they are familiar with PAHC's current status and limitations needed to be treated.



The SWOT analysis results guided identification of strategies. Each pair of SWOT elements indicates four (4) types of strategies PAHC should pursue in future:

Strength / Opportunity	→	Aggressive Strategy
Opportunity / Weakness	→	Diversifying Strategy
Weakness / Threat	→	Turnaround Strategy
Strength / Threat	→	Defensive Strategy

P16: Goals Setting: Following vision statement exercise and identified key strategic areas, the participants were asked to identify goals of PAHC. The goals were identified and written applying SMART Principle – Specific, Measureable, Attainable, Realistic and Timeline. The teams brainstormed and presented the goals statements. After team presentation, all teams' goals were compiled and consolidated. The facilitator and Dr. Cruz moderated the discussion to revisit the goals and solidify taking into consideration comments, suggestions and views from participants and the observers. Originally, twelve (12) goals were identified. After goal consolidation exercise, the participants had agreed on six (6) important goals they aim to achieve in the next 5 years.

The initial goals identified by PAHC and RADDLs are:

- Centralized database and laboratory analysis information system
- Compliance with international quality assurance system and standards
- Strengthened network and collaboration / coordination at international and national level
- Increased human resource capacity and specialization
- Enhanced governance and management practices
- Expansion of research and development activities

P17: Objectives Setting: In this step, participants practiced setting objectives. The facilitator conducted mini-input session on definitions, characteristics and techniques to write objectives of the organization. The objectives indicate means to achieve the goals and guide identification of actions to reach the vision. The facilitators gave examples of objectives written by other laboratories. The same "SMART" Principle was used as guidance to formulate objectives.

P18: Strategizing and Strategic Objectives: In the strategizing exercise, each team was assigned to formulate strategies in response to one (1) goal. The teams formulated the strategies according to guiding questions: "how PAHC/RADDLs use the strengths to exploit opportunities to achieve its vision in the next 5 years" and "how PAHC/RADDLs use the opportunities to strengthen the weaknesses". After identifying strategies, the teams formulated strategic objectives, which guide them to identify action plans.

P19: Key Performance Indicator (KPI): The KPI exercise sensitized participants to keep in mind that monitoring and evaluation of actions being taken to achieve results are very important. The facilitator mentioned that "If you cannot evaluate it, you cannot manage it". Key performance indicator is one of the tools used for measurement of performance of individual, team, organization and projects.

P20: Action Plan: To execute strategies, PAHC/RADDLs needs to have clear action plans that states "What" Actions to be taken to meet objectives, "Why and When" each action should be carried out and "Who" will be focal person / team responsible to take leading role to implement the actions. What is estimated budget of each action plan. Participants worked in teams and identified actions under each strategies using action plan template.

P21: Final Presentation – Strategies, Strategic Objectives, Action Plans and KPIs: On the last day of the workshop, each team was given 20 minutes to present and elaborate final outputs namely: Strategies, Strategic Objectives, Actions and KPIs. After presentation, team members noted comments and suggestions from commentators and incorporated them into the strategic plan.

Dr. Davinio P. Catbagan, Assistant Secretary, Department of Agriculture, and Dr. Rubina O. Cresencio, Director, Bureau of Animal Industry presided in the opening session and stated that his management will support implementation of PAHC's strategies. He also addressed importance of support the centre will receive from OIE in the future. He has confirmed roles and responsibilities of PAHC to serve as a nucleus for veterinary laboratory analyses.

Panel of commentators composed of:

Dr. Davinio P. Catbagan, Assistant Secretary, Department of Agriculture (DoA)
Dr. Rubina O. Cresencio, Director, Bureau of Animal Industry (BAI)
Dr. Emelinda L. Lopez, Officer-in-Charge, Animal Health Division, DoA
Dr. Ronello Abila, OIE Sub Regional Representative for South-East Asia
Dr. Jaruwan Kampa, OIE-IDENTIFY Program Coordinator
Dr. Chantanee Buranathai, Technical Assistance, OIE Regional Representation for Asia and the Pacific
Dr. Sanipa Suradhat, FAO-Emergency Centre for Transboundary Animal Diseases (ECTAD)

The output from this 5-day workshop is PAHC/RADDL's Draft Strategic Plan 2013-2018 (Annex-1). Indeed, the plan needs further deliberation with key actors of PAHC, its partners and stakeholders. The draft plan provides suffice skeleton that PAHC family can carry on in making the strategic plan realized by 2018.

LIST OF PARTICIPANTS

	Name	Position
1	Dr. Florentino Adame	Head, RADDL 1, Tabag, Sta. Barbara, Pangasinan
2	Dr. Gerly Zulueta	Head, RADDL 2, Tuguegarao City
3	Dr. Milagros Mananggit	Representative, RADDL 3, San Fernando City
4	Dr. Gloria Salazar	Head, RADDL 4, Marawoy, Lipa City
5	Dr. Marissa Guillermo	Head, RADDL 5, Cabangan, Daraga, Albay
6	Dr. Jonic F. Natividad	Representative, RADDL 6, Fort San Pedro, Iloilo City
7	Dr. Teodoro Dabocol	Head, RADDL 7, Cebu City
8	Dr. Rachel Cadelina	Head, Laboratory Division, Cebu City
9	Dr. Archie T. Lluz	Head, RADDL 8, Diit, Tacloban City
10	Dr. Josephine Datoy	Head, RADDL 9, Tumaga, Zamboanga City
11	Dr. Ma. Teresa B. Roa	Head, RADDL 10, Cagayan de Oro City
12	Dr. Jeneffer Bulawan	Head, RADDL 12, General Santos City
13	Dr. Esther B. Cardeno	Head, RADDL 13, Taguibo, Butuan City
14	Dr. Pranin D. Kiwang	Head, RADDL CAR, Guisad, Baguio City
15	Dr. Juliana G. Garcia	Head, Bacteriology, PAHC
16	Dr. Sylvanna R. Sison	Head, Lab Disease Investigation and Evaluation, PAHC
17	Dr. Madeline S. Catbagan	Avian Influenza Lab, PAHC
18	Dr. Cristina F. Legaspi	Head, Virology, PAHC
19	Dr. Antonio Morales	Head, Pathology, PAHC
20	Dr. Riva Marie Gonzales	Head, Parasitology, PAHC
21	Dr. Edna Felipe	Head, Avian Influenza Lab, PAHC
22	Dr. Angeles de Mayo	Lab Disease Investigation and Evaluation, PAHC
23	Dr. Rolando Camba	Head, Rabies Lab, PAHC
24	Dr. Rachel Azul	Head, Porcine Virology Lab, PAHC
25	Dr. Lilia Retes	Bacteriology; Budget Officer, PAHC
26	Dr. Magdalena S. Cruz	Chief, PAHC

WORKSHOP SCHEDULE

TIME	TUE14 MAY 2013	WED15 MAY 2013	THU16 MAY 2013	FRI 17 MAY 2013	SAT 18 MAY 2013
0830-0900	noi gaitsigeR	nougu oeyoi tougevaopsf oevii via			
0900-1000	• y i oRgRi o oton eRf • Presentation of PAHC & PVS Evaluation • n ett at ei oy tgoRisigeR	Goals Setting, Targets & Indicators	Input session: • Stakeholders Analysis • Assessing internal capacity, challenges and limitations (SWOT Analysis)	ososn aFormulation of strategic objectives	***07:30 Teams submit PowerPoint Presentation*** 0900 Teams: Presentation of Strategic Plan &n igeRoit sR
1000-1030	k eyyooceto st	k eyyooceto st	k eyyooceto st	k eyyooceto st	eto st dk eyyoo
1030-1100	on ougagigot ooxgaigRi ougageR and mandates of PAHC/RADDLs	sosn a:oj estasoy oG igutoa&o itg etgigisigeR	sosn a:Stakeholders Analysis	sosn a: Development of a igeRoit sRs • Objectives • Beneficiaries • Outcomes/impacts • Indicators • Responsible people • Budgets	Teams: Presentation of Strategic Plan &n igeRoit sR
1100-1200	• How far PAHC has achieved its vision ? • What we want to become/aims for next 5-10years ?	sosn a:o ito aoRisigeR&Dga vaageR	ososn aSWOT Analysis		
1200-1300	hvR t break	hvR t break	hvR t break	hvR t break	hvR t break
1300-1430	Input session: Values and Culture	Finalizing GoestaPtogetgigisigeR & Tgn oytsn o	Presentation of SWOT Analysis Results	Teams exercise: Action plan	Teams: Presentation of Strategic Plan &n igeRoit sR
1430-1500	k eyyooceto st	k eyyooceto st	k eyyooceto st	k eyyooceto st	k eyyooceto st
1500-1630	ogoiigRi PAHC/RADDL new ugageR	sosn a: Key Performance sRpg sieta (KPI)	ososn a:oaetn vtsigeRoey PAHC's Sotsioi gpa Review strategies and prioritization	sosn a exercise: Ao igeR ptsR	Wrap-up Closing Program
1630…	Finalization of PAHC/RADDL Vision	sosn a:oito aoRisigeR& Dga vaageR What we have learned thus far – checking relevance and coherence			
guoRgRi				Evening workshop: Ptoi stsigeRoito aoRisigeR	

Annex 13: Participant report from laboratory exchange programme for PAHC/OIE Ref Lab on Avian Mycoplasmosis (Philippines to USA)

REPORT OF THE TRAINING ON AVIAN MYCOPLASMOSIS DIAGNOSIS

Trainee: Dr Nieves V. Bautista, the Philippine Animal Health Centre (PAHC), the Philippine
Trainers: Assistant Professor Dr. Naola Ferguson Noel, Ms. Victoria Laibinis and Ms. Ruth Wotten
Date: 8th-26th October 2012
Duration: 3 weeks
Venue: College of Veterinary Medicine University of Georgia, UAS

Background

Under the framework of the IDENTIFY project, as a component of USAID's Emerging Pandemic Threat Program, the FAO/OIE/WHO are implementing activities across the region to enhance diagnostic capacity and improve networking of laboratories - both geographically and across the public-health and animal-health sectors. One of the activities that OIE are supporting within this project is the provision of opportunities for laboratory staff in the South East Asia region to gain experience and technical guidance from OIE Reference Laboratories.
Since 1954, avian mycoplasmosis has been considered a significant problem in chicken flocks in many Asian countries including the Philippines. The occurrence of mycoplasmosis, which often caused by *Mycoplasma gallisepticum* (MG) and *M. synoviae* (MS) in chicken flock, has been recognized serologically or etiologically for respiratory disease and decreased meat and egg production.
MG and MS can be identified by immunological methods after isolation in mycoplasma media or by detection of their DNA in field samples or cultures. Samples for isolation can be swabs of organs or tissues, exudates, diluted tissue homogenates, aspirates from the infra-orbital sinuses or joint cavities, or material from egg yolk or embryos. Basic biochemical tests can be helpful in preliminary classification of isolates but final identification is by immunological tests, the most satisfactory being fluorescent antibody and immunoperoxidase tests. DNA detection methods based on the polymerase chain reaction, PCR and real time PCR, are used in specialized laboratories. Once validated, they can be used on swab material or cultures. Several serological tests are used to detect MG or MS antibodies, but due to variations in specificity and sensitivity, they are recommended for flock screening rather than for testing individuals. The most commonly used are the rapid serum agglutination test, the enzyme-linked immunosorbent assay (ELISA) and the haemagglutination inhibition (HI) tests.
The objectives of the training as following:

- To familiarize the trainee with the use of serological and molecular technique for diagnosis of avian mycoplasmosis
- To establish the bench and scientific proficiency skills of the trainee for laboratory diagnostic work (base-line assessment)
- To provide appropriate training and support with the opportunity to enhance those skills with regard to the provided diagnosis techniques for PAHC

Training Program elements

- Assessment of background awareness for laboratory diagnostic techniques
- Sample collection technique

- Animal inoculation
- Rapid plate test
- Hemagglutination Inhibition Test, (HI) and Hemagglutination Test (HA)
- DNA extract and PCR technique
- Evaluation – Discussion on the outcomes of the training and prospects for further collaboration.

Conclusions

The trainee was able to follow instructions and demonstrate practical capability in assay development throughout the course of the training workshop. By the trainee's opinion this training was successful because it was done well. The hand-out materials were useful; the trainers were very kind and accommodating in attending all of the trainee's needs. The training was helpful in validating and enhancing the diagnostic works at the PAHC. These laboratory procedures done in the training could be adapted in the PAHC laboratory, provided the materials and reagents needed are ready and available.

Annex 14: Participant report from laboratory exchange programme for PAHC/OIE Ref Lab on Leptospirosis and Brucellosis (Philippines to Thailand)

REPORT OF THE TRAINING ON LEPTOSPIROSIS AND BRUCELLOSIS

Trainee: Dr Lilia M. Retes, the Philippine Animal Health Centre (PAHC), the Philippine
Trainers: Dr Surapong Wongkasemjit, Dr Duangjai Suwancharoen, Dr Monaya Ekgatat and Dr Reka Kanitpun
Date: 7th-25th January 2013
Duration: 3 weeks
Venue: The National Institute of Animal Health (NIAH), Thailand

Background

Under the framework of the IDENTIFY project, as a component of USAID's Emerging Pandemic Threat Program, the FAO/OIE/WHO are implementing activities across the region to enhance diagnostic capacity and improve networking of laboratories - both geographically and across the public-health and animal-health sectors. One of the activities that OIE are supporting within this project is the provision of opportunities for laboratory staff in the South East Asia region to gain experience and technical guidance from OIE Reference Laboratories.
By listed animal diseases for IDENTIFY for SEA region; Leptospirosis and Brucellosis are both recognized as important zoonotic diseases at the region. Correct diagnoses and timely reporting are necessary for control and prevention of the diseases in both animal and human populations.
For diagnosis of *Leptospirosis* in animal, identification of the agent from internal organs by molecular techniques, conventional- and real time PCR and Loop Mediated Isothermal Amplification (LAMP) are developed and used at the reference laboratory. To identifying of the bacterium serovar, serological testing is the most widely used means and the microscopic agglutination test (MAT) is the standard serological test. Antigens selected for use in the MAT should include representative strains of the serogroups known to exist in the particular region plus those known to be maintained elsewhere by the host species under test. Diagnosis of *Brucellosis* can be done by serological and molecular techniques. For serological tests, Rose Bengal test and buffered plate agglutination test, the complement fixation test, the enzyme-linked immunosorbent assay (ELISA) or the fluorescence polarisation assay, are suitable tests for screening herds and individual animals. However, no single serological test is appropriate in each and all epidemiological situations. Therefore, the reactivity of samples that are positive in screening tests should be assessed using an established confirmatory and/or complementary strategy. Whenever possible, *Brucella* spp. should be isolated using plain or selective media by culture from uterine discharges, aborted foetuses, udder secretions or selected tissues, such as lymph nodes and male and female reproductive organs. Species and biovars should be identified by phage lysis, and by cultural, biochemical and serological criteria. Polymerase chain reaction (PCR) can provide both a complementary and biotyping method based on specific genomic sequences.
The objectives of the training as following:

- To familiarize the trainee with the use of serological and molecular technique for diagnosis of Leptospirosis and Brucellosis
- To establish the bench and scientific proficiency skills of the trainee for laboratory diagnostic work (base-line assessment)

- To provide appropriate training and support with the opportunity to enhance those skills with regard to the provided diagnosis techniques for PAHC

Training Program elements

Leptospirosis:

- Introduction on the general leptospirosis, including the specimen collection and preparation, culture maintenance in liquid nitrogen the equipment and materials needed in laboratory
- Preparation of the special media for leptospirosis isolation
- Technique of antigen detection by isolation of urine, kidney and water samples
- Identification of the organism by Dark field microscope
- Techniques of MAT, real-time PCR and LAMP

Brucellosis

- Introduction and review on brucellosis diagnosis and control, collection of samples and preparation, identifying of good sample
- Lecture on biosafety regulation for handling materials contaminated by Brucella or isolation/culture of the bacteria in laboratory, under the regulation of which biosafety level of laboratories should be BSL2 or BSL3 level
- Preparation of different selective media and also technique of sample preparation for Brucella isolation
- Techniques of tube agglutination test, complement fixation test, indirect ELISA, the rose Bengal agglutination test (RPAT) and conventional PCR assay were provided for training.

Conclusions

The trainee was enhanced her knowledge and capability in performing the standard operating procedures on diagnosis of brucellosis and leptospirosis. She also gave recommendations for PAHC on set up appropriate testing facilities of brucellosis and leptospirosis and transfer the knowledge and technology learned and gained in the training to other laboratory staff and the reference information on the procurement of serovars and antigen of both brucellosis and leptospirosis diseases shall be provided.

Annex 15: Participant report from laboratory exchange programme for NIAH/OIE Ref Lab on Classical Swine Fever Virus (Thailand to Germany)

REPORT OF THE TRAINING ON CLASSICAL SWINE FEVER DIAGNOSIS

Trainee: Dr. Naree Ketusing, National Institute of Animal Health (NIAH), Thailand
Trainers: Heisenberg Professor Dr Paul Becher and EURL staffs
Date: 8th -19th April 2013
Duration: 2 weeks
Venue: EU Reference Laboratory for Classical Swine Fever, University of Veterinary Medicine, Hannover, Germany

Background

Under the framework of the IDENTIFY project, as a component of USAID's Emerging Pandemic Threat Program, the FAO/OIE/WHO are implementing activities across the region to enhance diagnostic capacity and improve networking of laboratories - both geographically and across the public-health and animal-health sectors. One of the activities that OIE are supporting within this project is the provision of opportunities for laboratory staff in the South East Asia region to gain experience and technical guidance from OIE Reference Laboratories.
Classical swine fever (CSF), also known as hog cholera, is a highly contagious viral disease of domestic and wild swine. The disease caused devastating losses in pig productions all over the word. Therefore, CSF is a disease listed by the OIE World Organisation for Animal Health (OIE) Terrestrial Animal Health Code and must be reported to the OIE (OIE Terrestrial Animal Health Code). Method of choice for detecting herds early in infection is to collect whole blood and tissues from multiple febrile or recently dead animals. At present, reverse transcription polymerase chain reaction (RT-PCR) both conventional and real time assays are widely used with high sensitivity and specificity for early detection of the infection while virus isolation in cell culture, with virus detection by immunofluorescence or immunoperoxidase assist the diagnosis results.
The objectives of the training as following:

- To familiarize the trainee with the use of molecular technique for diagnosis of classical swine fever infection.
- To provide appropriate training and support with the opportunity to enhance those skills with regard to the provided diagnosis techniques for NIAH

Training Program elements

- RNA extraction techniques
- RT-PCR technique; conventional – and real-time
  - Difference between TaqMan assay and SYBR Green assay
  - How to use internal control in each assay
  - The selection of RNA/cDNA segments for study.
- Technique on phylogenetic analysis
- Inoculation techniques in various cell lines for virus isolation.
- Evaluation – Discussion on the outcomes of the training

Conclusions

The trainee brought her filed samples and made comparison between results received from her workplace (NIAH) and by this training. By the trainee's opinion this training directly helps to improve NIAH diagnosis capacity on CSF. Since NIAH did not use real-time PCR and techniques for both RNA extraction and virus isolation was difference, therefore results received by the training course here show a higher sensitivity than that received from routine methods of NIAH.

Annex 17: Final Report of NADDEC Special Project

Final report of OIE special project between the Pirbright Institute, Woking, Surrey GU24 0NF, United Kingdom and National Animal Disease Diagnostics and Epidemiology Centre (NADDEC), Ministry of Agriculture Animal Industry and Fisheries, P.O. BOX 513, Entebbe, Uganda.

Report compiled by:
Dr Carrie Batten, Head of the Non Vesicular Reference Laboratories, The Pirbright Institute
16th July 2013
The project commenced on the 1st October 2011 and was due to finish on the 30th September 2013, however it has been agreed to close the project.

Tasks completed:

1. **Capacity building for improved disease investigations, field sampling, laboratory studies and disease control operations - Training workshop of national and district veterinary and laboratory staff**

A three day workshop was organised at the Central Inn, Entebbe, Uganda by Dr Chrisostom Ayebazibwe (Appendix 1) in collaboration with The Pirbright Institute. 113 participants took part in the workshop where Dr Carrie Batten and Eeva Tuppurainen provided seminars on BTV, Capripox and PPRV as well as seminars on referral diagnosis and sample collection. Participants benefited from training provided by NADDEC staff in sample collection from pigs, chicken, cattle and wildlife in the field, sample storage and management systems, one participant from each district left the workshop with field kits including cool boxes, ice packs, vacutainers, needles and sample packaging.
As per the budget funds **£18207** transferred to NADDEC for organisation of the workshop, venue hire, per diems for participants etc.

Costs incurred:
Travel for Dr Carrie Batten and Eeva Tuppurainen to workshop:
Transport to and airport **£90**
Transport 2 x flights UK to Entebbe **£1763**
Visas x 2: **£62**
Malaria tablets for two people **£102**
Per-diem expenses: £205 x 8 x 2 days = **£3280**
Total: £5297
Under the Twinning Projects it is clear that sample submissions to NADDEC have increased. This can be assessed from sample submissions as follows:

Year	**Total number of samples submitted to NADDEC**
2008	3826
2009	3824
2010	6877
2011	9393
2012	7192
TOTAL	**31112**

2. Targeted field sample collection and establishment of a national sample bank

2.1 Field trips for sample collection

In May 2012, an outbreak of PPRV was suspected in Kotido district of Uganda. Money from the special project allowed NADDEC staff to go out into the field and sample goats. The samples were confirmed as PPRV by real time RT-PCR at NADDEC and at the Pirbright Institute. Staff at the Pirbright Institute have since sequenced the virus and confirmed it as Lineage 3 (Appendix 2). Through various field trips a number of samples were collected and this helped out in setting panels for PPR, LSD, goat pox and BTV for various inter-laboratory comparison tests. Some samples were sent to Pirbright (for FMD confirmation) while a couple of them are still being worked upon at NADDEC.

£3460 transferred to NADDEC for sample collection.

2.2 Procurement of key disease surveillance, sample storage and laboratory materials

Fridges, freezers, racking, sample storage boxes, cryovials, vacutainers and needles for sample collection, microfuge tubes, labelling machines were procured and sent to NADDEC in May 2012. This equipment is now in use and a sample storage system is in place. Samples are being entered into a LIMs system and stored appropriately prior and after diagnosis contributing to an ongoing sample bank.

£1200 transferred to NADDEC 21/05/12 for sample clearance at customs

3. Laboratory capacity improvement and test evaluation

Molecular biology reagents were sent to NADDEC in October 2011.
Total cost: £4885
Shipment costs: £524
Serological diagnostic kits have been procured for BTV, PPRV and FMD for shipment to NADDEC in late September 2012.
1 x PPRV C-ELISA £4150
1 x FMDV 7 Serotype kit £4150
2 x BTV C-ELISA kits £551
2 x FMDV NSP kits £1650
Total cost: £10501
Shipment costs: £612

Molecular biology reagents have been procured for shipment to NADDEC in late September 2012.
Total cost: £12342
Shipment costs £475

Key equipment including a reverse osmosis system, autoclave, liquid nitrogen tank, cell culture flasks, pipettes, a fridge for cell culture and UPS's were sent to NADDEC in May 2012 from scientific laboratory services **(£36682)**. A further **£17973** was used to procure field collection pack, computer equipment, GPS and air conditioners by ERAM in Uganda. Fridges for sample storage were procured locally from Appliance world for **£3117**.
All equipment and consumables are being used to facilitate rapid sample collection in the field and diagnosis the laboratory

These materials will help NADDEC to establish cell culture facilities. In September Dr Carrie Batten and Eeva Tuppurainen were shown laboratory space where these facilities were to be housed. Advice was given on where and how to perform virus cell culture compared to clean cell culture. NADDEC are in the process of attempting to procure cell lines and media locally. In early 2013, **£2396** was sent to NADDEC to purchase cell culture media and foetal calf serum in advance of a visit by Dr Michael Baron in February (as part of the Pirbright/NADDEC twinning project) where he provided training in cell culture techniques.

Critical repairs to the laboratories have been undertaken by a local contractor (VICO Marketing supplies) in Uganda. Repairs to the ceilings, windows, installation of new doors and swipe card access along with a perimeter fence has greatly improved security. Work was inspected by Dr Carrie Batten in September 2012. **Total cost: £4096**

4. **Improvement of laboratory standards, biosecurity and test quality**

NADDEC has begun work on setting up a laboratory management system and quality management system. Funds have been secured from the World Bank for a BSL 3 laboratory to be built on the current site. A Laboratory Inventory Management System has also been initiated at NADDEC, so that proper use of reagents, equipment and kits is now centrally controlled in one store – all as a result of continuous consultation and advice.

A visit from Julie Forster, Pirbright Institute biosecurity advisor took place in February 2013. During the visit a biosecurity audit was performed looking at NADDECs current procedures and future plans. The audit and a list of recommendations can be found in Appendix 3 at the end of this report.

Costs incurred:
Travel for Julie Forster:
Transport flight UK to Entebbe **£765**
Taxis: **£108**
Malaria tablets and yellow fever vaccination: **£105**
Per-diem expenses: £205 x 5 = **£1025**
Total: £2003

Summary:
During the first 12 months of the project (October 2011 – October 2012) has supplied NADDEC with new equipment and reagents for building capacity for the diagnosis of animal diseases. Money has allowed for small scale renovations which have greatly enhanced the laboratory in terms of infrastructure and safety.
A workshop providing training on sample management and sample collection in the field was held in Entebbe and was attended by over 100 participants, including field veterinarians from all regions, laboratory staff and stakeholders. Training was provided by the Pirbright Institute disease experts, the OIE sub regional representative and numerous staff from NADDEC and MAAIF. The workshop was a huge success and feedback has been very positive.
During the second half of the project, in February 2013, Julie Forster (biosecurity expert from the Pirbright Institute) visited NADDEC and performed an audit on their current procedures. A list of recommendations has been given to NADDEC for consideration and incorporation into future projects. Additionally cell culture training was provided and the techniques are currently being used in the laboratory.
Total cost of project October 2011 – July 2013 = £123 770



16th July 2013

Dr Carrie Batten
Head of Non Vesicular Reference Laboratory
The Pirbright Institute
Ash Road, Woking
GU24 0NF, UK

USAID
FROM THE AMERICAN PEOPLE

OIE



Semiannual Report

OIE Contribution to the IDENTIFY Project

Reporting institution:
The World Organisation for Animal Health (OIE), IDENTIFY Project Partner

Reporting period: 1 October 2011 - 31 March 2012

Planned activities: 1 April 2012 - 30 September 2012

Regional component: Global
Countries: 2 "hot spots", by USAID category:
- Congo Basin: Democratic Republic of Congo, Uganda, Cameroon, Gabon, Central African Republic, Republic of Congo, Rwanda, Tanzania, Sudan, Ethiopia, Kenya
- **South and Southeast Asia:** Indonesia, Vietnam, Cambodia, Lao Peoples Democratic Republic, China, Malaysia, Thailand, Philippines, Bangladesh, Nepal
Project title: IDENTIFY, OIE contribution
Budget: No new budget for Year 3; carry-over budget from Years 1 & 2
Effective starting date: January 2010
Planned end date: 30 September 2014
Context of the project
This project is part of a complex program—Emerging Pandemic Threats (EPT)—designed by USAID and aimed to find and implement mechanisms to detect disease emergences, especially from wildlife. The One Health concept is an important component of the whole program. The IDENTIFY project is implemented jointly by the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO).
Objectives of the project
The IDENTIFY project is intended to strengthen diagnostic capacities through the development of laboratory networks spanning animal and human sectors with the ultimate aim of enabling countries to meet international obligations for disease reporting. Accurate and timely detection of known pathogens should facilitate the rapid recognition of newly emerging pathogens. International reference laboratories capable of fully characterizing the emerging pathogens are an integral part of these networks. For a list of targeted diseases, see Annex 1.
The project focuses on several parts of the world defined by the USAID as "hot spots" for emerging diseases where they are more likely to happen: Congo Basin and South and Southeast Asia.
The project will collaborate with the other arms of the EPT program: PREDICT, RESPOND, PREVENT, and USAID's DELIVER project. Each project has a defined work plan with activities and sub-activities to which every project team has agreed upon their level of participation (support, participate or lead).
Planned activities
For the description of planned outputs, activities and sub-activities, refer to the Final OIE IDENTIFY Year Three Work Plan (approved by USAID on 10 Jan 2012, submitted to USAID on 1 Feb 2012).

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Acronyms & Abbreviations

AAHL	Australian Animal Health Laboratory
AH	Animal Health
AOTR	Agreement Officer's Technical Representative
A-PBA	Asia-Pacific Biosafety Association
APSED	Asian Pacific Strategy for Emerging diseases
ARC	Agricultural Research Council
ASEAN	Association of Southeast Asian Nations
ASF	African Swine Fever
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
BVI	Botswana Vaccine Institute
cELISA	Competitive Enzyme Linked Immunosorbent Assay
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CSF	Classical Swine Fever
CVO	Chief Veterinary Officer
DAH	Department of Animal Health
DIC	Disease Investigation Centres
DRC	Democratic Republic of Congo
EARLN	East Africa Regional Laboratory Network
EDP	Emerging and Dangerous Pathogens
EDPLN	WHO Emerging and Dangerous Pathogens Laboratory Network
EID	Emerging Infectious Diseases
ELISA	Enzyme-linked Immunosorbent Assay
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
EQAS	External Quality Assessment Schemes
FAO	Food and Agriculture Organization of the United Nations
FAO-ECTAD	Food and Agriculture Organization of the United Nations Emergency Center for Transboundary Animal Diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific
FMD	Foot and Mouth Disease
FMD PCP	Foot and Mouth Disease Progressive Control Pathway
GFN	WHO Global Foodborne Infections Network
GLNS	Global Laboratory Networking Strategy
HPAI	Highly Pathogenic Avian Influenza
HPED	Regional Cooperation Programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia
HQ	Headquarters
HUA	Hanoi University of Agriculture
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
IDSR	Integrated Disease Surveillance and Response

IZS A&M	Istituto Zooprofilattico Sperimentale dell Abruzzo e del Molise G. Caporale in Terumo, Italy
IZSVe	Istituto Zooprofilattico Sperimentale delle Venezie
LANAVET	Laboratoire National Vétérinaire, Cameroon
Lao PDR	Lao People's Democratic Republic
LoA	Letter of Agreement
MARD	Ministry of Agriculture and Rural Development
MoA	Ministry of Agriculture
MoH	Ministry of Health
NAHC	National Animal Health Centre, Vientiane, Laos
NaVRI	National Veterinary Research Institute
NCVD	National Centre for Veterinary Diagnosis (Hanoi, Vietnam)
NIAH/T	National Institute of Animal Health (Bangkok, Thailand)
NIAH/J	National Institute of Animal Health (Japan)
NICD	National Institute for Communicable Diseases, South Africa
NIVR	National Institute of Veterinary Research (Hanoi, Vietnam)
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OH&S	Occupational Health and Safety
OIE	World Organization for Animal Health
OIE SRR	OIE Sub-Regional Representation
OVI	Onderstepoort Veterinary Institute
PCR	Polymerase Chain Reaction
PPE	Personal Protection Equipment
PPR	Peste des Petit Ruminants
PVS	OIE Performance of Veterinary Services Pathway
QA	Quality Assurance
RAHO6	Regional Animal Health Office #6 (Ho Chi Minh, Vietnam)
RFSEA	Regional Framework for Laboratory Capacity Building and Networking in SE Asia
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SADC FANR	Southern African Development Community Food Agriculture and Natural Resources
SADC TADs	SADC Transboundary Animal Diseases Project
SEACFMD	Southeast Asia and China Foot and Mouth Disease Campaign
SOP	Standard Operating Procedures
TAG	Technical Advisory Group
USAID/RDMA	U.S. Agency for International Development/Regional development Mission for Asia
USAID/W	U.S. Agency for International Development/Washington
VRI	Veterinary Research Institute, Malaysia
WAHID	World Animal Health Information Database
WAHIS	World Animal Health Information System
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office
WNV	West Nile Virus

Introduction:
Main progress made towards the achievement of project outcomes

The OIE IDENTIFY project has continued to build momentum during this reporting period. A number of concrete activities in the laboratories have been implemented by the OIE project team for the benefit of the Congo Basin and South and Southeast Asia regions:

- Focused capacity building in the framework of the Special Project for Uganda NADDEC (3.13.4C)
- IDENTIFY project performance indicators monitoring and evaluation (3.6.3G)
- World Animal Health Information Database data analysis on IDENTIFY targeted diseases in IDENTIFY countries (3.6.3G)
- Analysis of capacity building and technical support provided by OIE Reference Laboratories (3.6.6G)
- Planning and coordination with the OIE Reference Laboratory for Rabies, Onderstepoort Veterinary Institute, South Africa, to carry out a proficiency testing exercise, regional workshop, and backstopping missions for rabies diagnosis in IDENTIFY countries for promotion of laboratory quality management and improved rabies diagnosis and support for participation of national veterinary laboratories (3.10.2 C)
- Reception of OIE Special Project proposal for brucellosis with the Central Veterinary Research Laboratories Centre of Sudan (3.13.4C)
- Preparation for the support of participation of Laboratory Directors to the Asia-Pacific Biosafety Association 7th Annual Biosafety Conference in Nusa Dua, Bali, Indonesia on 24-27 April *'Moving Towards One World One Health'* (3.9.1S)
- Planning and development of the PVS Pathway Pilot Laboratory Mission (3.6.5G & 3.6.6G)
- The Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region (3.7.1S) & The Laboratory Director's Forum (3.9.1S)
- Development of the Laboratory strategic planning initiative (3.9.5S) including implementation of the National Animal Health Laboratory Strategic Planning Workshop
- Development and planning of the OIE National Focal Point Program for Veterinary Laboratories (3.6.6S)

For many laboratories, these activities are unique opportunities for improvements. These initiatives have concretely contributed to better networking of these laboratories leading to the ultimate goal of timely and accurate diagnosis of diseases through responding to observed and expressed needs of stakeholders and advocate for the crucial role of national laboratories in effective public and veterinary health systems in the principle of —One Health".

There is an expressed need by project beneficiaries for more technical support for certain areas (in the OIE IDENTIFY Year 3 Work Plan):

- Follow-up in-country visits for Laboratory strategic planning development (3.9.5S)
- Implementation of the Pilot PVS laboratory missions (3.6.4G & 3.6.5G)
- Implementation of the OIE National Focal Point Program for Veterinary Laboratories (3.6.6S)
- Focused capacity building in the framework of Special Projects (3.13.4C)
- Occupational Health and Safety (OH&S) in Animal Health laboratories (3.10.2S)
- Quality Management Systems in National Animal Health laboratories (3.10.3S)

The reporting period covered 2 country visits (Nigeria, Bangladesh). These visits have enabled direct contact with representatives of beneficiary countries and laboratories. They have also enabled assessment of progress in terms of technical assistance needs, laboratory capacity mapping, and linking with needed resources. The exchange between the public and animal health sectors has also been reinforced and has shown possibilities for further collaboration.

Despite budget challenges and delays in work plan approval in Year 3, this period has also allowed the further exploration of new ideas and the concrete development of two pilot projects—a laboratory component within the widely implemented OIE PVS Pathway and the implementation of the OIE Laboratory Focal Point Program—and we expect that in the next reporting period and upon implementation their relevance will be confirmed.

We maintain a collaborative tripartite IDENTIFY project team at the HQ and regional levels. The fruits of project planning in the previous period are ripe as the country beneficiaries work to accomplish project goals for more rapid and accurate diagnosis of targeted diseases. The joint regional activities have set an important precedent for regional intersectoral collaboration between organizations; tripartite regional activities have activated regional engagement and have encouraged increased communication.

Activities undertaken during the reporting period
(1 Oct 2011 - 31 March 2012)

Output 1: Coordination (Global and Regional)

Activity 3.1: Ongoing tripartite project management and coordination, monitoring, and planning

GLOBAL

- **3.1.1G:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO, and with the IDENTIFY AOTR at USAID, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.
- **3.1.1G:** The three partners, FAO, OIE, and WHO, continued the rotating system of responsibility sharing on a monthly basis in order to more effectively and rapidly handle communication with program partners, day-to-day operations, and logistic arrangements. This system also applies to document creation, revision and meeting hosting. The OIE hosted the IDENTIFY secretariat in Oct 2011 & Jan 2012.

CONGO

- **3.1.1C:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

S/SE ASIA

- **3.1.1S:** In order to ensure good coordination among the OIE project management teams at the headquarters and regional levels, with FAO and WHO regional coordination teams, and with USAID regional and country missions, several lines of communication were maintained (see Tables 1 and 2) in addition to frequent email communication.

Table 1: 3.1.1: OIE and Tripartite Internal communication and coordination (including communication with USAID)

Type of communication/ coordination	Dates	Additional Information
Global		
Face-to-face meetings	17 Jan, 17 Feb, 26-28 Feb	Project management and planning
Regular teleconferences (TC)	monthly Oct-Mar	Project management and planning; biannual report; M&E indicators and data call ; Year 3 & 4 Work Plans
TC with IDENTIFY AOTR, USAID/W	9 Mar	Face-to-face meetings, instead of TC, were held 17 Jan
Face-to-face meetings with IDENTIFY AOTR, USAID/W	17 Jan	Project management and planning
EPT Program Quarterly meetings	18-20 Jan	Progress reports on implementation of program activities
Report Submission to USAID	28 Oct	OIE IDENTIFY contribution six-monthly report for Year 2

Congo Basin		
TC between FAO/OIE regional coordinators	7 Mar	Project management and planning; common areas for collaboration; Progress reports on implementation of project activities; Preparations for FAO Gabon and Uganda meetings
TC between OIE HQ and OIE regional team	12 & 26 Jan	Project management and planning; Progress reports on implementation of project activities; Project coordination, Preparations for project related meetings
Face-to-face meetings with OIE HQ and OIE regional teams	25 Oct	To discuss implementation and roles and responsibilities; To solidify collaboration, coordination, and communication
Communication with USAID	5 Mar	Proposed collaboration on training & Uganda EPT Partners Meeting (TC)
S/SE Asia		
Face-to-face meetings between Tripartite partners	19-21 Oct	Side meetings at Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region, Kuala Lumpur, Malaysia
	5-6 Dec	Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses
	16-20 Jan	Side meetings at Regional Workshop on Collaboration Between Human and Animal Health Sectors on Zoonoses Prevention and Control, Chiang Mai, Thailand
	23-24 Feb	USAID-FAO EPT+ Inception Workshop
Face-to-face meetings between FAO and OIE	23-24 Jan	First Laboratory Directors' Meeting and Workshop on Laboratory Networking and Proficiency Testing for Priority HPEDs in SAARC Countries
Face-to-face meetings with OIE and WHO	20 Feb	(Thai Govt. – Multisectoral) TOT One Health Workshop Supporting Training to Strengthen One Health Epi Teams at the Provincial and District Levels
Face-to-face meetings with OIE HQ and OIE regional team	25 Oct	Side meetings at Annual Meeting of the OIE Regional and Sub-Regional Representations to discuss OIE IDENTIFY project activities (Paris, France)
	28 Feb	Side meetings at Planning Meeting on the development of the OIE PVS Gap Analysis tool on Veterinary Laboratories to discuss OIE IDENTIFY project activities (Paris, France)
TC between Tripartite regional team	11 Oct	TC to discuss agenda for Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region, Kuala Lumpur, Malaysia
TC between OIE HQ and OIE regional team	7 Oct; 11 Jan	Project management and planning

Table 2: 3.1.1: External project communication and coordination (including communication with EPT Partners)

Dates	Event Title	Venue	Organizer(s)	Other Information
Global				
28 Feb-1 Mar	Planning Meeting on the development of the OIE PVS Gap Analysis	Paris, France	OIE	Experts from OIE Reference Laboratories, OIE Member Countries, PVS Experts, & IDENTIFY Countries, WHO attended

	tool on Veterinary Laboratories			
Congo Basin				
7-9 Nov	SADC Livestock Technical Committee II (LTC) Meeting	Gaborone	OIE/SADC Secretariat	Laboratory twinning , PVS, disease reporting, update on PPR, Rabies PT and other TADs activities
20 Jan	SADC SPS Discussion forum	Gaborone, Botswana	SADC	Exchange of information on SPS related programs and projects for cooperating partners
7 Mar	17th Regional Animal Health Centre Meeting	Gaborone, Botswana	OIE	Update and exchange of information on the PPR control strategy and development of FAO regional PPR TCP
S/SE Asia				
14 Oct	24th Meeting of the International Federation of Biosafety Associations	Sebel & Citigate Albert Park Hotel, Melbourne, Australia	International Federation of Biosafety Associations	Presented broad OIE objectives and strategy for capacity building in this area particularly in regard to a One Health approach.
18 Oct	The Third Laboratory Directors' Forum Meeting	Park Royal Hotel, Kuala Lumpur, Malaysia	FAO/OIE	Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
19-21 Oct	Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	Park Royal Hotel, Kuala Lumpur, Malaysia	FAO/OIE/ WHO	Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
5-6 Dec	Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses	Hokkaido University, Sapporo, Japan	FAO/OIE/ WHO/Hokkaido University	Objective to update each other on the research activities and zoonotic works of the collaborating and reference centres/laboratories for FAO, OIE and WHO; explore the possibility for collaborative work on zoonotic diseases and emerging infectious diseases of these institutes; and discuss and agree on a potential research agenda for zoonotic diseases and emerging infectious diseases
23-24 Jan	First Laboratory Directors' Meeting and Workshop on Laboratory Networking and Proficiency Testing for Priority HPEDs in SAARC Countries	Dhaka, Bangladesh	FAO	Engage the two SAARC countries (Nepal and Bangladesh) that are covered under IDENTIFY and presented ongoing and upcoming OIE work in relation to the IDENTIFY project. Also visit to laboratory to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on improvement of laboratory work flow

				for improved biosafety and biosecurity, quality control
20 Feb	TOT One Health Workshop Supporting Training to Strengthen One Health Epi Teams at the Provincial and District Levels	Narai Hotel, Bangkok, Thailand	Thailand Government and US-CDC	Presentation given with CDC, WHO and USAID on ~~O~~n-going Global One Health Project & Examples.
23-24 Feb	EPT Plus Inception Workshop	Plaza Athénée Hotel, Bangkok, Thailand	FAO/USAID	Assessment of opportunities for collaboration on this project
28 Feb-1 Mar	Planning Meeting on the development of the OIE PVS Gap Analysis tool on Veterinary Laboratories	Paris, France	OIE	Experts from OIE Reference Laboratories, OIE Member Countries, PVS Experts, & IDENTIFY Countries, as well as WHO attended
5-9 Mar	18th Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South-East Asia and China (SEACFMD)	Wonderport International Hotel, Lijiang, China	OIE	This is a meeting supported by AusAID under the OIE STANDZ program for FMD control in the region. Presentation on OIE laboratory capacity building, particularly activities under the IDENTIFY project

Activity 3.2: Recruitment of staff to support IDENTIFY activities

GLOBAL

- **3.2.1G:** Ongoing employment of Global OIE IDENTIFY Project Coordinator, OIE HQ, Paris.
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 3 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the global activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.
- **3.2.2G**: Ongoing employment of Global OIE IDENTIFY Financial and Administrative Coordinator, OIE HQ, World Animal Health and Welfare Fund, Paris
  - The OIE IDENTIFY Financial and Administrative Coordinator is responsible for all financial aspects related to administrative activities, including reporting, budgets, official communications with USAID, and Work Plan development.

CONGO

- **3.2.1C:** Ongoing employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Gaborone
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 3 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible

for all aspects of the Congo activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.

- **3.2.2C:** Ongoing employment of Regional OIE IDENTIFY Project Support, OIE SRR Nairobi
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 3 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the Congo/East Africa activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.

S/SE ASIA

- **3.2.1S:** Ongoing employment of Regional OIE IDENTIFY Project Coordinator, OIE SRR Bangkok
  - In addition to the coordination and technical responsibilities for each activity outlined in the Year 3 Work Plan, the OIE IDENTIFY Project Coordinator is also responsible for all aspects of the South and Southeast Asia activities in Annex 2, which require either no additional resources beyond staff support or only a limited budget.

Activity 3.3*:* Preparation and review of global, regional, and country-level work plans and other project documents

GLOBAL

- **3.3.1G:** During the work plan revision process, the OIE IDENTIFY Year 3 Work Plan was submitted to USAID with copies to FAO and WHO on 6 Oct.
  - USAID requested more detailed information on the major activities of the OIE Year 3 work plan: when each activity is to be done, where it will be done, how it will be done, with whom, as well as a description of each of your proposed major activities that follows the revised format described in email (12 Sept).
- **3.3.1G:** The OIE IDENTIFY Year 3 Work Plan Addendum was submitted to USAID with copies to FAO and WHO on 6 Oct.
- **3.3.1G:** The Year 3 Work Plan activities were refined following USAID request at the country, regional, global levels and in collaboration with FAO and WHO in the case of tripartite and cross-sectoral activities.
  - The OIE Year 3 Work Plan was approved by USAID on 10 Jan 2012. The final OIE Year 3 Work Plan, submitted 1 Feb 2012, included a description of the proposed activities, implementation plans, and budgets in the format requested by USAID.
- **3.3.1G:** Activities contained in the OIE Year 3 Work Plan were presented along with FAO and WHO activities to USAID/W during the poster session of the EPTEPT Partners' meeting in Washington DC (18-12 Jan).
- **3.3.1G:** The second biannual report for Year 2 (1 Apr-30 Sept 2011) was prepared separately for the first time by FAO, OIE, and WHO. OIE submitted this biannual report to USAID on 28 Oct2011.
- **3.3.1G:** Preparation of the first biannual report for Year 33 (1 Oct 2011-31 Mar 2012) began in March. This report will be the second biannual report prepared individually by each partner.
  - The present report on activities conducted is due to USAID on 30 Apr.

CONGO

- **3.3.1C:** Areas of collaboration in the work plans for Year 3 and preparation for consultative meetings for Congo Basin developed by each organization were discussed and reviewed during the regional IDENTIFY Coordinators (FAO/OIE) TC 6 Mar.

- **3.3.1C:** Preparation of the first biannual report for Year 3 3(1 Oct 2011-31 Mar 2012) began in March.

S/SE ASIA

- **3.3.1S:** The Year 3 Work Plan activities were refined in consultation with country-level laboratory representatives and in collaboration with FAO and WHO to reflect country needs and various meeting recommendations. Further revisions were required to address the new requirements of USAID to increasingly highlight project impacts on individual countries and laboratories rather than at the regional level.
- **3.3.1S:** Preparation of the first semi-annual report for Year 3 (1 Oct 2011-31 Mar 2012) began in March.

Activity 3.4*:* Communication tool development and resource building

GLOBAL

- **3.4.2G:** The joint IDENTIFY leaflet was in the process of translation into French and will be finalized and validated by the three partners and shared with IDENTIFY project stakeholders in the next period.

CONGO

- **3.4.1C:** There is regular contact and exchange of information on activities implemented between OIE IDENTIFY coordinators (Gaborone and Nairobi) and stakeholders, in particular laboratory directors.
- **3.4.2C:** The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings.
- **3.4.2C:** A specific web page for the IDENTIFY project has been maintained on the OIE Sub-regional representation's website (http://www.rr-africa.oie.int/IDENTIFY/en_index.html) to contribute to USAID, EPT Program, and IDENTIFY project visibility. A link has also been provided to the USAID EPT web page. Reports and updates on IDENTIFY project activities are posted on the page including reference materials.
- **3.4.2C:** Production of tripartite awareness materials (banners, leaflets) for various IDENTIFY-funded meetings.

S/SE ASIA

- **3.4.1S:** There is regular contact on activities implemented between the OIE IDENTIFY coordinator in Bangkok and stakeholders, in particular laboratory directors in IDENTIFY countries.
- **3.4.2S:** The joint IDENTIFY leaflet was shared with IDENTIFY project stakeholders during project events and related meetings, as well as with USAID and EPT Partners.
- **3.4.2S:** The OIE provided OIE Standards, Guidance and literature relevant to laboratories to IDENTIFY Project stakeholders during the Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific in Kuala Lumpur, Malaysia 18-21 Oct and other various meetings with laboratory personnel:
  - OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals
  - OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases.
  - Atlas of Transboundary Animal Diseases
  - OIE Bulletin

- **3.4.2S:** A specific web page for the IDENTIFY project has been created on the OIE Sub-regional representation's website (http://www.srr-seasia-oie.com/programs/identify) to contribute to USAID, EPT Program, and IDENTIFY project visibility.
- **3.4.2S:** A newsletter was produced and circulated to various stakeholders at the 18th Meeting of the OIE Sub-Commission for Foot and Mouth Disease in South-East Asia and China (SEACFMD) in Feb/Mar 2012 outlining activities undertaken by the OIE Sub-Regional Representation office; both newsletters informed of IDENTIFY activities (see Annex 3).
- **3.4.2S:** Contributions were made to the USAID Vietnam EPT factsheet regarding IDENTIFY activities (see Annex 4).

Activity 3.5*:* Annual review of the Laboratory Networking Strategy

GLOBAL

- **3.5.1G:** June 2011 version of the Laboratory Networking Strategy (LNS) was maintained and acted as a guiding document of the IDENTIFY project during this reporting period. The latest version was included in the OIE IDENTIFY Year 3 Work Plan (approved 10 Jan 2012). The LNS, approved by USAID in July 2010, is the strategic framework through which FAO, OIE, and WHO have agreed with USAID to work towards achieving the objectives of the IDENTIFY project.
- **3.5.1G:** HQ IDENTIFY Project Coordinators of the three partner organisations further elaborated the IDENTIFY project performance indicators in the project period.
  - USAID launched a Monitoring and Evaluation (M&E) initiative in Nov 2011 and requested the IDENTIFY Partners to further refine their performance indicators. IDENTIFY indicators were previously included in each year's Project Work Plan and in the LNS, approved in July 2010.
  - FAO/OIE/WHO reviewed these indicators and integrated them into the EPT/IDENTIFY Project Indicators Framework requested by USAID (see Annex 5). This document provides the framework for monitoring project progress and laboratory capacity over time.
  - The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity in the hot spot regions of the IDENTIFY project are housed within WAHID and IDENTIFY project documents. The analysis of the data has already provided valuable baseline information and historical trend information to OIE, and will inform OIE, FAO, and WHO of the actual situation as the project progresses.
  - The OIE provided its contribution to the USAID EPT and IDENTIFY Data Call, submitted 6 Apr 2012 to USAID (see Annex 6).

CONGO

- **3.5.1C** Adaptation of the Regional LNS (RLNS): Inclusion of modified monitoring indicators was followed by incorporating the indicators into the Y3 work plan.
  - The GLNS serves as the basis and guide to the RLNS and as a basis for tripartite collaboration the region.
  - The next step is underway and will insert for each IDENTIFY targeted disease the OIE recommended diagnostic tests to complete the mapping exercise (see activity 3.6.) with the availability of these tests in the supported laboratories.
- **3.5.1C:** Revision of the ~~"G~~uide for Networking National Human and Animal Reference Laboratories in Africa" at country level. This document was drafted by WHO AFRO. The document failed to further materialize as WHO advocated for IDSR in the region for all

laboratories, whereas and according to the International Standards (ISO/IEC 17025), the OIE advocated for IDSR in human health laboratories and PVS in animal health laboratories.

S/SE ASIA

- **3.5.1S:** The Regional Framework for Capacity Building and Networking (see Annex 7) is a harmonized version of the South and Southeast Asia RLNS and reflects the revisions of the animal health partners, FAO and OIE. This framework was updated following the recommendations from the Regional Laboratory Network for South East Asia Technical Advisory Group meeting and was presented and endorsed at the Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia Pacific in Kuala Lumpur, Malaysia 19-20 Oct; this document will now form the guiding document for IDENTIFY and regional laboratory capacity building in general; ongoing revisions will occur as necessary.
- **3.5.1S:** The OIE Project Coordinator compiled additional information required for the finalization of the IDENTIFY Project performance indicators.

Output 2. Technical Capacity Building - General

Activity 3.6[1]*:* Follow-up of laboratory mapping exercise activities

GLOBAL

- **3.6.1G:** The updated list of laboratories to be strengthened under IDENTIFY to achieve improved timely and accurate detection of potential pandemic threats in the hot spot regions was submitted to USAID 25 Jan for both hot spot regions. Discussions and close contact with each laboratory began last reporting period to assist in the development of OIE IDENTIFY activities that will answer needs of the IDENTIFY beneficiary laboratories.
- **3.6.2G:** Review of the PVS documentation available to Donors and Partners is complete and it was found that several Members would like assistance in the adaptation and adoption of international guidelines and standards for laboratories, improved communication between networks of labs in the region, as well as between sectors. In general, donor round table meetings, laboratory strategic planning, and focused laboratory PVS missions were often cited as areas of desired intervention by the OIE. The OIE training on standards for specimen shipment in Congo Basin and the planned training on laboratory strategic planning and quality management systems in SE Asia were based on needs identified in the assessments of 3.6.1 and 3.6.2.
- **3.6.3G:** The refinement of the project performance indicators (in the framework of the LNS) began in the previous reporting period and continued throughout this reporting period. The data necessary for the IDENTIFY and OIE Performance Indicators used to measure the evolution of laboratory capacity in the hot spot regions of the IDENTIFY project are reported by OIE Member Countries to WAHID and are included in IDENTIFY project documents.
    - The analysis of the data has already provided valuable baseline and historical trend information to OIE, and OIE will inform FAO and WHO of the actual situation as the project progresses.

[1] For information on the activities at the country level conducted during this reporting period, please see individual country achievement tables on pg. 36.

- Following the annual review of the LNS, the determination of baseline, midterm (as of Apr 2012), and historical trends (2005-present) of WAHID were finalized. For the detailed description of the indicators for the OIE contributions to the IDENTIFY project, please see Annex 8.
- The OIE maintained a contract with a Veterinary Epidemiologist to conduct this sub-activity.

- **3.6.3G:** The descriptive analysis of the World Animal Health Information Database (WAHID) for IDENTIFY priority diseases and countries continued throughout this reporting period. This included conduct of the analysis, preparation of the results and the report, development of tables, graphs, and maps. Please see Annex 9 for a detailed report on the next stage of the analysis.
  - Gaps in information related to disease reporting on IDENTIFY-targeted diseases have been identified. An analysis on the concordance of disease priority lists to actual disease reporting and surveillance systems in place at the country level has been conducted. Disease reporting and sample referral maps related to outbreaks reported to the OIE in the form of immediate notifications have been developed. A comparison of historic official OIE and WHO disease reporting data for two IDENTIFY-targeted diseases (Avian influenza and Rift Valley Fever) to analyze timeliness of diagnosis has been conducted.
  - A computer programmer is assisting the Animal Health to conduct the above-described analyses. He has developed a web-based tool facilitating data extraction from the WAHIS Database. Numerous automatic extractions have been developed, which assist AHID to more efficiently access and analyze emerging and normative and IDENTIFY-targeted disease information. He is also working on the improvement of data recorded in Six-monthly reports received from OIE Member Countries. Having usable datasets allows easier analysis of zoonotic disease situation in a routine and *ad hoc* manner.
  - The OIE maintained a contract with a Veterinary Epidemiologist to conduct this sub-activity through Aug 2012 (linked to above activity).
- **3.6.4G & 3.6.5G:** Development of the Pilot OIE PVS Pathway Laboratory Tool, the veterinary laboratory component of the OIE PVS Pathway, continued in the reporting period. The strategic direction, information needs, methodology and framework on how to proceed with the enhancement of the Pilot OIE PVS Pathway laboratory Mission were developed. Additionally, the next steps for pilot mission implementation were proposed and timeline for the tool development defined by a group of PVS and laboratory experts, 28 Feb-1 Mar in Paris, France.
  - This activity aims to develop and implement a specific decision making tool, requested by national veterinary services, for the assessment of the National Animal Health Laboratory System to meet the needs of the National Veterinary Services objectives as identified in the PVS Gap Analysis Mission. Laboratories should not exist in a vacuum, and strategic decisions about laboratory investment and capacity building must be taken in the framework of understanding the system in which the laboratory is functioning and the national needs it must meet. Outcomes of this activity will allow national Veterinary Service decision makers to better allocate appropriate budgets to the National Animal Health Laboratory and better advocate for sufficient resources to support accurate and timely diagnosis of IDENTIFY priority animal diseases.
  - The OIE initiated a contract with a PVS Expert and Laboratory Expert to work with the IDENTIFY team to conduct this sub-activity.

- **3.6.6G:** The development of the pilot OIE Laboratory Focal Point training program continued during the reporting period and nominations for OIE Laboratory Focal Points were solicited and received from many countries in SSE Asia. After suggestions by many countries and experts that laboratory-related issues need more visibility at the highest levels of Veterinary Services and the country's government, Laboratory Focal Point nominations were recommended at the country level.
  - Draft ToRs were developed and sent to SSE Asia (ASEAN+3) countries.
  - It is agreed by experts and stakeholders that this pilot program will have great benefits and ensure sustainability of IDENTIFY project outcomes as the country authorities would be involved in the programs at the highest levels.
  - Formally establishing this link between laboratory focal points and CVOs speaks to the strong support for the use of laboratory diagnostic information for notifying exceptional events to the OIE, an important aim of the IDENTIFY project.
- **3.6.8G:** The analysis of OIE Reference Laboratory and Collaborating Centres Annual Reports began during this reporting period. The information gained from the analysis has helped the OIE to develop activities that are more closely targeted to the real needs of countries. A short-term consultant was engaged to dedicate time to this project.
  - This activity aims to better understand existing technical support efforts and networks for sample referral and training between IDENTIFY countries' National Animal Health Laboratories and OIE Reference Centres and to inform the reinforcement of technical support and networking activities and the development of appropriate and sustainable interventions to improve laboratory capacity to more rapidly and more accurately diagnose known and emerging threats. In addition, this initiative aims to better connect National Animal Health Laboratories with necessary expertise in the region for more effective diagnosis of pathogens.
- The OIE provides a preliminary report of the analysis in this IDENTIFY report (see Annex 10); the final report is currently undergoing institutional review and will be provided in the next IDENTIFY semi-annual report.
- **3.6.8G:** The development of OIE resource documents by IDENTIFY disease (to be distributed to IDENTIFY laboratories) has begun, and a questionnaire on the challenges of shipment of biological specimens was completed by all IDENTIFY countries. A report on the findings of this questionnaire will be included in the next IDENTIFY biannual report.

CONGO

- **3.6.2C:** The Diagnostic capability of the Gabon *Laboratoire National Vétérinaire de Libreville* was assessed according to information reported to the OIE WAHID and against the OIE prescribed tests for international trade and found that regarding rabies capacity, there was not sufficient diagnostic capacity.
- **3.6.3C:** The regional LNS and the indicators were re-examined in the annual review. Measurements for Year 3 project performance indicators are included in Annex 6.
- **3.6.4C:** Tanzania Central Veterinary Laboratory initiated a laboratory twinning program with CIRAD on PPR. A letter of intent was submitted by Tanzania on August 2011 and the assessment is still ongoing.

S/SE ASIA

- **3.6.2G:** Review of the PVS documentation available to Donors and Partners has been undertaken and will continue as more reports become available from countries in the region. A common theme identified within this documentation, also identified through review of assessments conducted by partner organisations and through discussions with

laboratory directors whilst on mission to IDENTIFY countries, is a lack of strategic guidance in the development of laboratories or national laboratory networks.
  - In many cases, there is no document such as a strategic plan outlining the current roles and responsibilities of the laboratory, nor guidelines or proposals for future development.
  - Other notable and recurring gaps in many laboratories in the region are poorly developed quality systems. Whilst some capacity building has been performed in many of these laboratories under the recently ended AusAID 'Programme for Strengthening Veterinary Services', continued engagement and capacity building is required to bring many of these laboratories up to an acceptable level.

- **3.6.5S:** Because the PVS Gap Analysis Laboratory Tool/Missions will be first implemented in SE Asia, the IDENTIFY coordinator has been actively involved in the development of the Pilot OIE PVS Pathway Laboratory Tool, the veterinary laboratory component of the OIE PVS Pathway. In this role, Dr Davis attended the second tool development meeting, 28 Feb-1 Mar in Paris, France (see 3.6.4G).
- **3.6.6S:** Development of the Pilot OIE PVS Pathway Laboratory Mission, the veterinary laboratory component of the OIE PVS Pathway, began early in the reporting period (see 3.6.5G).
- **3.6.7S:** The development of the pilot OIE Laboratory Focal Point training program continued during the reporting period, and will be first implemented in Southeast Asia (see 3.6.6G) with the regional training seminar to be held tentatively in Thailand.

Table 3: 3.6.4: Country Scoping and National Animal Health Laboratory Visits

Dates	Venue	Organizer(s)	Other Information
Congo			
26-30 Mar	Nigeria Veterinary Research Institute	OIE	Rabies diagnostic capacity for potential future reference laboratory to serve the Congo Basin region
S/SE Asia			
24 Jan	Central Disease Investigation Laboratory, Dhaka, Bangladesh	OIE/FAO	Meeting with Laboratory Director, technical staff. Purpose: to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on improvement of laboratory work flow for improved biosafety and biosecurity and quality control

Activity 3.7*:* Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

CONGO
- **3.7.1C:** A joint stakeholders meeting for the Congo region was projected for early 2012; however, both WHO and FAO planned unilateral meetings with stakeholders, with OIE invited but not involved in the planning of the meeting or agenda development. This is a missed opportunity and a joint meeting could have been implemented if FAO and WHO had shared their intentions with OIE at an earlier stage in planning. These events make significant demands on national animal and human health laboratory leadership and will make it difficult for optimal presence at other meetings approved in the IDENTIFY work plans and foreseen throughout the project year. Efforts were underway to coordinate with FAO to consider hosting meetings back-to-back with OIE to overcome this challenge.

S/SE ASIA

- **3.7.1S:** The Third Laboratory Directors' Forum (see Annex 11 for Conclusions and Recommendations and Annex 7 for the regional strategic framework) was held 18-21 Oct in Kuala Lumpur, Malaysia and its aim was to finalize the strategic framework for regional EID laboratory capacity building and networking.
- **3.7.1S:** OIE, in collaboration with regional coordinators from FAO and WHO, co-organized the second IDENTIFY Stakeholder's meeting in Kuala Lumpur 19-21 Oct entitled _Mœting on Laboratory Strengthening for Emerging Infectious Disease Diagnosis in the Asia Pacific' (see Annex 12 for meeting report). This meeting was the first time in the larger Asia Pacific region that in a high-profile joint meeting of Animal Health and Public Health Laboratories have come together.
  - This meeting involved separate but parallel Public Health and Animal Health consultative sessions, as well as a joint opening and a full-day cross-sectoral meeting with recommendations for future collaboration and IDENTIFY activities in the areas of biosafety/biosecurity, laboratory strategic planning, occupational health and safety. Organisation of this meeting involved numerous tripartite (FAO/OIE/WHO) teleconferences, emails and face-to-face side meetings at other events.
  - OIE, in collaboration with FAO, supported Laboratory Directors and technical staff from National Animal Health Laboratories from IDENTIFY countries to attend this meeting.
  - Participating (IDENTIFY) countries: Cambodia; China; Indonesia; Lao PDR; Malaysia; Nepal; Philippines; Thailand; Vietnam

Output 3. Technical Capacity Building - Development of guidance, policy and training

Activity 3.8*:* Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Table 4: 3.8.1: Support of country representatives in international and regional meetings/conferences

Dates	Event Title	Venue	Organizer(s)	Participating IDENTIFY Countries	Other Information
Global					
13-15 Mar	Closure meeting of rabies twinning project between ARC, South Africa and NVRI, Nigeria	Vom, Nigeria	OIE	Cameroon	Head of LANAVET – Cameroon Rabies PT
S/SE Asia					
5-6 Dec	Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses	Sapporo, Japan	FAO/OIE/WHO	Malaysia; Thailand	Objective to update each other on the research activities and zoonotic works of the collaborating and reference centres/laboratories for FAO, OIE and WHO; explore the possibility for collaborative work on zoonotic

					diseases and emerging infectious diseases of these institutes; and discuss and agree on a potential research agenda for zoonotic diseases and emerging infectious diseases

CONGO

- **3.8.1C:** Information on planned trainings for Year 3 of the project was shared between FAO/OIE/WHO and other EPT partners. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period. Collaborations to facilitate participation of beneficiary countries in regional meetings will also be discussed.

S/SE ASIA

- **3.8.1S:** Information on planned trainings for Year 3 of the project was shared between FAO/OIE/WHO. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.
- **3.8.1S:** The future development of the Southeast Asia Rabies Network (see 3.12.6S) is based upon the recommendations of the ~~"~~OIE Global Conference on Rabies Control: Towards sustainable prevention at the source" and includes a laboratory component. This activity will be further guided by the recommendations from the ASEAN/FAO/OIE/WHO Rabies Workshop held in Chiang Mai, Thailand in Jan 2012 including the recommendation that ASEAN Sectoral Bodies work with FAO, OIE and WHO to support development of regional strategies for rabies control. Although not funded under the IDENTIFY project, 33 participants total from the following IDENTIFY countries attended: Cambodia, China, Indonesia, Lao PDR, Malaysia, Nepal, Philippines, Thailand, and Vietnam. 39 additional participants from Myanmar, Timor-Leste, Australia, Brunei, France, Mongolia, India, Italy, FAO, WHO, GARC, SAARC and ASEAN also attended the meeting.

Activity 3.9*:* Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

GLOBAL

- **3.9.3G:** OFFLU Technical Project on the development of LAMP as a diagnostic tool tailored to developing country situations has made concrete progress: the scientific validation of novel diagnostic tools (LAMP and other commercial kits) for sensitive and specific detection of influenza of H5 subtype has occurred; enhancement of the international laboratory networking and capacity building of basic laboratories in Asia and/or Africa is underway, and preparations for the application and training of techniques for test validation began in the reporting period.
  - Avian influenza is an IDENTIFY priority disease for Congo Basin and South and Southeast Asia. The overall goal of this project is to refine and validate at the country level a tool, a method and a strategy that enables laboratories lacking resources to

accurately, confidently and in a user-friendly way, diagnose avian influenza and other diseases with low cost and by use of basic equipment that can be easily maintained and repaired with the integration of a colorimetric system to read results with the naked eye. This will be beneficial to countries to support more rapid and accurate diagnosis of animal diseases, as many labs cannot afford and/or maintain the machines to read results with existing kits. LAMP as a technology can be used for many different transboundary and zoonotic diseases (rabies, FMD, ASF, ND, etc.), the project focuses on LAMP-primers targeting avian and swine influenza, including the HPAI H5N1 strain and the novel 2009 H1N1 pandemic strain. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

- Preliminary results show that LAMP, an isothermal nucleic acid amplification assay, is a reliable test for fast and low-cost diagnosis of avian influenza of H5-subtype. LAMP has the advantage of being highly sensitive (as compared to rapid tests and conventional PCR), is based on nucleic acid detection and thus makes it bio-safe, robust and more independent of maintaining a cold chain for the samples transported to the lab. Theoretically, the LAMP assay as a simple genetic diagnostic technique finds its niche in the unique possibility of visualization of a positive reaction. This would make its application autonomous of expensive equipment and therefore a perfect tool for laboratories with limited capacities.
- The evaluated H5-specific RT-LAMP assay developed by IAEA is much cheaper than LFD (while being almost as rapid) and in addition much more sensitive with a comparable sensitivity to PCR. Further, the IAEA designed H5 specific LAMP kit has the favorable advantage of delivery as lyophilized format, which makes it possible to transport and store it for one to one-and-half years under room temperature (25°C) without the need for constant -20°C freezing conditions.

CONGO

- **3.9.2C:** Two OIE National Focal Point trainings occurred during the reporting period: OIE Regional Training Course on surveillance and notification of wildlife diseases for OIE Wildlife Focal Points from English Speaking countries in Nairobi (4-6 Oct 2011, http://www.rr-africa.oie.int/en/news/20111006.html) and for French-speaking Africa (28 Nov–1 Dec 2011, http://www.rr-africa.oie.int/fr/news/20111201.html).
  - Participants were trained on key information related to the notification to the OIE and Member countries obligations, overview of the OIE standards (*Codes* and *Manuals*), and OIE expertise in relation to OIE Reference Centres. Specific training on the use of the online *WAHIS-Wild* reporting system, the new component of WAHIS dedicated to wildlife diseases, the world animal health information system, both in terms of proficiency in the use of the software and in reporting wildlife animal diseases. New developments in wildlife management and what can be done to improve wildlife diseases surveillance focused on the African wildlife problems and gave options to improve the collection of sanitary data related to wildlife diseases through the surveillance networks.
  - 5 IDENTIFY countries participated in the OIE Regional Training Course on surveillance and notification of wildlife diseases for OIE Wildlife Focal Points for French-speaking countries under the auspices of the EPT/IDENTIFY project: Cameroon, Central African Republic, Congo (Dem. Rep), Congo (Rep), Equatorial Guinea (see Annex 13 for more information). An additional 21 participants included representatives from Benin, Burkina Faso, Burundi, Chad, Comoros, Morocco, Niger, Sao Tome and Principe, Senegal, Seychelles and Togo.

  - 8 IDENTIFY countries participated in the OIE Regional Training Course on surveillance and notification of wildlife diseases for OIE Wildlife Focal Points for English-speaking countries under the auspices of the EPT/IDENTIFY project: Angola, Ethiopia, Kenya, Rwanda, Sudan, South Sudan, Tanzania, Uganda, (see Annex 13 for more information). An additional 25 participants included representatives from Botswana, Egypt, Gambia, Ghana, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Sierra Leone, Somalia, Swaziland, Zambia and Zimbabwe.
  - Familiarization with OIE Listed Diseases of attending members of Veterinary Services occurred and wildlife diseases surveillance in country and notification to the OIE is expected to improve.
- **3.9.1S:** See 3.8.1S and Table 4 for additional information.
- **3.9.4S:** See 3.7.1S for additional information.
- **3.9.5S:** OIE, in collaboration with the OIE Collaborating Centre for Laboratory Capacity Building AAHL, organized and ran a workshop on Strategic Planning for Directors National Animal Health Laboratories. This tailored workshop was held in Melbourne, Australia and was delivered by the Mt Eliza Executive Education arm of the University of Melbourne Business School.
  - This IDENTIFY-supported workshop set out to build capacity of laboratory directors (LD) in the principles and tools of developing strategic plans, to directly assist LDs in drafting a strategic plan, and provide them with guidance on the further elaboration and stakeholder buy-in, of the strategic plan back in the respective countries.
  - Further one-on-one assistance in the development/elaboration of strategic plans will be provided under the IDENTIFY project in the form of follow-up visits to countries by OIE and strategic planning experts.
  - The objectives of the workshop are to assist LD in initiating a draft strategic plan and provide guidance in following the development process back in country, to educate LD in the importance as well as basic concepts of strategic planning, and to offer participants insight into the planning process of AAHL and the important issues that need to be considered in long-term planning including future market drivers, engagement with stakeholders and linkage with other sectors, the various management systems and processes for developing and maintaining strategic plans, and to understand the impact that these plans can have on improved diagnosis of emerging pathogens and overall functioning of the laboratory. The concept note, participant list, agenda, and evaluation report are included in Annex 14. This workshop was well-received and there was a high level of enthusiasm and engagement by participants and evaluation forms recorded excellent feedback. All participants requested the OIE to follow-up on this workshop to assist them to further develop their strategic plans and there are ongoing discussions with individual laboratory directors as to what form of activity is appropriate to the context of their country/laboratory. FAO and the Australian Department of Agriculture Forestry and Fisheries (DAFF) supported additional participants from Indonesia to this workshop and early feedback through DAFF has been very positive.
- **3.9.6S:** Technical assistance was provided in the development of an FAO pathology workshop to be held in the region in 2012. Objectives of this workshop are to build capacity in interpretation of gross pathologic changes to enable differential diagnosis, gain competence in necropsy procedure and sample collection, and expand expertise for sample packaging and submission The OIE regional coordinator will also be assisting in the delivery of this training; however, conflicts with other FAO activities has caused the workshop to be postponed on several occasions.

- **3.9.8S:** See 3.8.1S and Table 4 for additional information.

Output 4. Technical Capacity Building - Laboratory Quality Systems

Activity 3.10*:* Promote and support laboratory quality management

GLOBAL

- **3.10.1G:** The development of OIE resource documents by IDENTIFY disease (to be distributed to IDENTIFY laboratories) has begun. Each document will include references from the OIE Terrestrial Animal Health Code, the OIE Manual of Diagnostic Tests and Vaccines for terrestrial Animals, and other OIE reference documents, as well as relevant scientific literature published by the OIE. This series of documents was developed as an aid for the IDENTIFY targeted diseases in settings where access and familiarity to the OIE standards may be limited.
- **3.10.1G:** Final modifications of the EQA portion of the Global Survey results were agreed upon and will be published jointly by OIE, WHO, FAO, and IAEA. The file contains 4 data sheets (EQA providers for human samples, food samples, environmental samples, terrestrial and aquatic animal samples), will be password protected and will be hosted by WHO with cover letters and hyperlinks on each organisations websites to the WHO webpage.

CONGO

- **3.10.1C:** As stated in the OIE Work Plan for Year 3, the OIE began to identify OIE Reference Laboratories for PPR who would be able to conducted PPR proficiency testing (PT) in the Congo Basin region. Support for participation in a PT exercise to confirm quality of results for PPR was initiated with OIE Reference Laboratory for PPR CIRAD – BIOS in France.
  - During information sharing and discussions with FAO, in an effort to avoid duplication and improve collaboration between the two organisations and animal health laboratories, it was decided that the OIE would support PT and harmonisation of SOP for rabies in the region and FAO would support that of PPR due to the different experiences and levels of progress on each activity. OIE had, at the time of reporting, developed the Terms of Reference for the rabies PT rounds, identified and discussed with the designated Expert from the OIE Reference Laboratory (OVI-ARC, South Africa) and harmonize the SOP for rabies FAT.
  - The number of laboratories participating, distribution of reagents, and status on SOP development and or harmonisation will be reported in the next period. The PT exercise will be followed up by a regional workshop focused on technique harmonisation for FAT for rabies and backstopping missions in some struggling IDENTIFY countries.

S/SE ASIA

- **3.10.2S:** The OIE began developing an activity to promote occupational health and safety (OH&S) programs during the reporting period. During the Meeting on Laboratory Strengthening for Emerging Infectious Disease Diagnosis in the Asia Pacific held 19-21 Oct in Kuala Lumpur, Malaysia, there was a training session dedicated to raising awareness of OH&S issues with an expert from White Cliff International in the UK providing training and facilitating a work group session.
  - There is increasing demand on diagnostic laboratories to expand their range of testing capabilities and receive samples that may contain new or emerging infectious agents;

increased risk to staff health and safety must be acknowledged and addressed. Increasing diagnostic capacity to be achieved through the IDENTIFY project must be accompanied by effective occupational health and safety (OH&S) programs. The purpose of this IDENTIFY activity is to promote awareness of OH&S issues, to build capacity to perform OH&S risk assessments, to perform a workplace risk assessment, and to identify gaps and provide recommendations to improve OH&S issues.

- A regional training workshop on OH&S (to be potentially combined with Quality Management Systems activity – see 3.10.3S, as outlined in proposed Year 3 Work Plan) is planned on issues such as the importance of OH&S in the laboratory, development of OH&S policy, in-house risk assessments including identification and evaluation of hazards, and providing methods of addressing these issues, including detailed case studies. Country-level consultations at the national animal health laboratory to conduct a country-specific risk assessment and make recommendations to address OH&S issues.

- **3.10.3S:** The OIE began developing an activity to promote quality management systems during the reporting period. A quality management expert has been identified and Terms of Reference (ToR) have been developed to deliver this activity.
  - To ensure confidence in laboratory test results, test methods must be properly validated with respect to their intended application, within a standardized setting, and they must be performed by proficient technicians. Validation, often referring to specific tests for known agents (normative diseases) also refers to cross cutting techniques and the adoption of general principles of quality assurance, that combined contribute to improved performance in the diagnosis of new or emerging infectious agents. Across South East Asia, quality assurance standards within laboratories are quite variable and it is believed that obtaining accreditation by national or international certifying organisations may be seen as a great hurdle. This activity proposes to assist less developed laboratories to improve general quality assurance within OIE guidelines and to guide more developed laboratories in obtaining a level of performance acceptable for accreditation.
  - This IDENTIFY activity (to be conducted as stated in the proposed Year 3 Work Plan) will promote the use of a quality management system (QMS) within national animal health laboratories and establish a QMS tailored to individual national animal health laboratories in the region based upon the OIE guidelines. Where a QMS is already in place, the QMS will be reviewed and recommendations made for identified gaps; in the absence of a QMS, countries will be encouraged to nominate a laboratory quality manager with established responsibilities.

Output 5. Technical Capacity Building - Building laboratory infrastructure

Activity 3.11*:* Provision of laboratory equipment and supplies in a coordinated manner

Procurement activities under the OIE IDENTIFY Project occur only in the framework of OIE Twinning Projects (Special Projects, see 3.13)

Output 6. Technical Capacity Building - Laboratory Networking

Activity 3.12*:* Support and promote laboratory networks

GLOBAL

- **3.12.4G:** Discussions were held between the IDENTIFY project coordinators and various OIE Reference Laboratories (e.g. Botswana Vaccine Institute, Onderstepoort Veterinary Institute, Institute for Animal Health-Pirbright) concerning their potential involvement in various IDENTIFY activities, such as the Twinning Orientation Meeting for IDENTIFY country laboratory directors and proficiency testing and SOP harmonization activities planned in Year 3 (see 3.13.3S).
  - IAH-Pirbright began further focused laboratory capacity building with NADDEC, an extension of the existing OIE Twinning Project on improved diagnostic capacity.
  - Detailed discussions with OVI-ARC OIE Reference Laboratory for Rabies were held regarding their input on the Twinning Orientation Meeting for IDENTIFY country laboratory directors and the PT exercise, regional workshop, and backstopping missions planned.

CONGO

- **3.12.1C:** See Table 5 below for further information.

Table 5: 3.12.1-3: OIE support for networks for improving laboratory capacity and networking in hot spot regions

Dates	Event Title	Venue	Organizer	Other Information
Congo Basin				
13-15 Mar	Closure meeting of rabies twinning project between ARC, South Africa and NVRI, Nigeria	NVRI, Vom, Nigeria	OIE	Cameroon, Niger, Nigeria attended, 43 participants total
31 Oct - 2 Nov	OIE Sub-Regional Seminar on Veterinary Legislation	Gaborone, Botswana	OIE	DRC, Tanzania, as well as Angola, Botswana, Lesotho, Namibia, Malawi, Madagascar, Mozambique, Swaziland, Seychelles, South Africa and Zimbabwe attended; topics included veterinary legislation and disease surveillance and control, 75 participants total
7-9 Nov	SADC Livestock Technical Committee II	Gaborone	SADC/OIE	DRC, Tanzania, as well as Angola, Botswana, Lesotho, Malawi, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe attended, Laboratory twinning, PVS, disease reporting, and update on PPR, Rabies PT and other TADs activities, 42 participants total
S/SE Asia				
18 Oct	The Third Laboratory Directors' Forum Meeting	Park Royal Hotel, Kuala Lumpur, Malaysia	FAO/OIE	Annual networking meeting for Laboratory Directors for updating and advice on various regional management

				issues relating to laboratories, 32 participants total, from Cambodia, China, Indonesia, Malaysia, Lao, Myanmar, Philippines, Thailand, Vietnam, Japan, Australia, FAO, OIE
19-21 Oct	Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	Park Royal Hotel, Kuala Lumpur, Malaysia	FAO/OIE/ WHO	Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component, 68 participants total from Cambodia, China, Indonesia, Malaysia, Lao, Myanmar, Philippines, Thailand, Vietnam, Japan, Australia, FAO, OIE, APBA, ASEAN, PREDICT, USAID, WHO and Public Health participants (see Annex 12).
5-6 Dec	Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses	Hokkaido University, Sapporo, Japan	FAO/OIE/ WHO/ Hokkaido University	Objective to update each other on the research activities and zoonotic works of the collaborating and reference centres/laboratories for FAO, OIE and WHO; explore the possibility for collaborative work on zoonotic diseases and emerging infectious diseases of these institutes; and discuss and agree on a potential research agenda for zoonotic diseases and emerging infectious diseases, 2 participants from Thailand and Malaysia, as well as China, India, Lao PDR, Philippines, Japan, France, Australia, 38 participants total.
23-24 Jan	First Laboratory Directors' Meeting and Workshop on Laboratory Networking and Proficiency Testing for Priority HPEDs in SAARC Countries	Dhaka, Bangladesh	FAO	Engage the two SAARC countries (Nepal and Bangladesh) that are covered under IDENTIFY and presented ongoing and upcoming OIE work in relation to the IDENTIFY project. Also visit to laboratory to determine opportunities to assist with networking and specific

				capacity building needs under IDENTIFY. Provision on general advice on improvement of laboratory work flow for improved biosafety and biosecurity, quality control. Bangladesh, Indonesia, Nepal, Thailand, Pakistan, Sri Lanka, Bhutan, Maldives, India, Australia, attended, 27 participants total
20-24 Mar	National Animal Health Laboratory Strategic Planning Workshop	Melbourne Business School, Melbourne, Australia	OIE	See 3.9.5S, 18 participants total from China, Indonesia, Malaysia, Lao, Philippines, Thailand, Vietnam, Timor Leste, Australia, OIE

- **3.12.3C:** See Table 5 for further information.
- **3.12.4C:** OIE Reference Laboratories and Collaborating Centres in the African region are prepared to offer expertise on diseases and Congo Basin technical areas relevant to the region. The OIE will continue working with the IDENTIFY laboratories to link up expertise with needs of the IDENTIFY laboratories in the form of focused capacity building and training opportunities:
    - The Botswana Vaccine Institute (BVI) have pledged their support to the activities of national veterinary laboratories in the Congo Basin through availing their expertise to upcoming meetings, technical support to FMD sample collection, preservation, shipping, documentation and diagnostics. BVI is ready to provide expertise for various activities of the OIE IDENTIFY Project with respect to the multiple disease expertise available.
    - Onderstepoort Veterinary Institute (OVI) have pledged their support to the activities of national veterinary laboratories in the Congo Basin through availing their experts to upcoming meetings, technical support for sample collection, documentation and diagnostics. OVI is ready to provide expertise for various activities of the OIE IDENTIFY Project with respect to the multiple disease expertise available.

S/SE ASIA

- **3.12.1S:** See Table 5 for further information.
- **3.12.2S:** See Table 5 for further information.
- **3.12.3S:** See Table 5 for further information.
- **3.12.4S:** See 3.13.1S for further information.
- **3.12.6S:** The future development of the Southeast Asia Rabies Network (see 3.12.6S) is based upon the recommendations of the ~~–O~~IE Global Conference on Rabies Control: Towards sustainable prevention at the source" and includes a laboratory component. This activity will be further guided by the recommendations from the ASEAN/FAO/OIE/WHO Rabies Workshop held in Chiang Mai, Thailand in Jan 2012 including the recommendation that ASEAN Sectoral Bodies work with FAO, OIE and WHO to support development of regional strategies for rabies control.
    - The aim, through the assistance of FAO/OIE/WHO/ASEAN, other partners and multiple donor agencies, is to develop a multi-sectoral strategy including a laboratory component to control rabies in South East Asia that would focus in getting resources

from governments, international organizations and other partners to support rabies control in the region and to further develop this framework into a robust strategy to control rabies in ASEAN. The IDENTIFY component of this activity is largely guided by the broader strategy and is focused on the laboratory networking component. Better diagnosis of these diseases will also aid in more quickly identifying when an unknown disease emerges.

Activity 3.13*:* Support and promote laboratory twinning initiatives and partnerships

GLOBAL

- **3.13.1G & 3.13.2G:** Discussions on several potential OIE Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases (see Sub-activity 3.13.1C). OIE Twinning projects are approved and overseen at the HQ level with involvement from regional counterparts. The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.

CONGO

- **3.13.1C & 3.13.2C:** Discussions on several potential OIE Twinning Projects were held during the reporting period in line with IDENTIFY project objectives, in IDENTIFY countries, and concerning IDENTIFY targeted diseases. The advancement of these activities is contingent upon receipt, approval, and finalization of the Twinning application and is in full partnership with national authorities.
- **3.13.1C& 3.13.2C:** The OIE Laboratory Twinning Program, in support of the advancement of the laboratory networks and diagnostic capacity, was discussed with stakeholders in technical meetings of veterinary laboratories and epidemiology networks.
  - The Tanzania Central Veterinary Laboratory in the Congo Basin region expressed interest in further collaboration in the framework of PPR diagnostics through the Laboratory Twinning Project with CIRAD and submitted their request in August 2011. The laboratory sought further clarifications on the program and was provided with reference materials on proposal writing, letters of intent, and guidelines, and was put in contact with the OIE Twinning program officer.
  - DRC CVL also expressed interested in capacity building for African swine fever but this discussion was deferred to until the OIE PVS Gap Analysis mission was completed.
  - Cameroon (LANAVET) expressed interest in an OIE Twinning Project on foot and mouth disease and was put in contact with OIE HQ and provided the procedure for application for a Twinning project. The potential parent laboratory and the candidate laboratory (LANAVET) have established communication and letter of intent from both labs were received.
  - The decisions for the two laboratories were delayed due to prioritization and the significant amounts of projects on the pipeline. If approved, the next steps would be to submit proposals to the OIE for consideration.
- **3.13.3C:** Planning for an OIE-organized feedback session for Twinning Candidate and Parent Laboratories in Africa focused on the OIE Twinning Program, roles and responsibilities of OIE Twinning Candidates, and networking with OIE Reference Laboratories and Collaborating Centres on priority diseases, is tentatively scheduled for July 2012.

- **3.13.4C:** The Special Project for focused laboratory capacity building for NADDEC in Entebbe, Uganda in the framework of the Special Project for Additional Support for OIE Twinning Projects continued in this project period.
    - The aim of this IDENTIFY activity is to improve the accurate and timely diagnosis of animal diseases in Uganda and in the Congo Basin region by stimulating sample flow from the districts in the field to the national veterinary laboratory through training and equipping the veterinary services. Currently many disease outbreaks in Uganda go undiagnosed so it is essential to stimulate the flow of samples between the field and the diagnostic laboratory. In this way the vets and farmers will gain trust and confidence in the ability of the national reference lab to provide timely and accurate diagnosis, so that relevant control measures can be rapidly initiated.
    - Additionally, the project aims to set up and standardize a national serum and virus bank for improved testing, initiating research projects and collaborations with other institutions; Provide capacity for the early disease detection and diagnosis of livestock diseases through efficient and effective national veterinary surveillance and diagnostic systems; Augment the laboratory‘s capacity to standardize and evaluate selected serological and molecular tests and set up tissue culture facilities for virus isolation; Refurbish existing animal facilities which will open up the possibility of using animal infections to develop diagnostic material and test vaccines through animal experiments; Purchase essential equipment in order to increase the diagnostic capacity of the lab and enable further tests to be carried out; Evaluate and streamline the existing laboratory quality management and biosecurity standards; Stimulate further national and international collaborations for enhanced disease diagnosis and effective control in the Eastern and Central African region.
- **3.13.4C:** An initial funding request and proposal for the Special Project for focused laboratory capacity building for the brucellosis unit of the Central Veterinary Research Laboratories Centre in Sudan in the framework of the Special Project for Additional Support for OIE Twinning Projects was received during this project period. After exploratory conversations following the OIE Twinning Programme Feedback Session in Paris in March, the initial request was received by OIE in April, a revised proposal was received in December, and a final proposal was in discussions in March 2012.
    - The current OIE-funded Twinning Project aims at providing training and interactions between VLA and Sudan, however this project cannot, due to funding restrictions, fully address the gaps in diagnostic capacity required to achieve all goals, including goals for the IDENTIFY project. These gaps are the target of the IDENTIFY Special Project funds.
    - The aim of this IDENTIFY activity is to improve the accurate and timely diagnosis of brucellosis in Sudan and in the Congo Basin region by equipping the veterinary laboratory with diagnostic and biosafety equipment.

Activities undertaken during the reporting period, by country

Congo Basin Regional Activities

Democratic Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training workshop on wildlife Diseases and notification	28 Nov – 1 Dec 2011	Gaborone, Botswana	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
IDENTIFY priority disease notification guidelines	March 2012	TC	Recommendation to submit an immediate notification on PPR.
Interest in OIE Twinning Project for Kinshasa Central Veterinary Laboratory and OIE Reference Laboratory on ASF	July 2011, ongoing	Kinshasa, DRC	Continued expression of interest on capacity building for ASF diagnostics through an OIE Twinning project.
PVS Legislation mission request	Jan 2012	email	Renewal of PVS Legislation mission request
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Uganda Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports Congo Basin countries accessible on website and require updating
Special Project for focused laboratory capacity building	Sept 2011, ongoing	NADDEC, Entebbe, Uganda	Aim: to improve the accurate and timely diagnosis of animal diseases in Uganda and in Congo Basin by stimulating sample flow from field to NADDEC through field training; to set up and standardize national serum & virus bank; initiating research projects and collaborations; to provide capacity for early disease detection and diagnosis; to refurbish animal facilities to purchase essential equipment to increase diagnostic capacity; to evaluate & streamline existing laboratory quality management and biosecurity standards.
Cameroon Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	28 Nov – 1 Dec 2011	Gaborone, Botswana	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Closure meeting of twinning between ARC south Africa and NVRI, Nigeria on Rabies	13-15 Mar	Vom, Nigeria	Twinning project sharing of experiences and rabies status of participating countries
Interest in OIE Twinning Project for Cameroon Central Veterinary Laboratory LANAVET and BVI OIE Reference Laboratory for FMD	Jan 2011, ongoing	Cameroon Central Veterinary Laboratory LANAVET	Letters of intent shared between the two laboratories and request to establish project submitted to OIE HQ
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Gabon Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
IDENTIFY priority disease notification guidelines	Mar 2012	TC	Request to update information on outstanding initial notification on CBPP

Training wildlife Diseases and notification	28 Nov – 1 Dec 2011	Gaborone, Botswana	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Central African Republic Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	28 Nov – 1 Dec 2011	Gaborone, Botswana	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Republic of Congo Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	28 Nov – 1 Dec 2011	Gaborone, Botswana	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Rwanda Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Tanzania Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Update of SEARG activities and national rabies reports of Congo Basin countries	Mar 2012	online	Rabies reports of Congo Basin countries accessible on SEARG website and require updating
Ethiopia			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Support for OIE Twinning Project for Ethiopian Central Veterinary Laboratory and OIE Reference Laboratory on FMD or PPR (TBD)	May 2011, ongoing	Ethiopia Central Veterinary Laboratory	Information provided on OIE Twinning program to Laboratory Director
Kenya			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Training wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting
Sudan			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
Special Project for focused laboratory capacity building of brucellosis	Proposal revision ongoing	Sudan	Aim: to improve the accurate and timely diagnosis of brucellosis in Sudan and in Congo Basin by providing capacity for early disease detection and diagnosis and purchasing essential equipment to increase diagnostic capacity
Training workshop on wildlife Diseases and notification	4-6 Oct 2011	Amboseli, Kenya	Wildlife Diseases notification and surveillance. WAHIS Wild reporting

South and Southeast Asia Regional Activities

Vietnam Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Supported two participants to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Supported two participants to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
Planning Meeting on the development of the OIE PVS Gap Analysis tool on Veterinary Laboratories	28 Feb -1 Mar	Paris, France	RAHO6 Laboratory Manager nominated by Vietnam to engage with other experts from OIE Reference Laboratories, OIE Member Countries, PVS Experts, 11 participants total from Vietnam, Argentina, France, Guadeloupe, Tunisia, Australia, USA
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	Two participants supported to this meeting. See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories.	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for Vietnam
Cambodia Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for Cambodia
Lao PDR Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging	19-21 Oct	Park Royal Hotel, Kuala	Two participants supported to this meeting: Annual networking meeting for senior

Infectious Diseases in Asia Pacific Region		Lumpur, Malaysia	laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	One participant supported to this workshop. See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for Lao
Philippines Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	One participant supported to this workshop. See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for the Philippines
China Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	Three participants supported to this meeting. See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S

Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for China
Malaysia Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses	5-6 Dec	Hokkaido University, Sapporo, Japan	One participant supported to this meeting: Objective to update each other on the research activities and zoonotic works of the collaborating and reference centres/laboratories for FAO, OIE and WHO; explore the possibility for collaborative work on zoonotic diseases and emerging infectious diseases of these institutes; and discuss and agree on a potential research agenda for zoonotic diseases and emerging infectious diseases
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	One participant supported to this meeting: See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for Malaysia
Thailand Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
The Third Laboratory Directors' Forum Meeting	18 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for Laboratory Directors for updating and advice on various regional management issues relating to laboratories.
Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region	19-21 Oct	Park Royal Hotel, Kuala Lumpur, Malaysia	Two participants supported to this meeting: Annual networking meeting for senior laboratory staff for updating and advice on various regional management and technical issues relating to laboratories including cross-sectoral component.
Regional Forum of Collaborating/Reference Centres on Emerging Infectious Diseases and Zoonoses	5-6 Dec	Hokkaido University, Sapporo, Japan	One participant supported to this meeting: Objective to update each other on the research activities and zoonotic works of the collaborating and reference centres/laboratories for FAO, OIE and WHO; explore the possibility for collaborative work on zoonotic diseases and emerging infectious diseases of these institutes; and discuss and agree on a potential research agenda for zoonotic diseases and emerging infectious

			diseases
TOT One Health Workshop Supporting Training to Strengthen One Health Epi Teams at the Provincial and District Levels	20 Feb	Narai Hotel, Bangkok, Thailand	Presentation given with CDC, WHO and USAID on ~~O~~n-going Global One Health Project & Examples". The workshop included 34 physicians, veterinarians and wildlife experts from Thailand's Ministry of Public Health, FETP, DLD, ZPO, DNP, Mahidol University, Chulalongkorn University, Kasetsart University, Khon Kaen University and Chiang Mai University.
National Animal Health Laboratory Strategic Planning Workshop	20-24 Mar	Melbourne Business School, Melbourne, Australia	One participant supported to this meeting: See 3.9.5S
Engagement and request for nomination of OIE Focal Point for Laboratories	Ongoing	email	See 3.6.6S
Follow-up Consultations and missions	Ongoing	Email/TC/ Visits	For further development of National Animal Health Laboratory Strategic Plan for Thailand
Bangladesh Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
First Laboratory Directors' Meeting and Workshop on Laboratory Networking and Proficiency Testing for Priority HPEDs in SAARC Countries	23-24 Jan	Dhaka, Bangladesh	Presented ongoing and upcoming OIE work in relation to the IDENTIFY project. Also visit to laboratory to determine opportunities to assist with networking and specific capacity building needs under IDENTIFY. Provision on general advice on improvement of laboratory work flow for improved biosafety and biosecurity, quality control.
Nepal Activities			
Event Title/Activity	**Dates**	**Venue**	**Other Information**
First Laboratory Directors' Meeting and Workshop on Laboratory Networking and Proficiency Testing for Priority HPEDs in SAARC Countries	23-24 Jan	Dhaka, Bangladesh	Presented ongoing and upcoming OIE work in relation to the IDENTIFY project.

Planned Activities to be undertaken during the next reporting period

OIE IDENTIFY TECHNICAL ACTIVITIES & SUBACTIVITIES		FY12 Q3 12			FY12 Q4 12		
	Global	Apr 12	May 12	Jun 12	July 12	Aug 12	sept-12
3.3	**Preparation and review of global, regional, and country-level work plans and other**						
3.3.1G	Annual Work Plan Development						
3.4	**Communication tool development and resource building**						
3.4.2G	Communication, Documentation, and Resource Sharing						
3.5	**Annual review of the Laboratory Networking Strategy**						
3.5.1G	Laboratory Networking Strategy & M&E Revision						
3.6	**Follow-up of laboratory mapping exercise activities**						
3.6.1G	Ongoing Laboratory Mapping Activities						
3.6.4G	Pilot OIE PVS Pathway Laboratory Tool						
3.6.5G	Pilot OIE PVS Pathway Laboratory Mission						
3.6.6G	OIE National Focal Point Program for Laboratories & Training Seminar						
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**						
3.7.1G	Annual Stakeholders' Events						
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**						
3.8.1G	Participation in International/Regional Meetings/Conferences & Training/Workshops						
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**						
3.9.1G	Laboratory Strengthening and Networking: Trainings and Meetings						
3.9.3G	OFFLU LAMP Project						
3.9.5G	Laboratory Strategic Plan Development						
3.10	**Promote and support laboratory quality management**						
3.10.1G	Glossary of OIE Standards and Resources for Countries						
3.10.2G	Quality Assurance and OH&S training and follow-up country visits						
3.10.2G	Proficiency Testing for Rabies						
3.12	**Support and promote laboratory networks**						
3.12.1G	Global/Regional Laboratory Network Support						
3.12.4G	OIE Reference Centres Communication and Training Assistance for target countries						
3.13	**Support and promote laboratory twinning initiatives and partnerships**						

OIE IDENTIFY TECHNICAL ACTIVITIES & SUBACTIVITIES		FY12 Q3 12			FY12 Q4 12		
		Apr 12	May 12	Jun 12	July 12	Aug 12	sept-12
Congo Basin							
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**						
3.3.1C	Annual Work Plan Development						
3.4	**Communication tool development and resource building**						
3.4.2C	Communication, Documentation, and Resource Sharing						
3.5	**Annual review of the Laboratory Networking Strategy**						
3.5.1C	Laboratory Networking Strategy & M&E Revision						
3.6	**Follow-up of laboratory mapping exercise activities**						
3.6.1C	Ongoing Laboratory Mapping Activities						
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**						
3.8.1C	Participation in Regional Training/Workshops & Meetings/Conferences						
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**						
3.9.1C	Development of Training/Workshops related to IDENTIFY key themes						
3.10	**Promote and support laboratory quality management**						
3.10.2C	Proficiency Testing for Rabies						
3.10.3C	SOP Harmonisation for Rabies						
3.12	**Support and promote laboratory networks**						
3.12.1C	Global/Regional Laboratory Network Support						
3.12.4C	OIE Reference Centres Communciation and Training Assistance for target countries						
3.13	**Support and promote laboratory twinning initiatives and partnerships**						
3.13.1C	Identification of OIE Twinning Parent & Candidate Laboratories and Expertise						
3.13.3C	Laboratory Directors' Twinning Seminar						
3.13.4C	OIE Laboratory Twinning Special Project						

OIE IDENTIFY TECHNICAL ACTIVITIES & SUBACTIVITIES		FY12 Q3 12			FY12 Q4 12		
		Apr 12	May 12	Jun 12	July 12	Aug 12	sept-12
South and Southeast Asia							
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**						
3.3.1S	Annual Work Plan Development						
3.4	**Communication tool development and resource building**						
3.4.2S	Communication, Documentation, and Resource Sharing						
3.5	**Annual review of the Laboratory Networking Strategy**						
3.5.1S	Laboratory Networking Strategy & M&E Revision						
3.6	**Follow-up of laboratory mapping exercise activities**						
3.6.1S	Ongoing Laboratory Mapping Activities & Visits to IDENTIFY Laboratories						
3.6.4S	Pilot OIE PVS Pathway Laboratory Tool						
3.6.5S	Pilot OIE PVS Pathway Laboratory Mission						
3.6.6S	OIE National Focal Point Program for Laboratories & Training Seminar						
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**						
3.7.1S	Annual Stakeholders' Events						
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**						
3.8.1S	Participation in International/Regional Meetings/Conferences & Training/Workshops						
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**						
3.9.1S	Laboratory Strengthening and Networking: Trainings and Meetings						
3.9.3G	OFFLU LAMP Project						
3.9.5S	Laboratory Strategic Plan Development						
3.10	**Promote and support laboratory quality management**						
3.10.2G	Quality Assurance and OH&S training and follow-up country visits						
3.12	**Support and promote laboratory networks**						
3.12.1S	Global/Regional Laboratory Network Support						
3.12.4S	OIE Reference Centres Communciation and Training Assistance for target countries						
3.13	**Support and promote laboratory twinning initiatives and partnerships**						

Main challenges encountered

- Uncertainty over the OIE IDENTIFY Years 3 & 4 budget allocations raised concern about whether and how activities should proceed as planned in Years 3 & 4. This has also complicated the planning process for Year 4 at the country and regional levels where implementation for Year 3 activities and planning for Year 4 activities is underway without general ideas on future budget allocations.
- Significant delays in the approval process of the OIE IDENTIFY Year 3 Work Plan and the subsequent request by USAID to halt all new activities in all regions pending approval had an effect on the implementation rate of OIE IDENTIFY Year 3 activities.
- Coordination and collaboration activities between the tripartite were more difficult in the reporting period due to uncertainties about budget approvals, with different partners staggered into different stages of work plans approval over time. This led to a substantial time prioritization towards work plan development and revisions and as a result a delay in active collaboration on Year 3 activities.
- IDENTIFY had always been envisioned and communicated as a regionally implemented program with concrete individual country benefits. As USAID has emphasized the increasing importance of specific country-level activities, this has required a concentrated effort on behalf of the IDENTIFY project coordinators at HQ and in the regions.
- An ongoing project management challenge is balancing the participation in USAID-sponsored country level meetings and planning activities and the implementation of the IDENTIFY project, both of which are fulfilled by a limited number of OIE IDENTIFY supported staff and under increasing project budget restrictions. Communication and coordination concerning country-level work plans and meetings among national colleagues, regional IDENTIFY coordinators, HQ IDENTIFY coordinators and other EPT partners is also an important challenge.
- FAO, OIE and WHO have a long-standing commitment to build capacity to prepare for and respond to disease threats at the country level. To assist these efforts, a range of platforms have been developed. Some are collaborative and operate globally such as the 4-way linking and WHO-OFFLU collaborations. Others have been developed by individual organizations to cover a specific geographic region or topic such as the Asia Pacific Strategy for Emerging Diseases (APSED) and the Integrated Disease Surveillance and Response Strategy (IDSR), the Regional Veterinary Laboratory Networks, and the OIE PVS Pathway. The capacity building objectives of these platforms are fully compatible with those of the EPT program in general and the IDENTIFY project more specifically, and it was the expressed desire of USAID to build upon the existing platforms of the three organizations to expand the impact of the EPT funded activities. From the perspective of the three organizations it is logical to present a single coherent approach to capacity building to countries and as such, IDENTIFY activities would frequently be conducted as part of these existing platforms. One aim of this approach is to show the countries that the three organizations, USAID and other partners are working in a coordinated manner to achieve the best outcomes at the country level. Effective communication between all partners is important to deliver this coordinated support, and USAID support for these activities will be acknowledged in all cases.

Annex 1: Lists of IDENTIFY targeted animal and public health diseases including zoonoses

IDENTIFY Targeted Diseases: Congo Basin and SE Asia Regions (alphabetical)

For planning purposes only for the IDENTIFY Project

Jointly implemented by FAO, OIE and WHO

From SE Asia Animal Health Stakeholders Meeting, Bangkok, 20-21/01/2011	From Congo Joint Stakeholders Meeting, Entebbe, 02-04/11/2010	
SE Asia Animal Diseases	**Congo Animal Diseases**	**Congo Human Diseases**
	African Horse Sickness*	
African Swine Fever	**African Swine Fever**	
Anthrax	***Anthrax***	***Anthrax***
		Bacterial Meningitis
Brucellosis	***Brucellosis***	***Brucellosis***
Classical Swine Fever		
	Contagious Bovine Pleuropneumonia	
	Contagious Caprine Pleuropneumonia *	
	Cysticercoses*	
		Dengue
Foot and Mouth Disease	**Foot and Mouth Disease**	
Hemorrhagic Septicemia		
		Hepatitis
Influenza viruses	***Influenza viruses***	***Influenza viruses***
Leptospirosis	***Leptospirosis ****	***Leptospirosis***
		Malaria
	Monkey pox	**Monkey pox**
Newcastle Disease	**Newcastle Disease***	
Nipah		
Peste des Petits Ruminants	**Peste des Petits Ruminants**	
		Plague
Porcine Respiratory and Reproductive		
Rabies	***Rabies***	***Rabies***
		Rickettsiosis
Salmonella	***Bacterial enteric diseases***	***Bacterial enteric diseases***
Spongioform encephalopathies	**Spongioform encephalopathies***	
	Toxoplasmosis *	**Toxoplasmosis ***
	Trypanosomosis	**Trypanosomosis**
Tuberculosis	***Tuberculosis***	***Tuberculosis***
Viral haemorrhagic fevers	***Viral haemorrhagic fevers***	***Viral haemorrhagic fevers***
		Viral respiratory diseases
		Yellow Fever

* listed as diseases of secondary concern for Congo Region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

OIE Listed Animal Diseases for IDENTIFY : SE Asia Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Related other diseases, not OIE Listed
1	**African Swine Fever**	African Swine Fever	1	
2	***Anthrax***	Anthrax	2	
3	***Brucellosis***	Brucellosis (*Brucella abortus*)	3	
		Brucellosis (*Brucella melitensis*)	4	
		Brucellosis (*Brucella suis*)	5	
		Ovine Epididymitis (*Brucella ovis*)	6	
4	Classical Swine Fever	Classical Swine Fever	7	
5	**Foot and Mouth Disease**	Foot and Mouth Disease	8	
6	Haemorrhagic Septicemia	Haemorrhagic Septicemia	9	
7	***Influenza viruses***	Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	10	Swine Influenza +
		Equine Influenza	11	
8	***Leptospirosis***	Leptospirosis	12	
9	**Newcastle Disease**	Newcastle Disease	13	
10	Nipah	Nipah Virus Encephalitis	14	
11	**Peste des Petits Ruminants**	Peste des Petits Ruminants	15	
12	Porcine Respiratory and Reproductive Syndrome	Porcine Respiratory and Reproductive Syndrome	16	
13	***Rabies***	Rabies	17	
14	***Salmonella***	Fowl Typhoid †	18	*Campylobacter jejuni* +
		Pullorum Disease †	19	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	20	Verocytotoxigenic *Escherichia coli* ‡ +
15	**Spongioform Encephalopathies**	Bovine Spongiform Encephalopathy	21	Chronic Wasting Disease ‡
		Scrapie	22	
16	***Tuberculosis***	Bovine Tuberculosis	23	Avian Tuberculosis ‡ +
17	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	24	Marburg
		Epizootic Haemorrhagic Disease †	25	Lassa Fever
		Rift Valley Fever	26	Hendravirus ‡ +
		-		Ebola
		-		Hantavirus

† No designated OIE Reference Laboratory

+ Guidance available in OIE Terrestrial Manual

Bold: diseases appearing in at least 2 tables

‡ OIE Reference Laboratory designated

Italic : diseases appearing in 3 tables

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

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OIE Listed Animal Diseases for IDENTIFY : Congo Basin Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Potential other diseases, not OIE Listed
1	African Horse Sickness*	African Horse Sickness	1	
2	**African Swine Fever**	African Swine Fever	2	
3	***Anthrax***	Anthrax	3	
4	***Bacterial enteric diseases***	Fowl Typhoid †	4	*Campylobacter jejuni* +
		Pullorum Disease †	5	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	6	Verocytotoxigenic *Escherichia coli* ‡ +
5	***Brucellosis***	Brucellosis (*Brucella abortus*)	7	
		Brucellosis (*Brucella melitensis*)	8	
		Brucellosis (*Brucella suis*)	9	
		Ovine Epididymitis (*Brucella ovis*)	10	
6	Contagious Bovine Pleuropneumonia	Contagious Bovine Pleuropneumonia	11	
7	Contagious Caprine Pleuropneumonia *	Contagious Caprine Pleuropneumonia	12	
8	Cysticercoses*	Porcine Cysticercosis †	13	Bovine Cysticercosis +
		Echinococcosis/Hydatidosis	14	
9	**Foot and Mouth Disease**	Foot and Mouth Disease	15	
10	***Influenza Viruses***	Equine Influenza	16	Swine influenza +
		Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	17	
11	***Leptospirosis****	Leptospirosis	18	
12	Monkey Pox	-		
13	**Newcastle Disease***	Newcastle Disease	19	
14	**Peste des Petits Ruminants**	Peste des Petits Ruminants	20	
15	***Rabies***	Rabies	21	
16	**Spongioform Encephalopathies***	Bovine Spongiform Encephalopathy	22	Chronic Wasting Disease ‡
		Scrapie	23	
17	Toxoplasmosis*	-		+
18	Trypanosomosis	Dourine	24	
		Surra (*Trypanosoma evansi*)	25	
		Trypanosomosis (tsetse-transmitted)	26	
19	***Tuberculosis***	Bovine Tuberculosis	27	Avian Tuberculosis ‡ +
20	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	28	Marburg
		Epizootic Haemorrhagic Disease †	29	Lassa Fever
		Nipah Virus Encephalitis	30	Hendravirus ‡ +
		Rift Valley Fever	31	Ebola
		-		Hantavirus

* listed as diseases of secondary concern for Congo region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

† No designated OIE Reference Laboratory

‡ OIE Reference Laboratory designated

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

\+ Guidance available in OIE Terrestrial Manual

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Annex 2: Additional OIE IDENTIFY Project Activities and Project Coordinator Responsibilities

In addition to the coordination and technical responsibilities for each activity outlined in the present document, the OIE IDENTIFY Project Coordinators are also responsible for all aspects of the activities listed in the tables below, which require either no additional resources beyond staff support or only a limited budget.

OIE IDENTIFY ACTIVITIES & SUBACTIVITIES Project Coordinator Responsibilities	
Global	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1G	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1G	Project Coordinator – Headquarters
3.2.2G	Financial and Administrative Coordinator – Headquarters
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**
3.3.1G	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1G	Sharepoint-related Activities
3.4.2G	Communication, Documentation, and Resource Sharing
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1G	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1G	Ongoing Laboratory Mapping Activities
3.6.2G	PVS Documentation Review
3.6.7G	Laboratory Twinning Module Development
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**
3.7.1G	Annual Stakeholders' Event
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.1G	Participation in International/Regional Meetings/Conferences
3.8.2G	OIE Focal Point Training
3.8.3G	Participation in International/Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.1G	Development of Training/Workshops related to IDENTIFY key themes
3.9.2G	Biological Specimen Referral Activities
3.10	**Promote and support laboratory quality management**
3.10.1G	Glossary of OIE Standards and Resources for Countries

3.12	**Support and promote laboratory networks**
3.12.1G	Global/Regional Laboratory Network Support
3.12.2G	Regional Laboratory and Epidemiological Network Support
3.12.3G	Communication Pathway Reinforcement
3.12.4G	OIE Reference Centres Communication and Training Assistance for target countries
3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1G	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2G	Identification of OIE Twinning Parent Laboratories and Expertise
South and Southeast Asia	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1S	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1S	Project Coordinator - Bangkok
3.3	**Recruitment of staff to support IDENTIFY activities**
3.3.1S	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1S	Sharepoint-related Activities
3.4.2S	Communication, Documentation, and Resource Sharing
3.4.3S	Website Development
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1S	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1S	Ongoing Laboratory Mapping Activities
3.6.2S	PVS Documentation Review
3.6.4S	Visits to IDENTIFY Laboratories
3.7	**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.2S	OIE Focal Point Training
3.8.3S	Participation in International/Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.2S	Biological Specimen Referral Activities
3.9.6S	Development of Training/Workshops related to IDENTIFY key themes
3.10	**Promote and support laboratory quality management**
3.10.1S	Glossary of OIE Standards and Resources for Countries
3.12	**Support and promote laboratory networks**
3.12.1S	Global/Regional Laboratory Network Support
3.12.2S	Communication Pathway Reinforcement
3.12.3S	Regional Laboratory and Epidemiological Network Support
3.12.4S	OIE Reference Centres Communication and Training Assistance for target countries

3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1S	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2S	Identification of OIE Twinning Parent Laboratories and Expertise
Congo Basin Region	
3.1	**Ongoing tripartite project management and coordination, monitoring, and planning**
3.1.1C	Project Coordination Meetings (EPT & IDENTIFY at HQ, regional, & country levels)
3.2	**Recruitment of staff to support IDENTIFY activities**
3.2.1C	Project Coordinator - SRR Gaborone
3.2.2C	Project Coordinator - SRR Nairobi
3.3	**Preparation and review of global, regional, and country-level work plans and other project documents**
3.3.1C	Annual Work Plan Development
3.4	**Communication tool development and resource building**
3.4.1C	Sharepoint-related Activities
3.4.2C	Communication, Documentation, and Resource Sharing
3.5	**Annual review of the Laboratory Networking Strategy**
3.5.1C	Laboratory Networking Strategy Revision
3.6	**Follow-up of laboratory mapping exercise activities**
3.6.1C	Ongoing Laboratory Mapping Activities
3.6.2C	PVS Documentation Review
3.6.5C	Visits to IDENTIFY Laboratories
3.8	**Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**
3.8.2C	OIE Focal Point Training
3.8.3C	Participation in Regional Training/Workshops
3.9	**Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards**
3.9.1C	Development of Training/Workshops related to IDENTIFY key themes
3.9.2C	Biological Specimen Referral Activities
3.10	**Promote and support laboratory quality management**
3.10.1C	Glossary of OIE Standards and Resources for Countries
3.12	**Support and promote laboratory networks**
3.12.1C	Global/Regional Laboratory Network Support
3.12.2C	Regional Laboratory and Epidemiological Network Support
3.12.3C	Communication Pathway Reinforcement
3.12.4C	OIE Reference Centres Communciation and Training Assistance for target countries
3.13	**Support and promote laboratory twinning initiatives and partnerships**
3.13.1C	Identification of OIE Twinning Candidate Laboratories and Expertise
3.13.2C	Identification of OIE Twinning Parent Laboratories and Expertise

Annex 3: SEACFMD Newsletter July-December 2011 featuring IDENTIFY

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Editorial — Progress towards 2020

The current issue of the SEACFMD Newsletter (July-Dec 2011) covers a wide range of issues and reflects the wide scope of the OIE Sub-Regional Representation for South East Asia's (SRR-SEA) activities. It also demonstrates that the OIE Bangkok Office is now operating in an integrated way given the range and scope of its activities using a range of planning and monitoring and evaluation tools to progress its work. Future editions of the Newsletter will expand on these matters.

It is important to remind ourselves that the OIE SRR-SEA primarily coordinates and gives guidance on a range of project activities. The key roles of policy direction, leadership, programme delivery and ultimate success reside with countries.

The SEACFMD Sub-Commission meets in Lijiang, Yunnan from 5-9 March, 2012, the first time the meeting has been hosted by China. Key issues that will be discussed include China's future strategies and how it can support SEACFMD in border areas; what processes need to be developed so that countries can move one stage further on the global FMD Progressive Control Pathway; vaccination approaches in identified 'hot-spots'; use of a sub-regional vaccine bank for FMD and rabies; and lessons that have been learned.

Importantly, we will be testing progress against the 2nd Edition of the SEACFMD 2020 Roadmap which has now been published. A full report on the Sub-Commission meeting will form part of the next Newsletter.

The SEACFMD Campaign is on its Phase 4 (2011-2015) and received additional funding from AusAID. The OIE SRR-SEA wishes to thank AusAID for its continued support to the programme under a new regional initiative called Stop Transboundary Animal Diseases and Zoonoses (STANDZ) in South East Asia.

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SEACFMD NEWS

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OIE SRR-SEA launches AusAID-funded reg'l initiative to stop transboundary animal diseases and zoonoses



Participants at the launch of the STANDZ initiative in Hanoi held back-to-back with the SEACFMD National Coordinators' Meeting and Monitoring & Evaluation Workshop

The OIE Sub-Regional Representation Office in South East Asia (SRR-SEA) and the Australian Agency for International Development (AusAID) launched the regional Stop Trans-boundary Animal Diseases and Zoonoses (STANDZ) Initiative in Hanoi, Viet Nam on 12 September 2011. The Initiative, with A$12.7 million funding from AusAID, aims to reduce the impact of emerging infectious diseases (EIDs), Transboundary Animal Diseases (TADs) and Zoonoses on food security, human health, and livelihoods in South East Asia over the next five years.

Dr Ronel Abila, OIE SRR-SEA Representative, said STANDZ brings together under one umbrella programme all AusAID-funded OIE projects namely the South East Asia and China FMD (SEACFMD) Programme, the Strengthening Initiative for Veterinary Services (STRIVES), formerly known as the Project on Strengthening Veterinary Services (PSVS), and One Health Project on Zoonoses. Under its three components, STANDZ will support priority countries to improve FMD and Rabies control, assist national veterinary services systems strengthening in line with the OIE Performance of Veterinary Services (PVS) Pathway, and stimulate stronger national commitment and support to veterinary services.

STANDZ represents the peak of AusAID support to OIE doubling previous support for the regional eradication of FMD in the past 15 years.

Under STANDZ, OIE will work with Member Countries to develop evidence-based regional policy in order to stimulate regional and national level commitment to and alignment with OIE policies, standards and guidelines; strengthen general veterinary services systems; and improve FMD and Rabies disease management performance. A small grants facility has been established to help select Member Countries implement priority actions identified in their National FMD, Rabies, and broader Veterinary Services Plans. STANDZ will also focus on programme monitoring and evaluation, communications, policy engagement, partnerships, and gender mainstreaming.

The launch was attended by 36 participants from 11 countries and representatives from Australia's Department of Agriculture, Fisheries and Forestry, Food and Agriculture Organisation of the United Nations and the ASEAN.

Quality M&E for better animal health programme delivery

OIE SRR SEA organised a workshop on programme M&E in Hanoi in September 2011 in order to promote better understanding of the M&E concepts and practices in the context of improving the implementation of Member Countries' animal health programmes.

Facilitated by M&E Expert Susan Dawson, the 2.5 day workshop with National Coordinators and other regional stakeholders stressed the need to improve the quality of M&E systems both in STANDZ and in their own Veterinary Services.

The training sessions introduced participants to key concepts behind M&E and to some of the basic requirements for selecting appropriate indicators to measure programme performance.

A half-day session on Organisational Evaluation Capacity Building introduced participants to the wider organisational requirements to enable credible information to be generated to meet decision-maker needs and to be used. The session deals with organisational leadership, culture and incentives for M&E.

At the end of the workshop, participants agreed that they would, to the extent possible, progress M&E approaches in their respective countries/areas of work taking into account the six lessons to be learned, one of which is to attract leadership support and resources in order to build M&E capacity in their department.



Susan Dawson, M&E Expert

The workshop also emphasised the need for managers to know the basic principles of M&E so they can plan more effectively, demonstrate their programme's effectiveness, identify and correct problems quickly and learn and share learning with others in their field.

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High-level consultation in Lao PDR



OIE Special Adviser Dr. Gardner Murray discusses FMD control with Lao PDR Vice Minister for Livestock Dr. Phouang Parisak Pravongvienkham

OIE Special Adviser Dr Gardner Murray and SRR SEA Programme Co-ordinator Dr Dirk Van Aken met Dr Phouang Parisak Pravongvienkham, Vice-Minister for Livestock of Lao PDR Ministry of Agriculture and Forestry, to discuss policy support for the SEACFMD campaign and FMD control programme in the country.

The Vice-Minister expressed his appreciation of the assistance his government received through OIE and noted the importance of disease prevention in the context of ASEAN+3 and World Trade Organisation (WTO) accession. The Ministry, he said, is fully aware of the opportunity and potential for increasing income for the poor through the production of large animals for export. While different initiatives support animal disease control in Lao PDR, the Vice-Minister agreed that more assistance is needed to establish an FMD-free zone recognised by OIE. The Ministry also recognises the need for engaging the private sector in disease control programmes.

SEACFMD Coordinators meet in Hanoi



Participants from Malaysia, Indonesia and the Philippines share experiences on FMD control

The SEACFMD National Coordinators met in Hanoi, Vietnam from September 12 to 16 in order to discuss progress towards the SEACFMD 2020 Roadmap.

They also reaffirmed their support of the FMD vaccination strategy, discussed the mechanics of the vaccine bank with funding from the European Union and the setting up of animal movement protocol in line with the OIE Code.

The meeting noted the importance of timely submission of FMD samples for diagnosis and FMD status through the ASEAN Regional Animal Health Information System (ARAHIS). OIE will work with Member countries to prepare a costed national plans for FMD control and eradication which will be presented at the Global FMD Conference in Bangkok in June 2012.

The National Coordinators presented the current national FMD status and their countries' respective achievements in the prevention and control of the disease. Partner organisations namely Australia's Department of Agriculture, Fisheries and Forestry, Association of South East Asian Nations, Food & Agriculture Organisation, and the FMD Reference Laboratory in Pakchong, Thailand updated participants on activities related to FMD control and prevention. The participants recognised and thanked Dr Wilai Linchongsubongkoch for her invaluable contributions over the years as head of the FMD Reference laboratory in Pakchong, Thailand and in coordinating the SEACFMD Lab Network. Dr Wilai retired last September.

Programme of Work links projects into one initiative

The OIE SRR-SEA has developed a programme of work from June 2011 to December 2012 in order to enhance transparency and ensure that national governments, funding agencies, sub-regional and international organisations, and other stakeholders are aware of how the Office functions and is structured. The SRR–SEA programme of work will help identify areas where there is a potential duplication and areas where synergies are possible by building on each project's outcomes and training and to encourage further integration of implementation efforts.



With STANDZ, OIE SRR-SEA will link different project components into one initiative to provide financial flexibility and to reduce reporting; provide a framework for activities and the development of model approaches; and strengthen the OIE SRR including in communications, gender and social inclusion, and governance structures.

Following the formal establishment of its Office in Bangkok in 2010, the OIE SRR-SEA has broadened its mandate to coordinate not only an expanded FMD Campaign, but also contribute to prevention and control of highly pathogenic emerging and re-emerging diseases and zoonoses including rabies, drive programmes to strengthen veterinary services, and importantly to deliver improvements to OIE representation in the Region.

A strong and functional OIE SRR-SEA will lead to improved outcomes in promoting animal health, coordinating animal disease control programmes particularly FMD and rabies, and strengthening capacity of Veterinary Services in South East Asia.

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OIE joins DLD, FAO in surveillance of livestock during floods



Below is a sty built up with sand to try keep the pigs out of the flood-water



Above photo shows temporary cages along the roadside in Nakon Sawan are specially built to move the animals to in the flood. The cages are progressively raised above the ground with makeshift stands as the flood-water rises.

OIE SRR-SEA joined Thailand's Department of Livestock and Development (DLD) and the Food and Agriculture Organisation of the UN (FAO) in their rapid assessment of flood impact on the livestock sector last November 2011. They found that no outbreak of FMD was directly caused by the floods which affected approximately 30 per cent of the animals in the three provinces visited.





This farmer in Sukhothai returns his pigs to the sty after water has receded. Note the level that the flood waters rose to.

One Health LabNet meeting mulls regional framework

A three-day Meeting on Laboratory Strengthening for Emerging Infectious Disease Diagnosis in the Asia Pacific Region, organised by the tripartite FAO/OIE/WHO group, was held in Kuala Lumpur on 19-21 November. The meeting marked the first time that such a large, cross-sectoral group has met to discuss laboratory issues in the region.

Following the recommendation from the 2010 meeting of FAO/OIE Sub-Regional Laboratory Network for HPAI Diagnosis in South East Asia, last year's meeting expanded the content and scope to include the promotion of harmonisation and enhancement of laboratory capacity and international standards more generally to Transboundary Animal Diseases (TADs) and Emerging and Re-emerging Infectious Diseases (EIDs).



Participants representing the animal and human health sectors from the region and partner organisations and donors such as AAHL, NIAH, FAO, OIE and USAID

Dr. Ronello Abila, OIE Sub-Regional Representative for South East Asia, said the meeting is part of the global efforts to strengthen collaboration of the human, animal and environmental health sectors in implementing the One Health approach. At the global level, however, collaborations among the three organizations started long before the official recognition of One Health as a concept, with the signing of an MOU in May 2004, between the OIE and FAO, and in December 2004, between OIE and WHO.

This cooperation has been strengthened with the April 2010 Tripartite Concept Note of the FAO/OIE/WHO collaboration in sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces.

On laboratory in particular, the Concept Note recommended the development of a joint framework to address gaps and strengthen collaboration in human and animal health laboratory activities. It also recommended that the framework should cover the upgrading of facilities, training and collaboration between regional and international reference laboratories for diagnosis and quality assurance. The framework should also promote co-operation between human and animal surveillance systems in analysing available evidence and evaluating responses and the timely sharing of comparable epidemiological and pathogen data across the relevant sectors.

The meeting recognised that many countries within the region do not have a strategic plan specific for the national animal health laboratory or the national system of laboratories, nor do they have any official strategic planning initiative or currently have a plan to develop one. Barriers to the development of strategic plans for animal health laboratories include limited capacity/lack of experience and knowledge about strategic planning and the process of strategic plan development. Approximately 50 participants attended the Animal Health component of the meeting including laboratory directors and technical representatives from national animal health and leading laboratories from ASEAN countries and China; Australian Animal Health Laboratory (AAHL), Japan National Institute of Animal Health (NIAH), FAO, OIE and USAID; a similar contingent from the Public Health sector attended the Public Health and joint components of the meeting.

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GF-TADs meeting in Tokyo calls for stronger veterinary services

The 5th regional steering committee meeting of the Global Framework for the Progressive Control of Trans-boundary Animal Diseases (GF-TADs) was held in Tokyo in July 2011.

Participants called for increased funding from donors to strengthen Veterinary Services in developing countries. "The Veterinary Services must be supported by effective and advanced legislation to address increasing incidence of high impact transboundary emerging and re-emerging diseases while meeting OIE criteria for quality and performance of their essential functions," the meeting recommended.



Dr. Ronello Abila, SRR-SEA Representative, presents the SEACFMD Campaign, a major programme under the regional GF-TADs umbrella

Rapid intensification of livestock production and new farming systems in response to rising demand for meat, milk and eggs, requires improved capacity of the Veterinary Services to prevent, diagnose and control outbreaks. The current incursions of TADs in South East Asia continue to have high social and economic impacts in member countries, analysis of which should be made and used as justification for significant additional investment.

For instance, the Global Conference on FMD which will be held in Bangkok in June 2012 in collaboration with the Government of Thailand provides an opportunity to mobilise additional resources to enhance global and regional control of FMD.

Participants at the GF-TAD meeting also requested information on Influenza A viruses to better understand the interaction and transmission dynamic between wild bird species and domestic poultry, as well as the diversity of the viruses and their potential risks to animals and humans.

Countries, international organisations and donors/partners were requested to make strong political commitment to combat rabies at national, regional and global level. Rabies remains a major public health and animal health issue in many countries in the region.

The meeting recognised the active participation of WHO which shows increasing adoption of the One Health approach in addressing zoonotic diseases and other high impact EIDs and in promoting animal and human health partnership.

A regional initiative between OIE and FAO, GF-TADs is a co-ordinating mechanism for the control and prevention of TADs and EIDs as well as zoonotic diseases in Asia-Pacific.

RP receives OIE stamp as FMD-free without vaccination



OIE Director General Bernard Vallat and Philippine OIE delegate Davinio Catbagan

The OIE SRR-SEA congratulates the Philippines for receiving FMD-free status without vaccination for the country's remaining regions and provinces designated as Zone 2, making the whole country FMD-free without vaccination.

Mindanao and Visayas, along with the island provinces of Palawan and Masbate were declared by the OIE as FMD-free without vaccination in 2001 and 2002 while Luzon's zones 1 and 3 were declared free in 2010.

The OIE certification enables the Philippines to export livestock meat products, particularly to nearby ASEAN and Asia-Pacific regions.

Indonesia raises preparedness to keep FMD freedom

Indonesia's Department of Animal Health conducted FMD outbreak simulation exercise in Medan from September 29 to October 1.

The annual exercise marked the fourth time Indonesia tested its preparedness for possible incursion of FMD to sustain awareness and maintain the country's FMD-free status.

OIE SRR-SEA Representative Dr. Ronello Abila and Project Officer Dr. Mary Joy Gordoncillo observed the exercise. Dr. Abila praised Indonesia's efforts and noted the importance of being vigilant given the fact that even developed countries such as Japan and Korea that used to be free from FMD experienced incursions in 2010 and 2011.

Dr. Abila presented the status of FMD in South East Asia and other parts of Asia that recently had outbreaks of FMD. Participants simulated possible outbreak scenarios and courses of actions and responses at the national, provincial and district levels in the event of an FMD incursion. A participant noted the difficulty of keeping the government interested in and support FMD prevention and control given the absence of the disease.

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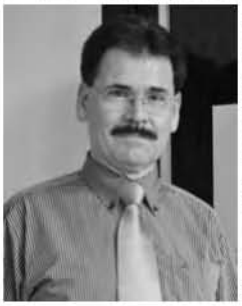
Staff Profile

The OIE has recruited four new staff for its Sub-Regional Representation for South East Asia (SRR-SEA) to support the implementation of the USAID-funded IDENTIFY Project and the AusAID-funded Stop Transboundary Animal Diseases and Zoonoses (STANDZ) initiative, an umbrella programme comprising the SEACFMD Campaign, STRIVES and the 'One Health' project focusing on rabies. Their arrival has bolstered the capacity of the OIE Office in Bangkok to deliver core OIE programmes in line with the OIE 5th Strategic Plan for 2011 to 2015.

Dirk Van Aken, SRR-SEA Programme Coordinator

As the SRR-SEA Programme Coordinator, Dr. Dirk Van Aken is in charge of the overall programming, planning, implementation and monitoring of the STANDZ Initiative. As well as managing the Small Grants Facility, Dirk also provides technical assistance to member countries in the management of TADs control programme.



Dirk is a graduate of the Faculty of Veterinary Medicine in Ghent (1981). He holds a Diploma in Tropical Veterinary Medicine (1982) and a Master of Science degree (1992) of the Institute of Tropical Medicine in Antwerp. In 2004, Dirk was accepted as Diplomate of the European Veterinary Parasitology College. Dirk has been working in Asia since 1982, on long term assignments in India, Sri Lanka, the Philippines, Lao PDR and Cambodia. His experience includes the training of veterinary students, research in epidemiology of diseases in cattle, small ruminants and pigs, as well as the management of major donor funded projects. His most recent work from 2005 to 2010 was as Team Leader and Senior Livestock Adviser of the European Union Livestock Programme in Cambodia on Smallholder Livestock Production.

Since 1998, while working in the European Union-funded livestock projects in Lao PDR and Cambodia, Dirk has been cooperating with the SEACFMD programme.

Andrew Davis, IDENTIFY Programme Coordinator

Dr. Andrew Davis is the OIE Programme Coordinator for the IDENTIFY project within the USAID-funded Emerging Pandemic Threat programme. This project focuses on developing the capacity of laboratories and their networks in the human-health and animal-health sectors to contribute to the management of emerging infectious diseases.



Prior to joining the OIE, Andrew worked at CSIRO - Australian Animal Health Laboratory (AAHL) and was coordinator for the Australian laboratory network on Emergency Animal Diseases. Andrew has worked as a Veterinary Pathologist in National, Sub-national, University and Commercial diagnostic veterinary pathology laboratories within Australia and also internationally. Andrew graduated from the University of Queensland, Australia in 2002, and has post-graduate qualifications in diagnostic veterinary pathology.

Maria Cecilia Dy, SRR-SEA M&E Coordinator/ Communications Officer



Maria Cecilia Dy is the SRR SEA Monitoring & Evaluation Coordinator and Communications Officer.

Cecilia is responsible for managing the implementation of M&E Framework of the various projects under the STANDZ initiative.

Cecilia also oversees the implementation of the SRR communication plan and coordinates the development and implementation of Member Countries' communication strategies for animal health in South East Asia.

Cecilia brings to OIE her expertise in both animal and human health communication, project coordination, evaluation and journalism. During the last five years, Cecilia has been involved in the development and implementation of communications and advocacy strategies on avian influenza for CARE International, Food and Agriculture Organisation of the United Nations and UNICEF in Cambodia. She also supervised external evaluations of different activities and programmes on community-based avian influenza risk reduction programme of CARE in Cambodia. Cecilia received her Master's degree in Mass Communications from the University of Leicester, United Kingdom.

Mary Joy Gordoncillo, STANDZ Project Officer



As Project Officer for the STANDZ initiative, Dr. Mary Joy N. Gordoncillo is providing project management and communication support to various projects in member countries in the region.

Joy is also supporting the various operations of the SRR-SEA, and is promoting the visibility of the OIE as an independent, scientific and highly professional centre of excellence throughout South East Asia. Joy has a DVM degree from the University of the Philippines, a Masters in Tropical Veterinary Science from James Cook University in Australia, and just recently completed her PhD from Michigan State University in USA. Other than her advanced skills in veterinary microbiology and molecular biology, she is also particularly skilled and has deep interest in digital media arts, illustration and design, as well as health communication.

Word of thanks to outgoing staff

OIE SRR-SEA wishes to thank Dr John Stratton, former PSVS Programme Coordinator, Dr. Sharie Michelle Aviso, former SEACFMD Project Officer, and Dr. Jarunee Siengsanan-Lamont, former PSVS Technical Officer, for their valuable contributions to the work of the Office. OIE SRR-SEA wishes them well in their future endeavours.

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FAO, OIE, WHO strengthen collaboration on HPED

The 2nd Steering Committee Meeting of the European Union (EU) - funded Programme on Highly Pathogenic Emerging and Re-emerging Diseases (HPED) took place on 20 July 2011 in Tokyo.



Dr. Alain Dehove, OIE Coordinator of the World Animal Health and Welfare Fund

Dr. Alexandre Bouchot, OIE SRR-SEA Project Manager, presented ongoing collaboration on the €23 million HPED programme between WHO, FAO and OIE at global and regional level on information systems, coordination platforms and mechanisms.

FAO, OIE and WHO reiterated their agreement on a common strategy adopted in the April 2010 Tripartite Concept Note entitled "Sharing responsibilities and coordinating global activities to address health risks at the human-animal ecosystems interfaces."

The vision is to have a world capable of preventing, detecting, containing, eliminating, and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships.

For this to happen, animal and human health institutions need to strengthen their strategic planning at the global, regional and national levels including in the field of communication, secure funding for animal health and veterinary services, pass and enforce veterinary legislation, promote private-public partnerships and build multi-disciplinary capacity at all levels.

Dr Alain Dehove, OIE Coordinator of the World Animal Health and Welfare Fund, said that OIE has set up a regional vaccine bank while capacity building activities in the region were carried out through the Performance of Veterinary Services (PVS) Pathway, seminars and workshops.

The OIE's PVS Pathway, and related projects and programmes, represent the animal health component of HPED. The PVS Pathway is a continuous process that aims to sustainably improve the compliance of Veterinary Services with International Standards on quality.

SRR-SEA supports RP's consultative workshop on zoonoses

OIE SRR SEA, together with FAO and WHO, supported the Philippine Inter-Agency Committee on Zoonoses (PhilCZ) in the organisation of its National Zoonoses Consultative Workshop in Manila last November. The workshop was designed to develop a coordinating mechanism among the Department of Health, Department of Agriculture and Department of Environment and Natural Resources to operationalise PhilCZ.

Philippine President, Benigno Aquino III, signed an Administrative Order creating the PhilCZ. It aims to develop a national strategy on prevention, control and elimination of zoonoses and establish a functional and sustainable mechanism to strengthen the animal-human interface for the effective prevention, control and elimination of zoonotic diseases.

Dr. Mary Joy Gordoncillo, SRR-SEA Project Officer, briefed participants on OIE's involvement in the global efforts to strengthen collaboration of the human, animal and environmental health sectors and its activities on One Health under the STANDZ Initiative.

Reference centres hold reg'l forum on EIDs, zoonoses

OIE, jointly with FAO and WHO, organised the Regional Forum of Collaborating/ Reference Centres on Emerging Infectious Diseases (EIDs) and Zoonoses from 5 to 6 December in Hokkaido University, Research Centre for Zoonosis Control, Sapporo, Japan. The aim was to share their work, explore collaboration and discuss a potential joint research agenda for zoonotic diseases and EIDs.

The Forum served as a showcase for fostering cross-sectoral collaboration between animal and public health and provided useful lessons for scaling up the initiative to the global level. It also provided the first unique opportunity to bring together FAO RC, OIE RC and WHO Collaborating Centres and created a platform to share ideas and aspirations.



Dr Andrew Davis, SRR SEA Programme Coordinator, attended the forum together with more than 50 other participants from 18 FAO/OIE/WHO CC/RCs, observers from Hokkaido University and the Secretariat. Representatives from four OIE RCs in Japan and two candidate laboratories under the OIE Laboratory Twinning (namely National Institute for Animal Health: Thailand Brucellosis and Veterinary Research Institute: Malaysia – HPAI) also participated.

Given the importance of collaboration between the human health and animal health sectors, zoonoses prevention and control have been identified as key focus areas for capacity-building under the Asia Pacific Strategy for Emerging Diseases.

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Farmers, traders need more info about FMD

The OIE SRR-SEA fielded missions to Laos and Cambodia in December to assist the animal health departments in both countries with their public awareness activities on FMD.

Maria Cecilia Dy, Communications Officer, and Dr Mary Joy Gordoncillo, Project Officer, met with animal health officials at the national, provincial and district levels, as well as farmers and traders in two districts of Lao's Xieng Khouang province and four districts of Cambodia's Takeo and Kam-





pong Cham provinces. Focus group discussions (FGDs) were conducted with 15 farmers in Laos owning between four to 30 heads of cattle and buffaloes and 30 farmers in Cambodia owning between three to 15 heads of cattle. FGDs were also held with nine male traders in Cambodia and two female traders in Laos. Women represented 73 per cent of farmer respondents in Laos and 20 per cent in Cambodia.

Results indicate that both farmers and traders need more information on FMD prevention and control. Most farmers did not know about FMD vaccination until the recent FAO-supported free vaccination campaign. Women in Laos have more responsibilities in raising cattle and buffaloes than their husbands but had not received the information they needed to prevent their animals from getting FMD. In



Cambodia, women shared equal responsibilities with their husbands but were also not reached by the same information. Farmers in Laos and Cambodia use traditional medicine to treat



lesions caused by FMD. In Cambodia, for example, farmers boil bark of a tree and use it to clean wounds. In both countries, women rely on their husbands to treat their sick animals. On the other hand, traders seem to be more knowledgeable about FMD than farmers but they too have no way of telling if the animals they buy are free of FMD as "symptoms show up days later". What is certain, however, is that FMD has caused big losses to farmers and traders alike. Traders suffered reduced profit from weight loss in their animals and cost of treatment while farmers spent more time and money for treatment and feed, lost draught and hauling power in the farm and lost opportunities to earn rental fees from other farmers. Those with young cattle usually suffered losses through deaths while those with pregnant cows, abortion was common.

Upcoming Events

- **11th Meeting of the Tri-state Commission of the Myanmar -Thailand-Malaysia Peninsular for FMD Freedom**
  30 January—1 February 2012 (Penang, Malaysia)
- **10th Meeting of the Upper Mekong Working Group on FMD Zoning and Animal Movement Management**
  7-9 February 2012 (Nay Pyi Taw, Myanmar)
- **18th Meeting of the OIE Sub-Commission for SEACFMD**
  5-9 March 2012 (Yunnan, China)
- **2nd FAO/OIE World Conference on FMD**
  27-29 June 2012 (Bangkok, Thailand)

SEACFMD Nat'l Coordinators

Brunei Darussalam: Dr Dabeding bin Haji Dullah
Assistant Director of Agriculture, Department of Agriculture
Ministry of Industry and Primary Resources

Cambodia: Dr Sorn San
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Department of Animal Health And Production

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Annex 4: USAID Vietnam EPT Fact Sheet featuring IDENTIFY

USAID FROM THE AMERICAN PEOPLE | VIETNAM

EMERGING PANDEMIC THREATS (EPT) Program

2011 Program Highlights

What is the EPT Program?

Nearly 75 percent of all new, emerging, or reemerging diseases affecting humans at the beginning of the 21st century originated in animals. The speed with which these diseases can emerge and spread presents serious public health, economic, and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in those geographic areas where disease threats are likely to emerge.

Recognizing this need, the U.S. Agency for International Development (USAID) launched the EPT program that seeks to aggressively preempt or combat diseases that could spark future pandemics. Initial priority regions include the Congo Basin and South East Asia.

The EPT program emphasizes early identification of and response to dangerous pathogens in animals before they can become significant threats to human health. The program draws on expertise from across the animal- and human-health sectors to build regional, national, and local capacities for early disease detection, laboratory-based disease diagnosis, rapid disease response and containment, and risk reduction.



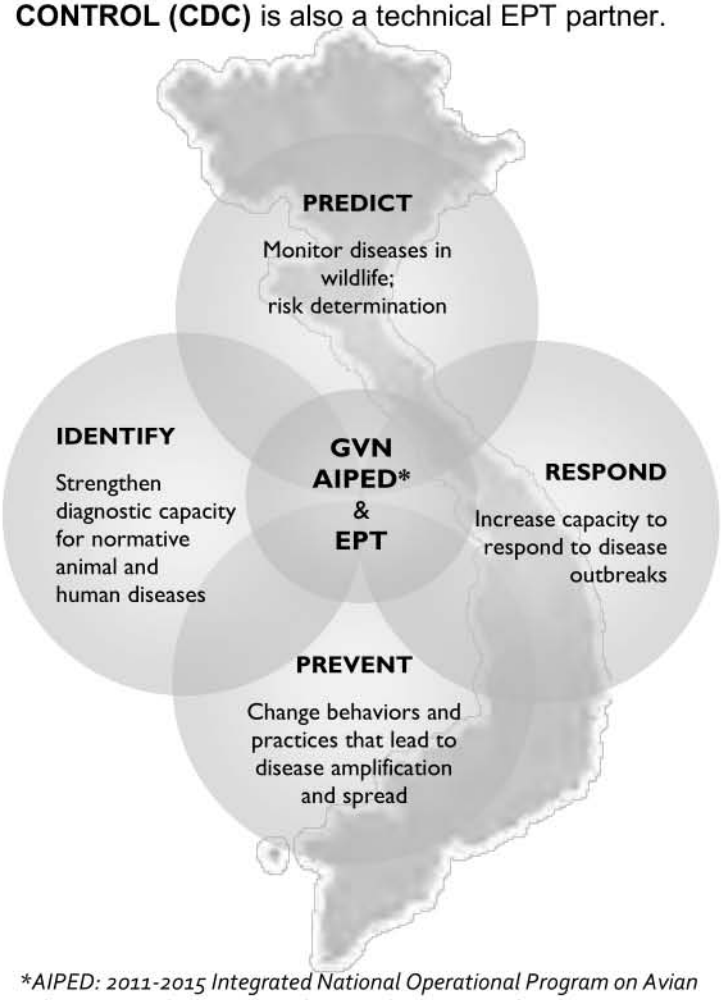
March 2011, Hanoi: National Workshop on Wildlife and Emerging Infectious Diseases in Vietnam (Hanoi)

In South East Asia, Vietnam is a priority country for the EPT program. Using a risk-based, proactive approach, the EPT program is building on the Government of Vietnam's successes in disease surveillance, training, and outbreak response in geographic areas where these threats are most likely to emerge.

Four key areas of emphasis under EPT include:

1. Wildlife pathogen detection
2. Risk determination
3. Outbreak response capacity
4. Risk reduction

The 4 primary projects of the EPT program are **PREDICT, RESPOND, IDENTIFY, AND PREVENT.** The **U.S. CENTERS FOR DISEASE CONTROL (CDC)** is also a technical EPT partner.



**AIPED: 2011-2015 Integrated National Operational Program on Avian Influenza, Pandemic Preparedness and Emerging Infectious Diseases*

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EMERGING PANDEMIC THREATS (EPT) Program

2011 Program Highlights

EPT Program Projects

PREDICT

Through PREDICT, USAID aims to build a global early warning system for emerging diseases which move between wildlife and people. In Vietnam, the PREDICT project works with in-country government partners to **build local capacity** to investigate and monitor diseases at the animal-human interface and to develop a risk-based approach to concentrate efforts in surveillance, prevention, and response at the most critical points for disease emergence from wildlife. Global PREDICT partners include the University of California Davis School of Veterinary Medicine, Wildlife Conservation Society (WCS), Ecohealth Alliance, Smithsonian Institution, and Global Viral Forecasting (GVF).

RESPOND

RESPOND **strengthens country capacities** and twins schools of medicine, nursing, public health, and veterinary medicine in the "hot spot" regions with U.S. counterpart institutions to strengthen their capacities to provide long- and short-course trainings for cadres of professionals in **order to identify and respond to disease outbreaks** in a timely and sustainable manner. RESPOND partners include Development Alternatives, Inc., the University of Minnesota, Tufts University, Training and Resources Group, and Ecology and Environment, Inc.

IDENTIFY

The IDENTIFY project represents a USAID partnership with WHO, FAO and OIE. The project aims to help develop laboratory networks and strengthen diagnostic capacities in geo-graphic “hot spots” in order to improve detection of normative diseases in animals and humans.

PREVENT

The PREVENT project builds upon USAID"s ongoing H5N1 avian influenza efforts to develop effective behavior change and communication responses to diseases of animal origin. It also supports efforts to characterize behaviors that increase the potential for the amplification and spread of new disease threats from wildlife or wildlife products, and formulates strategies for behavior change and/or communication approaches that meet the challenges posed by emerging pandemic disease threats. PREVENT partners include FHI360 and GVF.

U.S. CDC

The U.S. CDC provides technical assistance and funds to the Vietnamese Field Epidemiology Training Program. This program trains physicians and other health workers to become experts in identifying and responding to disease outbreaks. The two-year FETP program is located at the **Hanoi Medical University**.

TECHNICAL TRAINING AND ACTIVITIES

In 2011, IDENTIFY supported almost 60 days of training in Vietnam targeting **biosafety, antiviral resistance testing, and various diagnostic techniques** for specified pathogens to over 250 participants in both animal and human health sectors. PREVENT carried out an omnibus survey on **wild animal meat consumption** in Hanoi and Ho Chi Minh City. In this study 5.2 percent of respondents in Hanoi and 27.4 percent in Ho Chi Minh City reported eating rodents in the past year. PREVENT is following up in one area where there is substantial cross-border trade in rodents from Cambodia to Vietnam. PREDICT provided partner laboratories with specially developed **diagnostic protocols targeting viral family pathogens**, and began on the job training in partner laboratories on their implementation.



Participants engaged in training on diagnosis and characterization of swine diseases

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EMERGING PANDEMIC THREATS (EPT) Program

2011 Program Highlights

RESOURCES SUPPORT

With EPT support, **Vietnamese senior officials** attended the OIE Global Conference on Wildlife Animal Health and Biodiversity, Paris, February, 2011, and the OIE/FAO/WHO Regional Laboratory Network meeting in Bangkok, September, 2011. Following discussions with laboratories to identify the specific resources required to implement PREDICT diagnostic protocols in Vietnam, **essential laboratory equipment and supplies** were provided to two PREDICT partner laboratories. IDENTIFY helped develop animal and human health **laboratory capacity for pathogen surveillance** around Vietnam by providing laboratory textbooks, equipment, technical assistance, testing protocols and supplies to nine different laboratories.

CAPACITY BUILDING

In 2010, the EPT program provided technical support for a workshop focused on "Developing One Health approaches for the period 2011-15". This was followed in 2011 by the first workshop held in Vietnam which brought together wildlife professionals, veterinarians, and relevant government agencies in order to understand existing knowledge on wildlife health in the country, and the priority activities required to develop this knowledge towards a „One Health" approach in the coming time. This "**Wildlife and Emerging Infectious Diseases in Vietnam**" workshop was hosted by the **Department of Animal Health**, with technical and financial support from PREDICT and RESPOND, and attracted over 100 participants from all over Vietnam.

In October, PREDICT and the Hanoi University of Agriculture Faculty of Veterinary Medicine to host the **"First Regional Wildlife Pathology Workshop"**, with participation from **government labs, forestry departments and veterinary faculties** from Vietnam, Laos and Cambodia.

Nearly 70 animal health sector participants attended IDENTIFY supported workshops to better understand diagnostic prioritization of swine diseases, to introduce national **Standard Operating Procedures** for antibiotic susceptibility testing, to develop and finalize national **biosafety guidelines**, and to improve antiviral resistance surveillance and testing. On the human health side, IDENTIFY provided training to 230 participants to enhance surveillance and diagnosis of dengue fever, chikungunya, cholera, and E. coli. Training also helped develop influenza antiviral susceptibility surveillance and improve detection of enterobacteria and lab biosafety practices.



October 2011: Hanoi University of Agriculture hosts the First Regional Wildlife Pathology Workshop

CREATING PARTNERSHIPS

Under leadership of the Government of Vietnam along with key universities and laboratories, the EPT Program has actively developed sustainable partnerships in-country and within the South East Asian region, to facilitate implementation of the program's activities.

PREDICT developed formal agreements with the **Department of Animal Health** and the **Faculty of Veterinary Medicine, Hanoi University of Agriculture** in order to begin to understand the pathogens circulating in wild animal populations in those interfaces where wildlife and humans come into contact. PREDICT and IDENTIFY worked together with **partner laboratories** to ensure that resource development and training implemented under EPT is complementary and assists the government's aim of continuing to develop international standard diagnostic labs.

At the same time, RESPOND was establishing two **university networks** which will allow for collaboration, support, and exchanges between member universities. The first network called the

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EMERGING PANDEMIC THREATS (EPT) Program

Illustrative Activities for 2012

CREATING PARTNERSHIPS (cont'd)

South East Asia One Health University Network (SEAOHUN) represents 10 universities throughout SE Asia, including 3 from Vietnam. The second network called the **Vietnam One Health University Network** (VOHUNET) represents an initial 15 universities in Vietnam.

2012: Illustrative Activities

In 2011, the four EPT Program projects were busy establishing working partnerships in order to optimize future collaboration. Meanwhile, the projects focused on developing human resource and material capacity within Vietnam focusing on disease surveillance and detection. During 2012, the EPT Program in Vietnam will continue building on existing achievements.

IDENTIFY plans to facilitate and expand the Regional Laboratory Network. The project will also continue working to **improve laboratory biosafety** within Vietnam. By providing reference books, as well as field and laboratory diagnostic training, IDENTIFY will help improve human and animal health **laboratory capacity to diagnose known diseases** and handle undiagnosed samples. Additionally, IDENTIFY will support improving quality assurance in laboratories through the External Quality Assurance Scheme (EQAS) for priority diseases. IDENTIFY provided funding for a situation analysis undertaken by **MOH and regional institutes** to develop a long term strategy for laboratory biosafety.

PREDICT will continue to work collaboratively with government and laboratory partners to further characterize the risk to public health posed by the potential for emergence and transmission of diseases from wildlife to humans. **Wildlife disease surveillance** efforts will focus on wild animal species (such as rodents, non-human primates, carnivores, bats and birds) for which history has shown the emergence of zoonotic disease is most likely, in interfaces which provide opportunities for close contact between humans and animals. PREDICT will provide ongoing training and support to ensure adequate **laboratory and field biosafety**, and to develop in-country capacity to **investigate unknown diseases** in wild animal populations.

RESPOND will continue to support the further development of both the Vietnam One Health University Network (VOHUNET) and the South East Asia One Health University Network (SEAOHUN), of which three Vietnam universities are an integral part. As part of the network support, UMN and Tufts University will twin with their Vietnam university counterparts to build public health capacity to respond to disease outbreaks. Part of this capacity building involves the development of **One Health Core Competencies** as well as curriculum and workforce assessments.

PREVENT will focus on the areas of risk determination and developing risk-reduction strategies. One specific area of interest is a substantial cross-border trade in rodents from Cambodia to Vietnam. PREVENT will **map the markets** and carry out rapid qualitative research in selected Vietnamese communities involved in the rodent trade to understand who is involved, trace sources and routes by which rodents (and comparison foods) get to market and their destinations; identify different actors in the market chain and assess traders" appreciation (or not) of the risks identified and the potential for risk mitigation. PREVENT will also work with key stakeholders to explore different options for **improving bio-security practices at wildlife farms**. Concurrently the project will complete a local **literature review** focused on risky practices and behaviors and will document interventions undertaken or underway which aim to reduce human-animal exposure. Throughout the year PREVENT will participate in the BCC working group and support expansion of the group"s agenda to include other emerging and re-emerging infectious diseases.

U.S. CDC will continue to support the Vietnam FETP in their efforts to train and build skills to identify and respond to disease outbreaks. Support consists of technical assistance, training and curriculum developments as well as funds to support training, outbreaks and field projects.

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EMERGING PANDEMIC THREATS (EPT) Program

Snapshot of In-Country Partners and Counterparts

Hanoi:
* Department of Animal Health
* National Centre for Veterinary Diagnosis (NCVD)
* Hanoi University of Agriculture
* National Institute for Hygiene and Epidemiology (NIHE)

VOHUNET Secretariat:
- Hanoi School of Public Health
- Hanoi Medical University
- Hanoi University of Agriculture

FETP:
* Hanoi Medical University, Institute for Preventive Medicine and Public Health

Thai Nguyen University:
- College of Medicine
- College of Agriculture & Forestry

- Bac Giang Agriculture and Forestry University
- Hai Phong Medical University
- Thai Binh University of Medicine
- Nam Dinh University of Nursing

Hue University:
- College of Medicine and Pharmacy
- College of Agriculture and Forestry

Tay Nguyen Institute Hygiene and Epidemiology (TIHE)

Dak Lak:
- Tay Nguyen University, Faculty of Medicine and Pharmacy

Pasteur Institute Nha Trang (PI NT)

- Can Tho University of Medicine and Pharmacy

Ho Chi Minh City:
- HCMC Medicine and Pharmacy University
- HCMC University of Agriculture & Forestry

Ho Chi Minh City:
* Regional Animal Health Office #6
* Pasteur Institute Ho Chi Minh City

- Represents initial VOHUNET institutions



Vietnam One Health University Network (VOHUNET) National Launch in Nha Trang, Vietnam—Nov 2011

Annex 5: EPT/IDENTIFY Project Indicators Framework

DRAFT

EPT/IDENTIFY Project Indicators
Version 4, 29 February 2012

EPT 5-Year Over-Arching Mission

Minimize the risk of potential pandemic disease threats

EPT 5-Year Objectives for the IDENTIFY project

1. Enhance Laboratories'[2] ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases[3]

2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System

4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

IDENTIFY Project End-of Project Targets and Indicators[4] for Annual (Fiscal Year) Reporting

Objective #1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

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[2] See Annex 1 for complete list of animal and public health laboratories in the IDENTIFY countries.

[3] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases and data will not be reported for diseases in those cases.

[4] In order to remain flexible to the evolution of the IDENTIFY project and the national situation of each IDENTIFY country, IDENTIFY partners keep open the possibility to review indicators and make necessary modifications. IDENTIFY partners will collect data from the effective start date of each activity implemented of the IDENTIFY project to determine baseline figures. While we have aligned the indicators across organizations in each objectives table below, additional linkages between indicators and between IDENTIFY objectives is frequent. We encourage examining the IDENTIFY framework as a whole with each objective and indicator demonstrating one piece of the overall capability of a laboratory or country that, without the other pieces, has little meaning.

End-of Project Target for Objective #1: The IDENTIFY-supported laboratories in EPT countries have improved their ability to detect – to the appropriate level of characterization for the laboratory's capability- the IDENTIFY targeted diseases in their respective regions

DESCRIPTION OF IDENTIFY OBJECTIVE #1 INDICATORS[5]

IDENTIFY project indicators - Objective 1			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators[6]**
		Proportion of national outbreaks and/or events confirmed by laboratory diagnoses nationally and internationally each year	6
	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided		6
Ability of each lab to diagnose noted priority diseases*	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	Source of the laboratory's method to test targeted diseases	6
		Source of reagents and controls used to test for targeted diseases	6
		Level of training provided to staff who perform diagnostic tests	6
	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	Access to testing outside the country for targeted diseases for which diagnosis is not available in-country	6
	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health laboratories	Availability of advanced characterization of targeted pathogens, where appropriate, in-country or internationally	6
Number of staff trained by topic, professional category and type of training/meeting/conference	Number of people trained by topic in laboratory practices	Number of people trained in field epidemiology, epidemiology, lab techniques, lab management, biosafety and biosecurity, sample management (infectious sample shipment, etc.), logistics, IT (LIMS), etc.	1
	Number of laboratories that have developed a National Animal Health Laboratory Strategic Plan		6
Value of equipments/supplies provided to supported laboratories	Value of commodities provided (USD)	Total sum (in USD) spent on laboratory supplies, reagents and equipment from	13[7]

[5] Under each IDENTIFY Objective, the FAO, OIE, and WHO indicators are listed, as well as each indicator's alignment with the EPT Indicators. In addition, when the partners' indicators are interrelated, they are aligned for ease and demonstrate their complementarity in capturing all facets of each objective. When joint activities are held, they will be counted separately and only once in the joint category (FAO/OIE, OIE/WHO, FAO/WHO, FAO/OIE/WHO) (reporting table to be developed after first data call).

[6] See Annex 2 for full descriptions of the EPT Program Indicators applicable to the IDENTIFY project.

[7] While some quality assurance-related commodities (under IDENTIFY Objective 3) may be purchased, IDENTIFY partners include the reporting data for EPT Indicator 13 –Value of PIOET commodities provided to PIOET programs" only under IDENTIFY Objective 1 for simplicity.

Percentage of lab requested equipment/supplies provided by FAO/IDENTIFY		IDENTIFY funds	

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Objective #2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

End of Project Target for Objective 2: The IDENTIFY-supported laboratories in EPT countries report laboratory results of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate international animal and human health organizations

DESCRIPTION OF IDENTIFY OBJECTIVE #2 INDICATORS

IDENTIFY project indicators - Objective 2			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
	Number of days between start of an exceptional event and first laboratory test	Time from start of a suspected HPAI outbreak to laboratory confirmation in IDENTIFY countries	12
	Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	Percentage of specimens tested for targeted diseases within the "acceptable"/"reasonable" time period	12
Reporting of proxy disease (e.g. AI in endemic countries) to relevant national authority	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country		6
	Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided		6
	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	Percentage of priority disease detections notified within the "specified"/"reasonable" time period	12
	Percentage of immediate notifications for which the submission time is shorter than 2 days		12

Objective #3: Laboratories have adopted or improved Quality Assurance (QA) practices, including of biosafety and biosecurity measures, and a comprehensive Quality Management System

End of Project Target for Objective 3: The IDENTIFY-supported laboratories in EPT countries have adopted/improved and implemented appropriate QA practices, including biosafety and biosecurity practices

DESCRIPTION OF IDENTIFY OBJECTIVE #3 INDICATORS

IDENTIFY project indicators - Objective 3			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Ability of each laboratory to implement critical elements of a laboratory quality management system by NPD *	Number of laboratories with a Quality Manager in place		6
	Number of procedures described under the Quality Management System by laboratory in line with OIE International Standards		6
	Number of diagnostic tests by laboratory in-line with OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals		6
	Number of proficiency testing rounds performed adequately in regional external quality assurance schemes	EQA results for those covering targeted diseases	6
	Number of diagnostic tests performed using both positive and negative controls		6
	Number of OIE Standards and guidance provided		6
Ability of each lab to safely handle X of XX NPDs in a biosecure environment*	Number of staff trained in OH&S	Training provided to staff on the topic of biosafety	1
		Availability and use of PPE appropriate for the activities carried out in the laboratory	6
	Number of OH&S risk assessments undertaken by procedure and department	Conduction of biorisk assessment	6
		Calibration and maintenance of major pieces of equipment used to detect targeted diseases according to the manufacturer's recommendations	6
		Availability and appropriate use of biosafety cabinets and other safety equipment	6
		Certification and maintenance of biosafety cabinets to international standards	6
		Management of laboratory waste disposal according to international recommendations	6
		Control of access to the laboratory and stored infectious material	6
		Maintenance of inventory of stored infectious material	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Objective #4: Laboratories are participating in the relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

End of Project Target for Objective 4: The IDENTIFY-supported laboratories in EPT countries are participating in relevant regional and international laboratory networks as according to their abilities, disease priorities, and responsibilities. In many laboratories' cases, this may involve participation in multiple networks

DESCRIPTION OF IDENTIFY OBJECTIVE #4 INDICATORS

IDENTIFY project indicators - Objective 4			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Level of laboratory engagement in regional and international networks (low, medium, high)*		Membership of regional or international networks related to targeted diseases	6
	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	Participation of the laboratory in specimen sharing and other technical activities organized by networks	6
	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days		6
	Number of focused capacity building opportunities supported		1
Number of meetings & conferences held on laboratory themes	Number of meetings & conferences held on laboratory themes	Attendance of appropriate laboratory staff to relevant meetings of regional and international networks related to targeted diseases	1
Number of participants to meetings & conferences held on laboratory themes	Number of participants to meetings & conferences held on laboratory themes		1
	Number of countries that have nominated OIE National Focal Points for Laboratories		1
Level of information sharing (low, medium, high) *	Number of samples sent to OIE Reference Laboratories for diagnostic or confirmation support		6
	Number of reagents received from OIE Reference Laboratories		6
Level of communication with other laboratories (low, medium, high) *		Communication with other laboratories in network/s and seek and/or provide advice to network members	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

Measuring and reporting progress achieved by the IDENTIFY-supported Laboratories

Project partners will measure and report yearly each animal and human health laboratory's capability according to the IDENTIFY objectives and end of project targets. Three to five levels of capability, from least to most advanced (e.g. Low, Medium, and High capability), for each of the objectives, are presented for each laboratory (or country) in template form in the table below. Results on animal and public health laboratories' capability will be presented separately in two tables, and results will also be presented separately region by region.

IDENTIFY Countries'/Laboratories' capability for Animal Health

IDENTIFY Laboratories (or Countries)	IDENTIFY Objective 1	IDENTIFY Objective 2	IDENTIFY Objective 3	IDENTIFY Objective 4
LAB A	Low	Medium	Low	High
LAB B	…			
etc.				
Total by Objective				

IDENTIFY Countries'/Laboratories' capability for Public Health

IDENTIFY Laboratories (or Countries)	IDENTIFY Objective 1	IDENTIFY Objective 2	IDENTIFY Objective 3	IDENTIFY Objective 4
LAB A	Low	Medium		
LAB B				
etc.				
Total by Objective				

This system was devised in order to allow for the strengths and gaps of each laboratory to emerge in the measurement of indicators for the IDENTIFY Project. For example, a laboratory may carry out only basic diagnostic tests, but carry out those tests under a quality assurance system, in a timely and sustainable manner, and with accurate results. In such a case, it may be best that the laboratory continues on this path in order to maintain consistency in laboratory diagnosis at their present level, rather than expand to more advanced methods too rapidly, potentially compromising the timeliness, accuracy, and consistency of test results. The goal is not to fund an advanced laboratory on unsustainable resources in each country, but rather foster a sustainable regional network composed of laboratories of varying capability and resources to consistently conduct all tests under a quality system, in a timely manner, with accurate results, and in a sustainable manner.

Yearly assessment[8] of each laboratory would be done to assess their capability using all available data collection modalities. WHO will determine the level for each laboratory/country based on the IDENTIFY project data collection tool. FAO and OIE will collaborate to determine the level of each laboratory by objective, respectively using the FAO Laboratory Progress Monitoring Tool and OIE WAHIS data.

This method establishes a means to:

a) Quickly, objectively, and consistently categorize a laboratory's capability

[8] Resulting from a specific assessment and/or extraction of data from existing sources.

b) Assess changes in laboratories' capability by the end of the project

c) Compare progress by laboratory (or by country) and by region over time

d) Administer the assessment process consistently, in different locations and by different individuals

e) Provide feedback to each laboratory on the assessments conducted (i.e. critical feedback loop)

Laboratories' names will be removed at all points in the reporting process providing anonymity, as the objectives of this process are not to compare one laboratory to another, but rather to measure the progress of each laboratory over time. Results can be clustered by region to provide a good sense of change over time of the region as a whole.

Number of Countries/Laboratories Targeted for IDENTIFY Assistance, by Region and type (Animal & Human)

Animal Health (see Annex 1 for detailed list)

IDENTIFY Region	Total Number of Countries	Total Number of Laboratories
Congo Basin/Africa	14	14
Southeast Asia	8	20
South Asia	3	4
Global	**25**	**38**

Public Health (see Annex 1 for detailed list)

IDENTIFY Region	Total Number of Countries	Total Number of Laboratories
Congo Basin/Africa	9	16
Southeast Asia	6	12
South Asia	2	2
Global	**17**	**30**

Annex 1: IDENTIFY Partner Countries and Laboratories, by Type and by Region

Veterinary Laboratories in the Congo Basin Region

Cameroon	Laboratoire National Vétérinaire, Garoua, LANAVET
Central African Rep.	Laboratoire Central Vétérinaire de Bangui, LACEVET
Dem. Rep. of Congo	Laboratoire Vétérinaire de Kinshasa, LCVK
Equatorial Guinea	Laboratoire National ECAA-KM 7
Gabon	Laboratoire National Vétérinaire de Libreville, LNVL
Republic of Congo	Laboratoire de diagnostic vétérinaire de Brazzaville, LDVB
Rwanda	National Veterinary Laboratory, RARDA, Rubirizi, Kigali
South Sudan	Central Veterinary Laboratory, Juba, CVL
Tanzania	Central Veterinary Laboratory, CVL, Temeke, Dar es Salaam
Uganda Entebbe	National Animal Disease Diagnostics and Epidemiology Centre – NADDEC

Laboratories providing Regional Support Services:

Botswana	Botswana National Veterinary Laboratory, BNVL, Gaborone
Ethiopia	National Animal Health Diagnostic Investigation Centre, NAHDIC
Nigeria	National Veterinary Research Institute, NVRI, Vom
Senegal	Laboratoire National de l'Elevage et de Recherches Vétérinaire, LNEVR, Dakar

Veterinary Laboratories in the Southeast and South Asia Regions

Cambodia	National Veterinary Research Institute
China	Langzhou Veterinary Research Institute
	Yunnan Animal Science and Veterinary Institute
	China Animal Disease Control Centre, Beijing
	China Animal Health and Epidemiology Center, Qingdao
Indonesia	Directorate of Livestock Animal Health Service
Lao PDR	National Animal Health Center
Malaysia	Veterinary Research Institute
	Department of Wildlife and National Parks Peninsular Malaysia
Myanmar	Livestock Breeding and Veterinary Department[9]
Philippines	Philippine Animal Health Center
Thailand	National Institute of Animal Health
	FMD Regional Reference Laboratory Pakchong
	Chulalongkorn University Center for Emerging and Re-Emerging Diseases in Animals
Viet Nam	Regional Animal Health Office Number 6
	Hanoi Agriculture University
	National Center for Veterinary Diagnosis
Bangladesh	Central Disease Investigation Laboratory
	Bangladesh Livestock Research Institute
Nepal	Central Veterinary Laboratory

Laboratories providing Regional Support Services:

India	High Security Animal Disease Laboratory

Public Health Laboratories in the Congo Basin Region

[9] Included in the regional laboratory network, but participation to regional events is not funded by IDENTIFY in Year 3 and therefore Myanmar is not included in the total number of countries or laboratories.

Cameroon	National Public health laboratory Hygiene Mobile
	Centre Pasteur, Yaoundé Bacteriology, Cameroon virology
	Laboratoire de bactériologie du CHU de Yaoundé
Central African Rep.	Bacteriology Laboratoire National de Santé Publique, Bangui
	Institute Pasteur Bangui
Dem. Rep. of Congo	Institut National de Recherche Biomédicale (INRB), Kinshasa
Equatorial Guinea	Laboratorio de Microbiologia de Hopital Regional de Malabo
Gabon	Laboratoire National de Santé Publique, Libreville, Gabon
	Centre International de Recherche Médicale-Franceville (CIRMF)
Rep. of Congo	Laboratoire National de Sante Publique, Brazzaville
Rwanda	Laboratoire National de Référence et de Santé Publique, Kigali
Tanzania	Muhimbili Medical Centre, Dept of Microbiology, Dar es Salaam
	Mnazi Mmoja Hospital, Pathology Laboratory, Zanzibar
	National Health Laboratory Quality Assurance and Training Centre
Uganda	Central Public Health Laboratory, Kampala
	Uganda Virus Research Institute, Entebbe

Public Health Laboratories in the Southeast and South Asia Regions

Cambodia	National Institute for Public Health (NIPH)
	Takeo Provincial Laboratory
	Kampong Cham Provincial Laboratory
	Battambang Provincial Laboratory
Lao PDR	National Centre for Laboratory and Epidemiology (NCLE)
Philippines	Research Institute, for Tropical Medicine (RITM)
Vietnam	National Institute, for Hygiene and Epidemiology (NIHE)
	Pasteur Institute, Ho Chi Minh City (PI-HCMC)
	Paster Institute, Nha Trang
	Tay Nguyen Institute for Hygiene and Epidemiology
Thailand	National Institute of Health (NIH)
Indonesia	National Institute of Health Research and Development (NIHRD), Salatiga
Nepal	National Public Health Laboratory (NPHL)
Bangladesh	International Centre for Diarrhoeal Diseases Research, Bangladesh

Annex 2: EPT Indicators applicable to the IDENTIFY project

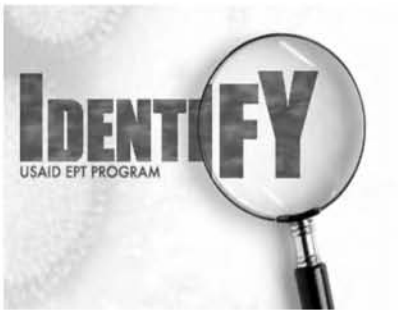
Sub-Element: Planning and Preparedness for Outbreak Response	
Indicator 1	**Number of people trained in those competencies necessary to address Public Health Emergencies of International Concern (PHEIC).**
Definition	This indicator contributes to the International Health Regulation (IHR) minimum target of one trained field epidemiologist for every 200,000 people in a population and a to-be-determined ratio for veterinarian epidemiologists. Other training required to establish the capacity to respond to PHEIC will be included in this indicator including laboratory skills, logistics etc.
New or Existing Indicator?	Modified existing indicator for the International Health Regulation (IHR) working group/Emerging Pandemic Threats Sub-Interagency Policy Committee
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Planning and Preparedness for Outbreak response
Linkage to Long-Term Outcome or Impact	The number of people trained should increase over time.
Indicator Type	Output
Unit of Measure	Number
Use of Indicator	To document the number of people trained in the skills required to respond to a PHEIC
Data Source and Reporting Frequency	**Data Sources:** USG, WHO, FAO,OIE **Reporting Frequency:** Annual
Known Data Limitations	This indicator is specific to EPT and does not reflect all of the work CDC is doing for FETP and FETP-V
Baseline Timeframe	October 2009

Sub-Element: Animal and Human Disease Surveillance	
Indicator 6	**Number of PIOET targeted countries that have access to the capacity to reliably* conduct core diagnostic tests for priority** animal and priority human diseases.**
Definition	Access to an efficient and effective laboratory system enables accurate and timely surveillance and response capabilities. This indicator represents only a single outcome. The core diagnostic tests are determined by WHO, IHR, FAO, and OIE and pathogens that are of specific priority to the region/country.
New or Existing Indicator?	New and existing indicator for the International Health Regulation (IHR) working group/Emerging Pandemic Threats Sub-Interagency Policy Committee. A parallel effort with FAO and OIE is ongoing to determine comparable priority for animal diseases.
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Animal and Human Disease Surveillance
Linkage to Long-Term Outcome or Impact	The number of countries should increase over time
Indicator Type	Outcome
Unit of Measure	Number
Use of Indicator	These data would monitor the ability of the country's own laboratories or the use of reference laboratories to which the country sends specimens to confirm and characterize these core pathogens and identify areas of focus for improvement.
Data Source and Reporting Frequency	**Data Sources:** USG reports (USAID, CDC), WHO, FAO, OIE **Reporting Frequency:** Annually
Known Data Limitations	
Baseline Timeframe	October 2009
Responsibility	USAID
Disaggregate(s)	none

Sub-Element: Response to Disease Outbreak	
Indicator 12	**Time from start of a suspected, priority animal or human health disease outbreak to laboratory confirmation in targeted areas** **a. Humans (only for HPAI human cases)** **b. Animals (as reported by OIE)**
Definition	This indicator measures the laboratory confirmation component of responding to an outbreak. In many countries this is required before an official response can be mounted.
New or Existing Indicator?	New
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Response to Disease Outbreak
Linkage to Long-Term Outcome or Impact	This is an outcome indicator. The time should decrease over time.
Indicator Type	Outcome
Unit of Measure	Number
Use of Indicator	This measures improvement of the laboratory system
Data Source and Reporting Frequency	**Data Sources:** FAO, WHO, OIE **Reporting Frequency:** When surveys are available. The timeframe for these surveys in any given country will be different. At this time there is no ongoing source other than USAID projects and Ministry records if they exist.
Known Data Limitations	The data will be USAID project sourced. There are many issues that complicate this measurement, including the type of outbreak, the need for laboratory referral versus capacity in-country to diagnosis, etc.
Baseline Timeframe	October 2009
Responsibility	USAID and CDC
Disaggregate(s)	none

Sub-Element: Commodity Stockpile	
Indicator 13	**Value of PIOET commodities provided to PIOET programs**
Definition	This indicator measures the direct assistance provided to PIOET planning, preparedness and response efforts in priority countries.
New or Existing Indicator?	New
Primary Program Area (Program Element for IIP) Linkage	Global Health
Primary Program Element (Program Sub-Element for IIP) Linkage	Pandemic Influenza and Other Emerging Threats- Commodity Stockpile
Linkage to Long-Term Outcome or Impact	The dollar amount should decrease over time
Indicator Type	Output
Unit of Measure	Number
Use of Indicator	To track the commodity assistance provided to PIOET program efforts
Data Source and Reporting Frequency	**Data Sources:** All PIOET partners **Reporting Frequency:** Ongoing
Known Data Limitations	The data will be USAID project sourced.
Baseline Timeframe	October 2009
Responsibility	USAID
Disaggregate(s)	none

Annex 6: OIE Contribution to EPT & IDENTIFY Data Call



OIE CONTRIBUTION TO EPT DATA CALL

EPT/IDENTIFY/OIE Project Indicators
As of 6 April 2012

EPT 5-Year Over-Arching Mission

Minimize the risk of potential pandemic disease threats

EPT 5-Year Objectives for the IDENTIFY project

5. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases[10]

6. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

7. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System

8. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

Methods and Materials

The IDENTIFY Project indicators have been developed jointly by FAO, OIE, WHO, and USAID. The IDENTIFY Partner organisations have developed separate methods for assessing the project objectives based on the data sources that are available to them but have attempted to maintain a harmonized approach to assessing the status of the IDENTIFY countries. The OIE uses existing data sources, including the only official animal disease reporting database, the OIE World Animal Health Information Database (WAHID), and IDENTIFY project documents, such as meeting reports, lists of participants, and invoices, to collect the information needed to monitor the progress of the IDENTIFY project.

[10] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases and data will not be reported for diseases in those cases. Please refer to the OIE's second biannual report for Year 2 for the list of IDENTIFY targeted diseases.

Indicators were created and measured for the evaluation of IDENTIFY targeted countries' capacities against IDENTIFY objectives (See each Objectives' table below for the list of all indicators). For each indicator for which data are provided by WAHID, the results are provided by country, by region, and by year (or by semester where applicable), from 2005 through March 2012. For each indicator for which data are provided by IDENTIFY Project documents, results are provided by country and by region to date. Where indicated, some data represent the baseline figure[11].

For each indicator, the results were scored according to 5 categories (red for the lowest score to dark green for the highest score, with the scoring adapted to each indicator depending on its parameters), in order to make the results more visible and understandable. In the tables, dark grey was used when no report has been sent to the OIE or validated to date for the corresponding period of time. The symbol "…" was used when no information was provided in the reports and "NA" was used when the indicator was not applicable for the corresponding time period. This system allows the possibility to visualize the trends and evolution of capability from 2005 until March 2012. While October 2009 is the official start of the EPT Program, the data prior to project start (2005-2009) have been included for the reader's information to better establish trends and to visualize the significant investments that were already showing benefit and improvement in laboratory capability (notably investments in Avian Influenza detection in Southeast Asia).

The results for the OIE IDENTIFY Project indicators are presented by project objective, by indicator, by region, and by country. Individual countries are not identified, have been assigned a letter code, and this coding system is aligned with that of WHO and FAO. Data were not systematically available by laboratory and for that reason have been reported at the country level.

[11] All baseline figures have been determined and previously reported by the OIE in the OIE's second biannual report for Year 2 (April-Sept 2011).

IDENTIFY Project End-of Project Targets, Indicators[12] , and Results for Annual (Fiscal Year) Reporting

End-of Project Target for Objective #1: The IDENTIFY-supported laboratories in EPT countries have improved their ability to detect – to the appropriate level of characterization for the laboratory's capability- the IDENTIFY targeted diseases in their respective regions

IDENTIFY project indicators[13] - Objective 1			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
		Proportion of national outbreaks and/or events confirmed by laboratory diagnoses nationally and internationally each year	6
	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided		6
Ability of each lab to diagnose noted priority diseases*	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	Source of the laboratory's method to test targeted diseases	6
		Source of reagents and controls used to test for targeted diseases	6
		Level of training provided to staff who perform diagnostic tests	6
	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	Access to testing outside the country for targeted diseases for which diagnosis is not available in-country	6
	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health laboratories	Availability of advanced characterization of targeted pathogens, where appropriate, in-country or internationally	6
Number of staff trained by topic, professional category and type of training/meeting/conference	Number of people trained in laboratory practices[14]	Number of people trained in field epidemiology, epidemiology, lab techniques, lab management, biosafety and biosecurity, sample management (infectious sample shipment, etc.), logistics, IT (LIMS), etc.	1
	Number of countries that have developed a National Animal Health Laboratory Strategic Plan		6
Value of equipment/supplies provided to supported laboratories	Value of commodities provided (USD)	Total sum (in USD) spent on laboratory supplies, reagents and equipment from IDENTIFY funds	13[15]
Percentage of lab requested equipment/supplies provided by FAO/IDENTIFY			

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

[12] In order to remain flexible, IDENTIFY partners keep open the possibility to review indicators and make necessary modifications.
[13] Under each IDENTIFY Objective, the FAO, OIE, and WHO indicators are listed, as well as each indicator's alignment with the EPT Indicators. In addition, when the partners' indicators are interrelated, they are aligned for ease and demonstrate their complementarity in capturing all facets of each objective.
[14] Does not include regional network meetings (see Obj. 4).
[15] While some quality assurance-related commodities (under IDENTIFY Objective 3) may be purchased, IDENTIFY partners include the reporting data for EPT Indicator 13 –Value of PIOET commodities provided to PIOET programs" only under IDENTIFY Objective 1 for simplicity.

IDENTIFY Project Outcome Indicators

Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes, that were present and for which the information about the serotype was provided, by country, between 2005 and 2011

	2005		2006		2007		2008		2009		2010		2011	
	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.
Congo Basin														
Country A	50%	50%	67%	100%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Country B	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	
Country C			50%	0%	50%	0%	50%	0%	0%	0%	50%	50%		
Country D			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Country E	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
Country F	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Country G	0%	0%			0%	0%	0%	0%	0%	0%	0%	0%	0%	
Country H	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Country I										NA	NA	NA	NA	NA
Country K	0%	0%	50%	100%	50%	0%	50%	100%	50%	0%	0%	0%	0%	0%
Country L	0%	0%	0%	0%	0%	0%	0%	33%	67%	33%	67%	67%	67%	
Country M	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	33%	33%
Country Q	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%		
South and Southeast Asia														
Country A	0%	0%	0%	33%	100%	50%	67%	67%	67%	0%	33%	50%		
Country B	0%	0%	50%	50%	50%	0%	0%	50%	50%	100%	50%	100%	50%	
Country C	33%	33%	33%	67%	67%	67%	100%	50%	100%	67%	67%	67%	67%	67%
Country D	50%	50%	50%	50%	50%	50%	50%	50%	100%	100%	100%	100%	100%	
Country E	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Country F	67%	67%	50%	67%	67%	50%	67%	67%	50%	50%	50%	50%	50%	
Country G	33%	33%	67%	67%	67%	75%	75%	75%	100%	33%	67%	50%	50%	
Country H	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Country I	100%	100%	50%	33%	50%	33%	33%	50%	67%	50%	67%	67%	33%	
Country J					50%	33%	33%	33%	33%	33%	33%	0%	33%	33%
NA	Not applicable because no IDENTIFY targeted disease with multiple existing serotypes was reported													
	No six-monthly report was sent and/or validated by the OIE													

Percentage of IDENTIFY targeted diseases for which laboratory tests were available in national laboratories, according to annual reports, by country, between 2005 and 2011

	2005	2006	2007	2008	2009	2010	2011
Congo Basin							
Country A	13%	13%		22%	31%	31%	31%
Country B	…	…	…	…	6%	6%	
Country C		…	…		…	…	
Country D		…	…	…	16%		
Country E	34%	34%	28%	28%	28%	28%	
Country F	…	…	…	…	…	25%	
Country G	28%		28%	28%	28%	28%	
Country H	…	…	31%	31%	31%	31%	
Country I							
Country K	…	…	…	6%	31%	31%	
Country L	…	41%	41%	41%	41%	41%	
Country M	19%	19%	19%	19%	19%	41%	
Country Q	…	…	…	6%	6%	6%	
South and Southeast Asia							
Country A	…	7%	7%		7%	7%	
Country B			…	…	…	4%	
Country C	…	…	19%	19%	19%	19%	19%
Country D	…	…	37%	37%	37%	37%	
Country E	19%	19%	19%	19%	19%	19%	
Country F	52%	52%	52%	52%	52%	52%	
Country G	11%	11%	11%	11%	11%	11%	
Country H	7%	7%	7%	26%	26%	26%	
Country I	37%	44%	44%	44%	44%	48%	
Country J			…	…	…	…	
…	No information provided in annual reports						
	No annual report was sent and/or validated by the OIE						

Percentage of IDENTIFY targeted diseases for which OIE prescribed of alternative laboratory tests for international trade were available in national laboratories, according to annual reports, by country, between 2005 and 2011

	2005	2006	2007	2008	2009	2010	2011
Congo Basin							
Country A	6%	6%		19%	22%	22%	22%
Country B	…	…	…	…	0%	0%	
Country C		…	…		…	…	
Country D		…	…	…	16%		
Country E	19%	19%	13%	13%	13%	13%	
Country F	…	…	…	…	…	22%	
Country G	22%		22%	22%	22%	22%	
Country H	…	…	22%	22%	22%	22%	
Country I							
Country K	…	…	…	3%	25%	25%	
Country L	…	31%	31%	31%	31%	31%	
Country M	13%	13%	13%	13%	13%	28%	
Country Q	…	…	…	3%	3%	3%	
South and Southeast Asia							
Country A	…	4%	4%		4%	4%	
Country B			…	…	…	4%	
Country C	…	…	15%	15%	15%	15%	15%
Country D	…	…	26%	26%	26%	26%	
Country E	11%	11%	11%	11%	11%	11%	
Country F	19%	19%	19%	19%	19%	19%	
Country G	7%	7%	7%	7%	7%	7%	
Country H	11%	11%	11%	22%	22%	22%	
Country I	26%	33%	33%	33%	33%	33%	
Country J			…	…	…	…	
…	No information provided in annual reports						
	No annual report was sent and/or validated by the OIE						

Percentage of IDENTIFY targeted diseases for which advanced diagnostic tests were available in national laboratories, according to annual reports, by country, between 2005 and 2011

	2005	2006	2007	2008	2009	2010	2011
Congo Basin							
Country A	0%	0%		13%	16%	16%	16%
Country B	…	…	…	…	3%	3%	
Country C		…	…		…	…	
Country D		…	…	…	6%		
Country E	3%	3%	3%	3%	3%	3%	
Country F	…	…	…	…	…	3%	
Country G	13%		13%	13%	13%	13%	
Country H	…	…	13%	13%	13%	13%	
Country I							
Country K	…	…	…	0%	13%	13%	
Country L	…	22%	22%	25%	25%	25%	
Country M	9%	9%	9%	9%	9%	19%	
Country Q	…	…	…	0%	0%	0%	
South and Southeast Asia							
Country A	…	4%	4%		4%	4%	
Country B			…	…	…	4%	
Country C	…	…	19%	19%	19%	19%	19%
Country D	…	…	11%	11%	11%	11%	
Country E	4%	4%	4%	4%	4%	4%	
Country F	11%	11%	11%	11%	11%	11%	
Country G	11%	11%	11%	11%	11%	11%	
Country H	7%	7%	7%	15%	15%	15%	
Country I	7%	7%	7%	7%	7%	11%	
Country J			…	…	…	…	
…	No information provided in annual reports						
	No annual report was sent and/or validated by the OIE						

IDENTIFY Project Output Indicators

Congo Basin (by Country)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	Q
Number of people trained in laboratory practices	6	3	6	3	9	6	6	6	3	6	6	6	45	1
Value of commodities provided (USD)°	0	0	0	0	$133,582.42	0	0	0	0	0	0	0	0	0
°includes the cost of equipment and consumables														
° Calculated in person days														

South & Southeast Asia (by Country)										
	A	B	C	D	E	F	G	H	I	J
Number of people trained in laboratory practices* °	7	2	14	16	7	12	20	7	0	0
Number of countries that have developed a National Animal Health Laboratory Strategic Plan¤	0	0	0	0	0	0	0	0	0	0
Value of commodities provided (USD)°	0	0	0	0	0	0	0	0	0	0
* 1 representative (5 person days) from Timor Leste, with the authorization of USAID, was invited to the Strategic Planning Workshop. This is not counted here.										
° Calculated in person days										
¤ These are the baseline figures by country. As of the deadline, the Strategic Planning Workshop has occurred but in-country activities are projected to begin in the second semester of Year 3. Figures will be updated once in-country follow-up activities occur.										

End of Project Target for Objective 2: The IDENTIFY-supported laboratories in EPT countries report laboratory results of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate international animal and human health organizations

IDENTIFY project indicators - Objective 2			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
	Number of days between start of an exceptional event and first laboratory test	Time from start of a suspected HPAI outbreak to laboratory confirmation in IDENTIFY countries	12
	Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days	Percentage of specimens tested for targeted diseases within the "acceptable"/"reasonable" time period	12
Reporting of proxy disease (e.g. AI in endemic countries) to relevant national authority	Percentage of IDENTIFY countries providing quantitative information for diseases that are present in their country		6
	Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided		6
	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	Percentage of priority disease detections notified within the "specified"/"reasonable" time period	12
	Percentage of immediate notifications for which the submission time is shorter than 2 days		12

All data presented here by the OIE as reported by its Member Countries who participate in the IDENTIFY Project is extracted from WAHID, the worldwide and unique official animal disease information database. The information is disseminated by the OIE in agreement with OIE Member Countries after exchange on the authenticity of the information. The OIE, functioning in a cooperative and transparent manner, is the reference organisation that provides the only official animal disease information. The OIE maintains that the Country alone can confirm or deny *official* disease status.

IDENTIFY Project Outcome Indicators

Median of the number of days between the start of the event and the first laboratory tests, by country, by year

		2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin									
Basic tests	Country A	NA	13	NA	NA	NA	NA	NA	NA
	Country B	NA	NA	NA	NA	NA	NA	NA	NA
	Country C	NA	NA	NA	NA	NA	NA	NA	NA
	Country D	NA	NA	NA	NA	NA	41	34	NA
	Country E	NA	NA	104	NA	NA	NA	NA	NA
	Country F	185	NA	NA	NA	NA	NA	NA	NA
	Country G	NA	NA	20	NA	NA	3	NA	NA
	Country H	NA	NA	NA	NA	NA	NA	NA	NA
	Country I	NA	NA	NA	NA	NA	NA	NA	NA
	Country K	NA	23	21	NA	NA	NA	NA	NA
	Country L	NA	NA	NA	128	NA	NA	NA	NA
	Country M	NA	18	NA	NA	NA	38	NA	NA
	Country Q	NA	NA	NA	NA	31	NA	NA	NA
Advanced tests	Country A	NA	NA	NA	NA	NA	NA	NA	NA
	Country B	NA	NA	NA	NA	NA	NA	NA	NA
	Country C	NA	NA	NA	NA	NA	NA	NA	NA
	Country D	NA	NA	NA	NA	NA	NA	NA	NA
	Country E	NA	NA	NA	NA	NA	7	NA	NA
	Country F	NA	NA	NA	NA	NA	36	NA	NA
	Country G	NA	NA	NA	22	NA	NA	NA	NA
	Country H	NA	NA	68	NA	NA	147	NA	NA
	Country I	NA	NA	NA	NA	NA	NA	NA	NA
	Country K	NA	NA	NA	NA	NA	NA	NA	NA
	Country L	NA	NA	NA	NA	NA	NA	NA	NA
	Country M	NA	73	NA	NA	NA	NA	NA	NA
	Country Q	NA	NA	NA	NA	NA	NA	NA	NA
South and Southeast Asia									
Basic tests	Country A	NA	NA	14	17	NA	NA	NA	NA
	Country B	NA	NA	NA	NA	NA	NA	NA	NA
	Country C	NA	NA	7	NA	NA	NA	NA	NA
	Country D	NA	9	NA	1	NA	0	NA	NA
	Country E	NA	NA	NA	NA	NA	NA	NA	NA
	Country F	NA	NA	NA	NA	NA	NA	NA	NA
	Country G	NA	NA	NA	NA	NA	NA	NA	NA
	Country H	NA	NA	NA	NA	NA	NA	NA	NA
	Country I	NA	NA	NA	NA	NA	2	NA	NA
	Country J	NA	NA	22	NA	NA	NA	NA	NA
Advanced tests	Country A	NA	0	4	8	10	13	NA	NA
	Country B	NA	8	1	0	2	2	5	NA
	Country C	NA	14	NA	NA	NA	NA	NA	NA
	Country D	NA	NA	NA	NA	NA	NA	0	NA
	Country E	NA	NA	NA	112	NA	NA	NA	NA
	Country F	NA	10	3	13	NA	51	NA	NA
	Country G	18	6	5	9	8	12	10	2
	Country H	NA	12	3	NA	NA	NA	NA	NA
	Country I	NA	NA	NA	8	NA	5	4	NA
	Country J	NA	NA	NA	NA	NA	NA	NA	NA

NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year or because no laboratory test was performed

Percentage of immediate notifications for which the time between the start of the event and the first laboratory tests was shorter than 15 days, by year, by country

	2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin								
Country A	NA	100%	NA	NA	NA	NA	NA	NA
Country B	NA	NA	NA	NA	NA	NA	NA	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	NA	NA	NA	NA	0%	0%	NA
Country E	NA	NA	NA	NA	NA	100%	NA	NA
Country F	0%	NA	NA	NA	NA	0%	NA	NA
Country G	NA	NA	0%	50%	NA	100%	NA	NA
Country H	NA	NA	0%	NA	NA	0%	NA	NA
Country I	NA	NA	NA	NA	NA	NA	NA	NA
Country K	NA	0%	0%	NA	NA	NA	NA	NA
Country L	NA	NA	NA	0%	NA	NA	NA	NA
Country M	NA	33%	NA	0%	NA	NA	NA	NA
Country Q	NA	NA	NA	NA	0%	NA	NA	NA
South and Southeast Asia								
Country A	NA	0%	100%	50%	100%	50%	NA	NA
Country B	NA	100%	100%	100%	100%	100%	100%	NA
Country C	NA	50%	100%	NA	NA	NA	NA	NA
Country D	0%	100%	NA	100%	NA	100%	100%	NA
Country E	NA	NA	NA	0%	NA	NA	NA	NA
Country F	NA	100%	100%	67%	NA	0%	NA	NA
Country G	0%	100%	50%	60%	80%	50%	100%	100%
Country H	NA	100%	100%	NA	NA	NA	NA	NA
Country I	NA	NA	NA	100%	NA	100%	100%	NA
Country J	NA	NA	100%	NA	NA	NA	NA	NA
NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year or because no laboratory test was performed							

Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided, by year, by semester

	2005		2006		2007		2008		2009		2010		2011	
	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.	1rst sem.	2nd sem.
Congo Basin														
Country A	63%	56%	92%	80%	100%	100%	64%	71%	55%	83%	55%	80%	83%	83%
Country B	17%	27%	67%	25%	17%	10%	0%	0%	7%	7%	0%	27%	57%	
Country C			80%	78%	45%	0%	36%	27%	0%	33%	50%	23%		
Country D			100%	100%	100%	50%	100%	100%	100%	50%	33%	100%	43%	43%
Country E	56%	55%	36%	42%	38%	38%	31%	20%	25%	25%	38%	25%	46%	
Country F	0%	0%	13%	0%	0%	25%	0%	13%	13%	38%	11%	11%	63%	50%
Country G	91%	73%			80%	80%	70%	73%	50%	50%	57%	50%	64%	
Country H	0%	0%	0%	0%	5%	5%	0%	0%	50%	67%	69%	67%		
Country I									NA	NA	NA	NA	NA	0%
Country K	100%	83%	71%	50%	50%	100%	83%	100%	71%	100%	100%	100%	100%	100%
Country L	57%	57%	44%	50%	53%	63%	50%	50%	41%	47%	56%	47%	47%	
Country M	46%	53%	58%	79%	80%	80%	62%	64%	40%	50%	50%	64%	64%	53%
Country Q	35%	44%	69%	83%	100%	100%	100%	100%	100%	100%	100%	80%		
South and Southeast Asia														
Country A	0%	0%	0%	17%	50%	20%	40%	40%	50%	0%	40%	25%		
Country B	67%	67%	100%	100%	100%	100%	100%	100%	67%	100%	75%	75%	100%	
Country C	64%	58%	55%	55%	73%	73%	73%	55%	80%	64%	58%	64%	47%	50%
Country D	9%	9%	56%	56%	100%	100%	86%	75%	75%	100%	100%	86%	100%	
Country E	25%	29%	17%	17%	0%	17%	20%	20%	20%	20%	20%	20%	14%	
Country F	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Country G	91%	90%	83%	100%	100%	93%	100%	93%	92%	83%	100%	100%	81%	
Country H	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	67%	56%
Country I	100%	100%	100%	86%	100%	86%	86%	100%	75%	86%	88%	88%	58%	
Country J					13%	13%	13%	11%	11%	11%	11%	0%	10%	8%
	No six-monthly report was sent and/or validated by the OIE													

Number of days between the confirmation of an exceptional event and submission to OIE, median by country by year

	2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin								
Country A	NA	1	NA	NA	NA	NA	NA	NA
Country B	NA	11	NA	NA	NA	NA	71	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	NA	NA	NA	NA	NA	2,5	NA
Country E	NA	NA	15	NA	NA	50	NA	NA
Country F	NA	24	NA	NA	NA	56	NA	NA
Country G	NA	5	19,5	NA	NA	2	NA	NA
Country H	NA	NA	12	NA	NA	46	NA	NA
Country I	NA	NA	NA	NA	NA	NA	NA	NA
Country K	NA	2	13	NA	NA	NA	NA	NA
Country L	NA	NA	NA	45	NA	NA	NA	NA
Country M	NA	85	86	NA	NA	NA	51	NA
Country Q	NA	NA	NA	NA	54	NA	NA	NA
South and Southeast Asia								
Country A	NA	8	7	15	17	6	NA	NA
Country B	NA	22	2	9	10	7	9	NA
Country C	NA	9,5	25,5	0	NA	NA	NA	NA
Country D	NA	68	NA	21	NA	241	27	NA
Country E	NA	NA	NA	41	NA	NA	NA	NA
Country F	NA	3	1	1,5	NA	9	NA	NA
Country G	1	1	2	1	1	1,5	0	1
Country H	NA	4	6	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	0	22	18	NA
Country J	NA	NA	NA	8	NA	NA	NA	NA
NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year							

Percentage of immediate notifications for which the submission time is shorter than 2 days

	2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin								
Country A	NA	100%	NA	NA	NA	NA	NA	NA
Country B	NA	0%	NA	NA	NA	NA	0%	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	NA	NA	NA	NA	NA	50%	NA
Country E	NA	NA	0%	NA	NA	0%	NA	NA
Country F	NA	0%	NA	NA	NA	0%	NA	NA
Country G	NA	0%	0%	NA	NA	0%	NA	NA
Country H	NA	NA	0%	NA	NA	0%	NA	NA
Country I	NA	NA	NA	NA	NA	NA	NA	NA
Country K	NA	0%	0%	NA	NA	NA	NA	NA
Country L	NA	NA	NA	0%	NA	NA	NA	NA
Country M	NA	0%	0%	NA	NA	NA	0%	NA
Country Q	NA	NA	NA	NA	0%	NA	NA	NA
South and Southeast Asia								
Country A	NA	0%	0%	0%	0%	0%	NA	NA
Country B	NA	0%	0%	0%	0%	0%	0%	NA
Country C	NA	50%	0%	100%	NA	NA	NA	NA
Country D	NA	0%	NA	0%	NA	0%	0%	NA
Country E	NA	NA	NA	0%	NA	NA	NA	NA
Country F	NA	0%	100%	50%	NA	0%	NA	NA
Country G	100%	100%	25%	40%	81%	50%	100%	100%
Country H	NA	0%	0%	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	100%	0%	0%	NA
Country J	NA	NA	NA	0%	NA	NA	NA	NA
NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year							

End of Project Target for Objective 3: The IDENTIFY-supported laboratories in EPT countries have adopted/improved and implemented appropriate QA practices, including biosafety and biosecurity practices

IDENTIFY project indicators - Objective 3			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Ability of each laboratory to implement critical elements of a laboratory quality management system by NPD *	Number of countries with a Quality Manager in place		6
	Number of procedures described under the Quality Management System in line with OIE International Standards		6
	Proportion of diagnostic tests in-line with OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals		6
	Number of Rabies proficiency testing rounds performed in regional external quality assurance schemes	EQA results for those covering targeted diseases	6
	Number of diagnostic tests performed using both positive and negative controls		6
	Number of OIE Standards and guidance provided		6
Ability of each lab to safely handle X of XX NPDs in a biosecure environment*	Number of OH&S risk assessments undertaken	Training provided to staff on the topic of biosafety	1
		Availability and use of PPE appropriate for the activities carried out in the laboratory	6
		Conduction of biorisk assessment	6
		Calibration and maintenance of major pieces of equipment used to detect targeted diseases according to the manufacturer's recommendations	6
		Availability and appropriate use of biosafety cabinets and other safety equipment	6
		Certification and maintenance of biosafety cabinets to international standards	6
		Management of laboratory waste disposal according to international recommendations	6
		Control of access to the laboratory and stored infectious material	6
		Maintenance of inventory of stored infectious material	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

IDENTIFY Project Output Indicators

Congo Basin (by Country)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	Q
Number of countries with a Quality Manager in place*	1	1											1	
Proportion of diagnostic tests in-line with OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals ¤	10|25	0|2	0|0	5|5	4|9	7|8	9|13	10|14	NA	NA	9|12	26|38	12|18	0|2
Number of Rabies proficiency testing rounds performed in regional external quality assurance schemes ¤	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Number of OIE Standards and guidance provided	4	5	3	4	3	4	3	3	0	3	3	3	3	3

* This indicator applies mainly to the SSEA region, but we also provide partial information on the Congo Basin region. FAO may have more comprehensive data for the Congo Basin region on this indicator.

¤ Baseline figure

South & Southeast Asia (by Country)										
	A	B	C	D	E	F	G	H	I	J
Number of countries with a Quality Manager in place ¤	0	0	1	…	…	1	1	1	…	…
Number of procedures described under the Quality Management System in line with OIE International Standards	…	…	…	…	…	…	…	…	…	…
Number of diagnostic tests in-line with OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals ¤	1|2	1|2	7|25	33|72	3|10	5|14	3|9	9|19	11|25	NA
Percentage of diagnostic tests for IDENTIFY diseases performed using both positive and negative controls	…	…	…	…	…	…	…	…	…	…
Number of OIE Standards and guidance provided	3	3	3	3	3	3	3	3	3	NA
Number of OH&S risk assessments undertaken	…	…	…	…	…	…	…	…	…	…

… Baseline will be determined in the course of the activity

¤ Baseline figure

End of Project Target for Objective 4: The IDENTIFY-supported laboratories in EPT countries are participating in relevant regional and international laboratory networks as according to their abilities, disease priorities, and responsibilities. In many laboratories' cases, this may involve participation in multiple networks

IDENTIFY project indicators - Objective 4			
FAO Indicators	**OIE Indicators**	**WHO Indicators**	**Link to EPT Indicators**
Level of laboratory engagement in regional and international networks (low, medium, high)*		Membership of regional or international networks related to targeted diseases	6
	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	Participation of the laboratory in specimen sharing and other technical activities organized by networks	6
	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days		6
	Number of focused capacity building opportunities supported		1
Number of meetings & conferences held on laboratory themes	Number of meetings & conferences held on laboratory themes	Attendance of appropriate laboratory staff to relevant meetings of regional and international networks related to targeted diseases	1
Number of participants to meetings & conferences held on laboratory themes	Number of participants to meetings & conferences held on laboratory themes		1
	Number of countries that have nominated OIE National Focal Points for Laboratories		1
Level of information sharing (low, medium, high) *	Number of shipments of samples sent to OIE Reference Laboratories for diagnostic or confirmation support		6
	Number of shipments of reagents sent from OIE Reference Laboratories		6
Level of communication with other laboratories (low, medium, high) *		Communication with other laboratories in network/s and seek and/or provide advice to network members	6

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire.

IDENTIFY Project Outcome Indicators

Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory

	2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin								
Country A	NA	100%	NA	NA	NA	NA	NA	NA
Country B	NA	NA	NA	NA	NA	NA	NA	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	NA	NA	NA	NA	NA	NA	NA
Country E	NA	NA	100%	NA	NA	NA	NA	NA
Country F	NA	NA	NA	NA	NA	NA	NA	NA
Country G	NA	NA	NA	NA	NA	NA	NA	NA
Country H	NA	NA	NA	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	NA	NA	NA	NA
Country K	NA	NA	NA	NA	NA	NA	NA	NA
Country L	NA	NA	NA	100%	NA	NA	NA	NA
Country M	NA	0%	0%	NA	NA	NA	100%	NA
Country Q	NA	NA	NA	NA	NA	NA	NA	NA
South and Southeast Asia								
Country A	NA	0%	0%	NA	NA	NA	NA	NA
Country B	NA	0%	0%	NA	0%	0%	0%	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	0%	NA	0%	NA	NA	NA	NA
Country E	NA	NA	NA	NA	NA	NA	NA	NA
Country F	NA	NA	0%	NA	NA	NA	NA	NA
Country G	NA	0%	0%	NA	NA	NA	NA	NA
Country H	NA	0%	NA	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	100%	100%	NA	NA
Country J	NA	NA	NA	0%	NA	NA	NA	NA
NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year, or because no additional test was performed							

Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter than 15 days

	2005	2006	2007	2008	2009	2010	2011	2012
Congo Basin								
Country A	NA	100%	NA	NA	NA	NA	NA	NA
Country B	NA	NA	NA	NA	NA	NA	NA	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	NA	NA	NA	NA	NA	NA	NA
Country E	NA	NA	100%	NA	NA	NA	NA	NA
Country F	NA	NA	NA	NA	NA	NA	NA	NA
Country G	NA	NA	NA	NA	NA	NA	NA	NA
Country H	NA	NA	NA	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	NA	NA	NA	NA
Country K	NA	NA	NA	NA	NA	NA	NA	NA
Country L	NA	NA	NA	100%	NA	NA	NA	NA
Country M	NA	100%	100%	NA	NA	NA	100%	NA
Country Q	NA	NA	NA	NA	NA	NA	NA	NA
South and Southeast Asia								
Country A	NA	100%	100%	NA	NA	NA	NA	NA
Country B	NA	100%	100%	NA	100%	100%	100%	NA
Country C	NA	NA	NA	NA	NA	NA	NA	NA
Country D	NA	0%	NA	100%	NA	NA	NA	NA
Country E	NA	NA	NA	NA	NA	NA	NA	NA
Country F	NA	NA	100%	NA	NA	NA	NA	NA
Country G	NA	100%	100%	NA	NA	NA	NA	NA
Country H	NA	100%	NA	NA	NA	NA	NA	NA
Country I	NA	NA	NA	NA	100%	50%	NA	NA
Country J	NA	NA	NA	0%	NA	NA	NA	NA

NA	Not applicable, because no Immediate notification was provided for IDENTIFY diseases this year, or because no additional test was performed

IDENTIFY Project Output Indicators

Congo Basin (by Country)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	Q
Number of focused capacity building opportunities* supported	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Number of meetings & conferences held on laboratory themes §	12													
Number of participants to meetings & conferences held on laboratory themes §°	199													
Number of shipments of samples sent to OIE Reference Laboratories for diagnostic or confirmation support ¤	1	0	0	0	1	0	5	0	0	NA	5	4	3	0
Number of shipments of reagents sent from OIE Reference Laboratories	0	0	0	0	0	0	0	0	0	NA	2	1	1	0

* OIE Twinning Projects, OIE Special Projects, & OIE Mentoring activities supported by the IDENTIFY Project

§ Since Global and regional networking events are included in this category, a regional total is presented

¤ Baseline according to 2010 OIE Reference Laboratory Annual Reports for IDENTIFY targeted diseases

° Calculated in person days

South & Southeast Asia (by Country)										
	A	B	C	D	E	F	G	H	I	J
Number of focused capacity building opportunities supported*	0	0	0	0	0	0	0	0	0	0
Number of meetings & conferences held on laboratory themes §	13									
Number of participants to meetings & conferences held on laboratory themes §°	222									
Number of countries that have nominated OIE National Focal Points for Laboratories	0	0	0	0	1	0	0	0	0	0
Number of shipments of samples sent to OIE Reference Laboratories for diagnostic or confirmation support ¤	2	2	4	1	1	4	2	1	3	1
Number of shipments of reagents sent from OIE Reference Laboratories ¤	1	1	1	1	2	2	5	1	0	1

* OIE Twinning Projects, OIE Special Projects, & OIE Mentoring activities supported by the IDENTIFY Project

§ Since Global and regional networking events are included in this category, a regional total is presented

¤ Baseline according to 2010 OIE Reference Laboratory Annual Reports for IDENTIFY targeted diseases

° Calculated in person days

Annex 7: Regional Framework for Capacity Building and Networking

Strategic Framework for Animal Health Laboratory Capacity Building and Networking in Asia
The Third Laboratory Directors' Forum Meeting, Kuala Lumpur, Malaysia, 18 October 2011

Key Strategic Elements for Animal Health Laboratory Services

1. Establish a Coherent Framework for Laboratory Services
2. Finance Laboratory Services in a Sustainable Manner
3. Build Capacity for Laboratory Services
4. Assure the Quality of Health Laboratory Services
5. Promote the Rational Use of Lab Services
6. Improve Laboratory Safety
7. Support Research and Ethics in Laboratory Settings

Key Strategic Element	Component	Activity
1. Establish a Coherent Framework for Laboratory Services	a) National Laboratory Policy and (regional) plan	Support development of laboratory strategy and sustainability plans and management structure. Note: PVS Pathway provides support at the national level.
	b) National/Regional Regulatory Mechanisms	Two-pronged approach: 1) Support laboratories in step-wise process needed to achieve certification with focus on understanding how/why these lead to improvements in lab diagnostics and reporting; 2) Support in-country certification mechanisms to be fully functional (e.g. engage providers to determine training in region and availability for support, and target in-country technical experts to engage in certification process).

Key Strategic Element	Component	Activity
	c) National Laboratory Focal Point	2 focal persons where possible – one involved in policy (e.g. lab director); was proposed to have a technical person from National Lab as well to address technical issues. For countries with complex laboratory structures, propose initial in-country discussions to determine most appropriate engagement Note: there will be upcoming nominations for an OIE Laboratory Focal point (in development)
	d) Regional coordination Mechanism	Support laboratory director's meetings. Define minimum guidelines for different tiers/levels of laboratories ***Regional coordination mechanisms for TADs should under the umbrella of GF-TADS and consistent with its guiding principles****
2. Finance Laboratory Services in a Sustainable Manner	a) Financing strategy and plan is in place	Support development or refinement of laboratory strategy and financial sustainability plans. Advocacy for support of laboratory director's recommendation on policies. Advocacy for adequate support of laboratory e.g. equipment maintenance.
	b) Capacity for Cost-effectiveness Analysis	Support to develop a monitoring and evaluation structure based on laboratory function that enables cost analysis at country level. Note: PVS laboratory tool as a country level tool that can access needed information.
3. Build Capacity for Laboratory Services	a) Physical Infrastructure and Equipment	Support regular use, maintenance and calibration of equipment through; training of staff to perform in-house maintenance for basic equipment.
	b) Human Resources	Ensure adequate laboratory competencies and identify succession plan and career paths for laboratory staff.
	c) Procurement and Supply Management	Support for logistics planning for procurement and supply. Develop harmonized specifications for reference reagents needed to detect priority diseases.

Key Strategic Element	Component	Activity
	d) Laboratory Networks	Support national, regional and international meetings Expand database of expertise (e.g. OIE Reference Lab list) to include regional resources such as regional leading laboratories, academic institutions, etc.
	e) Transport of Specimens	Support for sample referral; provision of IATA packaging/shipment costs; and training (e.g. IATA certification every 2 years of at least one person in each national lab). Identify regional couriers willing to ship samples.
	f) Information Systems and Communication	Promote use of existing information gathering platforms such as WAHIS/ARAHIS, EMPRESi/EMPRESi-Asia and Promed; Support national, regional and international meetings, develop regional database of expertise
4. Assure the Quality of Animal Health Laboratory Services	a) Management commitment and Quality Policy	Advocacy for quality management system (QM). Facilitate regional coordination mechanism for relevant QM components. Note: PVS Pathway provides support for strategic planning at country level.
	b) Training of Human Resources	Areas of important competencies include classical virologic and bacteriologic techniques, developing standardized reagents and rapid tests for priority diseases.
	c) Development and maintenance of a Quality System	Quality management: support development of a quality system; including LIMS, promoting use of internal quality controls – provision of standardized reference reagents by reference laboratory. External quality assurance: Promote engagement with an external proficiency testing program – provision of testing panel and analysis by regional reference laboratory;

Key Strategic Element	Component	Activity
5. Promote platform for communication between national animal health laboratory services, as part of the overall veterinary service, and stakeholders	a) Engagement with all stakeholders including field staff, epidemiologists and private sector) and communication of animal health services (community awareness)	Facilitate communications among stakeholders Promote rapid disease reporting Trainings and workshops to bring together stakeholders.
6. Improve Laboratory Safety	a) Biosafety/Biosecurity	Biosafety/biosecurity advocacy; Support risk assessment and training, Support development of laboratory-specific guidelines for biosafety (e.g. for achieving directional airflow for infectious agents - utilize existing guidelines - HPAI); Support for improved laboratory design and workflow through renovation
	b) Occupational Health and Safety	Support risk assessment and training (e.g. provision of consultant to do risk assessment); Advocacy for Occupational Health and Safety program including routine staff vaccination; Develop regional specialist (e.g. biosafety professional) through training.
	c) Waste Management, including environmental concerns	Provide advice on waste management procedures, risk assessments
7. Support Research and promote guidelines for humane use of animals in Laboratory Settings	a) Research and development	Promote engagement and of laboratory staff in entire research process. Develop laboratory staff skill and promote engagement in scientific communication. Promote platform for regional research collaborations.
	b) Access to updated and newly developed technology	Promote participation in international scientific meetings/conferences. Support subscriptions to on-line literature service

Annex 8: OIE IDENTIFY Project Performance Indicators

	IDENTIFY objectives	OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Latest complete results		Data Source	Project Target	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia			
1.1	Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	IDENTIFY countries provide sufficient qualitative information for IDENTIFY targeted diseases that are present in their country	Complete qualitative information provided for diseases that are present in their country	Percentage of notifications of IDENTIFY targeted diseases with multiple serotypes that were present and for which information about serotype was provided	18%	67%	24%	57%	2nd semester 2010	100%	six-monthly reports
1.2		IDENTIFY countries maintain sufficient laboratories capabilities to diagnose IDENTIFY targeted diseases	Increased availability of diagnostic method in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which tests are available in national animal health laboratories	63%	67%	69%	70%	2010	100%	Annual reports
1.3			Increased availability of OIE prescribed and/or alternative tests for international trade in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which OIE prescribed or alternative tests for international trade are available in national animal health laboratories	53%	52%	59%	52%	2010	100%	Annual reports
1.4			Increased availability of advanced tests in national animal health laboratories	Percentage of IDENTIFY targeted diseases for which advanced tests are available in national animal health laboratories	34%	30%	34%	33%	2010	50%	Annual reports
2.1	Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international	IDENTIFY countries report results of the first laboratory diagnosis within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	Improved reactivity of laboratory diagnosis for exceptional epidemiological events	Number of days between start of an exceptional event and first laboratory test	31	10	34	5	2011	<15	Immediate notifications
2.2				Percentage of immediate notifications for which the time between the start of the event and the first diagnostic laboratory tests was shorter or equal to 15 days	33%	82%	0%	100%	2011	75%	Immediate notifications

	IDENTIFY objectives	OIE Project Objective	Measurable output	OIE Project Indicator	Project Baseline (2nd Semester 2009)		Latest complete results		Data Source	Project Target	Data Source
					Congo Basin	South and Southeast Asia	Congo Basin	South and Southeast Asia			
2.3	organizations	IDENTIFY countries provide sufficient quantitative information for IDENTIFY targeted diseases that are present in their country	Complete quantitative information provided for diseases that are present in their country	Percentage of IDENTIFY countries providing quantitative information for the majority of diseases that are present in their country	33%	70%	50%	70%	2nd semester 2010	100%	six-monthly reports
2.4				Percentage of IDENTIFY targeted diseases present in their country and for which quantitative information was provided	50%	68%	50%	69%	2nd semester 2010	100%	six-monthly reports
2.5		IDENTIFY countries inform the OIE of exceptional epidemiological events (in the form of immediate notifications) for IDENTIFY targeted diseases within 24 hours of confirmation of diagnosis of the disease	Improved reactivity of notifications for exceptional epidemiological events	Number of days between the confirmation of an exceptional event and the submission of the corresponding immediate notification to OIE	54	8	55	10	2011	<2	Immediate notifications
2.6				Percentage of immediate notifications for which the submission time is shorter than 2 days after laboratory confirmation	0%	74%	0%	15%	2011	100%	Immediate notifications
3.1	Laboratories are participating in the relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	IDENTIFY countries collaborate with OIE and resort to OIE Reference laboratories diagnostic facilities to confirm pathogens in case of exceptional epidemiological events	Collaboration with OIE Reference laboratories for confirmation of pathogens in case of exceptional epidemiological events	Percentage of immediate notifications for which additional laboratory tests were performed by an OIE Reference Laboratory	NA	50%	50%	0%	2011	NA	Immediate notifications
3.2		IDENTIFY countries report results of the additional laboratory tests within a reasonable amount of time from the start of the exceptional epidemiological event for IDENTIFY targeted diseases	Improved reactivity of laboratory confirmation for exceptional epidemiological events	Percentage of immediate notifications for which the time between the first and additional laboratory tests is shorter or equal to 15 days	NA	100%	100%	100%	2011	100%	Immediate notifications

Annex 9: Assessment of data for monitoring of IDENTIFY project indicators: Parts 1 and 2 (see attached documents)

Annex 10: OIE Reference Laboratory 2010 Annual Report Analysis Preliminary Report

OIE Reference Laboratory 2010 Annual Report Analysis Preliminary Report

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Annex I Map representing relationships between OIE RLs and Thailand
Annex J Relationships between IDENTIFY Countries and Institutes hosting OIE RLs across diseases

Abbreviations

AHVLA	Animal Health Veterinary Laboratory Agency
AI	Avian Influenza
ANSES	Agence Nationale de Sécurité de l'Alimentation, de l'Environnement et du Travail
ARC-OVI	Onderstepoort Veterinary Institute, Agricultural Research Council, South Africa
ASF	Africa Swine Fever
BSE	Bovine Spongiform Encephalopathy
CAR	Central African Republic
CDR	Democratic Republic of Congo
CSIRO	Australian Animal Health Laboratory, Division of Animal Health, Australia
EPT	Emerging Pandemic Threats
FAO	Food and Agriculture Organization
FGI-ARRIAH	Federal Governmental Institute, Centre for Animal Health, Russia
FLI	Federal Research Centre for Virus Diseases of Animals (BFAV) Friedrich-Loeffler Institute, Germany
FMD	Foot and Mouth Disease
HQ	Headquarters
IC	IDENTIFY Country
INTA	Centro de Investigaciones en Ciencias Veterinarias y Agronómicas (CICVyA) Instituto Nacional de Tecnología Agropecuaria, Argentina
ISRR	International Standard Reference Reagents
IZSVe	Istituto Zooprofilattico Sperimentale delle Venezie
MC	Member Country
MIAFF	National Veterinary Research and Quarantine Service, Ministry of Food, Agriculture, Forestry and Fisheries
ND	Newcastle Disease
OIE	World Organisation for Animal Health
PPR	Pest de Petit Ruminants
QC	Quality Control
RL	Reference Laboratory
RR	reference reagents
RVF	Rift Valley Fever
S/SE	South and South East Asia
SENASA	Servicio Nacional de Sanidad y Calidad, Agroalimentaria, Argentina
TB	Bovine Tuberculosis
TOR	Term of Reference

USAID	United States Agency for International Development
WHO	World Health Organization

1. Introduction

The OIE Network of Reference Laboratories consists of 190 Reference Laboratories for 101 diseases/topics located in 36 OIE Member Countries (as of 2011). An analysis of a subset of OIE Reference Laboratories (hereafter referred to as "OIE RLs") related to a targeted list of diseases was carried out in the framework of the on-going IDENTIFY project, with the aim of understanding the dynamics of laboratory networking between OIE Member Countries, those countries targeted by the IDENTIFY project, and OIE RLs in order to strengthen existing linkages.

The IDENTIFY project is a component of the USAID-funded Emerging Pandemic Threats (EPT) Program and focuses specifically on the reinforcement of laboratory capacity and networking in specific geographic areas. Using a Tripartite (OIE/FAO/WHO) approach, the IDENTIFY project aims to strengthen diagnostic capacities and laboratory networks in geographic «hotspots» where diseases at the human-animal interface are most likely to emerge.

Two regions of interest were identified, South and South East Asia and the Congo Basin, comprising selected countries referred to as "IDENTIFY countries" in this report. The South and South East Asia region includes 10 IDENTIFY countries: Bangladesh, Cambodia, China, Indonesia, Lao PDR, Malaysia, Nepal, Philippines, Thailand and Vietnam. The Congo Basin region covers 13 IDENTIFY Countries, namely: Angola, Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Kenya, Republic of Congo, Rwanda, Sudan, Tanzania and Uganda[16].

On the basis of official disease notifications, regional disease occurrence, predictive modeling, as well as countries' priorities, national and international stakeholders across the two regions selected 13 animal infectious diseases, 10 of which are zoonotic, to be targeted by the project. All targeted diseases are present in both IDENTIFY regions and are: Avian Influenza (AI), Brucellosis, Foot and Mouth Disease (FMD), Peste des Petits Ruminants (PPR), Newcastle Disease (ND), Rabies, Anthrax, African Swine Fever (ASF), Bovine Tuberculosis (TB), Leptospirosis, Bovine Spongiform Encephalopathy (BSE), Salmonellosis and Rift Valley Fever (RVF).

In support of the IDENTIFY project, this analysis of OIE RLs' Annual Reports submitted in 2010 was undertaken, focusing on the OIE RLs for the 13 diseases to provide a better understanding of the activities related to these diseases carried out by or in collaboration with OIE RLs in OIE Member Countries. A more in-depth analysis focusing on IDENTIFY countries was also undertaken.

[16] South Sudan is not included as it was not an OIE Member Country at the time of data collection.

2. Objective

The main objective of this analysis was to obtain a snapshot of the OIE RL Network in 2010 in terms of activities reported by OIE RLs in 2010 with a specific focus on the activities related to IDENTIFY targeted diseases in IDENTIFY regions.

3. Materials and Methods

3.1 Basic structure and content of the 2010 annual report

OIE RLs submitted annual reports to the OIE using the 2010 version of the annual report template. The template consists of two parts: the first focuses on laboratory capacity in terms of diagnostic activity and reagent production, and the second concerns activities carried out for the benefit of OIE RLs Network, OIE Member Countries and scientific community. OIE RLs annual reports are publicly available on the OIE website[17].

Any service provided or collaboration undertaken between an OIE RL and an OIE Member Country that was documented in the annual report will be referred as a "relationship" for purposes of this analysis. Relationships with OIE Member Countries reported in the annual reports were summarized in order to describe the breadth of services provided by the OIE RLs to the OIE Member Countries as well as specifically to IDENTIFY countries.

Maps were generated to better visualize certain aspects of the global network by disease and by activity. OIE RLs have been numbered in Annex A and are referred to systematically in that manner in each map. Some maps show the connections between OIE RLs and OIE Member Countries by disease or by activity. The represented connections refer to relationships between OIE Member Countries and OIE RLs, with exclusion of those Member Countries hosting the OIE RLs designed for the control of the same diseases. Moreover, activities reported by OIE RLs within the host country were also excluded by the analysis since they are not considered as part of the Mandate of the OIE Reference Laboratory.

4. General results

As of 2010, 65 OIE RLS were designated for the control of the 13 IDENTIFY-targeted diseases for this analysis and 62 out of 65 submitted an annual report in the same year. The following results lead to a general overview of all activities performed by the OIE RLs across all diseases as reported in the 62 annual reports.

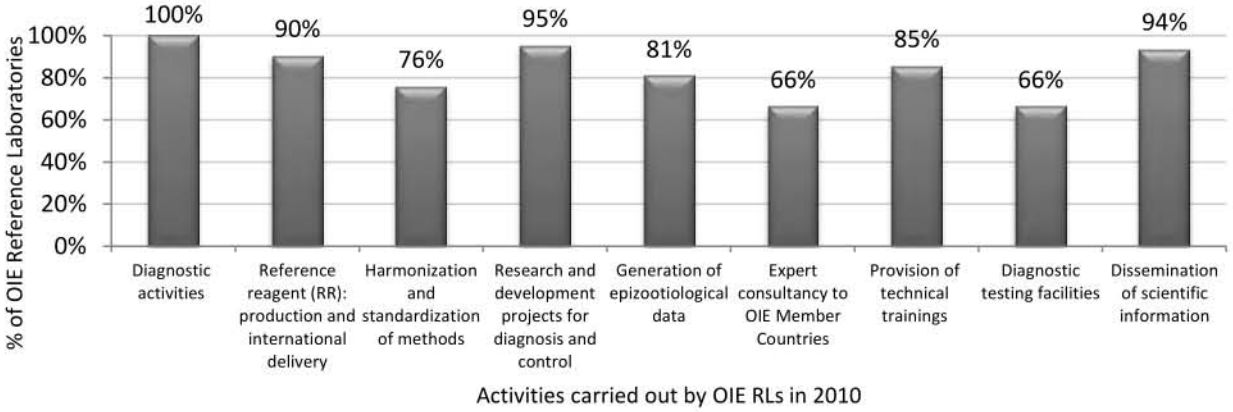
4.1 Overview of OIE RLs participating in each activity

On the basis of the information provided by the OIE RLs, their participation in each activity was calculated. Results across diseases are shown in Figure 1 and indicate that 100% of OIE RLs performed diagnostic activities and 90% of OIE RLs (56/62) produced reference reagents. Moreover, global results show that 77% of OIE RLs (47/62) participated in harmonization and standardization of methods, 85% (53/62) provided technical trainings to OIE Member Countries and 66% (41/62) provided consultancy to OIE Members. Generation of

[17] http://www.oie.int/en/our-scientific-expertise/reference-laboratories/annual-reports/

epizootiological data was carried out by 81% of OIE RLs (50/62), research and development projects for diagnosis and control by 95% (59/62), diagnostic testing facilities was provided to OIE Members by 66% of OIE RLs (41/62) and dissemination of scientific information by 94% (58/62).

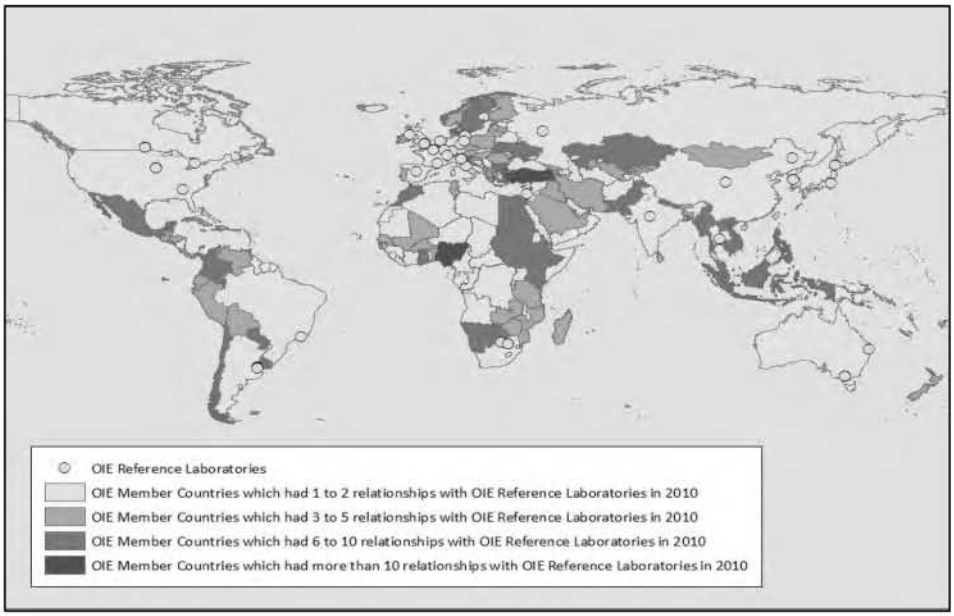
Figure 1 Participation of OIE RLs in each activity across IDENTIFY-targeted diseases in 2010



4.2 OIE Reference Laboratory Network with OIE Member Countries in 2010

Six out of nine activities carried out by the OIE RLs include the provision of services for the benefit of OIE Member Countries that were classified as "relationships" between OIE RLs and OIE Member Countries. Among these activities, 794 relationships were reported by the 62 OIE RLs in 2012, for the benefit of 147 OIE Member Countries across all diseases. Thirty more relationships were reported by the OIE RLs but geographical attributions were not specific beyond the continent and for this reason the information was not exploitable. Moreover, relationships established between OIE Member Countries hosting OIE RLs designated for the same disease were not taken into account. After exclusion of these OIE Member Countries hosting OIE RLs (n=19), 770 services were provided to 128 OIE Member Countries (Figure 2).

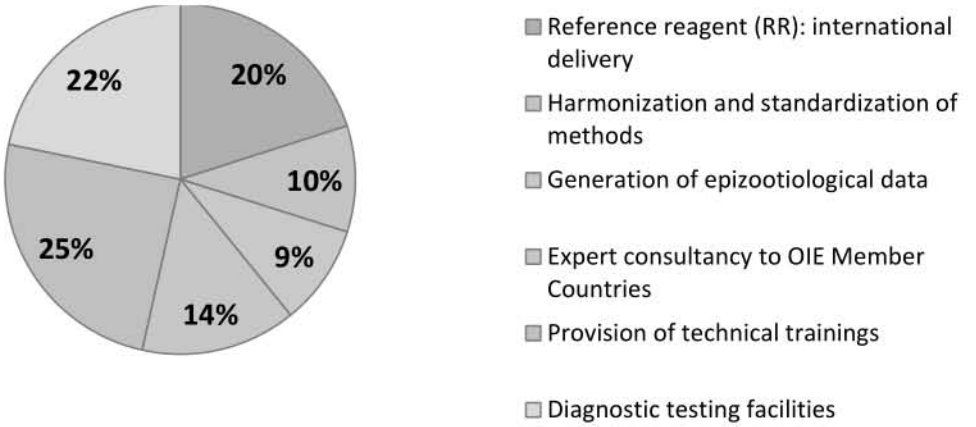
Figure 2. OIE Reference Laboratory Network with OIE Member Countries after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases (n=19)



4.3 Distribution of types of relationships between OIE Member Countries and OIE RLs in 2010

A global number of 794 relationships were reported. The distribution of relationships by activity showed that 229 (25%) were based on provision of technical trainings to OIE Members, 202 (22%) on provision of diagnostic support and diagnostic confirmation and 186 (20%) on delivery of reference reagents (Figure 3), with the rest of the relationships distributed as below.

Figure 3 -Distribution of relationships between OIE Members and OIE RLs in 2010 established according to each activity

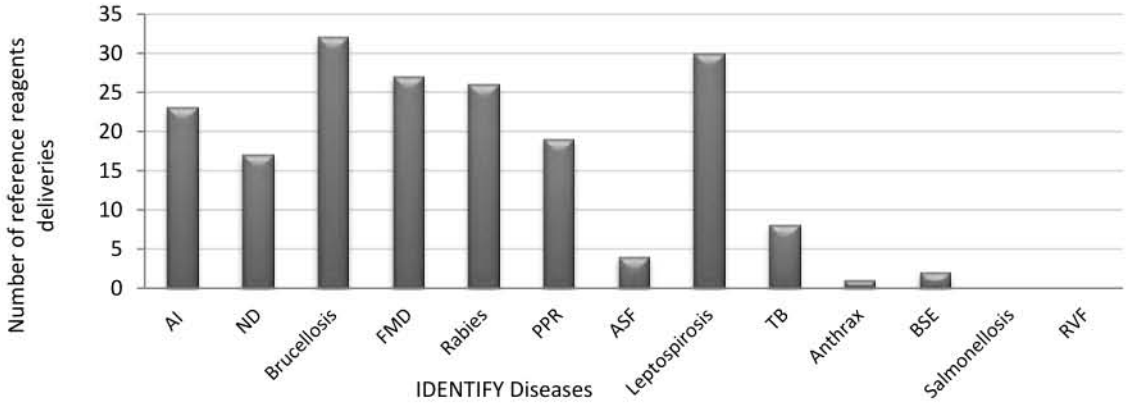


5. Results by activity

5.1 Reference reagents (RR): production and international delivery

According to the information reported, 90% (56/62) of OIE RLs reported production of reference reagents and 76% (47/62) reported their delivery to 91 OIE Member Countries. Among the reported countries 12 were IDENTIFY Countries (9 from S/SE Asia and 4 from Congo Basin). The number of reference reagent deliveries reported by disease was calculated and is shown in Figure 4.

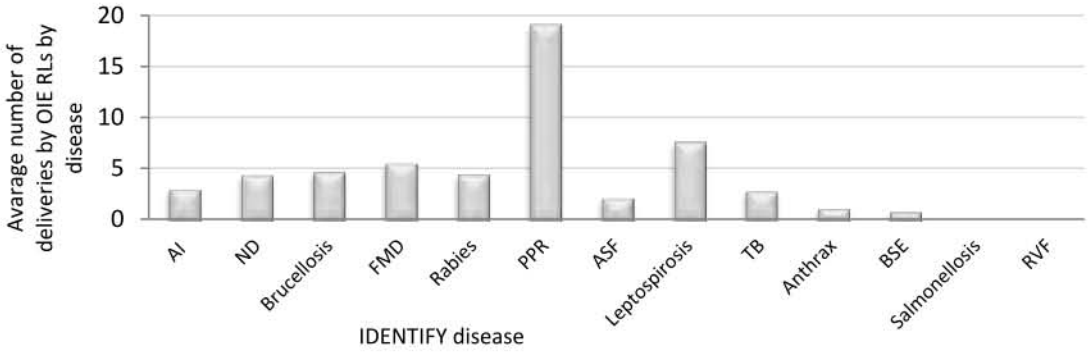
Figure 4. - Number of reference reagent deliveries to OIE Member Countries by disease in 2010



Since a different number of OIE RLs are designed for each IDENTIFY disease (i.e. 9 for AI, 5 for BSE, 2 for Anthrax, the remaining are shown in Annex A), the average number of deliveries by OIE RL by disease was calculated. Results showed that the highest average number of

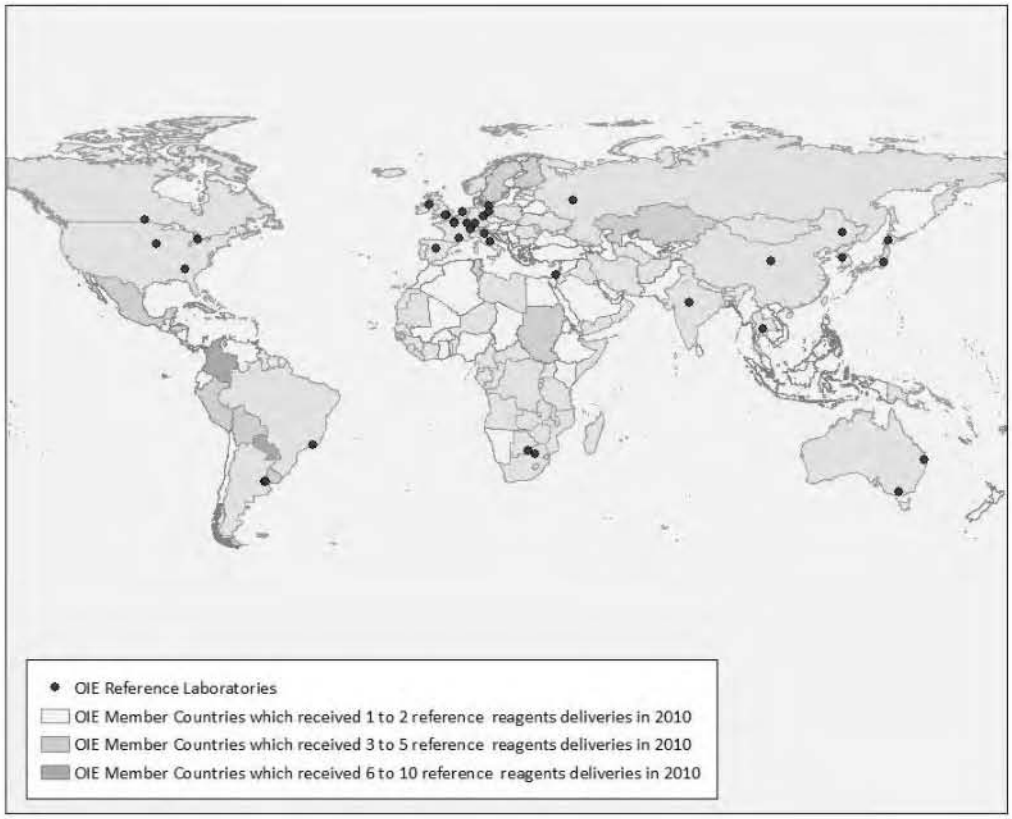
deliveries of reference reagents by OIE RL to OIE Member Countries was reported for PPR (Figure 5).

Figure 5 - Average number of reference reagent deliveries by disease in 2010



After exclusion of OIE Member Countries hosting OIE RLs (n=19), 140 deliveries of reagents were provided to 75 OIE Member Countries (Figure 6). Of the 47 OIE Reference Laboratories reporting international delivery of reference reagents to OIE Member Countries, 17/47 (36%) did not provide information on the country (ies) of destination. This missing information limits our understanding of the breadth of this service worldwide and as a result efforts are being made to collect more exhaustive information on the beneficiary countries.

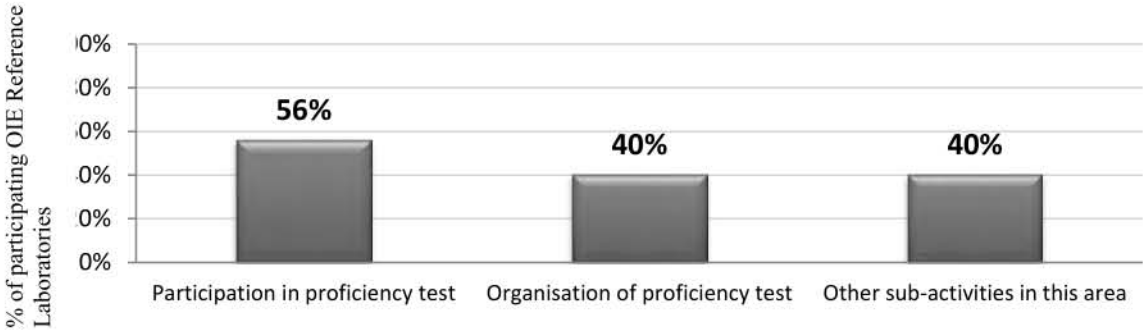
Figure 6 - OIE Member Countries which received reference reagents in 2010, after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases



5.2 Harmonization and standardization of methods

Results from annual reports showed that 56% (35/62) of OIE RLs participated in proficiency testing between OIE RLs designated for the same disease, 40% (25/62) of OIE RLs organized proficiency tests for the benefit of OIE Member Countries and 40 % (25/62) of OIE RLs participated at least in another activity related to the area (Figure 7).

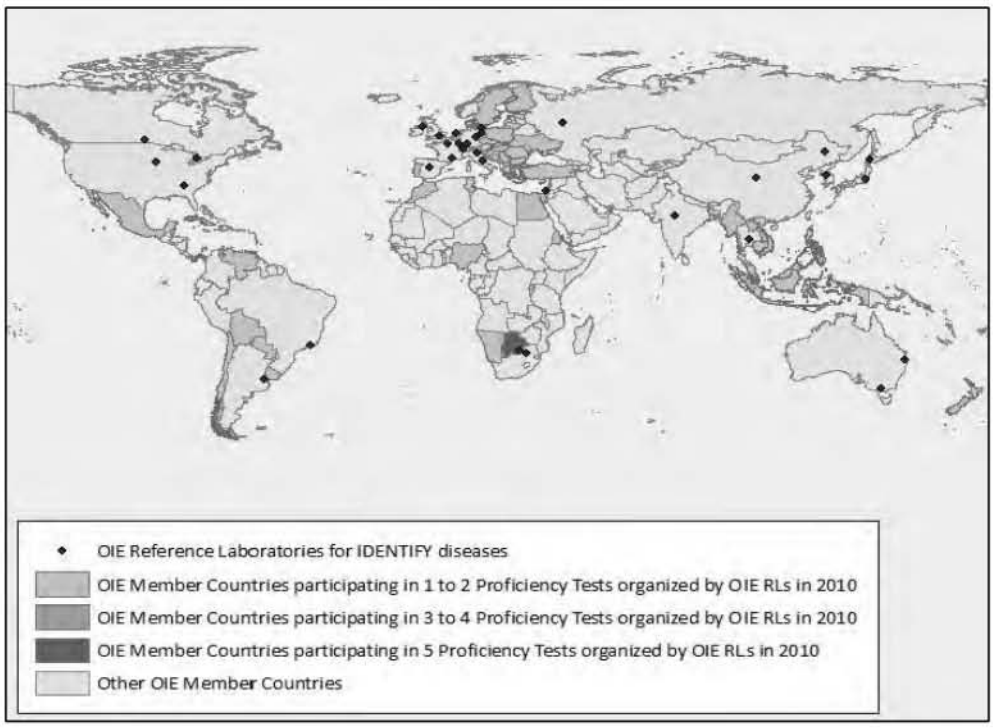
Figure 7 - Percentage of OIE RLs participating in at least one related activity related to harmonization and standardization of methods



Sub- activities related to harmonization and standardization of methods.

According to 62 annual reports analyzed, 91 rounds of proficiency tests were organized for 10 out of 13 IDENTIFY diseases involving 64 OIE Member Countries. Twelve S/SE Asia IDENTIFY Countries were involved in this activity and no Congo Basin IDENTIFY Countries. After exclusion of OIE Member Countries hosting OIE RLs, 46 OIE Members participated in 60 proficiency tests across IDENTIFY diseases (Figure 8).

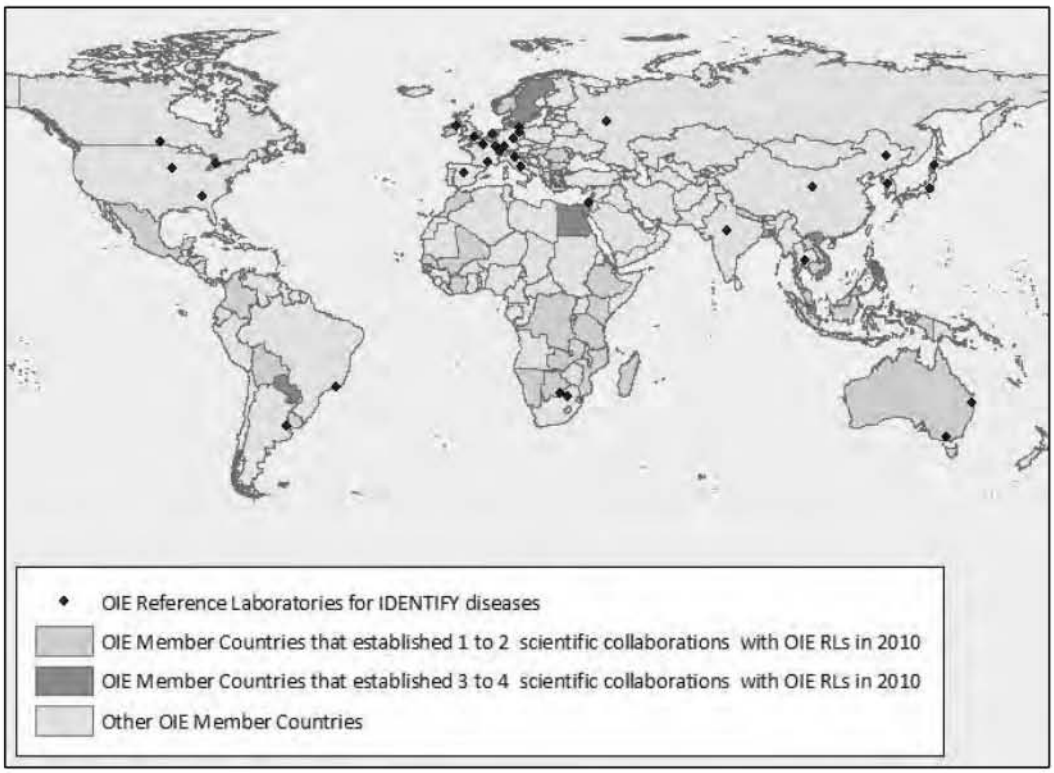
Figure 8 - OIE Member Countries participating to proficiency tests in 2010 after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases



5.3 Generation of epizootiological data

Annual reports showed that 26% of OIE RLs (9/35) reporting implementation of international studies and collaborations did not report the name of collaborating OIE Member Countries. After exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases, 62 international studies or collaborations with 42 OIE Member Countries were reported (Figure 9). Fifteen IDENTIFY Countries were involved international studies: 11 S/SE Asia IDENTIFY Countries and 4 Congo Basin IDENTIFY Countries.

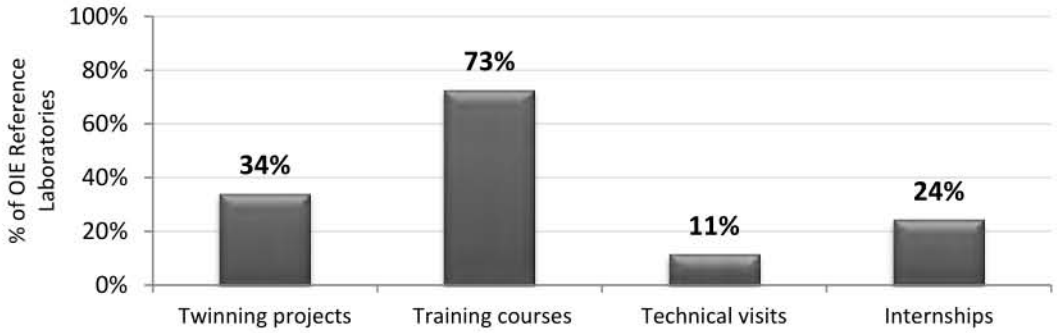
Figure 9 - OIE Member Countries that established scientific collaborations with OIE RLs in 2010 after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases



5.4 Provision of technical trainings

The activity mentioned as "provision of technical training" grouped information reported under 4 related activities: twinning projects, training courses and workshops, technical visits to an OIE RL and internships. Thirty-four percent (34%; 21/62) of OIE RLs reported being involved in on-going Twinning projects in 2010, 73% (45/62) organized training courses (7/62), 11% received technical visits to an OIE RL and 24% (15/62) hosted internships (Figure 10).

Figure 10 - Percentage of OIE RLs carrying out technical training provision to OIE Member Countries



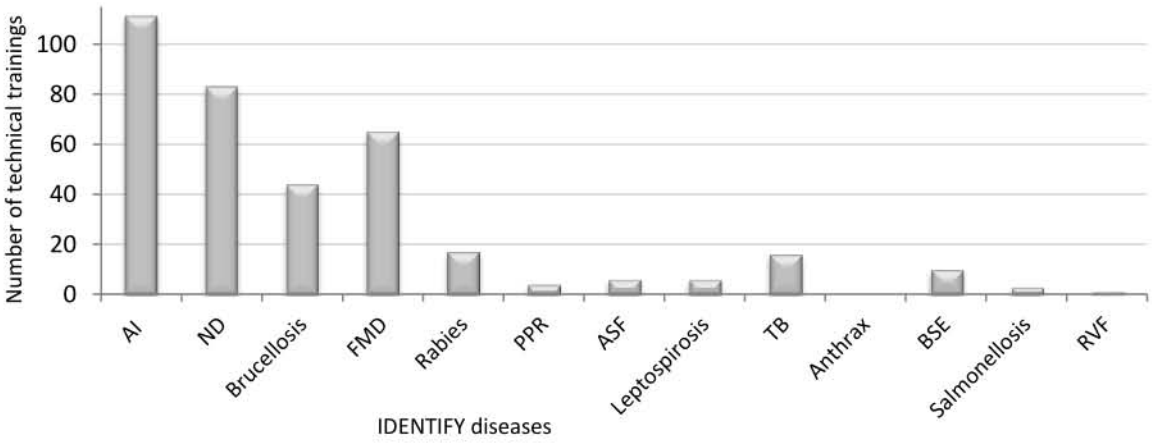
By comparison of each related activity reported by OIE RLs across diseases, it emerged that knowledge transfer to OIE Member Countries in 2010 was mainly provided by training courses (71% of all related activities reported within provision of technical training). Technical visits to OIE RLs represented 16%, Twinning projects represented 7% and internships--defined as periods longer than training courses and workshops, frequently in the framework of a PhD--represented 6% (Figure 11).

Figure 11– Proportions of sub-activities within provision of technical trainings as reported by OIE RLs for IDENTIFY-targeted diseases in 2010 annual reports



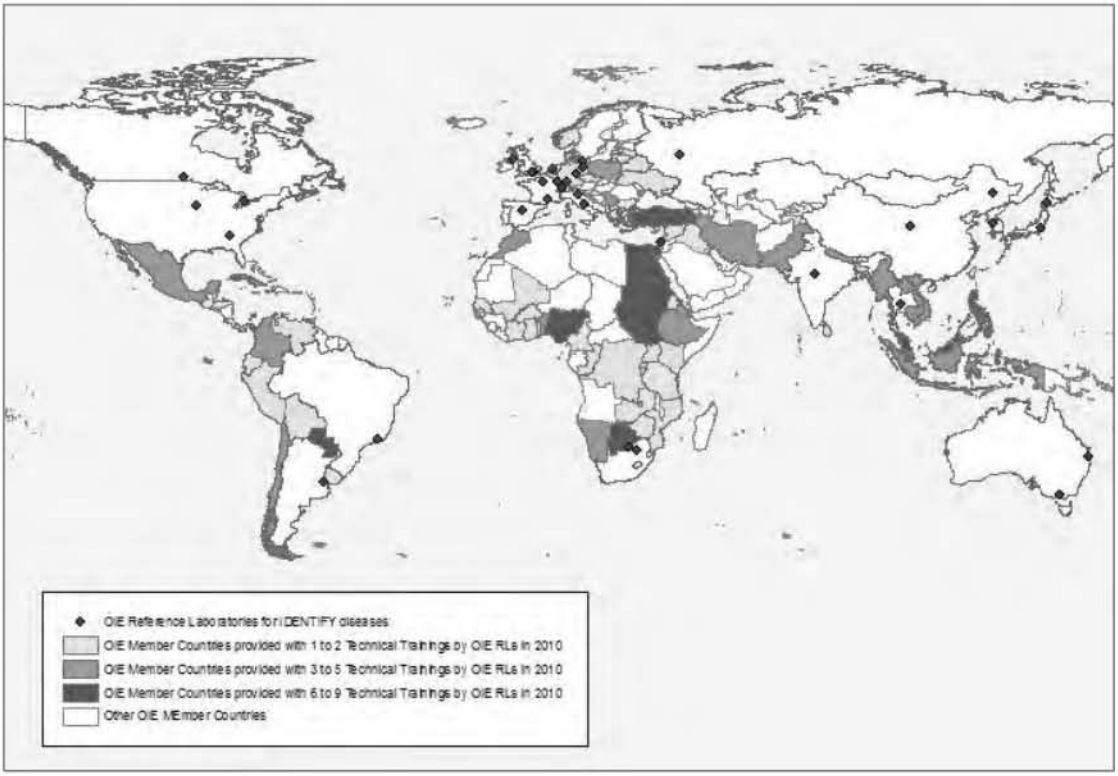
From the data reported, the highest number of technical trainings for the benefit of OIE Member Countries in 2010 was related to AI (Figure 12). Results concerning the other IDENTIFY-targeted diseases are presented in Figure 12.

Figure 12 - Number of training courses organized by disease in 2010 by OIE RLs



Data reported in the annual reports showed that 24% (11/45) of OIE RLs reporting "provision of technical trainings" to OIE Member Countries did not mention the number of participants to training courses and that 4% (2/51) of the OIE RLs did not mention the name of the OIE Member assisted. Despite missing information and after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases, 190 technical trainings were organized for the benefit of 76 OIE Member Countries (Figure 13). Sixty-four technical trainings were provided to IDENTIFY Countries: 48 for S/SE Asia IDENTIFY Countries and 16 for Congo Basin IDENTIFY Countries.

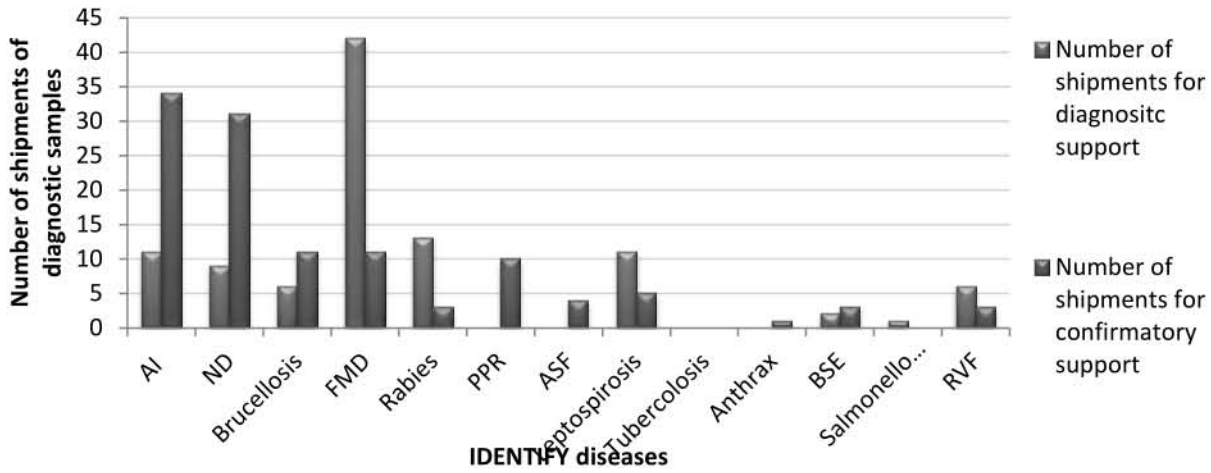
Figure 13- OIE Member Countries provided with technical trainings by OIE RLs in 2010, after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases.



5.5 Diagnostic testing facilities

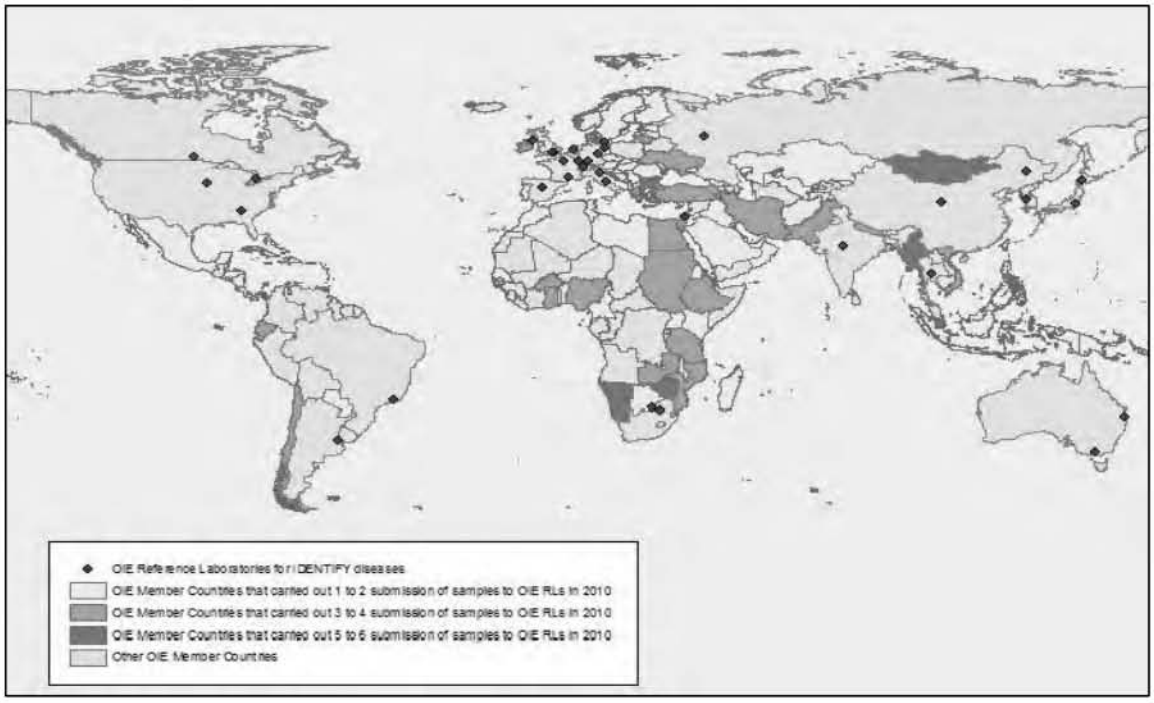
Diagnostic testing support provided to OIE Member Countries by OIE RLs includes two related activities: diagnostic support and confirmatory diagnosis. From data emerged that diagnostic support to OIE Member Countries was provided for 9 out of 13 diseases and confirmatory diagnosis was provided for 10 out of 13 IDENTIFY-targeted diseases. Distribution of the global amount of shipment by diseases is shown in Figure 14.

Figure 14. Distribution of shipments of diagnostic samples by IDENTIFY disease



As reported in the 2010 annual reports, 99 OIE Member Countries sent 202 shipments of samples to OIE RLs requesting diagnostic testing support for IDENTIFY-targeted diseases. After exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases, OIE RLs received 180 shipments of samples from 90 OIE Member Countries (Figure 15). Thirty-seven shipments of samples were reported from IDENTIFY Countries: 21 from S/SE Asia and 16 from Congo Basin IDENTIFY Countries.

Figure 15 - OIE Member Countries that submitted samples to OIE RLs in 2010 after exclusion of OIE Member Countries hosting OIE RLs for IDENTIFY-targeted diseases

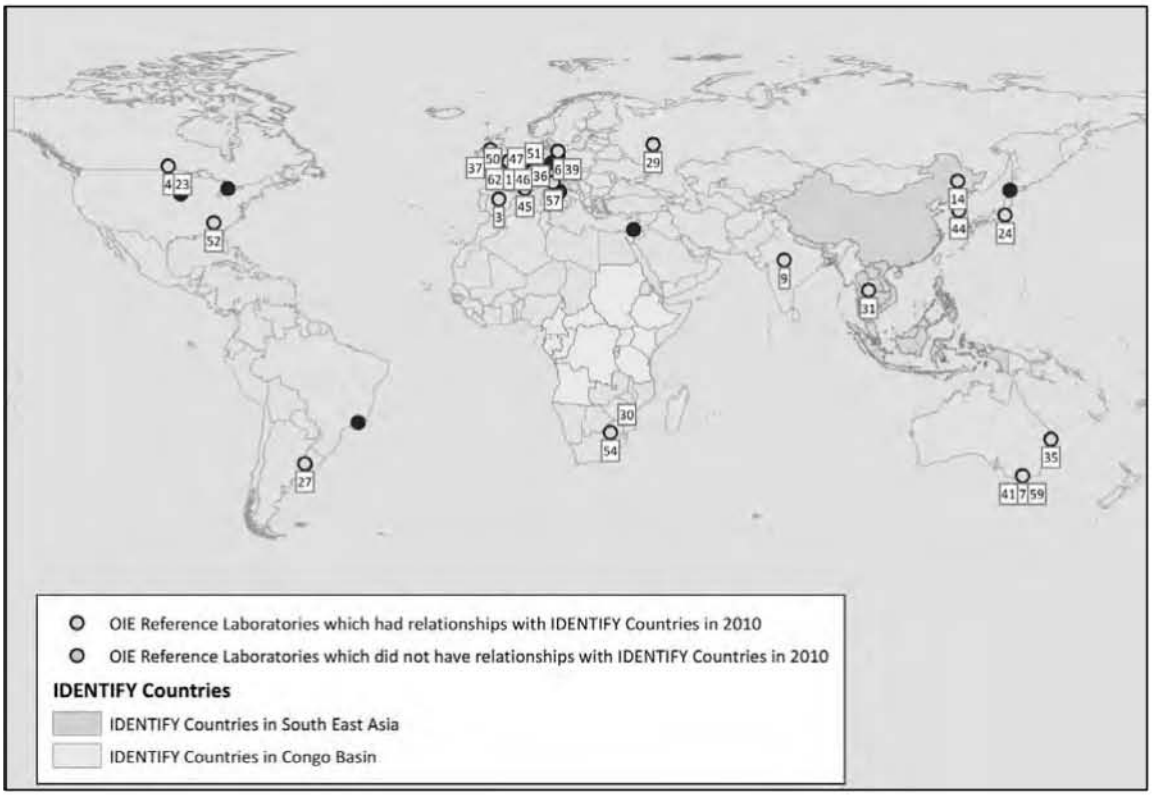


6. Results of the analysis of the IDENTIFY Countries

6.1 OIE Reference Laboratory Network with IDENTIFY Countries by activity

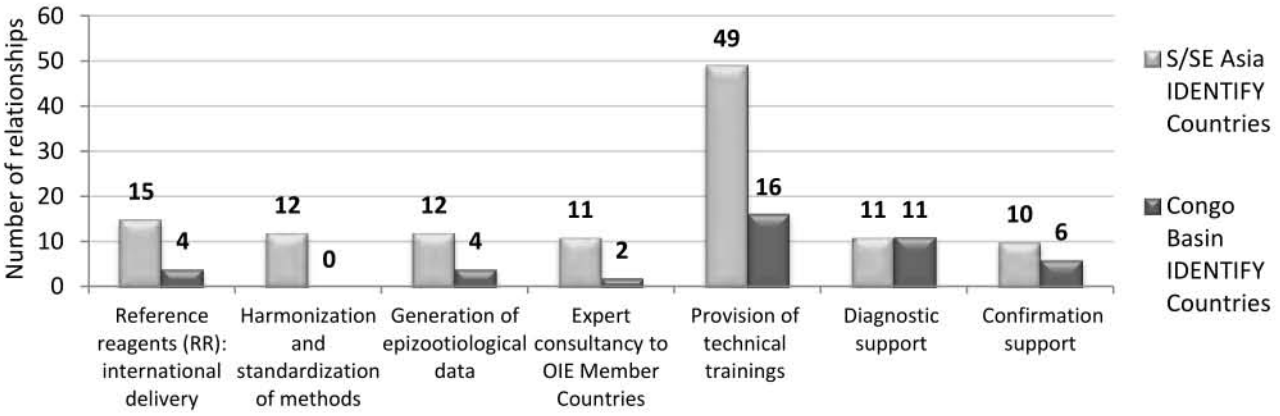
Sixty-five percent of OIE RLs under analysis (40/62) (Figure 16) reported relationships with IDENTIFY Countries (19 out of 23) in 2010 (see Annex D for detailed information).

Figure 16 - OIE RLs reporting relationships with IDENTIFY Countries in 2010



One hundred and twenty-one (121) relationships were established with S/SE Asia IDENTIFY Countries (10 out of 10) and 44 relationships with Congo Basin IDENTIFY Countries (8 out of 13). The most reported service provided to IDENTIFY Countries by OIE RLs was Technical Trainings (Figure 17).

Figure 17 - Number of relationships between OIE RLs and IDENTIFY Countries by activity

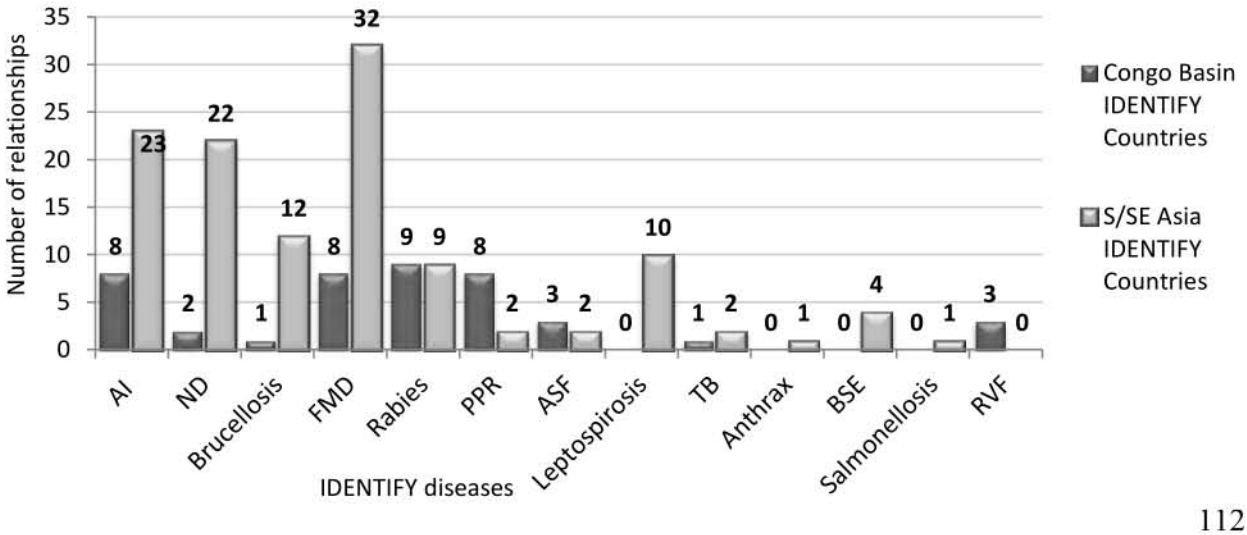


6.2 OIE Reference Laboratory Network with IDENTIFY Countries by disease

Relationships between OIE RLs and S/SE Asia IDENTIFY Countries were mostly related to the control of FMD. OIE RLs for Anthrax and Brucellosis reported only one relationship with S/SE Asia IDENTIFY Countries and OIE RLs for RVF did not report any relationship, perhaps due to the absence of RVF in the region.

Congo Basin IDENTIFY Countries received the highest number of services by the OIE RLs related to the control of rabies followed by FMD, PPR and AI. No relationships with Congo Basin IDENTIFY Countries were established for the control of Leptospirosis, Anthrax and Salmonellosis (Figure 18).

Figure 18- Number of relationships between OIE RLs and IDENTIFY Countries by disease



From the data reported in Annex C, it was possible to generate some maps showing the relationships between OIE RLs and IDENTIFY countries by activity (Annex D and Annex E), by disease (Annex F and Annex G) and by country (Annex H and Annex I).

6.3 OIE Reference Laboratory Network by IDENTIFY Country

The comparison of relationships reported by OIE RLs with S/SE Asia IDENTIFY Countries and Congo Basin IDENTIFY countries showed that S/SE Asia IDENTIFY Region received 3 times more services than the Congo Basin IDENTIFY region. The number and distribution of relationships by IDENTIFY country is represented in Figures 19 and 20.

Figure 19 Number of relationships between OIE RLs and Congo Basin IDENTIFY Countries

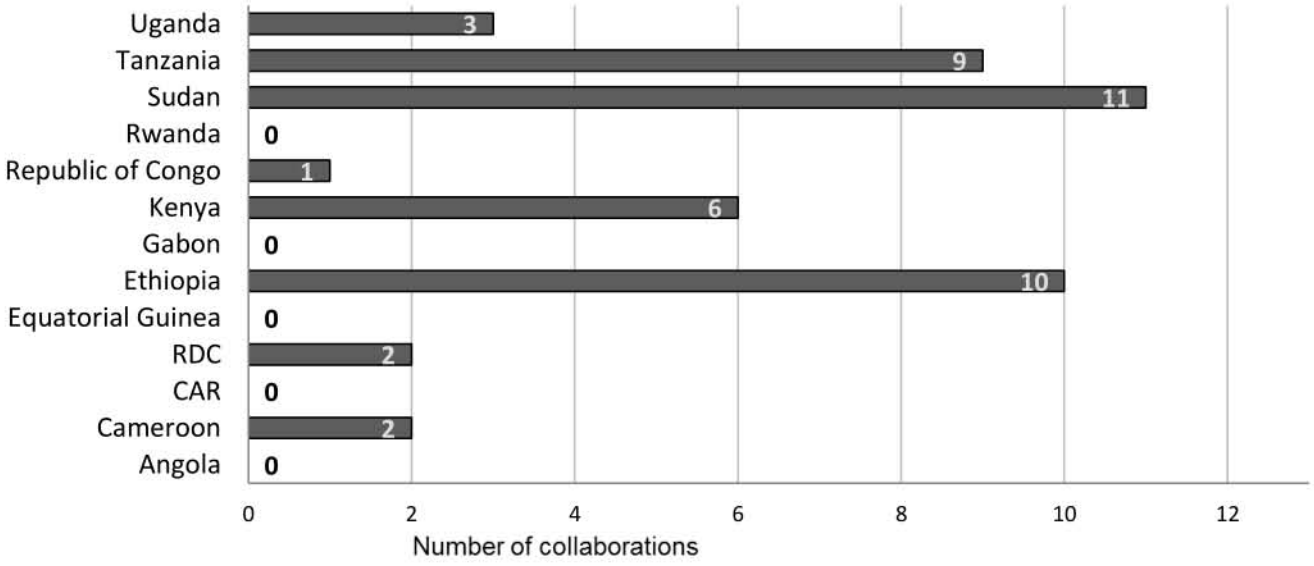
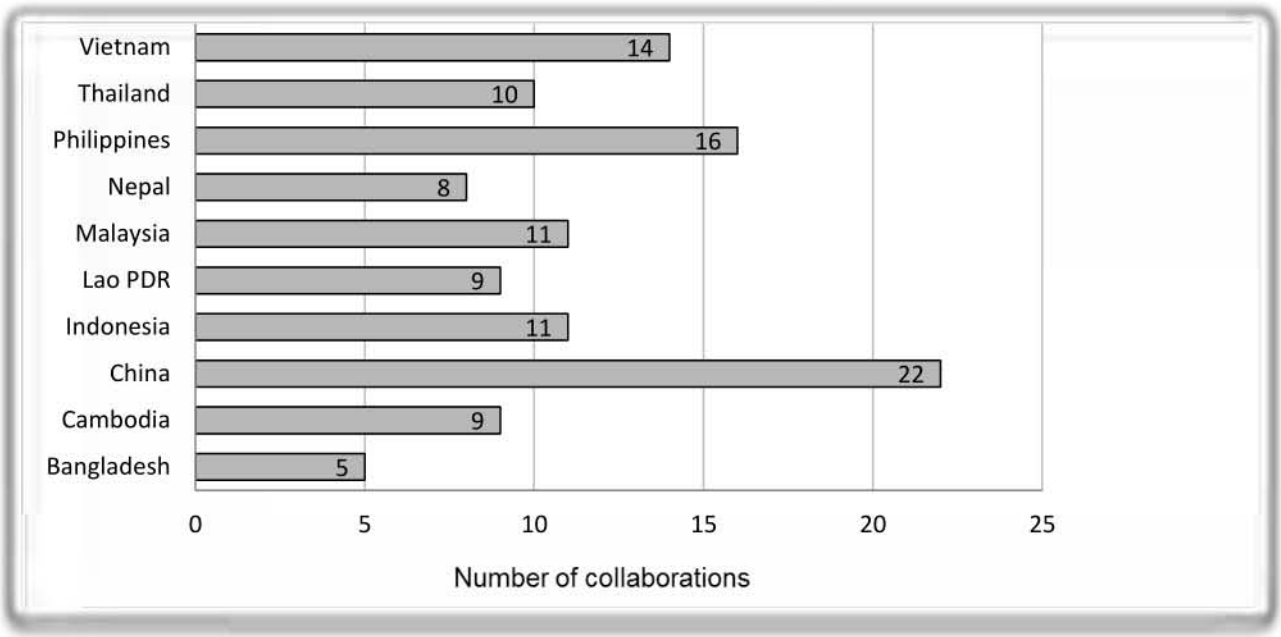


Figure 20 - Number of relationships between OIE RLs and S/SE Asia IDENTIFY Countries



Information collected allowed calculation of the average number of relationships established by OIE RLs with non-IDENTIFY OIE Member Countries (4 relationships per country) and with IDENTIFY OIE Member Countries (12.2 relationships per country). By comparison of results, it emerges that IDENTIFY Countries received 3 times as many services by OIE RLs as non-IDENTIFY OIE Member Countries.

7. Conclusions

The present report confirms the importance of the OIE Reference Laboratory annual report as a tool to collect information about the OIE RLs activities.

The percentage of OIE RLs fulfilling the Terms of Reference for OIE RLs was satisfactory and the emerging picture of OIE RLs from the 2010 annual reports shows an extended network that worked globally to supply a broad range of services to OIE Member Countries, and as a result, to IDENTIFY countries. At least 90% of OIE RLs reported performing diagnostic activities, producing reference reagents, conducting research and development and diagnosis and control as well as disseminating scientific information. Concerning the activities generating relationships between the OIE RLs and OIE Member Countries, RLs reported high involvement (at least 79% reported) in provision of technical training and generation of epizootiological data through scientific studies and collaborations with OIE Member Countries.

Data collected show that the breadth of services provided to OIE Member Countries in 2010 was considerable and that the OIE Member Country Network in 2010 was mainly based on provision of technical training and diagnostic support.

By comparison of the non-IDENTIFY OIE Member Countries and IDENTIFY countries, IDENTIFY countries received 3 times more services than OIE Member Countries not targeted by the project. This result may demonstrate that IDENTIFY-targeted regions request more support from OIE RLs and that the services offered by OIE RLs meet the demand. Nevertheless, additional support can be provided to the IDENTIFY countries (as demonstrated by the results of the analysis in some areas and for some diseases) and the OIE, by investing in the OIE RL Network, encourages continued support of the IDENTIFY countries and IDENTIFY diseases beyond the IDENTIFY project.

Relationships between OIE RLs and IDENTIFY countries showed that IDENTIFY countries from S/SE Asia established three times more relationships than Congo Basin IDENTIFY countries. The services in the two regions were more broadly distributed in the S/SE Asia IDENTIFY countries (10/10), than in the Congo Basin IDENTIFY countries (8/13).

From the results it emerged that the request of support from S/SE Asia countries is linked to the presence of the disease in the region, i.e. no activity related to RVF was reported. On the other hand, Congo Basin IDENTIFY countries, showed a lack of requesting activities related to Leptospirosis, BSE, Anthrax and Salmonellosis. It is difficult from the data reported to understand all the reasons for such gaps in reporting, but the OIE is examining ways by which these countries can be supported for these diseases which are present in the region. The

results highlighted the need of assistance for Congo Basin IDENTIFY Countries in accessing the benefits of the OIE RL Network.

Data showed that provision of technical training was reported as the most performed activity by OIE RLs in both IDENTIFY regions. With regard to S/SE Asia IDENTIFY Countries, the higher proportion of supply in diagnostic reference reagents from OIE RLs and the good involvement in harmonization and standardization of methods as well as the lower diagnostic support demand, may indicate that there is a higher level of diagnostic capability for IDENTIFY diseases at the regional and national levels than in Congo Basin IDENTIFY region, where by contrary, the demand of OIE RLs services was directed towards diagnostic and confirmatory support.

Annex A

List of OIE Reference Laboratories for IDENTIFY disease submitting 2010 Annual Report

Map N.	OIE Reference Laboratories for IDENTIFY disease submitting 2010 Annual Report
	ASF
1	Institute for Animal health, Pirbright Laboratory, **UK**
2	Onderstepoort Veterinary Institute, Agricultural Research Council, **South Africa**
3	Centro de Vigilancia Sanitaria Veterinaria (VISAVET), Facultad de Veterinaria **Spain**
	Anthrax
4	Canada Food Inspection Agency, National Centre for Animal Disease (NCAD) Lethbridge Laboratory, **Canada**
5	National Veterinary Services Laboratories, USDA, APHIS, Veterinary Services, **USA**
	Avian Influenza
6	Federal Research Centre for Virus Diseases of Animals (BFAV) Friedrich-Loeffler Institute, **Germany**
7	CSIRO, Australian Animal Health Laboratory, Division of Animal Health, **Australia**
8	Canadian Food Inspection Agency, National Centre for Foreign Animal Disease, **Canada**
9	High Security Animal Disease Laboratory, Indian Veterinary Research Institute, **India**
10	Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe), **Italy**
11	Laboratory of Microbiology, Graduate School of Veterinary Medicine, Hokkaido University, **Japan**
12	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
13	National Veterinary Services Laboratories, USDA, APHIS, Veterinary Services, **USA**
14	National Avian Influenza Reference Laboratory, Animal Influenza Laboratory of the Ministry of Agriculture, Harbin Veterinary Research Institute, CAAS, **China**
	Brucellosis
15	Gerencia de Laboratorios (GELAB), Servicio Nacional de Sanidad y Calidad, Agroalimentaria (SENASA), **Argentina**
16	Agence Nationale de Sécurité de l'Alimentation, de l'Environnement et du Travail (Anses), Laboratoire de Santé animale, **France**
17	Federal Research Centre for Virus Diseases of Animals (BFAV) Friedrich-Loeffler Institute, **Germany**
18	Kimron Veterinary Institute, Department of Bacteriology, **Israel**
19	Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale' CESME **Italy**
20	Ministry of Food, Agriculture, Forestry and Fisheries (MIAFF) Brucellosis Laboratory, **Korea**
21	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
	BSE
22	Centro de Investigaciones en Ciencias Veterinarias y Agronómicas (CICVyA) Instituto Nacional de Tecnología Agropecuaria (INTA), **Argentina**
23	Canada Food Inspection Agency, National Centre for Animal Disease (NCAD) Lethbridge Laboratory, **Canada**
24	National Agricultural Research Organization, Prion Diseases Research Unit, **Japan**
25	Neuro Centre, Department of Clinical Research and Veterinary Public Health, **Switzerland**
26	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
	FMD
27	Laboratorio de Fiebre Aftosa de la Dirección de Laboratorios y Control Técnico, **Argentina**
28	Centro Panamericano de Fiebre Aftosa – PANAFTOSA, **Brazil**
29	Federal Governmental Institute, Centre for Animal Health (FGI-ARRIAH), **Russia**
30	Onderstepoort Veterinary Institute, Agricultural Research Council, **South Africa**
31	National Institute of Animal Health, Department of Livestock Development, **Thailand**
32	Institute for Animal health, Pirbright Laboratory, **UK**

Leptospirosis	
33	CICV, INTA, Instituto de Bacteriología, **Argentina**
34	Laboratorio de Leptospirosis, Dirección General de Laboratorios y Control Técnico- SENASA **Argentina**
35	WHO/FAO/OIE Collaboration Centre for Leptospirosis, Western Pacific Region, **Australia**
36	Royal Tropical Institute (KIT), N.H. Swellengrebel Laboratory of Tropical Hygiene, **Netherlands**
37	Agri-Food and Biosciences Institute, Department of Agriculture, **UK**
38	National Veterinary Services Laboratories, USDA, APHIS, Veterinary Services, **USA**
NDV	
39	Federal Research Centre for Virus Diseases of Animals (BFAV) Friedrich-Loeffler Institute, **Germany**
40	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
41	CSIRO, Australian Animal Health Laboratory Division of Animal Health, **Australia**
42	National Veterinary Services Laboratories, USDA, APHIS, Veterinary Services, **USA**
43	Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe), **Italy**
44	National Veterinary Research and Quarantine Service, Ministry of Food, Agriculture, Forestry and Fisheries (MIFAFF), **Korea**
PPR	
45	CIRAD-BIOS, Control of Exotic and Emerging Animal Diseases, **France**
46	Institute for Animal health, Pirbright Laboratory, **UK**
Rabies	
47	Agence Nationale de Sécurité Sanitaire de l'Alimentation, de l'Environnement et du Travail, (Anses), Laboratoire de la faune sauvage de Nancy, **France**
48	Onderstepoort Veterinary Institute, Agricultura Research Council, **South Africa**
49	Centre of Expertise for Rabies CFIA/ACIA, Ottawa Laboratory Fallow field, Animal Diseases Research Institute, **Canada**
50	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
51	Federal Research Centre for Virus Diseases of Animals (BFAV) Friedrich-Loeffler Institute, **Germany**
52	WHO Collaborating Center for Reference and Research on Rabies, Poxvirus and Rabies Branch, Division of Viral and Rickettsial Diseases, Atlanta, **USA**
RVF	
53	Unité de génétique moléculaire des Bunyavirus, Département de Virologie, Institut Pasteur, **France**
54	Onderstepoort Veterinary Institute, Agricultura Research Council, **South Africa**
Salmonellosis	
55	Laboratory for Foodborne Zoonoses, Guelph Laboratory, Public Health Agency of **Canada**
56	Bundesinstitut für Risikobewertung,(Federal Institute for Risk Assessment), **Germany**
57	Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe), **Italy**
58	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**
Tuberculosis	
59	Australian R L for Bovine TBC-Dep. of Agriculture and Food **Australia**
60	Gerencia de Laboratorios (GELAB), Servicio Nacional de Sanidad y Calidad, Agroalimentaria (SENASA), **Argentina**
61	Agence Nationale de Sécurité de l'Alimentation, de l'Environnement et du Travail (Anses), Laboratoire de Santé animale, **France**
62	Animal Health and Veterinary Laboratories Agency, Weybridge, **UK**

Annex B

Terms of Reference for OIE Reference Laboratories

Reference Laboratories

OIE Reference Laboratories are designated to pursue all the scientific and technical problems relating to a named disease or specific topic. The Expert, responsible to the OIE and its Members with regard to these issues, should be a leading and active researcher helping the Reference Laboratory to provide scientific and technical assistance and expert advice on topics linked to surveillance and control of the disease for which the Reference Laboratory is responsible. Reference Laboratories may also provide scientific and technical training for personnel from Members, and coordinate scientific and technical studies in collaboration with other laboratories or organizations, including through OIE Laboratory Twinning.

Terms of Reference

- To use, promote and disseminate diagnostic methods validated according to OIE Standards;
- To recommend the prescribed and alternative tests or vaccines as OIE Standards;
- To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards;
- To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or diseases;
- To develop, standardize and validate according to OIE Standards new procedures for diagnosis and control of the designated pathogens or diseases;
- To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries;
- To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organizations;
- To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases;
- To provide scientific and technical training for personnel from OIE Member Countries;
- To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned;
- To organize and participate in scientific meetings on behalf of the OIE;
- To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organize regular inter-laboratory proficiency testing to ensure comparability of results;
- To organize inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results;
- To place expert consultants at the disposal of the OIE

Annex C

IDENTIFY Countries' relationships with OIE RLs in 2010

Congo Basin IDENTIFY Country	Institute, Country	IDENTIFY disease	Reference reagents deliveries	Harmonization and Standardization of Methods	Generation of epizootiological data	Expert consultancy to OIE Member Countries	Provision of technical trainings	Diagnostic support provided to OIE Member Countries	Diagnostic confirmation provided to OIE Member Countries
Ethiopia	CIRAD-BIOS **France**	PPR	Reagents delivery						
	FLI, **Germany**	Rabies					Training		
	CDC - Atlanta. **USA**	Rabies					Training		
	AHVLA, **UK**	Rabies			International study			Diagnostic support	
		ND							Diagnostic confirmation
		AI					Training		Diagnostic confirmation
		TB					Training		
	Pirbright LIHA, **UK**	FMD						Diagnostic support	
Cameroon	CIRAD-BIOS **France**	PPR						Diagnostic support	
	AHVLA, **UK**	AI					Training		
Kenya	FLI, **Germany**	AI					Training		
	ARC-Onderstepoort VI **South Africa**	FMD						Diagnostic support	
	CDC - Atlanta. **USA**	Rabies			International study				
	VLA, **UK**	AI						Diagnostic support	
	Pirbright LIHA, **UK**	FMD						Diagnostic support	
		PPR	Reagents delivery						
Sudan	CIRAD-BIOS **France**	PPR	Reagents delivery						
	IZSVe, **Italy**	AI					Training		
		ND					Training		

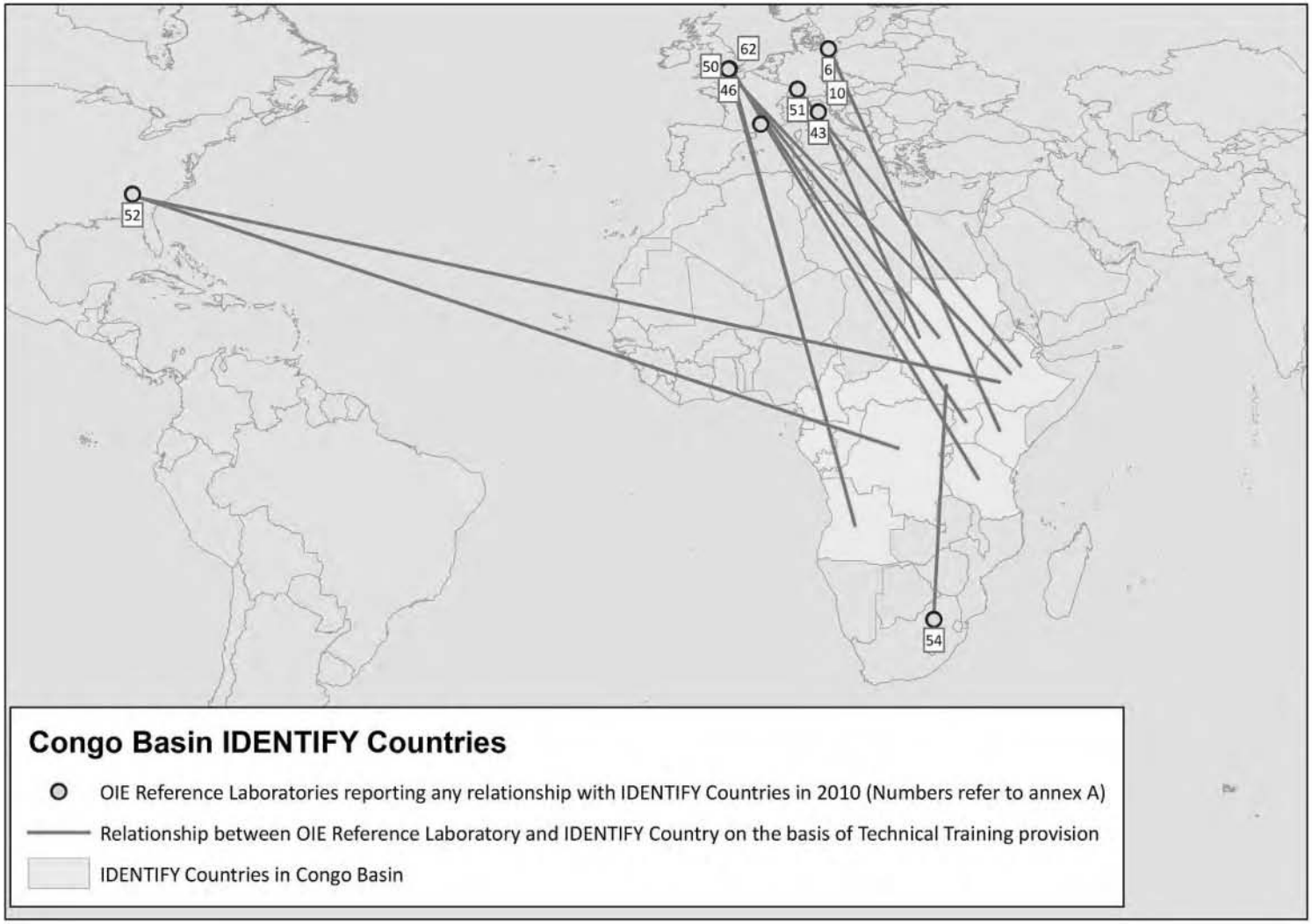
	ARC-Onderstepoort VI **South Africa**	RVF					Training	Diagnostic support	Diagnostic confirmation
	AHVLA, **UK**	AI					Training		
		Rabies						Diagnostic support	
	Pirbright LIHA, **UK**	Brucellosis					Training	Diagnostic support	
		PPR	Reagents delivery						
Tanzania	AHVLA, **UK**	Rabies					Training	Diagnostic support	
	ARC-Onderstepoort VI **South Africa**	FMD			International study			Diagnostic support	Diagnostic confirmation
	Pirbright LIHA, **UK**	FMD					Training	Diagnostic support	
		PPR				Expert consultancy			Diagnostic confirmation
RDC	CDC - Atlanta. **USA**	Rabies					Training		
	Pirbright LIHA, **UK**	ASF			International study				
Congo	AHVLA, **UK**	AI					Training		
Uganda	Pirbright LIHA, **UK**	PPR					Training		
		ASF				Expert consultancy			Diagnostic confirmation
S/SE Asia IDENTIFY Countries	**Institute, Country**	**IDENTIFY disease**	**Reference reagents deliveries**	**Harmonization and Standardization of Methods**	**Generation of epizootiological data**	**Expert consultancy to OIE Member Countries**	**Provision of technical trainings**	**Diagnostic support provided to OIE Member Countries**	**Diagnostic confirmation provided to OIE Member Countries**
Thailand	ANSES, **France**	Brucellosis	Reagents delivery				Training		Diagnostic confirmation
	ARC-Onderstepoort VI **South Africa**	FMD			International study				
	WHO/FAO/OIE CC L **Australia**	Leptospirosis						Diagnostic support	Diagnostic confirmation
	AAHL, CSIRO **Australia**	ND					Training		
		AI					Training		
	Pirbright AHI, UK	FMD						Diagnostic support	
	MIAFF - **Rep. of Korea**	Brucellosis				Expert consultancy	Training		

		ND					Training		
	NARO, Prion Diseases Research Unit, **Japan**	BSE				Expert consultancy			
	East Asia NIAH **Thailand**	FMD	Reagents delivery	Proficiency test			Training		
China	ANSES **France**	Rabies		Proficiency test				Diagnostic support	
	CDC - Atlanta. **USA**	Rabies				Expert consultancy	Training		
	ARC-Onderstepoort VI **South Africa**	FMD			International study				
	ARL for TBC Dep. of Agriculture and Food **Australia**	TB				Expert consultancy	Training		
	Canadian Food Inspection Agency ADRI **Canada**	BSE		Proficiency test		Expert consultancy	Training		
	Pirbright AHI, **UK**	FMD			International study		Training	Diagnostic support	
		PPR	Reagents delivery						
		ASF	Reagents delivery						
	KIT Biomedical Research **Netherland**	Leptospirosis	Reagents delivery						
	AHVLA-**UK**	Rabies		Proficiency test	International study	Expert consultancy			
		AI					Training		
	MIAFF - **Korea DR**	Brucellosis	Reagents delivery						
	VISAVET Madrid. **Spain**	ASF					Training		
	SENASA, **Argentina**	FMD		Proficiency test					
	ARRIAH, Russia	FMD	Reagents delivery						
Bangladesh	CIRAD-BIOS **France**	PPR	Reagents delivery						
	CDC - Atlanta. **USA**	Rabies					Training		
	Canadian Food Inspection Agency ADRI **Canada**	Anthrax				Expert consultancy			
	IZSVe, **Italy**	AI							Diagnostic confirmation
		ND							Diagnostic confirmation

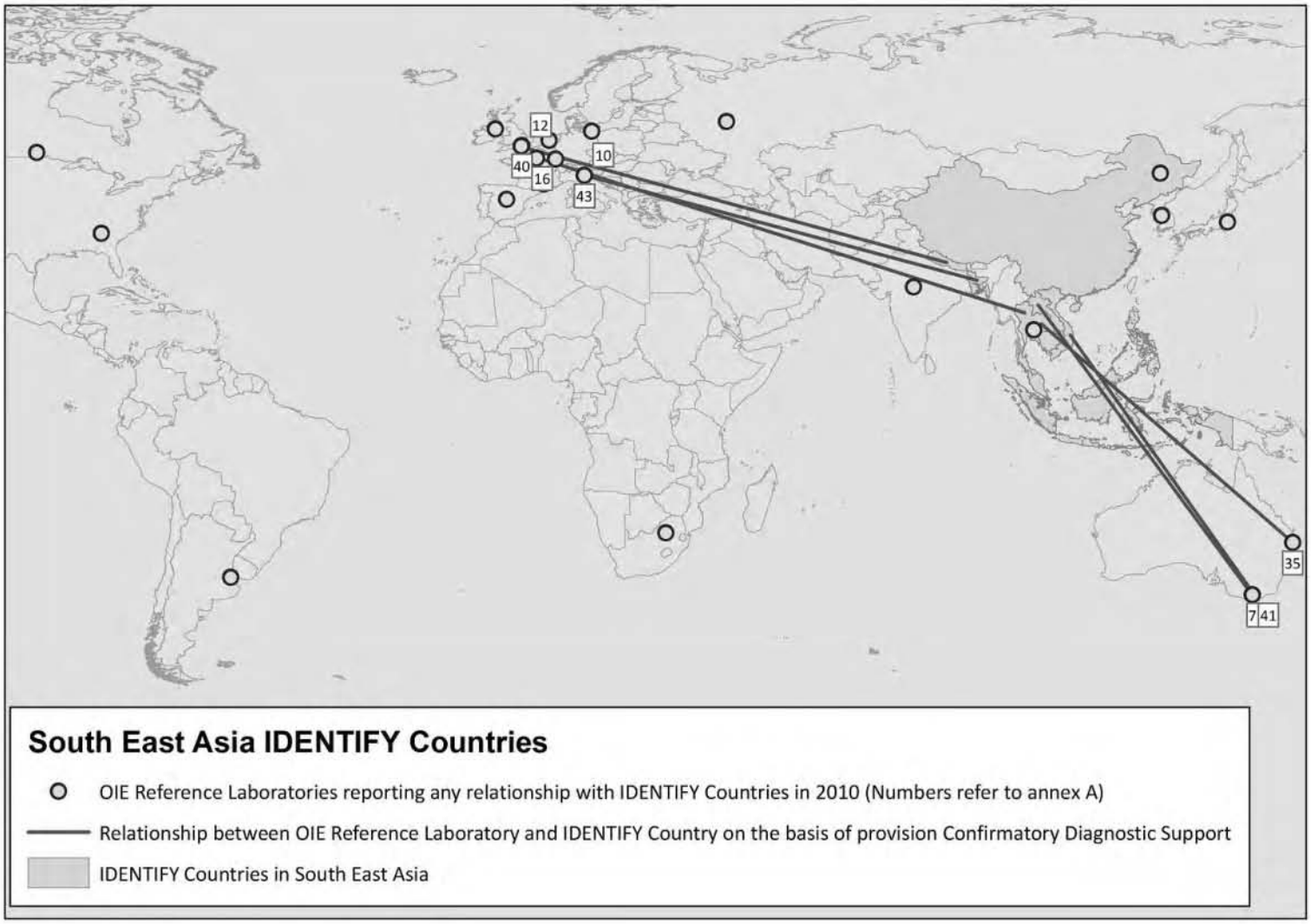
Nepal	FLI, **Germany**	AI					Training		
		ND					Training		
	AHVLA, **UK**	AI			International study				Diagnostic confirmation
		ND							Diagnostic confirmation
	Pirbright LIHA, **UK**	FMD						Diagnostic support	
	East Asia NIAH **Thailand**	FMD					Training		
	IVRI, **India**	AI					Training		
Philippines	CDC - Atlanta. **USA**	Rabies					Training		
	AAHL, CSIRO **Australia**	ND					Training		
		AI					Training		
	AHVLA, UK	AI				Expert consultancy	Training		
		ND				Expert consultancy	Training		
	Vet. Sciences Division, AFBI, **UK**	Leptospirosis	Reagents delivery						
	KIT Biomedical Research **Netherland**	Leptospirosis	Reagents delivery					Diagnostic support	
	MIAFF, **Korea**	Brucellosis					Training		
		ND					Training		
	East Asia NIAH **Thailand**	FMD		Proficiency test			Training		
Vietnam	MIAFF - **Rep. of Korea**	Brucellosis					Training		
		ND					Training		
	East Asia NIAH **Thailand**	FMD	Reagents delivery	Proficiency test	International study			Diagnostic support	
	AHVLA, **UK**	AI				Expert consultancy			
	IZSVe, **Italy**	Salmonellosis					Training		
	AAHL, CSIRO **Australia**	AI			International study		Training		Diagnostic confirmation
		ND					Training		Diagnostic confirmation
	Pirbright, LIHA, **UK**	FMD				Expert consultancy	Training	Diagnostic support	

	AI Ref Lab, **China**	AI				Expert consultancy			
Indonesia	MIAFF - **Rep. of Korea**	Brucellosis					Training		
		ND					Training		
	East Asia NIAH **Thailand**	FMD		Proficiency test					
	AAHL, CSIRO **Australia**	ND					Training	Diagnostic support	
		AI		Proficiency test	International study	Expert consultancy			
	KIT Biom. Research **Netherland**	Leptospirosis	Reagents delivery				Training		
Malaysia	AAHL, CSIRO **Australia**	ND					Training		
		AI					Training		
	MIAFF - **Rep. of Korea**	Brucellosis					Training		
		ND					Training	Diagnostic support	
	East Asia NIAH **Thailand**	FMD		Proficiency test	International study				
	KIT Biom. Research **Netherland**	Leptospirosis	Reagents delivery				Training		
Laos DR	MIAFF - **Rep. of Korea**	Brucellosis					Training		
		ND					Training		
	East Asia NIAH **Thailand**	FMD	Reagents delivery	Proficiency test	International study				
	AAHL, CSIRO **Australia**	ND					Training		
		AI					Training		Diagnostic confirmation
	Pirbright LIHA, **UK**	FMD						Diagnostic support	
Cambodia	MIAFF - **Rep. of Korea**	Brucellosis					Training		
		ND					Training		
	East Asia NIAH **Thailand**	FMD	Reagents delivery	Proficiency test	International study			Diagnostic support	
	AAHL, CSIRO **Australia**	ND					Training		
		AI					Training		
	Pirbright LIHA, **UK**	FMD						Diagnostic support	

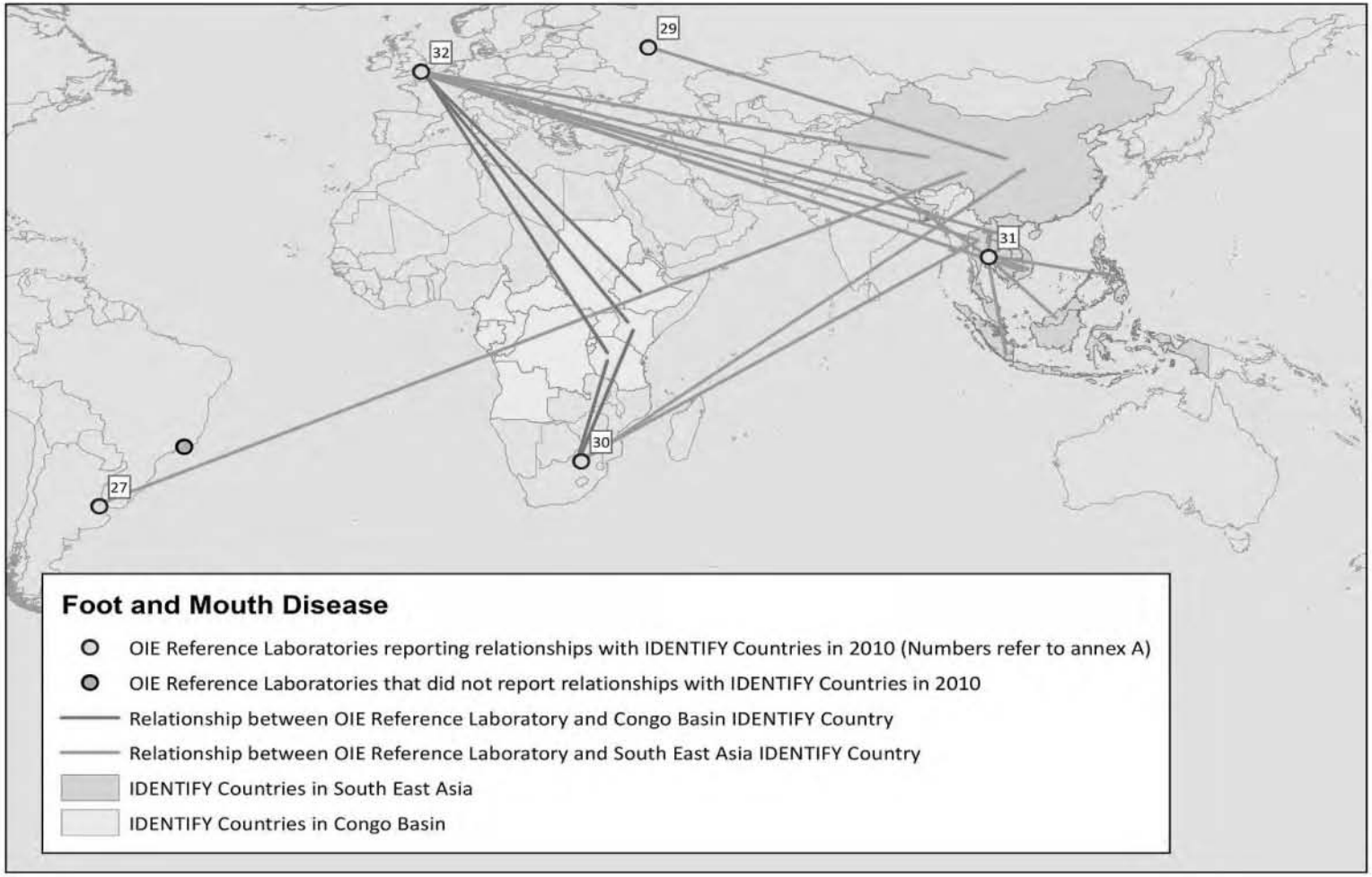
Annex D: Map representing relationships between OIE RLs and Congo Basin IDENTIFY Countries on the basis of provision of technical trainings



Annex E: Relationships between OIE RLs and SE Asia IDENTIFY countries: provision of confirmatory & diagnostic support



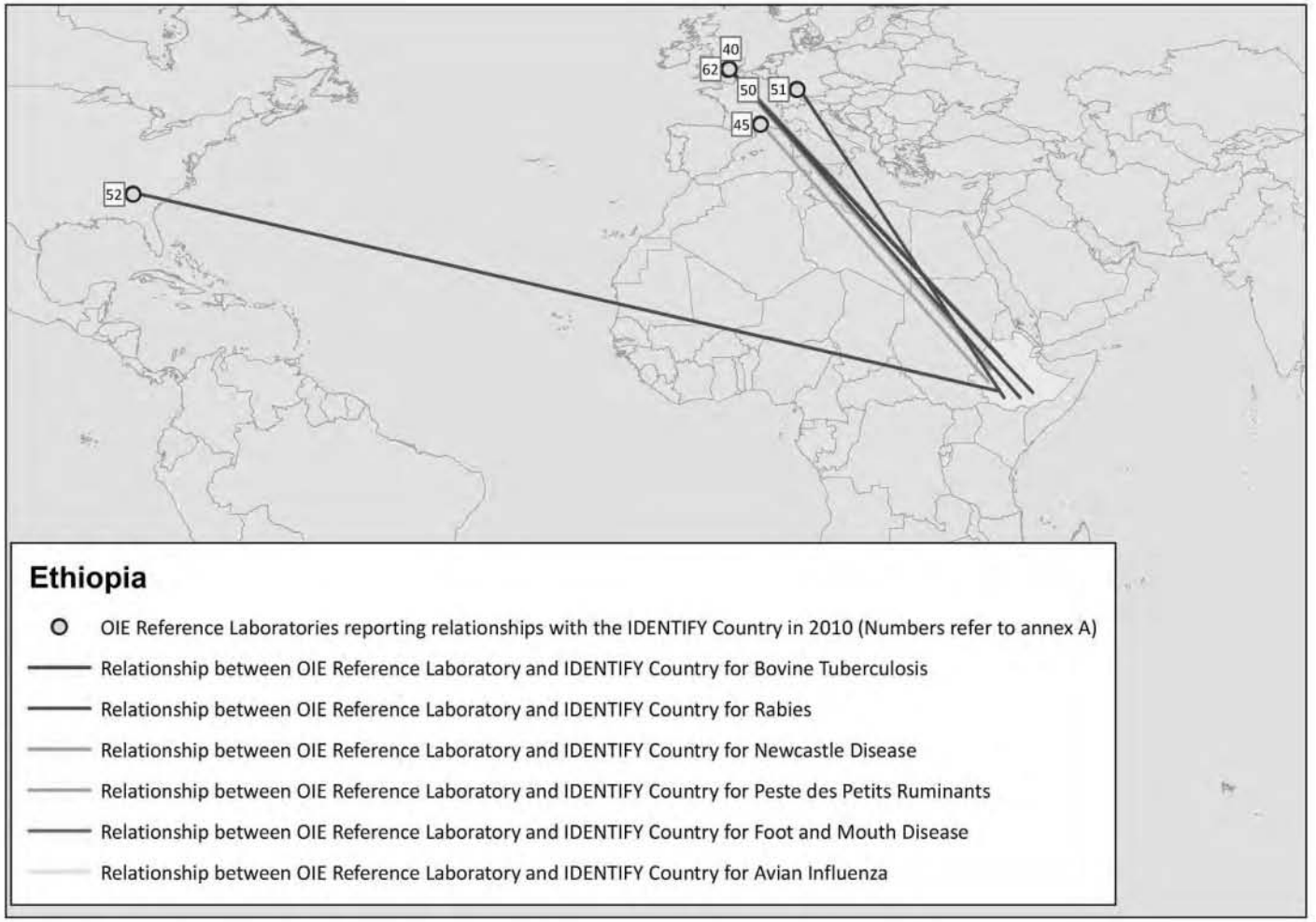
Annex F: Map representing relationships between OIE RLs and IDENTIFY Countries by disease: FMD



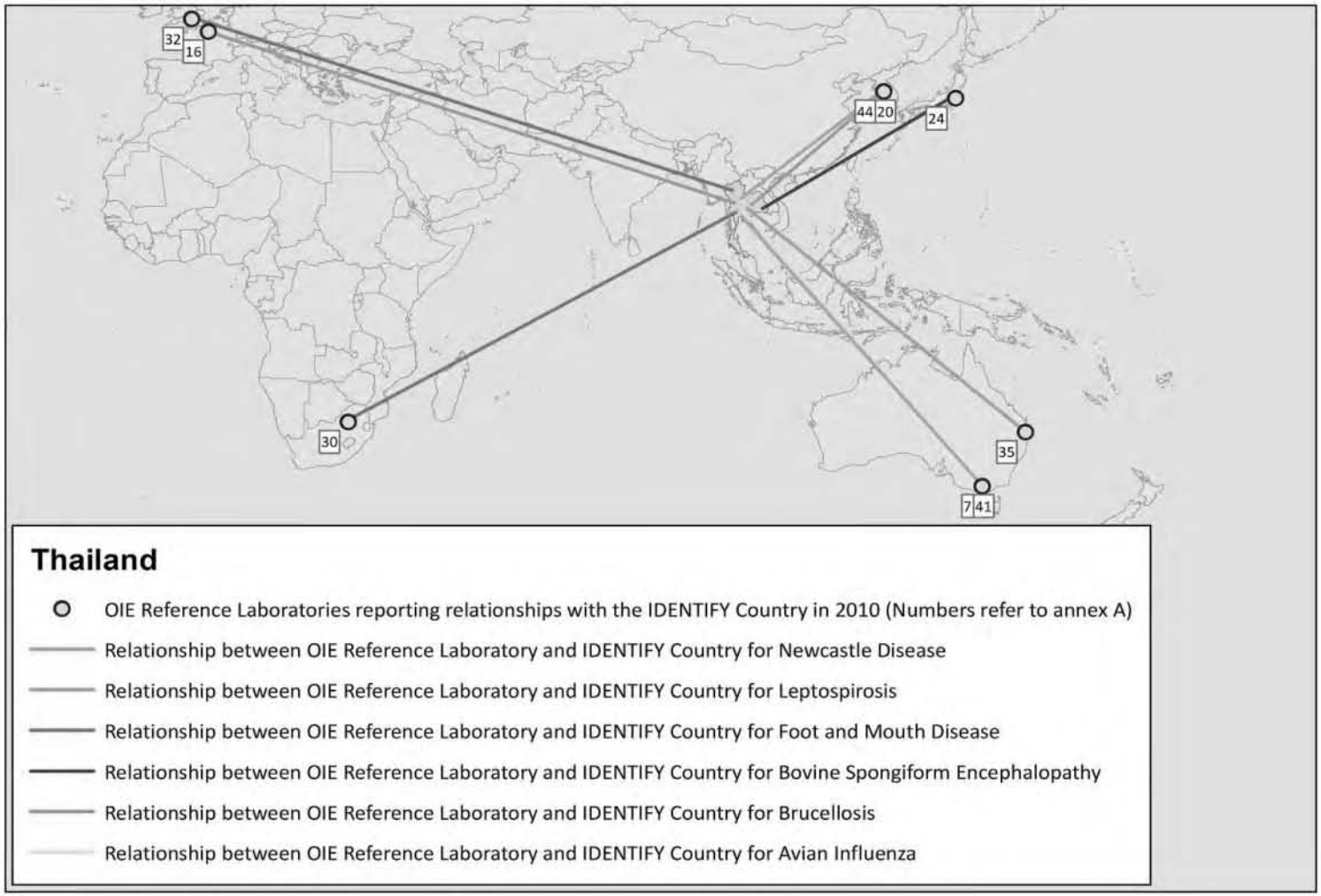
Annex G: Map representing relationships between OIE RLs and IDENTIFY Countries by disease: Rabies


50
47
51
52
Rabies
OIE Reference Laboratories reporting relationships with IDENTIFY Countries in 2010 (Numbers refer to annex A)
OIE Reference Laboratories that did not report relationships with IDENTIFY Countries in 2010
Relationship between OIE Reference Laboratory and Congo Basin IDENTIFY Country
Relationship between OIE Reference Laboratory and South East Asia IDENTIFY Country
IDENTIFY Countries in South East Asia
IDENTIFY Countries in Congo Basin

Annex H: Map representing relationships between OIE RLs and Ethiopia



Annex I: Map representing relationships between OIE RLs and Thailand



Annex J: Relationships between IDENTIFY Countries and Institutes hosting OIE RLs regardless to the designed diseases

OIE RLs hosting Institutes	IDENTIFY Countries (IC)								Total Amount
CIRAD-BIOS, France	Congo Basin IC	Cameroun	Ethiopia	Sudan					3
	S/SE Asia IC	Bangladesh							1
FLI, Germany	Congo Basin IC	Ethiopia	Kenya						2
	S/SE Asia IC	Nepal							1
CDC – Atlanta, USA	Congo Basin IC	Ethiopia	Kenya	RDC					3
	S/SE Asia IC	Bangladesh	China	Philippines					3
AHVLA, UK	Congo Basin IC	Tanzania	Sudan	Kenya	Ethiopia	Congo	Cameroun		6
	S/SE Asia IC	China	Nepal	Philippines	Vietnam				4
Pirbright IHA, UK	Congo Basin IC	Ethiopia	Kenya	RDC	Sudan	Tanzania	Uganda		6
	S/SE Asia IC	Cambodia	China	Laos	Nepal				4
ARC-OVI, South Africa	Congo Basin IC	Kenya	Sudan						2
	S/SE Asia IC	China							1
IZSVe, Italy	Congo Basin IC	Sudan							1
	S/SE Asia IC	Bangladesh	Vietnam						2
KIT Biomedical Research, Netherland	S/SE Asia IC	China	Indonesia	Malaysia	Philippine				4
CFIADRI, Canada	S/SE Asia IC	China	Bangladesh						2
ANSES, France	S/SE Asia IC	Thailand	China						2
VISAVET, Spain	S/SE Asia IC	China							1
SENASA, Argentina	S/SE Asia IC	China							1
Vet. Sciences Division, AFBI, UK	S/SE Asia IC	Philippine							1
MIAFF, Rep. of Korea	S/SE Asia IC	Cambodia	China	Indonesia	Laos	Malaysia	Philippine	Thailand	Vietnam 8
NARO, Japan	S/SE Asia IC	Thailand							1
WHO/FAO/OIE RL, Australia	S/SE Asia IC	Thailand							1
ARL for TBC Dep. of A&F, Australia	S/SE Asia IC	China							1
IVRI, India	S/SE Asia IC	Nepal							1
ARRIAH, Russia	S/SE Asia IC	China							1
OIE RL Influenza, China	S/SE Asia IC	Vietnam							1
AAHL, CSIRO, Australia	S/SE Asia IC	Cambodia	Indonesia	Laos	Malaysia	Philippine	Thailand	Vietnam	7
East Asia NIAH, Thailand	S/SE Asia IC	Cambodia	Indonesia	Laos	Malaysia	Philippine	Vietnam	Nepal	7

Annex 11: Third Laboratory Directors' Forum Meeting, Kuala Lumpur, Malaysia, 18 Oct, Conclusions and Recommendations

1. The Third Laboratory Directors' Forum Meeting was jointly organized by Department of Veterinary Services Malaysia, Food and Agriculture Organization of the United Nations (FAO) and World Organization for Animal Health (OIE) on 18 October 2011 in Kuala Lumpur, Malaysia. The meeting was attended by 35 participants from Cambodia, Lao PDR, Malaysia, Myanmar, Thailand and Viet Nam, National Institute of Animal Health (NIAH) Japan, Australian Animal Health Laboratory (AAHL), OIE and FAO.

2. The Forum welcomes new members from China, Indonesia and Philippines.

Recognizing that:

3. National animal health laboratories are essential to support disease surveillance programs that will enable the countries to early detect infectious diseases and timely respond to them.

4. Regional Laboratory Network is a coordinating platform for the national veterinary diagnostic laboratories of the region to promote the harmonization and to enhance laboratory capacity and standards for the diagnosis of Transboundary Animal Diseases (TADs) and Emerging/Re-emerging Infectious Diseases (EIDs).

5. The Laboratory Directors' Forum Meeting provides a platform to discuss regionally relevant problems and issues among national animal health laboratories of China, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam.

Recommendations

6. The Laboratory Directors' Forum Meeting agreed to coordinate laboratory capacity building activities under the revised Regional Framework for Animal Health Laboratory Capacity Building and Networking in Asia. Thailand will present this Regional Framework to the ASEAN Sectoral Working Group on Livestock (ASWGL) during the next meeting. The Laboratory Directors' Forum Meeting agreed that:

a. Both policy and technical focal points would enable the group to operate most effectively
b. Development of a monitoring and evaluation structure based upon laboratory function could aid in overall evaluation of laboratory services

7. This meeting focused on three priority diseases; CSF, FMD and HPAI; however, other diseases such as rabies, PRRS, Newcastle disease, hemorrhagic septicemia and brucellosis should be addressed in future meeting.

8. The roles and responsibilities of the regional leading laboratory for CSF (RAHO6 – Viet Nam), FMD (RRL – Thailand), and HPAI (VRI – Malaysia) were presented. While the FMD leading laboratory is also an OIE Reference Laboratory with established TORs, the Laboratory Directors' Forum Meeting agreed on the TORs presented by the leading laboratories for CSF and HPAI.

9. There should be ongoing personal communication among members of the laboratory network in order to share information and early warning. For example, specific group discussion forum can be created using FAO's EMPRESi-Asia.

10. The Regional Guiding Principles for Animal Influenza Diagnosis were revised and agreed upon in 2010. The Regional Guiding Principles for FMD and CSF diagnosis will be finalized and distributed by the leading laboratories for comments.

11. Develop a sample referral protocol for confirmation and/or characterization of agents of priority TADs that allows shipment to regional leading laboratories and international reference laboratories in collaboration with the Forum members, FAO and OIE.

12. The Laboratory Directors' Forum Meeting supports regional quality assurance scheme by promoting the use of Regional Guiding Principles for Animal Influenza, and FMD and CSF when guidelines are available.

13. The Laboratory Directors' Forum Meeting will be held annually with participation from ASEAN member countries and China.

14. NIAH Japan and other relevant organizations should be invited to attend the next meeting as observers under host country consideration.

15. The 4th Laboratory Directors' Forum Meeting will be held in Viet Nam in October 2012.

16. The Laboratory Directors' Forum Meeting participants will advise relevant authorities in support of the meeting recommendations

Annex 12: Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific, Kuala Lumpur, Malaysia, 19-21 Oct report





Meeting on Laboratory Strengthening for Emerging Infectious Diseases in Asia Pacific Region

19 - 21 October 2011

Kuala Lumpur, Malaysia







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Acronyms

AAHL	Australian Animal Health Laboratory (Australia)
ADB	Asia Development Bank
AH	Animal Health
AMR	Antimicrobial Resistance
APSED	Asia Pacific Strategy for Emerging Diseases
APSED TAG	Asia Pacific Strategy for Emerging Diseases Technical Advisory Group
APL	ASEAN+3 Partnership Laboratories
ASEAN	Association of Southeast Asian Nations
ASF	African Swine Fever
AusAID	Australian Agency for International Development
EPT	USAID Emerging Pandemic Threat programme
EID	Emerging and Re-emerging Infectious Disease
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot and Mouth Disease
HPAI	Highly Pathogenic Avian Influenza
HPED	Highly Pathogenic and Emerging Diseases
IHR	International Health Regulations 2005
IPC	Infection prevention and control
MOU	Memorandum of Understanding
NHP	Nonhuman Primate
NIAH	National Institute of Animal Health (Bangkok, Thailand)
OIE	World Organization for Animal Health
PCR	Polymerase Chain Reaction
PH	Public Health
PRRS	Porcine Reproductive and Respiratory Syndrome
PSVS	OIE Programme to Strengthen Veterinary Services
PT	Proficiency Testing
PSVS	Programme for Strengthening Veterinary Services
PVS	Performance Veterinary Service
RAP	Regional Office for Asia and the Pacific
RRL	Regional Reference Laboratory
SEA	Southeast Asia
SPF	Specific pathogen free

TADs	Transboundary Animal Diseases
USAID	United States Agency for International Development
US-CDC	United States Centers for Disease Control
WHO	World Health Organization

Executive Summary

This meeting was organised collaboratively by FAO/OIE/WHO and represented the first cross-sectoral meeting to discuss laboratory-specific issues in the region. The meeting was opened jointly, and presentations included a key note speech from Prof. Kida of Hokkaido University, followed by a brief overview from each of the international organizations on their approach to laboratory strengthening in the region (FAO – Regional Strategy on Emerging Diseases, OIE – PVS Pathway, WHO-WPRO – APSED). After this joint opening, participants attended their respective AH and PH laboratory meetings through and joined together again on the third day for information sharing on One Health, cross-sectoral group work and the meeting closure.

AH Laboratory Meeting: Building upon the FAO/OIE Sub-Regional Laboratory Network targeting HPAI in Southeast Asia, for which annual meetings were supported to discuss technical and policy issues related to HPAI, the scope of this network was expanded to more broadly address the enhancement of laboratory capacity and harmonization of regional guidance with international standards for transboundary animal diseases (TADs) and emerging infectious diseases (EIDs) following recommendations from the final meeting in 2010. The AH specific meeting was divided into five sessions as follows; 1) Update of activities from network laboratories, 2) Strategic planning, 3) Quality assurance, 4) Biosafety and 5) Occupational Health and Safety. Each session was opened with a presentation or poster review followed by group work and panel discussions to develop conclusions and recommendations from the meeting. The outcomes of the AH component included: advocacy for laboratory strategic planning and improving laboratory safety, and recommendations to consider conducting formal Risk Analysis for health and safety in pilot national animal health laboratories, and to expand regional proficiency testing efforts to include rabies, Nipah virus and African Swine Fever (ASF).

PH Laboratory Meeting: Regional efforts for PH laboratories are supported by the draft five-year work plan under the 2010 Asia Pacific Strategy for Emerging Diseases (APSED) agreed in May 2011 and the recommendation from the Technical Activity Group Meeting (TAG; July 2011) that WHO and Member States continue to build capacity in the area of laboratories. Laboratory strengthening for EIDs is envisioned to build capability at the country level and for the Region to detect known pathogens and identify unknown/novel pathogens for early alert of potential emerging disease and outbreak events. This system is underpinned by public health diagnostic laboratories supported by reference laboratories, and national and regional networks that address critical issues such as biosafety and external quality assurance. Meeting outcomes highlighted the potential benefits of the public health laboratory system and possible configurations of such at the country level. This meeting represents a first step to the approach for implementing the laboratory work plan and helped to develop the way forward for establishing/improving public health diagnostic laboratories in countries, organizing regional external quality programs for dengue, building capacity in biosafety, as well as identifying potential opportunities where joint activities with animal health could be conducted.

Joint AH-PH Assembly: On the third and final day, the individual AH and PH meetings concluded and all participants came together for the joint AH-PH assembly, Brief summaries of the AH and PH meetings were provided followed by an introduction to the group work. Under a One Health approach, four topics were addressed by the groups: 1) Biosafety, 2) Standard Assays and Reagents for Priority Zoonoses, 3) Guidelines for Joint Laboratory Investigation, and 4) Information Sharing. The groups were selected to represent both AH and PH participants from predefined countries, and were facilitated by a member of the meeting secretariat or partner institutions. There was enthusiastic participation from both sectors in the groups with good interaction; participants appeared to appreciate the opportunity to engage with their colleagues from different sectors. In addition to identifying challenges faced by the laboratories regardless of sector, as well as barriers to AH-PH collaboration, each group also proposed solutions using examples and developed recommendations for AH-PH collaboration in laboratory development.

The afternoon session continued with presentations relevant to AH-PH collaboration under a One Health approach including: Sharing of Information (4-Way Linking Project), Laboratory support for wildlife disease surveillance and investigation, and AMR and Laboratory networking (IDENTIFY).

Key recommendations from the Joint AH-PH Assembly included:

- Establish and operationalize a formal mechanism for collaboration between AH-PH and wildlife
- Advocate for national policy to support One Health approaches
- Implementation of joint capacity building following AH-PH recommendations on topics such as risk assessment; biosafety; and quality management, including EQA
- Create opportunities to sustain linkages across AH, PH and wildlife stakeholders

The meeting secretariat unanimously agreed that meaningful cross-sectoral interactions benefitted the overall regional approach and would be supported where possible in future network meetings.

1. Background

A large proportion of new, emerging, or re-emerging diseases affecting humans in recent years have originated in animals, revealing the vulnerability of an increasingly interconnected world to the global impact of new emergent diseases. The speed with which diseases can emerge and spread presents serious public health, economic, and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in geographic areas where disease threats are likely to emerge.

Recognizing this need, USAID has launched the EPT Program that seeks to aggressively pre-empt or combat diseases that could spark future pandemics; the IDENTIFY project is a component of this program that is focused on laboratory capacity building, strengthening and creating new linkages across existing networks. The ultimate aim of the five-year IDENTIFY project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting on animal diseases and unusual epidemiological events or emerging diseases as required by the OIE Terrestrial animal Health Code, and investigating events of potential international public health concern and reporting to WHO as required by the IHR.

The Regional Collaborative Programme on highly pathogenic emerging diseases (HPEDs) supported by the EU has established the Regional Support Unit and the Regional Epidemiology Network, and also provides support to the Regional Laboratory Network in association with ASEAN. These technical units are expected to provide additional support to the surveillance, diagnosis and control of HPEDs for ASEAN and its member states in a sustainable manner in the future.

Using the One Health Approach, FAO, OIE, WHO are coordinating global and regional activities to address health risks at the human-animal-ecosystems interface through multi-sectoral cooperation and strong partnership. The basis of this cooperation was further strengthened with the issuance in April 2010 of the Tripartite Concept Note of the FAO/OIE/WHO collaboration in “sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces”.

Broadly, the Meeting on Laboratory Strengthening for EIDs for the Asia Pacific Region was organised to initiate closer working relationships between staff of the AH and PH laboratories. Representatives from leading laboratories of both AH and PH sectors from all countries in South East Asia, plus China, Japan, Korea and Australia were invited to participate in both joint and sector-specific sessions for AH and PH. The meeting was supported by the USAID-IDENTIFY project, and the HPEDs project funded by the EU.

The AH Laboratory Meeting builds upon the FAO/OIE Sub-Regional Laboratory Network targeting HPAI in Southeast Asia for which annual meetings were supported to discuss technical and policy issues related to HPAI. The scope of this network was expanded following recommendations from the last meeting in Ipoh, Malaysia in October 2010, to

more broadly address the enhancement of laboratory capacity and harmonisation of regional guidance with international standards for transboundary animal diseases (TADs) and emerging infectious diseases (EIDs).

The PH Laboratory Meeting followed the recommendation that WHO and Member States continue to build capacity in the area of laboratories (Technical Activity Group (TAG) Meeting, July 2011) under the 2010 Asia Pacific Strategy for Emerging Diseases (APSED) work plan for laboratories agreed in May 2011.

2. Objectives

1. To provide a forum for animal and public health laboratory staff to engage with their peers in issues related to laboratory diagnosis and investigation
2. To reach agreement on the Regional Framework for Animal Health Laboratory Capacity Building and Networking
3. To introduce concepts and receive updates from partners on progress in areas of policy, strategic planning for laboratories, biosafety, occupational health and safety, as well as the use of a Quality Management systems as an overall guiding structure
4. To identify list of priority zoonoses
5. To identify areas for collaboration between animal health and public health based on the list of priority zoonoses

3. Expected Outcomes

1. Case materials and experience on technical issues related to laboratory diagnosis and field investigation shared
2. Regional Framework for Animal Health Laboratory Capacity Building and Networking agreed
3. Progress regarding Animal Health laboratory policy issues at the national level and progress toward strategic planning demonstrated
4. Areas for collaboration between regional laboratory networks across human and animal health identified or strengthened

4. Participants

A total of 44 participants participated in the AH Meeting including laboratory directors and technical representatives from national animal health and leading laboratories from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Viet Nam; AAHL, Japan National Institute of Animal Health, FAO, OIE and USAID (ANNEX 2).

A total of 46 participants participated in the PH Meeting including national public health laboratories representatives from WHO-WPRO countries and APL and representative from ASEAN secretariat (ANNEX 3).

5. AH-PH Joint Opening Session

5.1 Dr Corinne Capuano WHO Representative for Brunei Darussalam, Malaysia and Singapore

The opening remarks from Dr Shin Young-soo, WHO Regional Director for the Western Pacific, were delivered by Dr Corinne Capuano, WHO Representative for Brunei Darussalam, Malaysia and Singapore. Dr Capuano welcomed participants to the Meeting on Laboratory Strengthening for Emerging Infectious Diseases in the Asia Pacific Region. She expressed appreciation to the Government of Malaysia for hosting the meeting and noted that Malaysia was the lead country for the ASEAN Plus 3 Partnership Laboratories (APLs).

She emphasized that countries needed to have access to safe and accurate laboratory services to facilitate the early detection, tracking and monitoring of infectious agents and to support alert and response activities under the IHR. And, highlighted the importance of the WHO and ASEAN collaboration in achieving this objective and noted that both WHO and ASEAN agreed to synchronise their work plans earlier in the year. A five-year Asia Pacific Laboratory Action Plan for EIDs was therefore developed to strengthen laboratory capacity particularly at the sub-national level with the establishment and enhancement of public health diagnostic laboratories close to the front-line. In support of the Plan developed in 2011, the APSED TAG, recommended that Member States develop laboratory capacity to undertake early detection of known and novel pathogens to support public health risk assessment and response.

She remarked that this is the first time, animal health and human health have come together at a regional level to discuss laboratory issues. FAO, OIE and WHO have established a good working relationship at the regional level and the long-standing relationship between WHO and ASEAN is even stronger.

She acknowledged the support of partners including the Asian Development Bank, AusAID, the Canadian International Development Agency, the Government of Japan, USAID, and the US-CDC and Prevention in emerging infectious disease capacity-building efforts under APSED.

5.2 Dr Subhash Morzaria, Regional Manager, FAO Regional Office for Asia and the Pacific

Dr Subhash Morzaria noted that the emergence of a series of infectious diseases in the region that include Nipah Virus infection, SARS, HPAI, pandemic H1N1 influenza, FMD and PRRS continue to cause high morbidity and mortality in animals and humans, threatening food safety and security and livelihoods and well-being of people in Asia.

He noted that the drivers of emergence of diseases are becoming clear and their control is a complex problem and no one institution has the capacity to address this in isolation. There is

no doubt that emerging diseases contributed significantly to enhanced collaboration among the three international organizations (FAO, OIE and WHO). FAO has worked closely with OIE and WHO to develop a formal collaborative mechanism which is now referred to as FAO/OIE/WHO regional tripartite arrangement. This arrangement is now thriving in the region, and a number of joint initiatives have been launched to promote collaborative activities under the overall umbrella of One Health. Recently the three organizations have produced a tripartite document which articulates how these organizations will share responsibilities and coordinate global action to address high impact emerging and re-emerging infectious diseases at the animal-human and ecosystems health interfaces. Enhance greater collaboration between sectors, FAO, OIE and WHO in collaboration with ASEAN have organized this meeting which involves participation from both animal and human laboratories in the region.

Finally, the objectives of the meeting are to provide a forum for interaction between the experts from national medical and veterinary laboratories, develop an agreement on regional framework for animal health laboratory capacity building, identify gaps in biosafety, occupational health and quality management in laboratories, identify priority zoonoses in the region and explore areas of joint collaboration between the animal and human health laboratories.

5.3 Dr Ronello Abila, Sub-Regional representative for South East Asia, OIE

Dr Abila noted that this is the first official joint meeting of the human and animal health laboratories in the ASEAN region and this meeting is part of the global efforts to strengthen collaboration of the human, animal and environmental health sectors implementing the One Health approach.

He said that at the global level, collaborations among the FAO, OIE and WHO had started long before the official recognition of One Health as a concept. He highlighted the importance of the Tripartite Concept Note issued by FAO, OIE and WHO on "Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces." This Tripartite Concept Note provided clear guidance to ensure better collaboration in the implementation of future joint activities of the three organizations. Specifically on laboratory collaboration the Tripartite Concept Note states that: "A joint framework to address gaps and strengthen collaboration in human and animal health laboratory activities should be developed. The framework should cover the upgrading of facilities, training and collaboration between regional and international reference laboratories for diagnosis and quality assurance. The framework should also promote cooperation between human and animal surveillance systems in analysing available evidence and evaluating responses and the timely sharing of comparable epidemiological and pathogen data across the relevant sectors."

5.4 Dr Ferdinal Fernando, Assistant Director, Health and Communicable Disease Division, ASEAN Secretariat

Dr Ferdinal Fernando noted that collaboration between ASEAN and WHO can be traced back to 1979 when WHO first extended assistance to the ASEAN Technical Cooperation Programme in pharmaceuticals. The collaboration was formalized in 1997 through the signing of an MoU between the two organisations for the period of five years 1997-2002. He noted that two further MoUs have been signed since then covering the periods 2002-2007 and 2009-2013, and that a review of the implementation of the 1999-2002 MoU had been held in 2003. The most recent MoU and detailed action plans further support the Health Minister-endorsed Strategic Framework on Health Development.

Taking into consideration ASEAN's Charter and Socio-Cultural Community Blueprint, ASEAN's medium term strategic plan and the WHO Country Cooperation Strategies, both organizations have identified areas for collaboration, prevention and control of communicable diseases, including new, emerging and re-emerging diseases; prevention and control of non-communicable diseases with special emphasis on their common risk factors and healthy lifestyles promotion; health systems strengthening, including primary health care; food security, food safety and nutrition; health effects of climate change and the environment; emergency preparedness and response; globalization and trade and their impact on health, including access to medicines and essential technology; and traditional medicine.

5.5 Dr Hasan Bin Abdul Rahman, Director General of Health Malaysia

Dr Hasan Bin Abdul Rahman welcomed the meeting participants to Malaysia. He said that the need for such “joint meetings” cannot be over-emphasized, considering the fact that 61% of all known pathogens to man are of animal origin. He noted that the Asia Pacific region, home to more than half of the world's population, has been an epicentre for emerging infectious diseases such as the novel Nipah Encephalitis, Avian influenza A(H5N1) and recently, the pandemic influenza A(H1N1). As EIDs that happen in one country can rapidly spread to another, it is imperative that we find out as much as we can of the disease in the shortest time possible. Thus, laboratories must be strengthened so that they can quickly detect EIDs caused by known pathogens and also possess the capability to identify unknown or novel pathogens. He said, "We recognize the fact that in the Asia Pacific region, laboratory capacities and capabilities vary within and between the countries. And it is precisely here that we need to strengthen the laboratory network within the country and build a regional laboratory network among the Asia Pacific countries."

He noted that within the country, the PH Laboratories should come together with laboratories from other Ministries as well as from the universities, research institutions and private laboratories, to form a network of animal-human laboratories to optimize resources and increase efficiency and capacity of diagnoses. The same holds for the ASEAN region as exemplified by the establishment of the APLs in 2005. In the coming ASEAN Medium-Term Plan (2011-2015) on EIDs, these APLs will coordinate high-end pathogen identification and characterization, regional quality assurance and collaborate on regional biosafety, research

and development. He was proud to note that Malaysia is entrusted with the responsibility to coordinate strengthening of laboratory capacity and quality assurance among member states.

He highlighted the importance of WHO and ASEAN agreeing to synchronize laboratory activities and as far as possible, build on existing structures for the next five years in line with APSED 2010. Dr Hasan Bin Abdul Rahman said that on the home front, it is his vision to see the National Public Health Laboratory of Malaysia playing an expanded role as WHO Reference Laboratory, servicing the increased national and regional demands for high end diagnostic requirements of EIDs. And he requested WHO to assist Malaysia in this quest. In addition, the Ministry of Health Malaysia offered laboratory technical assistance to Member States, in the form of training and technical expertise.

5.6 Keynote lecture: How to control avian and human pandemic influenza? Professor Hiroshi Kida, Director, Research Center for Zoonosis Control, Hokkaido University Research Centre for Zoonosis Control, Sapporo

Professor Kida described the ecology of influenza viruses in nature, birds and mammals; the origin, evolution, and perpetuation of influenza virus in nature; the emergence of highly pathogenic avian influenza virus and human pandemic strains. He presented the occurrence of influenza in ducks and noted that each of the known subtypes (H1-16, N1-9) of the influenza A virus has been isolated from ducks and non- pathogenic virus transmission occur through water-borne faecal-oral ingestion. Ducks carry the viruses during migration making the migratory duck a natural host of influenza A viruses. He also highlighted the role of pigs in the emergence of pandemic influenza virus strains, particularly with reference to re-assortment.

He presented the global overview of H5N1 HPAI in poultry and wild birds, and of confirmed human cases of H5N1 avian influenza. He noted that HPAI transmission had occurred in 15 countries with a total fatality of 331 cases of a reported 565 cases. Most affected people were reported from 4 countries; China, Egypt, Indonesia and Viet Nam. Influenza vaccine for bird flu may prevent manifestation of disease signs but does not confer protective immunity from infection. Countries where vaccine is used are not designated as HPAI-free as vaccination leads to silent spread of virus. The updated recommendations from the 26th Conference of the OIE Regional Commission for Asia, the Far East and Oceania considered that the long persistence of HPAI H5N1 in domestic poultry and antigenic variants circulated mainly due to the misuse of vaccine. He noted that stamping out policy is the most effective measure for the control of HPAI. Vaccines should be used in addition to, not instead of "stamping out." Surveillance of swine flu is crucial in the countries where avian flu has not been controlled.

In conclusion, eradication of the H5N1 HPAI from poultry in Asia should be an urgent need; elimination of H5N1 in poultry should use “stamping out” and a cautious use of vaccines where vaccines are used. He noted that measures for pandemic influenza control should be based on the measures for the control of seasonal influenza.

6. Animal-Health Laboratory Meeting

The AH Laboratory Meeting was divided into sessions as follows; 1) Update of activities from network laboratories, 2) Strategic planning, 3) Quality assurance, 4) Biosafety and 5) Occupational Health and Safety. Each working session was opened with a presentation or poster review followed by group work and panel discussions to develop meeting conclusions and recommendations.

6.1 Introduction and Update From Network Laboratories

This session opened with presentations from the three new additions to the laboratory network (China Animal Health and Epidemiology Centre, Langzhou Veterinary Research Institute and Yunnan Animal Science and Veterinary Institute) introducing their institutes and activities. The remainder of the time was dedicated to a poster session for networking and information sharing with posters from each institute prepared for the meeting.

Additionally, potential opportunities for information sharing and collaborations were discussed:

Offers to assist other laboratories:

- Various diagnostic techniques for terrestrial diseases such as FMD, PRRS, AI, CSF, PPR, ND, BSE, HS, swine and avian pasteurellosis, bluetongue,brucellosis, leptospirosis, parasitic diseases and encephalitis syndrome
- Various diagnostic techniques for aquatic diseases such as WSSV, YHCV, TSV, IMNV, MBV, NHP, Vibriosis, SVCV, KHV.
- More general techniques including pathology, necropsy, serology
- In-house protein based diagnostic kit development for ELISA; WB and serological assays; FMD C-ELISA; MagMAX™ Express and Real Time Fast PCR.
- Confirmatory testing for FMD, NDV virus typing and subtyping and also other diseases by IHC or electron microscopy.
- Assistance with molecular epidemiology methods for various transboundary diseases in Asia.

Offers to share reagents, primers, probes and reference RNAs, in-house biological products, control material, vaccines and protocols including for diseases such as NDV and FMD and techniques.

Needs/requests for collaboration:

- Sharing reagents, control material, new diagnostic techniques protocols for the existing diseases as well as new and emergency diseases
- Training on diagnostic techniques including *in situ* hybridization, reverse genetics, bioinformatics and phylogenetic analysis and vaccine development , equipment maintenance and calibration

- Expertise, technology, facilities and maintenance for biosafety, biosecurity BSL-3, BSL-3 construction and maintenance; preparation of quality and biosafety manuals
- Laboratory information systems
- Provision of real time PCR instruments, reagents and kits
- Equipment maintenance including calibration
- Quality Assurance including EQA
- Sharing of molecular sequencing and analysis capability
- Sharing of virus strains and epidemiological information from neighbouring countries
- Workshop on ISO 17025 in preparation for eventual accreditation
- Assistance with attaining as OIE Reference Laboratory status

Conclusion

Offers of expertise/strengths from member countries in which they could assist/collaborate with other laboratories in the region exceeded requests for assistance suggesting that there is a good base of expertise in the region which could be better utilized in collaborations.

6.2 Strategic Planning

This session began with a presentation from Dr Andrew Davis from OIE on Strategic Planning for National Animal Health Laboratories in the Southeast Asia Region. This presentation covered aspects such as basic definitions, benefits of strategic planning in the laboratory context, suggested steps and the process of developing a strategic plan and the current situation in the region in regard to laboratory strategic planning. The planned OIE activities in this area were introduced including the Workshop on Animal Health Laboratory Strategic Planning to be held in Melbourne in March 2011 with follow up missions to enable pilot countries to instigate and/or further develop strategic plans, as well as the OIE pilot of laboratory focal points and development of the PVS Laboratory Technical Follow-up Missions.

Group Work elaborated the current situation in the represented laboratories as well as strengths, weakness and suggested activities to improve the situation. The key outcomes of the group work in this session include:

1. Many countries within the region do not have strategic plan specific for the national animal health laboratory or the national system of laboratories, nor do they have any official strategic planning initiative or currently have a plan to develop one. Some countries have to medium (e.g. annual planning) operational plans with some strategic elements but longer term planning is lacking.
2. While there has been some development, this, in most cases, is only a vision statement. Goals and mandates are established under the governments' policies, but only put in place at the laboratory level by the initiative of the Laboratory Director. In some cases, there is well-developed strategic planning for the overall Veterinary Services but this does not always extend down and engage the laboratories.

3. Most countries have a similar system of laboratories where sub-national laboratories refer sample to the national reference laboratory and technical assistance provided to the country's regional diagnostic labs. National reference laboratory can refer sample to OIE reference laboratories; countries collaborate with international reference laboratories.
4. Overarching policies that may provide guidance to laboratory operation and development within countries in the region include:
   - Protection of animal industry
   - Food safety and security
5. Most countries participating in the group work identified a need to develop a strategic plan for the national animal health laboratory.
6. Barriers to development of strategic plan include:
   - Limited capacity/lack of experience and knowledge about strategic plan development
   - Human resource management may be beyond the control of the director
   - There is a lack of continuity of programs due to changing priority of policy maker or changing policy makers
   - Lack of incentives
   - Limitations of human resources to dedicate to strategic plan development (competing priorities)
   - High staff turnover rate
7. Proposed activities that partners may assist to facilitate the development of a strategic plan in the regions included:
   - Provision of consultants to assist in the development of laboratory strategic plan for each country including meetings with stakeholders
   - On-going advocacy for the significance of laboratory and laboratory strategic plan
   - Support from OIE, as well as other partners (eg AAHL, FAO, JICA, WRL), for workshops and follow-up country missions to assist in the development of laboratory strategic plans and advocate for their importance. In parallel: OIE should communicate with OIE Delegate on the initiative to gain buy-in at policy levels
8. Laboratory Director should also communicate with OIE Delegate and leadership to gain buy-in at policy levels

6.3 Quality Assurance

The session began with a presentation from Dr Gemma Carlile, laboratory expert from AAHL, on the current and past regional PT activities covering HPAI, CSF and PRRS. The general goals of regional proficiency testing programme were to assure that result from the laboratory can be relied on as correct and to provide reference data for each national laboratory to identify and solve systematic and random error in testing procedure. OIE, through the PSVS, supported round four of PT for HPAI. Current regional PT programme

covering HPAI, CSF and PRRS is being supported by FAO under the IDENTIFY project of the USAID EPT programme.

The latest round of PT for HPAI showed varied results, and discussion amongst the group identified significant differences in diagnostic approaches. Review and update for the Regional Guiding Principles for Animal Influenza Diagnosis is recommended before the next meeting. The majority of the laboratories providing results for PRRS PT were able to correctly identify the Chinese strain, although the North America strain of PRRS virus was detected by only some of the laboratories. The majority of laboratories were not able to correctly identify the CSF virus by PCR assay. Follow up visits by team of laboratory experts to each participating laboratories should help identify and solve these problems.

Group discussion on PT identified support to improve and sustain proficiency testing activities including training, supply of reagents and diagnostic guidelines (ANNEX 4). It was agreed that OIE laboratory focal point could also act as focal person to coordinate proficiency testing activities within each country and the regional.

6.4 Biosafety

Dr Chua Teck Mean, executive committee of the Asia Pacific Biosafety Association (APBA) presented summary of observation and risk assessment missions to eight animal health laboratories in South and Southeast Asia. In general, most of the laboratories visited were aware of the importance of biosafety and biosecurity but lacks the resources and support to provide a sustainable biosafety management programme that includes training, appropriate primary containment equipment and adequate biocontainment facilities to handle infectious materials as national reference laboratories for infectious diseases. With the exception of Malaysia and Thailand, many of the reference laboratories were not very busy and sample volumes were low. This may be a reflection of the lack of active or passive animal disease surveillance programs and the difficulty and inability to collect and transport samples from the field to these central laboratories within a reasonable period that will not deteriorate the condition and quality of the samples. Most institutes were handling almost all pathogens at a very basic biosafety level 2 because they lacked any other facilities, safety equipment or personal protective equipment. This is mostly appropriate for the majority of institutes and pathogens being handled.

The biosafety cabinets certification testing in these laboratories were also carried out by two team of NSF49 Accredited Field Certifiers with certified (calibrated) testing equipment. In general, the percentage of biosafety cabinets tested that failed is 30.8% for the 39 units tested.

Group discussion on biosafety identified challenges and suggested solution for improving laboratory facility, engineering and management as well as improving technical knowledge in biosafety and laboratory management in general (ANNEX 5).

6.5 Occupational Health and Safety

Dr Gliceria Derrota presented Issues on Health and Safety in Laboratories as an introduction to the session. The initial part of the presentation focused on the definition of Occupational Health and Safety and recognition and identification of Hazards. Occupational Health and Safety has been defined, as the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations. The opportunity to learn about risk assessment was also highlighted during the presentation to give the participants understanding and knowledge on how to conduct risk assessment in their workplace. The later part discussed a Good Safety Management System, which emphasize the establishment of a health and safety policy of every workplace.

Group discussion followed this presentation with representatives requested to determine the current health and safety situation in their respective workplaces. The key hazards for identification and further discussion included physical hazards; mechanical and ergonomic hazards; psychosocial hazards; and chemical and biological Hazards. The participants were encouraged to share their thoughts about these hazards that might be found in their workplace.

7. Joint Animal-Health and Public-Health Laboratory Meeting

7.1 Group discussion

Participants were divided into four groups comprising cluster of countries with both AH and PH representatives (ANNEX 6). Each group, facilitated by a member of the meeting secretariat or partner institutions, discussed a set topic and participants were asked to take a One Health approach in discussing the following topics; 1) Biosafety, 2) Standard Assays and Reagents for Priority Zoonoses, 3) Guidelines for Joint Laboratory Investigation, and 4) Information Sharing (ANNEX 7). There was good participation from both sectors in the groups with active and engaging discussion and participants enjoyed interacting with their colleagues from different sectors.

Group 1 members comprising participants from China, Lao PDR and Mongolia discussed the issue of laboratory biosafety. Challenges for laboratory biosafety in human health and animal health sector identified included:

1. Lack of policy on laboratory biosafety. In order to overcome this challenge, initiatives should begin at technical level including acknowledging the risk of disease outbreak, increasing public awareness and implementation incentives.
2. Lack of technical, facility, engineering, support. Each laboratory needs to plan and adequate budget allocation of for the maintenance of biosafety facility.
3. Environmental issues, particularly waste management. Most countries have public health policy (regulations) to manage waste from public health laboratories; however, in many cases this does not include waste from animal health laboratories.
4. Lack of risk assessment capacity. There is a need for further training on risk assessment including practical guidance for general laboratory protocols and

continuing education of 1 engineering staff on maintenance, monitoring and evaluation of biosafety equipment and facilities.

5. Calibration and certification of biosafety cabinets. Only one laboratory had an allocated budget for routine certification and maintenance of biosafety cabinets in a BSL3 laboratory. However, even where budget was allocated, there may not be service available in some countries. One possible approach identified is to form a group of laboratories, which can contract a company to provide routine maintenance, spare parts and certification. Access to appropriate standard specifications of safety cabinets and examples of maintenance contracts would also be useful.

Group 2 members comprising participants from Brunei, Cambodia, Philippines and Viet Nam discussed challenges and Standard Assays and Reagents for Priority Diseases.

The group identified the EQA programs implemented for human health and animal health disease diagnosis (avian influenza, rabies, brucellosis, leptospirosis and tuberculosis -Bovine) and discussed the range of standard assays/protocols for diagnosis of these diseases. Three major challenges were identified in implementing proficiency testing programmes:

1. Finances: lack of budget for laboratory equipment and reagents
2. Regulations: lack of policy and standards
3. Some laboratory supplies not locally available

Participants shared their experiences on sharing of reference reagents. Within the AH sector, reference materials are shared within the countries and across the region. However, there is no practice for sharing between the AH and PH laboratories except in Brunei. The group highlighted a need to institutionalise collaboration among PH and AH (including wildlife health) within countries and link a joint laboratory network with a national coordinating committee/ task force.

The PH sector has agreed to set up an integrated laboratory system among PH laboratories. It is recommended that the AH sector also set up a similar system and create linkage with the PH laboratory system.

Group 3 comprising participants from Thailand, Myanmar, Singapore and Korea discussed Guidelines for Joint Laboratory Investigation.

The participants discussed and identified the major barriers for joint investigation between AH and PH sectors. These included:

1. Harmonisation of testing protocols for human and animal samples especially where there is high background signal in animal samples
2. Crisis-driven coordination where coordinating mechanism are put in place only for the duration crisis
3. Gaps in crisis communication - who and when to contact
4. Imbalance of human recourses between AH and PH sectors.

It was identified that crisis-driven events led to mechanisms for improved communications and work relationships including setting up of cross-sectoral rapid response teams; regular cross-sectoral meetings; multi-agency prevention and control coordination; high level of political support; joint public communication with a consistent public message; and leverage of existing outreach networks and recourses. However, sustainability of this coordination was drawn into question.

Participants recommended supporting and sustaining the structures and mechanisms developed during crisis-driven events in "peace time" through regular refresher training; joint risk analysis and research; establishing joint polices e.g. National One Health Platform; and formalize working level communications to strengthen communications and data sharing

Group 4 comprising participants from Indonesia, Japan, Malaysia and the ASEAN secretariat discussed Information Sharing. The group agreed that linkage between AH and PH risk assessment would support information sharing.

In Indonesia, there is no mechanism for cross-sectoral information sharing currently in place; however, information is shared through professional association meetings. In Malaysia, there are inter-ministerial meetings with established joint committee. In Japan, each department work independently and only share information at the ministry level. There is no routine sharing of information between AH and PH in Indonesia and Malaysia, whilst in Japan there is annual sharing of avian disease control information through a joint AH-PH committee.

Bureaucracy and limited inter-ministerial communication and coordination were identified as major barriers for information sharing. A standard database system between the two sectors may help facilitate information sharing at minister level. Regional meetings and scientific conferences can bypass national bureaucracy and facilitate information sharing among countries in the region.

7.2 Examples of Animal Health and Public Health Collaboration

The afternoon session involved presentations as examples and potential areas for AH-PH collaboration under the One Health concept including:

7.2.1 Sharing of Information (4-Way Linking Project) presented by Dr Filip Claes from FAO HQ, Italy.

The four-way linking project is a collaborative effort among WHO, FAO, OIE, OFFLU and GLEWS to improve national, regional, and global qualitative risk assessments for animal and zoonotic influenza. This framework seeks to establish a mechanism for routine integrated qualitative assessment of virological and epidemiological influenza data from humans and animals with the view to provide information to decision makers in a variety of settings. Information from such risk assessments can then be used to develop and implement new

scientifically based measures to prioritise and manage or control the risks identified, as well as evaluate the effects of those measures already in place.

This project is expected to improve the linkage between human and animal influenza epidemiological and virological (including sequence analysis) information. Moreover the regular process of risk assessment proposed will also increase the awareness and understanding of the technical staff involved in the process, as well as that of stakeholders and decision makers receiving the information. At global level the project aims to develop a standard mechanism for joint qualitative risk assessment of linked data for zoonotic influenza. Country level implementation will be in partnership with Human and animal health institutes, and the respective ministries.

Joint FAO/WHO/ assessment missions visits took place to identify key partners, national initiatives, efforts, and operational tools and systems in place for epidemiological and virological surveillance for influenza in both the public and animal health sectors in Egypt and Viet Nam; OIE assisted in activities following the Egypt mission and joined the Viet Nam mission. The team assessed which systems for data collection, data traceability, exchange at epidemiological-virological interface, and reporting for influenza exist within the PH and the AH sectors were in place, and identified the major gaps and constraints to these systems.

7.2.2 Laboratory support for wildlife disease surveillance and investigation presented by Dr Joko Pamungus from Primate Research Center, Indonesia

Nonhuman primates (NHP) are similar to human in various aspects such as organs and physiological function, reproductive system, metabolic system and susceptibility to infectious pathogens. Many NHP show symptoms similar to what we see in human. Therefore, NHP provide for a suitable animal model for human diseases; however these attributes also make them a potential source of zoonotic disease. Various species of Old World monkeys (rhesus, macaques, baboon) and New World monkeys (marmosets, tamarins, squirrel monkeys, owl monkeys) have been used in biomedical research involving lentivirus, dengue virus and polioencephalitis virus. Lists of viruses to be excluded within specific pathogens free (SPF) colonies may differ from colony to colony, but standard requirements for NHP colony is freedom from *Mycobacterium tuberculosis.* Simian retrovirus is also commonly targeted for freedomrequiringregular surveillance in research NHP colony.

7.2.3 Antimicrobial Resistance presented by Dr CK Lee from WHO WPRO, Philippines

AMR has been a global concern; apart from causing death due to infection, AMR greatly increases the cost of medical care and challenges control of infectious diseases. About half of all antibiotics produced are used for farming. Reports indicate that 50% of human antimicrobial resistance is caused by growth promoters in livestock. Antimicrobial resistance in livestock also dropped dramatically after growth promoters were banned such as in Denmark.

The WHO Global Strategy for Containment of Antimicrobial resistance policy package to combat AMR involved:

1. commitment to comprehensive, financed national plan with accountability and civil society engagement;
2. strengthening surveillance and laboratory capacity;
3. ensuring uninterrupted access to essential medicines of assured quality;
4. regulation and promotion of rational use of medicines;
5. enhancement of infection prevention and control (IPC); and
6. Fosteing innovations and research for new tools.

7.2.4 Laboratory networking (IDENTIFY) presented by Dr Mia Kim from FAO HQ, Italy

The IDENTIFY project seeks to strengthen national laboratory capacity for rapid and accurate detection of known key pathogens, leading to faster identification of emerging pathogens, and appropriate handling of material from cases of unidentifiable diseases. FAO/OIE/WHO are jointly implementing the IDENTIFY project through their existing institutional frameworks, mechanisms and networks.

The ultimate aim of the five-year project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to OIE on listed animal diseases and unusual epidemiological events or emerging diseases, and investigating events of potential international public health concern and reporting to WHO as required by the IHR.

The strengthening of laboratory networks within and across sectors along with meaningful investments in regional and national capacity building should result in more accurate and timely identification of pathogens threatening animal and human health. To accomplish this outcome, the IDENTIFY project aims to provide sustainable inputs into: 1) the development of guidance and policy for national laboratories; 2) promoting laboratory quality (e.g. biosafety/biosecurity, quality assurance, accurate diagnosis, and specimen collection and handling and shipping); 3) strengthening laboratory capacity in support of surveillance and response; and 4) enhanced laboratory networking.

8. Conclusions and Recommendations

8.1 Animal Health Laboratory Meeting

The Animal Health Laboratory Meeting recognised:

1. The importance of good coordination and collaboration between the AH including wildlife and PH sectors following the ‘One Health’ concept, in order to improve the capacity of countries to detect and respond to new and emerging diseases.

2. That progress and achievement made under the FAO-OIE Regional Laboratory Network for Animal Influenza Diagnosis provides the basis for the onward development and expansion as the Regional Laboratory Network for Emerging Infectious Diseases Diagnosis in Asia Pacific region, under the overall framework of the FAO regional strategy for HPAI and EIDs of animals in Asia and the Pacific.

3. As evidenced through the poster presentation session, offers of expertise by member countries in which they could assist other laboratories in the region notably exceeded requests for assistance suggesting that there is a good base of expertise in the region which could be better utilised in collaborations.

4. Many countries within the region do not have strategic plans specific for the national animal health laboratory or the national system of laboratories, nor do they have any official strategic planning initiative or currently have a plan to develop one.

5. Barriers to the development of strategic plans for animal health laboratories include limited capacity/lack of experience and knowledge about strategic planning and the process of strategic plan development.

6. The results from OIE PVS Evaluations and Gap Analyses are critical inputs to the development of strategic plans.

7. All countries agree that regional proficiency testing programmes are useful as part of the laboratory quality system. There is a need for improved coordination of regional proficiency testing programmes; feedback on the outcome of the current regional proficiency testing programmes is needed to inform the overall approach for both participating laboratories and providers.

8. Key challenges in improving laboratory biosafety for facility management and engineering aspects include limited budget available for maintenance and equipment, personnel and technical expertise.

9. Occupational Health and Safety is an important issue in animal health laboratories and risk analysis is an important tool that should be employed on a regular basis in order to identify and address hazards to improve workplace safety and the health of laboratory staff.

The Animal Health Laboratory Meeting recommended:

1. Laboratory capacity building activities in the region be coordinated under the Regional Framework for Animal Health Laboratory Capacity Building and Networking in Asia as agreed by the Laboratory Directors' Forum.

2. OIE, as well as other partners (eg AAHL, FAO, NIAH Japan, WRL), should support the development of national animal health laboratory strategic plans for member countries in the region, through workshops and follow-up country missions .

3. OIE, through the OIE delegate, advocate for the importance of the strategic planning workshop and follow up mission initiative to gain buy-in at policy levels.

4. There be on-going advocacy for the significance of laboratories as key component of veterinary and wildlife services and laboratory strategic plan.

5. Participating animal health laboratories continue efforts to strengthen network and communication across the region, and to improve disease detection, reporting and response in the region through the routine sharing of relevant information and data.

6. Regional proficiency testing programme continue to be supported for AI, FMD, CSF and PRRS and be expanded to other priority diseases in the region such as rabies.

7. Further support is needed to improve ability to coordinate proficiency testing programmes from the region including: support for proficiency testing providers, analysis of proficiency testing results and troubleshooting of issues including guidance to overcome problems identified by proficiency testing.

8. The laboratories are supported to implement a quality management system as part of the effort to gain accreditation for ISO/IEC 17025 2005.

9. Establishment of a task force to support coordination and explore the ongoing needs for proficiency testing; each laboratory should assign a focal person to participate in this task force.

10. All laboratories should advocate for budget resources to support participation to regional and national proficiency testing programmes.

11. Continued support for, and development of, laboratory diagnostic capacity, quality assurance and proficiency testing for priority diseases in the region including rabies, African swine fever, Nipah virus infection, brucellosis, Newcastle disease and bluetongue.

12. All laboratories should continue to advocate for support to improve laboratory biosafety and to instill good biosafety culture. This can be achieved through consultancy, training, and development of standard operating procedures and review of biosafety regulations.

13. Support for the plan of OIE to pilot in the region the Laboratory Focal Point training and Follow-up Laboratory Gap Analysis.

14. Explore the possibility of conducting formal Risk Analysis for health and safety in pilot national animal health laboratories.

15. That the meeting in support of the Laboratory Network be held annually

The Animal Health Laboratory Meeting acknowledged:

The support from the government of Malaysia in hosting the meeting and support from USAID through the Emerging Pandemic Threat - IDENTIFY Project and the EU – Regional Cooperative Programme on HPEDs.

8.2 Joint Animal Health and Public Health Laboratory Assembly

The Joint Animal Health and Public Health Laboratory Assembly agreed to the following recommendations presented by Dr Ronello Abila;

1. Establishment, and operationalise of a formal mechanism for collaboration between public health and animal health (including wildlife)
2. Advocacy for a national policy to support the One Health platform
3. Implementation of joint capacity building (e.g. risk assessment, biosafety, quality management, EQA)
4. Creation of opportunities to sustain linkages across PH, AH, and wildlife stakeholders

ANNEX 1 Agenda

Date/Time	Topic	Facilitator / Speaker
Day 1: Wednesday 19 October 2011		
Opening and Introduction		
0800 – 0830	Registration	
0830 – 0945	Opening	
0945 – 1015	Break	
1015 – 1115	Key note address *Professor Hiroshi Kida, Hokkaido University*	Dr Pawin Padungtod
1115 – 1125	FAO Regional Strategy on Emerging Diseases *Dr Subhash Morzaria, FAO ECTAD RAP*	
1125 – 1135	OIE Performance Veterinary Services (PVS) Pathway *Dr Ronello Abila, OIE SRR SEA*	
1135 – 1145	Asia regional Strategy for Emerging Disease *Dr Takeshi Kasai, WHO/WPRO*	
1145 – 1200	Security Briefing	
1200 – 1300	Lunch	
Animal Health Session 1 Introduction and Update from Network Laboratories		
1300 - 1330	Introduction to new laboratories in the network 10 minute presentation providing general background as well as topics outlined for other laboratories • China Animal Health and Epidemiology Center • Langzhou Veterinary Research institute • Yunnan Animal Science and Veterinary Institute	Dr Andrew Davis
1330 – 1340	Introduction to Poster session	
1340 – 1430	Poster presentation for each laboratory (including both regional and partner laboratories) with information on: • Significant updates from each laboratory eg renovations, new equipment, trainings, expansion of range of tests available/ diagnostic expertise • Overall diagnostic through-put in past 12 months characterized by species, sample type and test type for the top five diseases addressed by the laboratory • Salient research activities ongoing in past 12 months	
1450 – 1500	Summary of update and collaboration	
1500 – 1530	Break	
Animal Health Session 2 Strategic Planning (Key Framework Element 1)		
1530 – 1550	Strategic Planning for Laboratories *Dr Andrew Davis, OIE SRR SEA and Dr Jennifer Lasley, OIE Paris*	Dr Ronello Abila
1550 – 1630	Strategic Planning group work: • Identification of planning that already is in place and proposed future development of any existing plans • Identification of gaps in this planning process • Linkage of needs and available support from partners with specific activities	

1630 – 1700	Report from Strategic Planning Group Work	

Day 2: Thursday 20 October 2011		
0900 – 0930	Review of first day output *Dr Andrew Davis, OIE SRR SEA*	
0930 - 1000	Outcomes from Laboratory Directors' Forum meeting *Dr Ramlan Mohamed, Veterinary Research Institute*	
Animal Health Session 3 Quality Assurance (Key Framework Element 4)		
1000 – 1020	Proficiency Testing – steps required to establish rounds and experiences in the region (HPAI, CSF and PRRS) *Dr Gemma Carlile, Australian Animal Health Laboratory*	Dr Chris Morrissy
1020 – 1050	Break	
1050 – 1130	Proficiency Testing group work: • Discussion/listing of priority diseases for which PT testing is required • Achieving sustainability of PT programs • Partner discussion/listing of areas in which they could assist • Linkage of needs and available support with specific activities	
1130 – 1200	Report from Proficiency Testing Group Work	
1200 – 1300	Lunch	
Animal Health Session 4 Biosafety (Key Framework Element 6)		
1300 – 1320	Current biosafety situation and way forward *Dr Teck Mean Chua, Asia Pacific Biosafety Association*	Dr Teck Mean Chua
1320 – 1400	Biosafety group work: • Using HPAI as a model, discussion on hazard analysis and identification of critical control points from sample arrival through to sample/reagent disposal • Partner discussion/listing of areas in which they could assist in capacity building • Linkage of needs and available support with specific activities	
1400 – 1430	Report from Biosafety Group Work	
1430 – 1500	Break	
Animal Health Session 5 Occupational Health and Safety (Key Framework Element 4)		
1500 – 1520	Occupational Health and Safety in the Laboratory Setting *Dr Gliceria Derrota, White Cliff International Health and Safety Services*	Dr Gliceria Derrota
1520 – 1600	Group Work: • Identification of hazards in laboratory workplace; • Evaluate the risk and specify what has been done or need to be done to avoid the risk; • Identification of gaps on the health and safety of employees; • Establishment of health and safety policy in laboratories.	
1600 – 1630	Report from Occupational Health and Safety Group Work	

1630 – 1700	Conclusion and Recommendation	Dr Mohamad Naheed

Day 3: Friday 21 October 2011		
0900-1000	Conclusion of Animal Health Meeting	
1000-1030	Break	
1030-1040	Summary from Public Health Laboratories Meeting	Dr Christopher Oxenford
1040-1050	Summary from Animal Health Laboratories Meeting	Dr Ramlan Mohamad
1050-1105	Discussion	
Joint Session 1 Addressing Common Issues		
1105-1230	Participants are separated into 4 groups with both AH and PH in each group. - Laboratory Biosafety - Standard Assays and Reagents for Priority Zoonoses - Guidelines for Joint Laboratory Investigation - Information Sharing	Dr Andrew Davis
1230-1330	Lunch	
1330-1420	Presentation of outcomes from group discussion	
Joint Session 2 One Health		
1420-1440	Sharing of Information – 4-Ways Linking Project *Dr Filip Claes, FAO Rome*	Dr Ronella Abila
1440-1500	Laboratory support for wildlife diseases surveillance and investigation *Dr. Joko Pamungkas, Primate Research Center*	
1500-1510	Antimicrobial Resistance *CK Lee, WPRO*	
1510-1520	IDENTIFY	
1520-1550	Break	
1550-1620	Laboratory Strengthening One Health –Discussion-	
Joint Session 3 Way Forward		
1620 – 1700	Recommendation and Closing	Dr Ronello Abila

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ANNEX 4 Outcome from Animal Health Laboratory Group Discussion - Biosafety

Science
Group 2

1. High cost of building and maintenance
   - Plan a budget – obtain administrative commitment
   - Request donor
2. Incomplete SOP
   - Consultancy and training
   - Engage staff responsible for usage of BSL in the development of SOP
3. Limited knowledge in risk assessment, facility design and usage
   - Training

Facility & Engineering
Group 3

1. Who maintains the facility?
   - Problem
     - No one person responsible for general maintenance of the facility –scientific staff need to do the science.
   - Solutions
     - Designation of a 'plant manager' to oversee, coordinate and manage
       - Equipment maintenance
       - Building maintenance
       - Biosafety under standard protocols
       - Set schedules for maintenance & calibration of equipment
     - Dedicated funds for maintenance & calibration of equipment
2. Lack of Technical Expertise
   - Problem
     - No technical expertise to maintain and repair equipment.
     - Lack of expertise during construction or renovation of laboratory spaces to conform with standards.
   - Solution
     - Access to trained personnel – either by training personnel locally or access network.
     - Consideration and knowledge of standards within the region.
3. Power
   - Problem
     - Lack of back-up systems to maintain safe working practices when power dips or shut-down
   - Solution
     - Generators
     - UPS
     - Voltage stabilisers
4. Security of the Laboratory
   - Problem
     - Entrance security is often limited
     - No locks or restrictions on fridges with biological samples
   - Solutions
     - Cards access to facilities (restricted access to different areas)

  - CCTV
  - Working alarms – fire alarms

5. Waste Management System
   - Problem
     - Availability and access to waste mgt systems
     - Lack of guidelines on how to use
     - Maintenance of waste mgt systems
   - Solution
     - Guidelines and protocols need to be in place
     - Maintenance of equipment and budget to do so
     - Access to waste mgt systems – autoclaves/incinerators/air handling/water treatment

Enhancing Biosafety Toward One Health
Group 4

Key Challenges
- Overrules of organizations' ego and bureaucracy
- Willingness to work together

Overcome by
- Strengthening coordination and collaboration among organizations
- Willingness to work together
- Setting up joint committee among the three organization

Suggestion
- Organize joint training activities between animal health and human health sectors
  - Biosafety and biosecurity
  - Zoonotic diseases diagnosis including sharing of protocols and reagents
  - Epidemiology and outbreak response

Management
Group 5

1. Budget insufficiency
   - Reducing cost
   - Lobby government to increase funding to improve biosafety
   - Develop good plan for improving biosafety
   - Develop budget plan early
2. Infrastructure
   - Better design of laboratory layout with expert advice
3. Human resource
   - Standard training of laboratory staff
   - Certification of laboratory staff
   - Create a key person
   - Create good biosafety culture
4. Administrative controls
   - Create SOPs, good guidelines and policy
5. Compliance to international and national regulations
   - Support development of appropriate regulations
   - Annual review of regulations

ANNEX 5 Outcome from Animal Health Laboratory Group Discussion – Quality Assurance

	Summary responses
Is proficiency testing (PT) useful?	All agree EQA is useful to aid in harmonisation and identify issues with detection
How can we improve PT in your laboratory?	Ensure sample quality of PT panel (Shipment/storage/handling)
	Reference laboratory should communicate with the receiving laboratories early to make necessary preparation to receive the panels
	Provide clear instruction on the usage of the PT panels
	Provide complete panel including all subtypes of viruses, including relevant controls (e.g. high ct positive)
	Consider shipping panels for multiple PT tests at the same time
	Facilitate importation of PT panel
	Receiving laboratory should identify contact person
	Improve laboratory condition
	Improve staff skills
	Improve trouble shooting skills
Do you have a plan and budget to participate to PT in your laboratory?	Most countries lack consistent funding to particpate to PT programmes
What support can partners give the laboratory to improve PT?	Training in laboratory quality assurance including data analysis
	Advocate for laboratory quality manager
	Facilitate technical discussion/review of PT data
	Support sustainable access to reference materials for testing
Who does the PT rounds?	The regional PT has been supported by AAHL; regional leading laboratories have been identified and further capacity and funding is needed to deliver PT testing within the region
Do you have plan for national PT?	Only 2 countries reported plans to conduct PT subnationally
5. Which disease should we do capacity building/PT on next year?	Rabies, ASF, Nipah

ANNEX 6 Joint Animal-Health and Public-Health Discussion Groups

Group 1

Group	Country	Name	Institute
1	Lao PDR	Signa Kittiphone	National Animal Health Center
		Phouvong Phommachanh	National Animal Health Center
		Phengta Vongphrachanh	National Animal Health Center
		Thongchanh Sisouk	National Center for Laboratory and Epidemiology
		Onechanh Keosavanh	National Center for Laboratory and Epidemiology
	China	Sun Shiqi	Lanzhou Veterinary Research Institute
		Zheng Huixue	Lanzhou Veterinary Research Institute
		Song Jianling	Yunnan Animal Science and Veterinary Institute
		Li Huachun	Yunnan Animal Science and Veterinary Institute
		Song Cuiping	China Animal Health and Epidemiology Center
	Mongolia	Amarjargal Yadam	Misnitry of Health
		Gungaa Surenkhand	National Centre for Comminicable Diseases
2	Australia	Gemma Carlile	Australian Animal health Laboratory
	Philippines	Edna A. Felipe	Philippine Animal Health Center
	Cambodia	Ren Theary	National Veterinary Research Institute
		Chuop Sokheng	National Institute of Public Health
	Brunei	Osmali Osman	Ministry of Health
		Siti Aisah Jaafar	Ministry of Health
		Rahiman Hanafi	Minsitry of Health
	Philippines	Arlan Lopez	Department of Health
		Celia Carlos	Research Institute for Tropical Medicine
		Magdalena S. Cruz	Philippine Animal Health Center
	Viet Nam	Tong Huu Hien	National Center for Veterinary Diagnosis
		Thanh Long To	National Center for Veterinary Diagnosis
		Ngo Thanh Long	Regional Animal Health Office Number 6
		Nguyen Xuan Binh	Regional Animal Health Office Number 6

Group	Country	Name	Institute
3	Australia	Chris Morrissy	Australian Animal Health Laboratory
	Myanmar	Aye Aye Than	Livestock Breeding and Veterinary Department
	Thailand	Panithan Thongtha	Regional Reference Laboratory for FMD in South East Asia
		Vimol Jirathanawat	National Institute of Animal Health
		Somjai Kamolsiripichaiporn	National Institute of Animal Health
		Kingkarn Boonsuya Seeyo	Regional Reference Laboratory for FMD in South East Asia
		Sudarat Damrongwatanapokin	USAID Regional Development Mission Asia
	Singapore	Tan Han Kiat	WHO Collaborating Centre for Reference and Research for Arbovirus & their Associated Vectors
		Zhang Yiwen	National Public Health Laboratory
		NG Lee-Ching	WHO Collaborating Centre for Reference and Research for Arbovirus & their Associated Vectors
		Lee Soo sim	The Regional Emerging Diseases Intervention Center
		Tee Wen Sim Nancy	KK Women's and Children's Hospital
	Nepal	Mandava Venkata Subba Rao	FAO Nepal
	France	Jennifer Lasley	World Organization for Animal Health
4	ASEAN Secretariat	Asiah bte Naina Md. Alim	Department of Veterinary Services
	Indonesia	Muhammad Syibli	Directorate General of Livestock and Animal Health Services
		Joko Pamungkas	PREDICT- Primate Research Centre
	Japan	Yuichi Tagawa	National Institute of Animal Health
		Keigo Shibayama	National Institute of Infectious Diseases
		Hiroshi Kida	Hokkaido University
	Malaysia	Chua Kaw Bing	National University of Singapore
		Adznan Abdul Karim	Wildlife
		Tom Hughes	PREDICT Country Coordinator –EcoHealth Alliance
		Mei Ho Lee	PREDICT – Ecohealth Alliance
		Ramlan Mohamed	Veterinary Research Institute
		Rohani Binti Mohamad Yasin	Institute for Medical Research

Group	Country	Name	Institute
		Mohamed Naheed bin Mohamed Hussein	Veterinary Research Institute
		Mohamed Naim bin Abdul Kadir	Ipoh Public Health Laboratory
		Zubaidah bt Abdul Wahab	Hospital of Buloh
		Norizah Ismail	National Public Health Laboratory
		Yukie Chem	National Public Health Laboratory
		Ravindran Thayon	Institute of Medical Research
	Nepal	Mohinder Oberoi	FAO Nepal

ANNEX 7 Joint Animal Health and Public Health Group Discussion Questions

Group 1: Lab Biosafety

a) Top 3 challenges in biosafety for your laboratory?

b) How regularly are the biosafety cabinets calibrated and certified?

- Who (which company) conducts this, cost?

c) Top 3 training needs in biosafety/biosecurity for your laboratory

Group 2: Standard Assays and Reagents for Priority Diseases

a) For which priority diseases are harmonized diagnostic protocols in use?

b) Top 3 challenges to obtaining reference reagents for priority diseases

c) Are reference reagents routinely shared among your laboratories (within country and/or region)

d) For which priority diseases is EQA applied? And who provides such?

Group 3: Guidelines for Joint Laboratory Investigation

a) Does your country have experience in joint AH-PH investigation at the laboratory level for outbreaks of zoonotic concern?

- If yes, please provide examples and highlight what worked well

- If no, what barriers exist to joint investigation?

Group 4: Information Sharing

a) Does adequate information sharing occur within your sector for priority diseases?

- If yes, for which diseases and what is the mechanism (examples?)

- If no, what are the barriers to sharing

b) Is there any disease in your country for which information is routinely shared between AH-PH?

- If yes, for which diseases and what is the mechanism (examples?)

- If no, what are the barriers to sharing

Annex 13: Terms of Reference for OIE Wildlife Focal Point Training

"Training course on WAHIS and WAHID implementation

for focal points for wildlife"

OIE / SRR-EA CAPACITY-BUILDING PROGRAMME 2011

BACKGROUND

The OIE Sub-Regional Representation (SRR) for Eastern Africa (EA) was established in 2009 and has since 2011 initiated a programme of capacity-building, targeting staff of veterinary services, in the EAC region, and beyond.

As far as the Africa region is concerned, three OIE Sub-Regional Representations in Gaborone, Tunis and Nairobi as well as the Regional Representation in Bamako, are now currently benefiting from funds from the European Commission Directorate DG-SANCO (Health and Consumers) through the *"Better Training for Safer Food"* (BTSF) programme, under which part of the present training course is funded.

In addition, nine (9) countries in Central Africa benefit from funds under the IDENTIFY project of the *Emerging Pandemic Threats* programme. As far as OIE in Africa is concerned, this project is coordinated by the OIE SRR-SA in Gaborone (Dr Neo Mapitse). The following 6 countries will benefit from this training course under the auspices of IDENTIFY: Cameroon, Central African Republic, Congo (Dem. Rep), Congo (Rep), Equatorial Guinea, and Gabon.

This is the third workshop dealing with WAHIS and WAHID (and the second dealing with wildlife) in Africa, and the second seminar organized directly by the OIE Sub-Regional Representation, in close collaboration with OIE Regional Representation for Africa in Bamako, Mali and the OIE Headquarters in Paris, France. The first workshop funded under the BTSF Africa programme was the joint training of OIE focal points for animal diseases notification and for aquatic animal diseases from Southern Africa only (Lilongwe, Malawi, April 2009). The second one was again a joint training of OIE focal points for animal diseases notification and for aquatic animal diseases, but for selected countries across Africa (Gaborone, Botswana, August 2010).

In line with the OIE's overall mandates of ensuring transparency in the global animal disease situation, encouraging international solidarity in the control of animal diseases, and collecting, analyzing and disseminating veterinary scientific information, this training workshop will deal with issues concerning wildlife and international reporting of animal diseases, in particular diseases of wildlife.

OBJECTIVES OF THE WORKSHOP

The objective of the workshop is to improve the capacity of OIE *Wildlife Focal Points* (WFP) in particular for the gathering and interpretation of data through the reporting of wildlife diseases to the OIE using the online reporting system WAHIS (Wild).

This proposal results from two developments over the past months and years:
(a) Diseases of wildlife remain under-reported, in general terms and in particular to the OIE. Reticence to report diseases of wildlife is fuelled by misconceptions about the impact of such

declarations on a country's disease status for farm animals. Radical and unjustified trade barriers imposed by some countries following such declarations have contributed to this reticence.

(b) The OIE has developed a string of measures to enhance the timely and transparent reporting of diseases, occurring in wildlife. This led in a first stage to a fully revised version of the annual questionnaire and will lead very shortly to the launch of WAHIS-Wild, a dedicated web-module for reporting of wildlife diseases or major epidemiological events.

These new developments must be explained to the focal points for animal diseases notification, but in particular to the wildlife focal points who need to provide the Veterinary Authority with the required epidemiological data.

Hence, the workshop will target the focal points on wildlife. While some of these focal points are veterinary officers from within the veterinary administration (Directorate of Veterinary Services) and within the Ministry-in-charge of veterinary matters, others may be very unfamiliar with the OIE and WAHIS requirements, as they might be assuming duties in other Ministries altogether. Typical case is when wildlife disease issues are governed under e.g. the Ministry of Tourism or the Ministry of Environment and Natural Resources. While these focal points understand that they are expected to report wildlife disease events to the OIE Delegate, they might be unaware of which diseases are OIE listed, and under which circumstances reporting (immediate or otherwise) is required. Therefore, the content of the present training course will be regarded as —basic", focusing on understanding the requirements of the WAHIS reporting system in respect of animal diseases, without over-emphasizing the actual processes involving data-entry into WAHIS (usually entirely entrusted to the sanitary information management focal point). This training course will target countries that have not benefited from specific training on wildlife diseases reporting (all African countries) and that are likely to benefit from this particular training (in terms of important wildlife resources).

The present training course will target English-speaking focal points from Members in sub-Saharan Africa, while the French – speaking focal points will be invited to attend the exact same training course in Botswana from November 28 to December 1, 2011.

METHODOLOGY

1. General concept

   It is proposed that this Workshop consist of hands-on practice with activities directly relevant to the work of OIE *Wildlife Focal Points* (WFP), interspersed with lectures and demonstrations associated with these activities.

   WFP are assumed to have participated in Workshop 1 and/or to have recently read the Training Manual prepared for Workshop 1. That Training Manual would be provided to all participants in Workshop 2 at least two weeks in advance of Workshop 2 in each OIE region. OIE also may wish to provide a few pages of written material about the role and Terms of Reference of WFP.

   Training Manual n° 2: It is anticipated that a training manual will be created for this Workshop and will contain the key information presented in lecture format during the Workshop. This Training Manual can be provided in electronic (PDF file) format. Also provided will be the various data files, the WAHIS six-monthly report, the OIE WAHIS-Wild spreadsheet that simulates data entry into WAHIS-Wild, and other files and

information that may be needed during the Workshop or afterward for reference. All these files can be placed on a flash-drive given to each participant.

Technical requirements: the venue should provide seating for all active participants at round tables seating 6-8 people. There should be sufficient electrical outlets at these tables for all participants, and each participant should arrive with a laptop computer which uses Microsoft Windows (versions to be specified) operating systems. A large projection screen should be resent and visible by all tables. A speaker‘s podium and speaker‘s computer should be available for use at the podium. This computer should have access to a high-speed internet connection so that internet sites can be used during lectures and demonstrations [18]

Seating of participants will be arranged in advance so as to keep people using the same language together but otherwise to seek to cause each table to contain people from countries that differ in their size, wealth and sophistication of their veterinary services.

2. Seminar outline

2.1. Review of OIE structure and Role of Wildlife Focal Points

OIE staff will spend 30 minutes welcoming participants, and reminding WFP about their role and Terms of Reference.

2.2. Review of Scenarios‘ Surveillance Data

A case scenario is presented by an instructor. An imaginary country (we can use some section of Canada for this) wishes to undertake a program of general wildlife disease surveillance. It has certain reasons for doing this, certain objectives it has established for the program. These are explained to the participants. The components of a general disease surveillance program are reviewed (from Workshop 1) in lecture format.

The Instructor leads participants in a discussion of the various options Country X may have to set up its surveillance program, coving all components of general disease surveillance. Instructor provides facts and information about Country X as these are needed during the discussion. The discussion is directed develop a set of recommendations by the participants concerning how Country X could set up and operate a general surveillance program to meets its objectives.

2.3. Review of Scenarios' Surveillance Data

Participants now receive a set of data from a year of the surveillance program they have just developed and recommended for Country X. In fact, there will be three different sets of surveillance data, each table of participants will use the same data set but all three data sets will be used by different tables (There may be 2 or more tables using the same data set, depending on the number of participants). The data will be in the form of an Excel spreadsheet and each will contain about 100 disease occurrences. Data will include host species (common name and Latin name), age, sex, date found dead or sick, number of

[18] *It would be excellent if ALL participant computers could have wireless access to the Internet with sufficient bandwidth that ALL could connect at high speed at the same time.*

animals affected, cause of death, other diagnostic findings, latitude and longitude of location where animal was found. Data will be only for terrestrial animals – birds and mammals. Each data set will be constructed to show some different patterns of surveillance and of disease/pathogen occurrence. These differences will provide interest and contrast in presentations and discussions at the end of the day.

Participants review their data sets individually and/or with neighbors. They are asked to look for problems – missing data, duplicate entries, etc., and also to look for points of interest.

Participants are asked to determine if any of the data should be reported to the OIE. This then leads to a presentation/lecture about what diseases/pathogens in wild animals must be reported to the OIE, the List of diseases/pathogens, the criteria for listing pathogens, where to find the most up-to-date OIE Disease list on the OIE website and in the printed Code, and the criteria for identifying important epidemiological events that also must be reported to the OIE, and the diseases/pathogens to be reported to WAHIS-Wild on a voluntary basis once per year,

The data sets will each contain one or more OIE List diseases/pathogens and each will contain diseases/pathogens for WAHIS-Wild. The participants will be helped to identify these and then told the correct procedure for notifying the CVO of any List diseases.

Participants now are given detailed instruction on how to use WAHIS-Wild. Each then will practice reporting diseases/pathogens from their data sets on the spreadsheet version of WAHIS-Wild. *[[The spreadsheet version of WAHIS-Wild used will be constructed so that the Listed Disease data for wildlife in Country X already are on the spreadsheet, as will be the case for the on-line version that WFP actually will use. The on-line version will be demonstrated also. There also should be one listed disease entry that is different on WAHIS-Wild than in the surveillance data spreadsheet, and this will be used to advise WFP on what to do in this case – to check with CVO to find out which data are correct.]]*

2.4. Finding Information on WAHIS and WAHIS-Wild

OIE staff demonstrate on the OIE website how information about disease occurrences can be searched for and retrieved, and the range of information that is available. WFP should be provided with power-point slides with screen shots and clear instructions showing how to search for and retrieve this disease occurrence information.

2.5. Further Review of Scenarios' Surveillance Data

Participants are asked to manipulate the surveillance data in various ways that may be useful to them. They are first advised to save a copy of the data file and to manipulate a new copy, in case they make a big mistake and lose data. They are encouraged to sort data in different ways – by date, by species, etc. and shown how to do so. They are shown how to display data selections as simple graphs or charts – number of animals by month, etc. The objective is for WFPs to be able to look at data in these ways without needing special assistance.

- They are shown a free-ware program that converts Lat/Long coordinated to the format used by Google Earth (Earth Point) and then shown how to use the new file to map their data on Google Earth.

- Participants will be encouraged to work together or separately and map, sort, chart etc. their data sets to explore the data. This continues during the break. Maps of the data will also be made in advance and distributed since internet may not be available on all computers.
- After the break, each table will be asked to hold a discussion about their surveillance data: the strengths, weaknesses, points of interest, aspects that may require further investigation or clarification, etc. (Note – there will be three different data sets in use but only one at each table)
- Each table will prepare and present their map, graphs and/or other findings and the main points of their discussion of strengths and weaknesses in their data to all participants during the last hour (if there are too many tables of participants, perhaps only one presentation of each data set will be sufficient, and tables not presenting on Day 1 can present on Day 2)

2.6. Review of Day 1 main points and Introduction to Day 2

Instructor(s) reviews main points of general wildlife disease surveillance and introduces and compares these with targeted disease surveillance, which is the topic of day 2.

2.7. Targeted Wildlife Disease Surveillance Case Scenarios

Similar to 2.2 (above) - A case scenario is presented by an instructor. An imaginary Country X (we can use the same section of Canada as for Day 1 scenarios) wishes to undertake a program of targeted wildlife disease surveillance for three different pathogens. It has certain reasons for doing so for each one, certain objectives it has established for the program. These are explained to the participants. Instructor leads a general discussion about design of surveillance programs for Country X for each of these pathogens. Pathogens will be selected to present different kinds of challenges.

2.8. Selecting Diagnostic Tests

A number of issues raised in the discussion of design of targeted surveillance programs now are covered in lecture format, followed, in some cases, by participants solving problems or doing exercises on the topic, as listed in the Workshop Plan. OIE staff will provide information on sources of diagnostic test in the region where the workshop is offered. This section also would include general information about access to the OIE Manual on line and in print (demonstration of finding it and using it on line), an explanation of the terms of reference of OIE reference laboratories and of collaborating centres, (perhaps also FAO Reference laboratories). Specific information should be provided about reference laboratories available within the region in which the workshop is given, and the range of expertise of each.

2.9. Pathogen Prevalence

Lecture and exercises by participants about estimation of pathogen prevalence from surveillance data. This will include determining the sample size required for various objectives, incorporating diagnostic test performance into the estimate of prevalence and how prevalence can influence the predictive value of a diagnostic test.

2.10. Targeted Wildlife Disease Surveillance Case Scenarios - continued

We return to the targeted surveillance program for 3 pathogens to be carried out by Country X, the objectives of the surveillance programs, and come to a general consensus on the appropriate design for each, incorporating what has been learned about choosing diagnostic tests, sample size, etc.).

2.11. Data from Country X Targeted Surveillance

Each table of 6-8 participants receives data from one of the targeted surveillance programs. Instructor(s) remind them how to estimate prevalence and confidence around prevalence and to map their data, and each participant does so (maps will be provided if Internet is not available). Participants then discuss the surveillance results within each table/group and prepare a presentation to the other participants on their thoughts and observations. These are then presented in plenary. [It may be desirable to have only half of the tables/groups make presentations on Day 1 and the other half on Day 2]

2.12. Wildlife Disease Surveillance in Region

We will invite someone from the region who is well versed in wildlife disease surveillance to give an overview of wildlife disease surveillance activities in the region, any networks among surveillance programs or wildlife disease scientists that may exist, and major wildlife disease issues in the region, including those important to wildlife conservation, domestic animals and public health. This presentation should be interesting, full of pictures and regional information. The right person to present this in each region must be chosen carefully.

2.13. Data Management and databases in disease surveillance

A presentation on managing surveillance data and the features WFP may want in a data management system.

2.14. General Discussion on Wildlife Disease Surveillance in Region

General discussion about the workshop, surveillance and disease reporting to OIE, etc., will be led by OIE staff.

2.15. Communication Opportunities - Networks, Associations

Continuation of general discussion, but with a focus on maintaining communication among the region‘s WFP and also with other groups in the Region relevant to WFP activity.

2.16. Closing Events

Closing events – presented by OIE

TARGET GROUP

The target group consists of 23 OIE national focal points on wildlife, as designated by their respective OIE delegates, from the following countries:

ENGLISH SPEAKING PARTICIPANTS

1. Angola
2. Botswana
3. Eritrea
4. Ethiopia
5. Gambia
6. Ghana
7. Kenya
8. Lesotho
9. Liberia *
10. Malawi
11. Mozambique
12. Namibia
13. Nigeria
14. Rwanda **
15. Sierra Leone
16. Somalia
17. South Africa
18. Sudan
19. Swaziland
20. Tanzania
21. Uganda
22. Zambia
23. Zimbabwe

From a budgetary and logistical (computers) perspective, no more than 20 participants are expected to attend.

(*) Liberia is not an OIE Member but is eligible under the BTSF programme.

(**) Rwanda is also listed under the French-speaking programme and may choose either training course (but not both).

EXPECTED OUTPUTS

It is expected that the present training course will lead to a better understanding of wildlife surveillance and notification and should result in more and improved online submissions of immediate and scheduled notifications of wildlife diseases, to the OIE. The Malawi training seminar in April 2009 and to a lesser extent, the training seminars organized in Tunisia, in December 2009 and in Botswana in August 2010, have demonstrated that training efforts do lead to better and increased reporting, both for terrestrial and aquatic animal diseases.

TENTATIVE DATES AND DURATION OF THE WORKSHOP

Duration of the workshop: 4 days

Tentative dates: October 4 – 7th, 2011

Host Country: Kenya

Host institution: OIE Sub-Regional Representation for Eastern Africa (SRR-EA) Nairobi

LANGUAGE: The training course will be conducted in English only.

PARTICIPANTS (refer to annex 2)

Estimated number: 20 participants + 4 invited observers (below) = 24 attendants
(of which 23 are to be supported by the OIE budget).

INVITED OBSERVERS

1. Representative from the OIE Regional Representation for Africa (1)
2. Representative from the OIE Sub-Regional Representation for Southern Africa (1)
3. Representative from the OIE Regional Commission for Africa (1)
4. Representative from the EAC Secretariat (1)

INVITED TRAINERS (5)

1. Representatives from the OIE Information Department (1)
2. Representatives from the OIE Scientific and Technical Department (1)
3. Representative from the OIE Collaborating Centre on Wildlife (2)
4. Representative from the OIE Working Group on Wildlife or representative from the region (regional expert) (1)

"Training course on WAHIS and WAHID implementation for wildlife focal points"

Day-1

Time	Theme	In-charge
08:00–09:00	Registration of participants	
09:00–09:30	Inauguration and Opening	
09:30–10:10	Presentation: General presentation of the OIE (*incl. Vademecum*)	OIE
10:10–10:30	Presentation: The role of OIE focal points and OIE activities on wildlife	OIE
10:30–11:00	Morning break – Coffee/Tea	
11:00-11:15	Presentation: OIE Terrestrial and Aquatic Animal Health Code	OIE
11:15–11:45	General Wildlife Disease Surveillance : key components	CC*
11:45–12:45	Interactive Plenary Session[19]: Design of a General Surveillance Program: Objectives, sources of specimens and information	CC
12:45–13:15	Interactive Plenary Session: Case Scenario: Program design and data obtained	CC
13:15–14:30	Lunch	
14:30–15:00	Interactive Plenary Session: Approaches to analysis of general disease surveillance data: review of case scenario data	CC
15:00-15:30	Presentation: Obligatory and facultative reporting of pathogens and diseases in wild animals to the OIE –Purpose of reporting and tools; OIE listed and non listed diseases	OIE
15:30–16:00	Practical use of WAHIS and WAHIS-*wild*	OIE
16:00–16:30	Afternoon break – Coffee/Tea	
16:30–17:00	Practical use of WAHIS and WAHIS-*wild* to report disease occurrences	OIE
17:00 – 18:00	Small Group Session[20]: Analysis of case scenario data set; Preparation of presentations for Day 2	CC, Participants

(*) CC = Collaborating Centre

[19] Two case studies will be prepared (one per day) to illustrate what focal points should know and do through a practical approach.
Interactive Plenary Sessions: Participants will be seated at tables in groups. The session will consist of topic discussion with the entire group interactively with Instructors, sometimes illustrated for particular main points, interspersed with activities to be done at the table individually or as a group. These sessions will be used to work through the case scenario of the day. These interactive plenary sessions will be interrupted for formal presentations of relevant information needed by the participants to proceed to the next stage of the interactive session and allow questions and answers to be integrated in each step

[20] Each table will review their set of surveillance data (3 different data sets will be used by different tables) and prepare a presentation on the main points of information derived from their particular

18:00	End of session	

Day 2

Time	Theme	In-charge
09:00 – 09:45	Small group presentations (3) from Day 1 case scenario analysis	Participants
09:45 – 10:15	Targeted Wildlife Disease Surveillance: Interactive Plenary Session: Objectives and requirements, sources of information and specimens	CC
10:15 – 10:30	Presentation: Selecting and using diagnostic tests, general principles	CC
10:30 – 10:45	Presentation: OIE Terrestrial and Aquatic Manual	OIE
10:45 - 11:15	Morning Break: Tea/Coffee	
11:15 – 11:35	Presentation: Sources of diagnostic expertise: Reference Laboratories and Collaborating Centres,	OIE
11:35 – 12:30	Interactive Plenary Session: Test sensitivity, specificity, and predictive values: theory and application*	CC
12:30 - 13:00	Interactive Plenary Session: Pathogen prevalence: sample size, test performance, calculation, interpretation	CC
13:00 – 14:30	Lunch	
14:30 – 15:00	Interactive Plenary Session: Targeted Disease Surveillance Case Scenario: Objectives, Design of programme*	CC
15:00 – 16:00	Interactive Plenary Session: Approaches to analyzing targeted surveillance data	CC
16:00 –16:30	Afternoon break – Coffee/Tea	
16:30 - 17:15	Interactive Plenary Session: Scenario data review: prevalence, geospatial and temporal parameters	CC
17:15 – 18:00	Small Group Session: Scenario data interpretation, strengths and weaknesses, preparation of presentations for Day 3	CC, Participants
18:00	End of Session	

* *These items have already been presented at the first cycle training and are covered in the training Manual. The second cycle training will take a more active approach by working on a case study.*

dataset, based on the general review of these data sets during the interactive plenary session earlier in the day.

Day 3

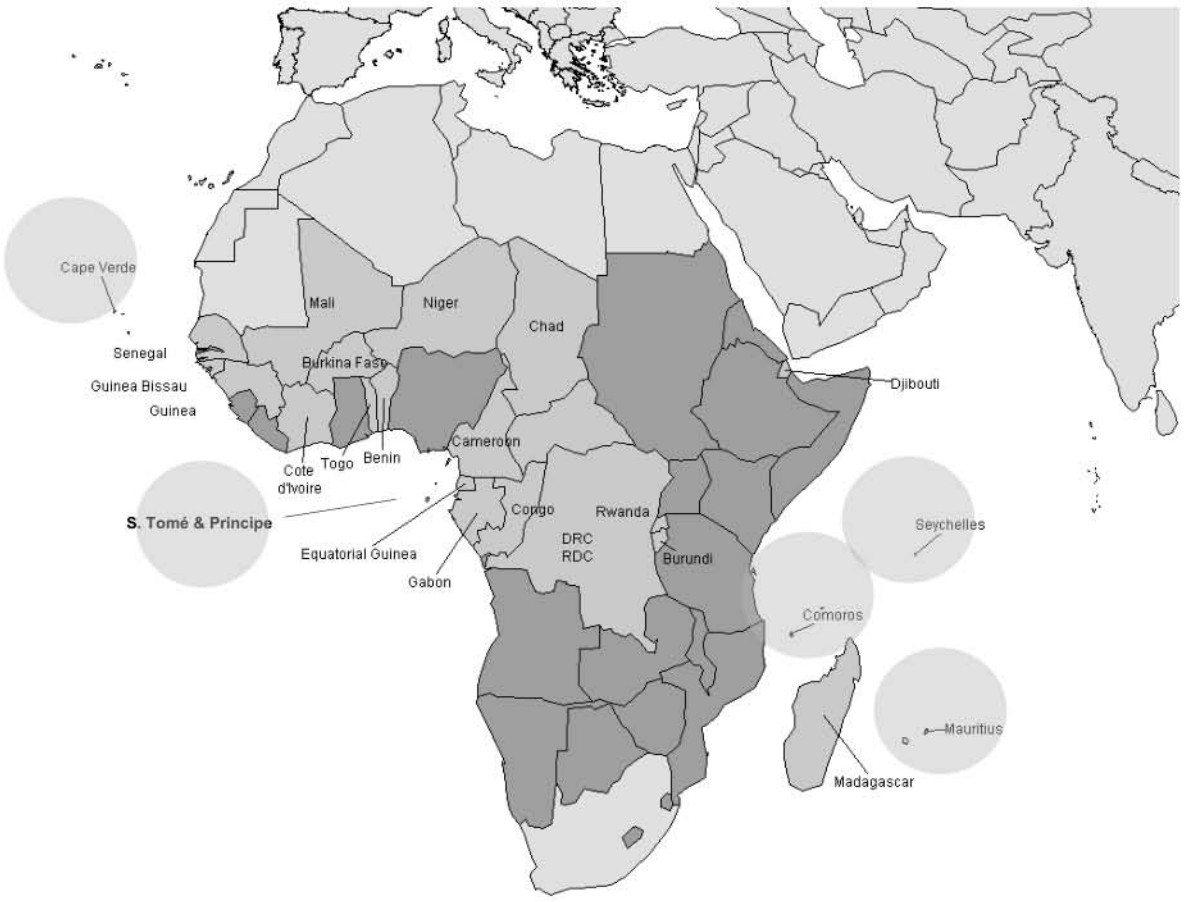
Time	Theme	In-charge
08:00 – 16:00	Field visit	Kenya Department of Veterinary Services

Day 4

Time	Theme	In-charge
09:00 – 10:00	Small group presentations (3) from Day 2 case scenario analysis	Participants
10:00 – 11:00	Wildlife Disease and Wildlife Conservation in Africa [21]	Special guest speaker
11:00 – 11:30	Morning Break: Tea/Coffee	
11:30 – 12:15	Presentation: OIE activities related to wildlife: current directions and future perspectives	OIE
12:15 – 12:45	General discussion	OIE, CC Participants
12:45 - 13:00	**Evaluation and Closing**	OIE

[21] *This is to be an informative and interesting presentation about wildlife disease issues and occurrences in the general region, presented by an experienced wildlife disease worker such as Dr. Roy Bengis of the Working Group on Wildlife Diseases. Presenter TBA following approval of the Programme.*

Annex 3: Invited countries



Participants speaking French *(Rwanda might join English speaking group)*
Participants speaking English (including the Rep. of South Africa, omitted)

DRAFT
TERMS OF REFERENCE
"Training course on WAHIS and WAHID implementation for focal points for wildlife"
OIE / SRR-SA CAPACITY-BUILDING PROGRAMME 2011

BACKGROUND

The OIE Sub-Regional Representation (SRR) for Southern Africa (SA) was established in 2006 and has since 2008 conducted a vast programme of capacity-building, targeting staff of veterinary services, in the SADC region, and beyond. As far as the Africa region is concerned, three OIE Sub-Regional Representations in Gaborone, Tunis and Nairobi as well as the Regional Representation in Bamako, are now currently benefiting from funds from the European Commission Directorate DGSANCO Health and Consumers) through the *"Better Training for Safer Food"* (BTSF) programme, under which part of the present training course is funded. In addition, nine (9) countries in Central Africa benefit from funds under the IDENTIFY project of the *Emerging Pandemic Threats* programme. As far as OIE in Africa is concerned, this project is coordinated by the OIE SRR-SA in Gaborone (Dr Neo Mapitse). The following 6 countries will benefit from this training course under the auspices of IDENTIFY: Cameroon, Central African Republic, Congo (Dem. Rep), Congo (Rep), Equatorial Guinea, and Gabon.

This is the third workshop dealing with WAHIS and WAHID (and the second dealing with wildlife), organized directly by the OIE Sub-Regional Representation, in close collaboration with OIE Regional Representation for Africa in Bamako, Mali and the OIE Headquarters in Paris, France. The first workshop funded under the BTSF Africa programme was the joint training of OIE focal points for animal diseases notification and for aquatic animal diseases from Southern Africa only (Lilongwe, Malawi, April 2009). The second one was again a joint training of OIE focal points for animal diseases notification and for aquatic animal diseases, but for selected countries across Africa (Gaborone, Botswana, August 2010).

In line with the OIE's overall mandates of ensuring transparency in the global animal disease situation, encouraging international solidarity in the control of animal diseases, and collecting, analyzing and disseminating veterinary scientific information, this training workshop will deal with issues concerning wildlife and international reporting of animal diseases, in particular diseases of wildlife.

OBJECTIVES OF THE WORKSHOP

The objective of the workshop is to improve the capacity of OIE *Wildlife Focal Points* (WFP) in particular for the gathering and interpretation of data through the reporting of wildlife diseases to the OIE using the online reporting system WAHIS (Wild). This proposal results from two developments over the past months and years:

(a) Diseases of wildlife remain under-reported, in general terms and in particular to the OIE. Reticence to report diseases of wildlife is fuelled by misconceptions about the impact of such declarations on a country's disease status for farm animals. Radical and unjustified trade barriers imposed by some countries following such declarations have contributed to this reticence.
(b) The OIE has developed a string of measures to enhance the timely and transparent reporting of diseases, occurring in wildlife. This led in a first stage to a fully revised version of the annual questionnaire and will lead very shortly to the launch of WAHIS Wild, a dedicated web-module for reporting of wildlife diseases or major epidemiological events.

These new developments must be explained to the focal points for animal diseases notification, but in particular to the wildlife focal points who need to provide the Veterinary Authority with the required epidemiological data. Hence, the workshop will target the focal points on wildlife. While some of these focal points are veterinary officers from within the veterinary administration (Directorate of Veterinary Services) and within the Ministry-in-charge of veterinary matters, others may be very unfamiliar with the OIE and WAHIS requirements, as

they might be assuming duties in other Ministries altogether. Typical case is when wildlife disease issues are governed under e.g. the Ministry of Tourism or the Ministry of Environment and Natural Resources. While these focal points understand that they are expected to report wildlife disease events to the OIE Delegate, they might be unaware of which diseases are OIE listed, and under which circumstances reporting (immediate or otherwise) is required. Therefore, the content of the present training course will be regarded as "basic", focusing on understanding the requirements of the WAHIS reporting system in respect of animal diseases, without over-emphasizing the actual processes involving data-entry into WAHIS (usually entirely entrusted to the sanitary information management focal point). This training course will target countries that have not benefited from specific training on wildlife diseases reporting (all African countries) and that are likely to benefit from this particular training (in terms of important wildlife resources).

The present training course will target French-speaking focal points from Members in sub-Saharan Africa, while the English – speaking focal points will be invited to attend the exact same training course in Kenya from October 4 to 7, 2011.

METHODOLOGY

1. General concept

It is proposed that this Workshop consist of hands-on practice with activities directly relevant to the work of OIE *Wildlife Focal Points* (WFP), interspersed with lectures and demonstrations associated with these activities. WFP are assumed to have participated in Workshop 1 and/or to have recently read the Training Manual prepared for Workshop 1. The Training Manual would be provided to all participants in Workshop 2 at least two weeks in advance of Workshop 2 in each OIE region. OIE also may wish to provide a few pages of written material about the role and Terms of Reference of WFP.

Training Manual n° 2: It is anticipated that a training manual will be created for this Workshop and will contain the key information presented in lecture format during the Workshop. This Training Manual can be provided in electronic (PDF file) format. Also provided will be the various data files, the WAHIS six-monthly report, the OIE WAHIS-Wild spreadsheet that simulates data entry into WAHIS-Wild, and other files and information that may be needed during the Workshop or afterward for reference. All these files can be placed on a flash drive given to each participant.

Technical requirements: the venue should provide seating for all active participants at round tables seating 6-8 people. There should be sufficient electrical outlets at these tables for all participants, and each participant should arrive with a laptop computer which uses Microsoft Windows (versions to be specified) operating systems. A large projection screen should be resent and visible by all tables. A speaker's podium and speaker's computer should be available for use at the podium. This computer should have access to a high-speed internet connection so that internet sites can be used during lectures and demonstrations[22]

Seating of participants will be arranged in advance so as to keep people using the same language together but otherwise to seek to cause each table to contain people from countries that differ in their size, wealth and sophistication of their veterinary services.

2. Seminar outline

2.1. Review of OIE structure and Role of Wildlife Focal Points

[22] *ALL participant computers will have wireless access to the Internet with sufficient bandwidth that ALL could connect at high speed at the same time.*

OIE staff will spend 30 minutes welcoming participants, and reminding WFP about their role and Terms of Reference.

2.2. Review of Scenarios' Surveillance Data

A case scenario is presented by an instructor. An imaginary country (we can use some section of Canada for this) wishes to undertake a program of general wildlife disease surveillance. It has certain reasons for doing this, certain objectives it has established for the program. These are explained to the participants. The components of a general disease surveillance program are reviewed (from Workshop 1) in lecture format. The Instructor leads participants in a discussion of the various options Country X may have to set up its surveillance program, coving all components of general disease surveillance. Instructor provides facts and information about Country X as these are needed during the discussion. The discussion is directed develop a set of recommendations by the participants concerning how Country X could set up and operate a general surveillance program to meets its objectives.

2.3. Review of Scenarios' Surveillance Data

Participants now receive a set of data from a year of the surveillance program they have just developed and recommended for Country X. In fact, there will be three different sets of surveillance data, each table of participants will use the same data set but all three data sets will be used by different tables (There may be 2 or more tables using the same data set, depending on the number of participants). The data will be in the form of an Excel spreadsheet and each will contain about 100 disease occurrences. Data will include host species (common name and Latin name), age, sex, date found dead or sick, number of animals affected, cause of death, other diagnostic findings, latitude and longitude of location where animal was found. Data will be only for terrestrial animals – birds and mammals. Each data set will be constructed to show some different patterns of surveillance and of disease/pathogen occurrence. These differences will provide interest and contrast in presentations and discussions at the end of the day.
Participants review their data sets individually and/or with neighbors. They are asked to look for problems – missing data, duplicate entries, etc., and also to look for points of interest.

Participants are asked to determine if any of the data should be reported to the OIE. This then leads to a presentation/lecture about what diseases/pathogens in wild animals must be reported to the OIE, the List of diseases/pathogens, the criteria for listing pathogens, where to find the most up-to-date OIE Disease list on the OIE website and in the printed Code, and the criteria for identifying important epidemiological events that also must be reported to the OIE, and the diseases/pathogens to be reported to WAHIS-Wild on a voluntary basis once per year, The data sets will each contain one or more OIE List diseases/pathogens and each will contain diseases/pathogens for WAHIS-Wild. The participants will be helped to identify these and then told the correct procedure for notifying the CVO of any List diseases.

Participants now are given detailed instruction on how to use WAHIS-Wild. Each then will practice reporting diseases/pathogens from their data sets on the spreadsheet version of WAHIS-Wild.

2.4. Finding Information on WAHIS and WAHIS-Wild

OIE staff demonstrate on the OIE website how information about disease occurrences can be searched for and retrieved, and the range of information that is available. WFP should be provided with power-point slides with screen shots and clear instructions showing how to search for and retrieve this disease occurrence information.

2.5. Further Review of Scenarios' Surveillance Data

Participants are asked to manipulate the surveillance data in various ways that may be useful to them. They are first advised to save a copy of the data file and to manipulate a new copy, in case they make a big mistake and lose data. They are encouraged to sort data in different ways – by date, by species, etc. and shown how to do so. They are shown how to display data selections as simple graphs or charts – number of animals by month, etc. The objective is for WFPs to be able to look at data in these ways without needing special assistance.

- They are shown a free-ware program that converts Lat/Long coordinated to the format used by Google Earth (Earth Point) and then shown how to use the new file to map their data on Google Earth.
- Participants will be encouraged to work together or separately and map, sort, chart etc. their data sets to explore the data. This continues during the break. Maps of the data will also be made in advance and distributed since internet may not be available on all computers.
- After the break, each table will be asked to hold a discussion about their surveillance data: the strengths, weaknesses, points of interest, aspects that may require further investigation or clarification, etc.

(Note – there will be three different data sets in use but only one at each table)

- Each table will prepare and present their map, graphs and/or other findings and the main points of their discussion of strengths and weaknesses in their data to all participants during the last hour (if there are too many tables of participants, perhaps only one presentation of each data set will be sufficient, and tables not presenting on Day 1 can present on Day 2)

2.6. Review of Day 1 main points and Introduction to Day 2

Instructor(s) reviews main points of general wildlife disease surveillance and introduces and compares these with targeted disease surveillance, which is the topic of day 2.

2.7. Targeted Wildlife Disease Surveillance Case Scenarios

Similar to 2.2 (above) - A case scenario is presented by an instructor. An imaginary Country X (we can use the same section of Canada as for Day 1 scenarios) wishes to undertake a program of targeted wildlife disease surveillance for three different pathogens. It has certain reasons for doing so for each one, certain objectives it has established for the program. These are explained to the participants. Instructor leads a general discussion about design of surveillance programs for Country X for each of these pathogens. Pathogens will be selected to present different kinds of challenges.

2.8. Selecting Diagnostic Tests

A number of issues raised in the discussion of design of targeted surveillance programs now are covered in lecture format, followed, in some cases, by participants solving problems or doing exercises on the topic, as listed in the Workshop Plan. OIE staff will provide information on sources of diagnostic test in the region where the workshop is offered. This section also would include general information about access to the OIE Manual on line and in print (demonstration of finding it and using it on line), an explanation of the terms of reference of OIE reference laboratories and of collaborating centres, (perhaps also FAO Reference laboratories). Specific information should be provided about reference laboratories available within the region in which the workshop is given, and the range of expertise of each.

2.9. Pathogen Prevalence

Lecture and exercises by participants about estimation of pathogen prevalence from surveillance data. This will include determining the sample size required for various objectives, incorporating diagnostic test performance into the estimate of prevalence and how prevalence can influence the predictive value of a diagnostic test.

2.10. (Targeted Wildlife Disease Surveillance Case Scenarios - continued)

We return to the targeted surveillance program for 3 pathogens to be carried out by Country X, the objectives of the surveillance programs, and come to a general consensus on the appropriate design for each, incorporating what has been learned about choosing diagnostic tests, sample size, etc.).

2.11. Data from Country X Targeted Surveillance

Each table of 6-8 participants receives data from one of the targeted surveillance programs. Instructor(s) remind them how to estimate prevalence and confidence around prevalence and to map their data, and each participant does so (maps will be provided if Internet is not available). Participants then discuss the surveillance results within each table/group and prepare a presentation to the other participants on their thoughts and observations. These are then presented in plenary. [It may be desirable to have only half of the tables/groups make presentations on Day 1 and the other half on Day 2]

2.12. Wildlife Disease Surveillance in Region

We will invite someone from the region who is well versed in wildlife disease surveillance to give an overview of wildlife disease surveillance activities in the region, any networks among surveillance programs or wildlife disease scientists that may exist, and major wildlife disease issues in the region, including those important to wildlife conservation, domestic animals and public health. This presentation should be interesting, full of pictures and regional information. The right person to present this in each region must be chosen carefully.

2.13. Data Management and databases in disease surveillance

A presentation on managing surveillance data and the features WFP may want in a data management system.

2.14. General Discussion on Wildlife Disease Surveillance in Region

General discussion about the workshop, surveillance and disease reporting to OIE, etc., will be led by OIE staff.

2.15. Communication Opportunities - Networks, Associations

Continuation of general discussion, but with a focus on maintaining communication among the region's WFP and also with other groups in the Region relevant to WFP activity.

2.16. Closing Events

Closing events – presented by OIE

TARGET GROUP
The target group consists of 24 OIE national focal points on wildlife, as designated by their respective OIE delegates, from the following countries:
FRENCH SPEAKING PARTICIPANTS

1. Benin	13. Equatorial Guinea *
2. Burkina Faso	14. Gabon *
3. Burundi	15. Guinea
4. Cameroon *	16. Guinea Bissau
5. Cape Verde	17. Madagascar
6. Central African Republic *	18. Mali
7. Chad	19. Mauritius
8. Comoros	20. Niger
9. Congo (Democratic Republic) *	21. São Tomé & Principe

10. Congo (Republic) *	22. Senegal
11. Côte d'Ivoire	23. Seychelles
12. Djibouti	24. Togo

From a budgetary and logistical (computers) perspective, no more than 20 participants are expected to attend. Participants, funded under the IDENTIFY programme are marked with an (*).

EXPECTED OUTPUTS
It is expected that the present training course will lead to a better understanding of wildlife surveillance and notification and should result in more and improved online submissions of immediate and scheduled notifications of wildlife diseases, to the OIE. The Malawi training seminar in April 2009 and to a lesser extent, the training seminars organized in Tunisia, in December 2009 and in Botswana in August 2010, have demonstrated that training efforts do lead to better and increased reporting, both for terrestrial and aquatic animal diseases.

TENTATIVE DATES AND DURATION OF THE WORKSHOP
Duration of the workshop: 4 days
Tentative dates: 28th November – 1st December 2011
Host Country: Botswana
Host institution: OIE Sub-Regional Representation for Southern Africa (SRR-SA) and *Regional Animal Health Centre for Southern Africa* (RAHC-SA), Gaborone.
LANGUAGE: The training course will be conducted in French only.
PARTICIPANTS (refer to above)
Estimated number: 20 participants + 4 invited observers (below) = 24 attendants
(of which 23 are to be supported by the OIE budget).

Annex 14: OIE Laboratory Strategic Planning Workshop, Melbourne, Australia, 20 – 24 March, 2012: concept note, list of participants, agenda, and evaluation report

Workshop on Strategic Planning for National Animal Health Laboratories

20-24th March 2012
Melbourne, Australia

Background

A large proportion of new, emerging, or re-emerging diseases affecting humans in recent years have originated in animals, revealing the vulnerability of an increasingly interconnected world to the global impact of new emergent diseases. The speed with which diseases can emerge and spread presents serious public health, economic, and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in geographic areas where disease threats are likely to emerge.

Recognizing this need, the United States Agency for International Development (USAID) has launched an Emerging Pandemic Threats (EPT) Program that seeks to aggressively pre-empt or combat diseases that could spark future pandemics; the IDENTIFY project is a component of this program that is focused on laboratory capacity building, strengthening and creating new linkages across existing networks. The ultimate aim of the five-year IDENTIFY project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to the World Organisation for Animal Health (OIE) on listed animal diseases and unusual epidemiological events or emerging diseases as required by the OIE Terrestrial animal Health Code, and investigating events of potential international public health concern and reporting to The World Health Organization (WHO) as required by the International Health Regulations (IHR).

Reviews of laboratory performance and capacity through OIE PVS Evaluations and Gap Analyses, Laboratory Assessments performed by various International Partners as well as Country and Laboratory visits by OIE staff, indicate that National Animal Health Laboratories in the region often lack guiding policy and strategic plans. This includes both the National Laboratory and the capacity building of the network of sub-national laboratories in a strategic and sustainable manner.

This gap was also highlighted at the recent FAO/OIE/WHO Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia Pacific Region held from 19 – 21 October 2011 in Kuala Lumpur, Malaysia with the following specific meeting resolutions:

The meeting recognising that:

1. Many countries within the region do not have strategic plan specific for the national animal health laboratory or the national system of laboratories, nor do they have any official strategic planning initiative or currently have a plan to develop one.
2. Barriers to the development of strategic plans for animal health laboratories include limited capacity/lack of experience and knowledge about strategic planning and the process of strategic plan development.
3. The results from OIE PVS Evaluations and Gap Analyses are critical inputs to the development of strategic plans.

The meeting recommending that:

1. OIE, as well as other partners (e.g. AAHL, FAO, NIAH Japan, WRL), should support the development of national animal health laboratory strategic plans for member countries in the region, through workshops and follow-up country missions.
2. OIE, through the OIE delegate, advocate for the importance of the strategic planning workshop and follow up mission initiative to gain buy-in at policy levels.
3. There should be on-going advocacy for the significance of laboratories as key component of veterinary and wildlife services and laboratory strategic plan.

It is to address this deficit that this IDENTIFY-supported workshop has been developed, to build capacity of laboratory directors (LD) in the principles and tools of developing strategic plans, to directly assist LDs in drafting a strategic plan, and provide them with guidance on the further elaboration and stakeholder buy-in, of the strategic plan back in the respective countries. This workshop will be held at the University of Melbourne, Australia in collaboration with the Australian Animal Health Laboratory (CSIRO - AAHL) in Geelong, Australia an OIE Collaborating Centre for Laboratory Capacity Building and delivered by the Melbourne University Business School - Mt Eliza Strategic Planning Experts, the Executive Education arm of the University of Melbourne Business School.

The workshop will run for five days (Tuesday to Saturday) and will cover subjects such as strategic thinking, stakeholder analysis and engagement, strategic options and choices, execution and practical steps to develop strategic plans for animal health laboratories. Whilst also covering general strategic concepts, the course has been tailored in consultation with OIE and CSIRO-AAHL to be delivered within the context of National Animal Health Laboratories and particularly applicable to laboratories within South and Southeast Asia. Practical experiences of developing Strategic Plans will be provided by key institutions during the week. Upon request further assistance in the development/elaboration of strategic plans will be provided to IDENTIFY-engaged laboratories under the IDENTIFY project in the form of follow up visits to countries by OIE and strategic planning experts.

Objectives

1. Build capacity of Laboratory Directors (LD) to strategically evaluate their organisation, stakeholders, and the laboratory's role and responsibility within the country's Veterinary Services and, within existing frameworks, develop strategic, long-term plans for the management, resourcing and future development of their laboratories.
2. Through engagement of relevant local institutes, offer participants an opportunity to gain insight into processes for developing and maintaining strategic plans.
3. Provide LDs with tools and guidance to develop a laboratory strategic plan in follow up to the workshop.

Draft Workshop Outline

	Looking outside the Organisation		Looking inside the Organisation	Strategic Options and Choices	Execution
	Day 1	Day 2	Day 3	Day 4	Day 5
	Review and Reflection	Review and Reflection	Review and Reflection	Review and Reflection	Review and Reflection
AM	Strategic Thinking • What is Strategy? • Strategy Schools • Toxic Assumptions	Stakeholder Analysis	Organisational Culture • Organisational Capabilities	Creativity & Innovation	Issues in Execution • The Metaphors • Alignment Models • The Change House
PM	External Environment • PESTLE • Scenarios	Value propositions to Stakeholders	The Business Model	Evaluating Options Strategic Choice	Where to from here? • Executive Summary • Action Plans
	Review and Reflection	Review and Reflection	Review and Reflection	Review and Reflection	Review and Reflection

Expected Participants

Expected participants will include Laboratory Directors from the USAID EPT IDENTIFY-engaged Animal Health Laboratories in South and South East Asia, and Laboratory Directors of some USAID EPT-PREDICT engaged Wildlife Laboratories. The workshop will be delivered by the Melbourne Business School – Mt Eliza Executive Education (see attached bios of facilitators) in collaboration with CSIRO-AAHL.

OIE – World Organisation for Animal Health
Strategic Planning Workshop
20 – 24 March, 2012

Tuesday 20 March, 2012		
8.30 – 9.00	Arrival Coffee	
9.00 – 9.30	Program Introduction	Graeme Taylor Marc Jones
9.30 – 10.30	Strategic Thinking	Marc Jones
10.30 – 10.45	Morning break	
10.45 – 11.45	Presentation from CSIRO	Peter Daniels
11.45 – 12.30	Strategic Thinking – cont'd	Marc Jones
12.30 – 1.30	Lunch (Buffet lunch in Gadsden Dining Room)	
1.30 – 3.30	Environmental Analysis	Marc Jones
3.30 – 3.45	Afternoon Break	
3.45 – 5.00	Environmental Analysis – cont'd	Marc Jones
5.00	Close	
6.30	Dinner DiMattina's Restaurant & Bar 306 Lygon Street, Carlton Vic 3053	

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Wednesday 21 March, 2012		
8.30 – 9.00	Arrival Coffee	
9.00 – 9.30	Reflection and Review	Graeme Taylor/Marc Jones
9.30 – 10.30	Developing the Strategy through Stakeholder Analysis	Graeme Taylor
10.30 – 10.45	Morning break	
10.45 – 12.30	Developing the Strategy through Stakeholder Analysis – cont'd	Graeme Taylor
12.30 – 1.30	Lunch (Sandwich in Fosters Foyer)	
1.30 – 3.30	Value propositions for key stakeholders	Graeme Taylor
3.30 – 3.45	Afternoon Break	
3.45 – 5.00	Value propositions for key stakeholders – cont'd	Graeme Taylor
5.00	Close	

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Thursday 22 March, 2012		
8.30 – 9.00	Arrival Coffee	
9.00 – 9.30	Reflection and Review	Graeme Taylor/Marc Jones
9.30 – 10.30	Organisational Culture	Graeme Taylor
10.30 – 10.45	Morning break	
10.45 – 12.30	Organisational Culture – cont'd	Graeme Taylor
12.30 – 1.30	Lunch (Buffet lunch in Gadsden Dining Room)	
1.30 – 3.30	The Business Model	Graeme Taylor
3.30 – 3.45	Afternoon Break	
3.45 – 5.00	The Business Model – cont'd	Graeme Taylor
5.00	Close	

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Friday 23 March, 2012		
8.30 – 9.00	Arrival Coffee	
9.00 – 9.30	Reflection and Review	Graeme Taylor/Marc Jones
9.30 – 10.30	Strategic Innovation & Creativity	Marc Jones
10.30 – 10.45	Morning break	
10.45 – 12.30	Strategic Innovation & Creativity – cont'd	Marc Jones
12.30 – 1.30	Lunch (BBQ Lunch in Courtyard)	
1.30 – 3.30	Strategy Synthesis	Marc Jones
3.30 – 3.45	Afternoon Break	
3.45 – 5.00	Strategy Synthesis	Marc Jones
5.00	Close	

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Saturday 24 March, 2012		
8.30 – 9.00	Arrival Coffee	
9.00 – 9.30	Reflection and Review	Graeme Taylor/Marc Jones
9.30 – 10.30	Strategy Execution	Marc Jones
10.30 – 10.45	Morning break	
10.45 – 12.30	Strategy Execution	Marc Jones
12.30 – 1.30	Lunch (Buffet lunch in Gadsden Dining Room)	
1.30 – 3.30	Mission, Vision and Strategic Intent	Graeme Taylor
3.30 – 3.45	Afternoon Break	
3.45 – 5.00	Executive Summary	Graeme Taylor
5.00	Close	

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List of Participants

OIE Workshop on Strategic Planning for National Animal Health Laboratories,

20-24 March 2012 in Melbourne, Australia

OIE Sub-Regional Representation for South East Asia	**Dr Andrew Davis** Programme Coordinator OIE SRR SEASIA c/o DLD, 69/1 Phaya Thai Road, Ratchathewi 10400, Bangkok, Thailand Tel: +66-2-6534864 Mobile: +66-8-23742561 Email: a.davis@oie.int	**Ms Patitta Angvanitchakul** Administrative Assistant OIE SRR SEASIA c/o DLD, 69/1 Phaya Thai Road, Ratchathewi 10400, Bangkok, Thailand Tel: +66-2-6534864 Mobile: +66-8-9800100 Email: p.angvanitchakul@oie.int
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OIE
Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Program/Module Overall

(a) Program/Module Overall

Participant Ratings					2	4	9
Mean 6.47	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Excellent workshop.
- We should have had this course earlier.
- The workshop made me understand the planning of programme and activities. I hope I can apply the lessons of the workshop.
- Great introduction to skills/thinking for strategic planning. Worked example to show detail specific to lab by a lab expert.

OIE
Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Program/Module objectives

(a) Have a better understanding of Strategic Thinking

Participant Ratings						3	12
Mean 6.8	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Have a better understanding on how to conduct environmental analysis

Participant Ratings						4	11
Mean 6.73	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Develop the strategy through Stakeholder analysis

Participant Ratings						7	8
Mean 6.53	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(d) Have a better understanding of organisational culture and its relationships

Participant Ratings					2	6	7
Mean 6.33	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(e) Confidently apply my learnings back in the workplace

Participant Ratings					1	4	9
Mean 6.57	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- I know now the factors considered in making good strategic thinking (high success rate).
- I will try on behalf of my organisation.
- A lab worked example with details of how, why and what may have helped a better understanding.
- Yes, I have a better understanding of strategic thinking as I never had before.

OIE
Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Preparation

(a) Pre-program information (content, etc) - relevance, ease of understanding and timeliness

Participant Ratings					**3**	**3**	**9**
Mean 6.4	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) General administrative / logistical information (location of venue, timings, etc)

Participant Ratings				**1**	**5**	**4**	**5**
Mean 5.87	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Should have given the context in advance. It is good if the participant has time to read the presentation in advance, especially for the short training.

OIE
Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Program design

(a) Overall program structure, presentation and design (timetable, length and flow of sessions, etc)

Participant Ratings						5	10
Mean 6.67	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Group size appropriate given program structure and design

Participant Ratings						5	10
Mean 6.67	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Flexible program structure accommodated individual needs

Participant Ratings					1	2	12
Mean 6.73	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Good programme structure.

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Program Evaluation

Learning Methods and Program materials

(a) Program materials contemporary / up-to-date

Participant Ratings					1	5	9
Mean 6.53	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Program materials appropriate to level of participant

Participant Ratings					2	4	9
Mean 6.47	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Mix of theory and practical relevance

Participant Ratings					1	5	9
Mean 6.53	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Not all participants are managers. Interaction was good.

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20 - 24 March 2012

Program Evaluation

Facilitation

(a) Facilitators approachable and willing / able to handle problems after sessions

Participant Ratings						3	12
Mean 6.8	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Facilitators worked together as a coherent team

Participant Ratings					1	3	11
Mean 6.67	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Facilitation overall

Participant Ratings						3	12
Mean 6.8	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

OIE
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Program Evaluation

Participants

(a) Participants of appropriate managerial / professional level

Participant Ratings					1	4	10
Mean 6.6	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Appropriate mix of participants and organisations (local, interstate and international)

Participant Ratings					1	8	6
Mean 6.33	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Level of interaction between participants

Participant Ratings						2	13
Mean 6.87	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

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20 - 24 March 2012

Program Evaluation

New skills and long-term learning

(a) Relevant skills and ideas taught

Participant Ratings						7	8
Mean 6.53	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Ease of implementing skills and ideas back at work

Participant Ratings					1	7	7
Mean 6.4	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Provided with new ways of thinking

Participant Ratings				1	2	5	7
Mean 6.2	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Yes, I get relevant skills to think about strategy.

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Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Follow-up

(a) Formal post-program support offered

Participant Ratings		1				3	10
Mean 6.43	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Encouraged to contact Mt Eliza informally once back at work

Participant Ratings	1				3	2	8
Mean 6	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Opportunities provided to network with other participants during and after program

Participant Ratings					2	5	7
Mean 6.36	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

OIE
Strategic Planning Workshop

20 - 24 March 2012

Program Evaluation

Fulfillment of objectives

(a) Program met personal expectations

Participant Ratings					2	4	9
Mean 6.47	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Program met organisation's professional expectations

Participant Ratings					1	5	8
Mean 6.5	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Would recommend program to professional colleagues

Participant Ratings					1	4	10
Mean 6.6	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

Comments for Group:

- Specific lab example for less experienced countries would help them.

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Program Evaluation

Food and Accommodation

(a) Food and restaurant service

Participant Ratings					1	5	9
Mean 6.53	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(b) Accommodation

Participant Ratings				1	3	4	7
Mean 6.13	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

(c) Convenience / location of accommodation

Participant Ratings					1	4	10
Mean 6.6	1 Strongly disagree	2	3	4 Neutral	5	6	7 Strongly Agree

OIE
Strategic Planning Workshop

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Program Evaluation

Facilitators

Please provide an overall rating for each Facilitator based on the following criteria:

- **Effectiveness of facilitation;**
- **Knowledge of the content;**
- **Expertise with delivery.**

Facilitator Name	Facilitation								Content								Expertise							
	1	2	3	4	5	6	7	Mean	1	2	3	4	5	6	7	Mean	1	2	3	4	5	6	7	Mean
Graeme Taylor							15	7.0							15	7.0							15	7.0
Marc Jones							15	7.0							15	7.0						1	14	6.9

Graeme Taylor

- Clear and focused.
- Excellent - Thank you.
- Thank you.
- Thanks Graeme. You are a good facilitator and good teacher.

Marc Jones

- Excellent- Thank you.
- Organised and up to date.
- Thank you.
- Thanks Jones. You are a good teacher.

Annex 15: Programme for the closing workshop of the OIE Laboratory Twinning Project between OVI (South Africa) and the National Veterinary Research Institute (NVRI, Nigeria)

Day One: Monday 19 March 2012		
8.30- 9.00	Participant registration	Ms Mmantshuruge Miyen
Session 1: Chair – Dr Nyager		
9.00 - 9.10	Opening of the workshop	Dr Ahmed, ED, NVRI
9.10 - 9.20	The importance of South-South Research Collaboration.	Dr Shamaki, DR, NVRI
9.20- 9.30	Presentation by FAO representative	
9.30- 09:40	Presentation by WHO representative	
9.40- 09.50	Rabies in Ghana	
9.50- 10.00	Rabies in Niger	
10.00-10.10	Rabies in Chad	
10.10-10.20	Rabies in Cameroon	
10.20-10.30	**Q and A**	
10.30-11.00	**Tea Break :**	
Session II- Chair, Dr Shamaki		
11.00-11.15	The concept of laboratory twinning	Dr Neo Mapitse , OIE
11.15-11.30	The journey, 2009- present	Dr C Sabeta (OVI)
11.30-11.45	Experiences: candidate laboratory's perspective	Dr C Nwosuh
11.45-12.00	The introduction and experiences with FAT	Dr Philip Okewole (NVRI)
12.00-12.15	FAVNT and cell culture – the lessons and future activities	Mr Chukwuedo (NVRI)
12.15-12.30	Mab typing and its usefulness in rabies surveillance in Nigeria	Dr Ogo (NVRI)
12.30-12.45	Rabies tissue culture isolation –a viable alternative to mouse inoculation	Dr Sini Tekki (NVRI)
12.45-13.00	Q and A	ALL
13.00 – 14.30	**Lunch break**	
Session III Chairing: Dr Neo Mapitse, OIE		
14.30 –16.30	General discussion to include the special project	ALL
18.00 – 20.00	Dinner	
Day Two: Tuesday 20 March 2012		
9.00 – 11.30	Tour of the facilities at NVRI (ALL)	Dr Chika Nwosuh
11.30-13.00	Recommendations and closing of the workshop	Dr Neo Mapitse
13.00-14.00	LUNCH	
PM	FREE	

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PREDICT Region/Country/Global Level Implementation Plan

1 October 1 2011 – 30 September 2012

Submitted to:
United States Agency for International Development
under Cooperative Agreement # GHN-A-00-09-00010-00

Submitted by:
Univer
sity of California, Davis

BACKGROUND

In order to predict, respond to and prevent the emergence of novel infectious diseases in humans, pathogens must be identified at their source. Explosive human population growth and environmental changes have resulted in increased numbers of people living in close contact with animals. Unfortunately the resulting increase in contact, together with changes in land use, has altered the inherent ecological balance between pathogens and their human and animal hosts. PREDICT, a project of USAID's Emerging Pandemic Threats Program, is building a global early warning system to detect and reduce the impacts of emerging diseases that move between wildlife and people. PREDICT has developed a SMART surveillance method (Strategic, Measurable, Adaptive, Responsive and Targeted) that accounts for the fact that zoonotic pathogens, such as influenza and SARS, are responsible for the majority of emerging infectious diseases in people, and that more than three quarters of these emerging zoonoses are of wildlife origin. The SMART surveillance approach is designed to detect novel diseases with pandemic potential early, giving health professionals the best opportunity to prevent emergence and spread. It also targets sentinel animal species at active human interfaces in hotspot regions to improve surveillance efficiency.

The PREDICT team builds on a broad coalition of partners to develop the global capacity to monitor diseases at the animal-human interface and develop a risk-based approach to concentrate these efforts in surveillance, prevention, and response at the most critical points for disease emergence from wildlife.

PREDICT project objectives:

- Assess and improve local surveillance capacity;
- Increase the value of infectious disease modeling;
- Implement targeted and adaptive wildlife disease surveillance systems;
- Develop and deliver new technologies to improve efforts close to the source;
- Use cutting-edge information management and communication tools to bring the world closer to realizing an integrated, global approach to emerging zoonotic diseases.

ACTIVITIES BY LINE OF WORK

GLOBAL - US, Africa, Southeast Asia, Asia & Latin America

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Strengthen capacity for wildlife surveillance and animal disease investigation; build linkages with public health systems; evaluate infrastructure and equipment for conducting surveillance annually; evaluate GAINS database performance quarterly to prioritize challenges and opportunities associated with tracking wildlife surveillance activities; update and review surveillance plans quarterly to adapt to local situations and emerging risk interfaces; prepare and update PREDICT training materials to support new and refresher field trainings; train PREDICT personnel to support surveillance activities as needed; train and involve government ministries and stakeholder groups in surveillance activities for long-term incorporation of wildlife pathogen detection in surveillance plans; develop a guide and implement cross-training to improve outbreak investigations and reporting for strengthening wildlife-related outbreak response capacity; support development of a sustainable multinational wildlife surveillance system.

  - Sub-activity 1.1.2: **Laboratory System**: Enhance diagnostic laboratory capacity in PREDICT countries to perform novel pathogen detection and diagnostics; build linkages to appropriate public health systems; continue to assess and provide support to improve infrastructure, equipment and protocols utilized in laboratories testing PREDICT samples; provide new protocols and controls and strengthen supply chain for diagnostic laboratories; provide training, guidance and support to perform and optimize testing protocols, data management and reporting of results; continue to support and develop regional diagnostic centers to provide more advanced diagnostics than may be possible currently in all PREDICT countries, and enable regional centers (labs) to provide training support and quality control for developing in-country laboratories; conduct pathology training workshops for PREDICT partners.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Include One Health concepts in wildlife surveillance and diagnostic activities, presentations, and training sessions; work with stakeholders to facilitate, develop and implement local, national and regional One Health strategies; support

development of programs for integrating wildlife surveillance across professions and sectors to improve emerging zoonotic disease training, surveillance, identification and response capacity; involve local experts, stakeholders and government personnel in One Health activities to improve the long-term capability of ministries and stakeholder groups to sustain zoonotic disease surveillance, pathogen identification and outbreak response.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Synthesize findings from the Rapid Survey Tool by country and region to assess success of PREDICT project objectives and track improvements in wildlife surveillance capacities; continue to identify critical gaps based on survey findings and highlight practical opportunities for enhancing or implementing wildlife disease surveillance; conduct annual Rapid Survey Tool updates to obtain improved information and document changes in capacity for conducting wildlife surveillance; continue to identify stakeholder institutions and key country partners to assist in surveillance and diagnostic activities; develop a shared vision for building capacity to implement wildlife disease surveillance activities and strengthen animal laboratory diagnostic capabilities.

Partners: UCD, WCS, EHA, GVF, SI, government ministries, diagnostic laboratories, universities, stakeholder groups, PREVENT, IDENTIFY, RESPOND, DELIVER

Expected results: Improved capacity for in-country personnel and institutions to conduct wildlife field surveillance and laboratory testing activities to facilitate timely detection and reporting of zoonotic pathogens; strengthened relationships with governments and stakeholder groups for coordination during outbreaks; implemented sustainable transdisciplinary One Health efforts to improve human and animal health.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across all EPT countries**: Continue to build coordination among national ministries, government entities, NGOs and universities to facilitate sharing of wildlife zoonotic disease data and increase awareness regarding zoonotic disease threats; implement sampling protocols for surveillance, including collection, processing, storage and transport of samples from humans and wildlife; ensure timely diagnostic testing of samples with proper tracking of samples and results in the GAINS database; investigate zoonotic pathogen-associated outbreaks from wildlife and novel pathogens of pandemic potential; assess and amend sampling approaches as necessary to ensure that high-priority species, samples and interfaces are being targeted; manage regional leads of all PREDICT partners to ensure

that surveillance activities are continuing to develop cohesively through bi-monthly conference calls; facilitate and support IUCN Wildlife Health Specialist Group to serve as knowledge network for WHO, OIE and FAO for country-level situational analysis and investigations.

Partners: UCD, WCS, EHA, GVF, SI, national ministries, national and regional diagnostic laboratories, IUCN Wildlife Health Specialist Group, WHO, OIE, FAO, PREVENT, IDENTIFY, RESPOND, DELIVER

Expected results: Effective, coordinated, and responsive wildlife zoonotic disease surveillance activities across all EPT countries with strengthened capacity for wildlife sampling and sample handling and integration of surveillance data into the GAINS database; refined surveillance approaches through sample and interface selection analysis.

- **Activity 1.3: Technology Development and Pathogen Discovery**
  - Sub-activity 1.3.1: **Introduction of new technologies in high priority countries:** Institute new technologies capable of supporting EPT activities in PREDICT countries, addressing identified gaps in existing technological infrastructure; target institutions and key personnel for technology transfer with the aim of building capacity; introduce appropriate and sustainable technology to support wildlife surveillance system, including piloting of new methods and optimizing existing protocols in specific areas for human surveillance, animal capture and restraint, sampling technologies and sample management; implement new diagnostic protocols and capabilities in collaborating laboratories in-country; sample stabilization technologies will increasingly be utilized where appropriate to provide higher quality samples for in-country as well as advanced US pathogen discovery techniques; pilot novel mobile electronic sample tracking devices in the field for immediate entry of data and near real-time flow of information; continue to develop deployable laboratories for rapid response to outbreak events.
  - Sub-activity 1.3.2: **Pathogen discovery:** Continue to refine SMART pathogen detection plan for each high-risk interface in targeted countries; identify laboratory needs and capacities to conduct pathogen discovery in all countries possible; continue to transfer pathogen detection and discovery technology to in-country laboratories by technology transfer and providing equipment, supplies and on-the-job training; provide pathogen discovery confirmation and support through state-of-the-art laboratories in the US and regionally; specifically, broaden the local screening for virus families by implementing molecular protocols for filovirus, flavivirus, paramyxovirus, coronavirus, arenavirus, hantavirus, alphavirus, poxvivus; transfer and implement new “universal control” plasmid to diagnostic sites that safely acts as a positive control for 12 different assays and contains

an integrated control sequence to allow for detection of positive control contamination in samples; standardize sample testing strategy across PREDICT sites to allow for harmonization of data across the program; adapt sample-testing strategy as directed by new results to maximize pathogen discovery success; identify samples that can be exported for testing regionally and in US as needed and appropriate.

Partners: UCD, WCS, EHA, GVF, SI, Center for Immunity and Infection (Columbia University, New York), regional diagnostic laboratories, , Blood Systems Research Institute (BSRI), University of California San Francisco (UCSF), Eureka Genomics, University of Texas, Houston

Expected results:; Installation of equipment into collaborating diagnostic labs, increasing diagnostic capability including pathogen discovery; trained personnel utilizing new technologies; implemented and evaluated mobile technology in three countries to evaluate expanding this real-time sample tracking technology; implemented and optimized new virus family-level PCR protocols in countries with sufficient laboratory infrastructure; transferred technology and viral discovery protocols by mid-YR3; improved cold storage and cold-chain to ensure sample quality; sample-testing strategy normalized across field sites; deployable laboratories, where utilized, are augmented and field tested; improved quality of collected specimens via enhanced utilization of sample stabilization technology where cold-chain is not reliable; export and testing of samples for pathogen discovery as needed; new pathogens discovered and risk characterization initiated.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Implement standardized data collection and management in each target country; optimize standardized sample labeling and tracking system.

  - Sub-activity 1.4.2: **Establish global open access to database and procedure for dissemination of knowledge:** Maintain a global open access database and distribute real-time data and modeling results on zoonotic pathogens of concern to public health as appropriate.

Partners: UCD, WCS, EHA, GVF, SI, Healthmap, ProMED, Yale

Expected results: Standardized field surveillance data collection across all countries; effective tracking of samples and diagnostics from wildlife species; global distribution of field and digital surveillance data through an open access zoonotic disease database.

- **Activity 1.5 Program Management**
    - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the program and facilitate the efficient accomplishment of all activities (includes logistics); seek and utilize executive board and technical advisory committee guidance; and ensure integration and coordination of all partners.
    - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries and partners to ensure fiscal responsibility; develop, review and approve budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting; process and monitor subcontracts.
    - Sub-activity 1.5.3: **Communication:** Facilitate communication with USAID and EPT Program, PREDICT team members, advisory board members, external partners and USAID missions through in-person national and international meetings, conference calls, written advisories, web-based applications and reports; continue formalized liaison arrangement with RESPOND to coordinate global activities.
    - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; collect and incorporate partner data into USAID reports; utilize electronic reporting tools, such as the GAINS database and HealthMap and any other reporting systems specified by USAID.

    Partners: UCD, WCS, EHA, GVF, SI, USAID, EPT Projects

    Expected results: Effective management of the project; successful flow of information among PREDICT participants and partners; timely compliance with all reporting requirements.

LOW 2: Risk Determination

- **Activity 2.1: Refine risk filter strategy**
    - Sub-activity 2.1.1: **Refine the conceptual and structural framework** to prioritize PREDICT activities and provide guidance on overall EPT program, including country, site, species and risk interface selection and molecular characterization of potential pathogens; use an adaptive surveillance and modeling approach by responding to current risk and pathogen emergence and incorporating data from surveillance activities into models of transmission among animals and between animals and humans, improving overall program strategy.

- Sub-activity 2.1.2: **Inform and integrate other relevant agencies:** inform current and potential partners of USAID EPT on PREDICT strategy and findings as appropriate, including the White House EPT working group, National Institutes of Health, USHS, USDA, CDC, DoD, WHO, FAO, OIE and World Bank; garner support and interest in this strategy to leverage and expand EPT activities to the broader public health and academic communities.

Partners: UCD, WCS, EHA, GVF, SI, PREDICT Advisory Board, USAID, EPT Partners

Expected results: Improved understanding among USG agencies and key partners of the strategies and expected outcomes of the EPT program; increased external partners engaged in EPT-related activities globally.

- **Activity 2.2 Optimize models for diversity of disease emergence**

  - Sub-activity 2.2.1: **Refine and test geographical and temporal 'hotspot' models:** Improve the global emerging infectious disease hotspots models through a multi-step, iterative process in which the underlying databases will be updated first, then country level hotspots maps will be constructed using global model parameters and finer-scaled driver data; construct new driver datasets to be used in models, with particular focus on building socio-economic and risk interface proxy datasets to capture areas where human-animal contact is most likely highest; test hotspot models through an adaptive process of ground truthing with field data collected throughout the project and through an open dialogue between the modeling and surveillance teams and country coordinators; incorporate newly developed bias reporting measure into hotspots model to more accurately account for the uneven reporting of emergence events across the globe; incorporate both spatially explicit and machine learning methods into hotspots models; launch metagenomics field surveillance project to sample wildlife hosts across a gradient of human impact to test the importance of contact, wildlife host species and the environment on the potential zoonotic pathogen pool.

  - Sub-activity 2.2.2: **Iteratively improve datasets:** Use an adaptive modeling approach by incorporating data from surveillance activities into models of transmission among animals and between animals and humans; update hotspots models as new global level spatial datasets on wildlife diversity and abundance, human population density, roads and other travel networks, land cover and land use change, and environmental variables of interest become available; create online web-portal for data entry, data management, and multi-partner data analysis to make modeling collaborations more seamless; create expert community of scientists to check the details of historical emergence events and decide

on the addition of new events to the database, to ensure the most accurate and complete disease database possible for use in future modeling activities.

- Sub-activity 2.2.3: **Design a 'Global Vulnerability' modeling strategy**: Propose 'what if?' scenarios for future unknown disease emergence based on key emerging zoonotic pathogen 'types/templates' for all EPT regions; identify a group of the most important 'types' of zoonotic pathogens or 'templates' of emergence patterns based on data for all emerging infectious diseases (EIDs) over the past few decades; build spatially-explicit matrix models; test predictive models of disease spread via trade and travel out of primary emergence site: specifically model the risk of the wildlife trade and other important factors driving zoonotic disease emergence; build a basic model for the dynamics of pathogens within and among wildlife, domestic animals and humans.

Partners: UCD, WCS, EHA, GVF

Expected results: New and improved global risk models and finer-scale country and regional scale hotspots maps where finer-scale driver data can be obtained; new global scale risk-interface and driver datasets; predictive model of disease risk and vulnerability coming into and out of areas of concern; detailed information on the effects of land use change and wildlife trade and consumption on zoonotic disease emergence.

LOW 3: Outbreak Response Capacity Building
Develop a wildlife response guide and implement cross-training to improve outbreak investigations and reporting, strengthening PREDICT partners' (e.g. wildlife and agricultural ministries) role in outbreak response capacity and investigations; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities other than supporting other EPT partners.

IMPLEMENTATION PLAN - GLOBAL

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	WILDLIFE PATHOGEN DETECTION						
1.1	Capacity Building	UCD, EHA, WCS, GVF, SI, J. Mazet, W. Karesh, T. Goldstein, W. Miller, D. Bunn	Improve wildlife surveillance and laboratory diagnostic capacity to detect zoonotic pathogens by enhancing infrastructure; providing training and improving coordination to operationalize One Health; strengthen outbreak response capabilities.	**X**	**X**	**X**	**X**
1.2	Surveillance	UCD, EHA, WCS, GVF, SI, W. Karesh, C. Johnson	Effective, coordinated, and responsive wildlife zoonotic disease surveillance activities across all EPT countries with strengthened capacity for wildlife sampling and sample handling and integration of surveillance data into the GAINS database; refined surveillance approaches through sample and interface selection analysis.	**X**	**X**	**X**	**X**
1.3	Technology Development and Pathogen Discovery	UCD, EHA, WCS, GVF, SI; J. Fair, S. Anthony	Testing of samples for pathogen detection and discovery, exporting samples as required; implemented and optimized new virus family-level PCR protocols in countries with sufficient laboratory infrastructure; transferred technology and viral discovery protocols; new pathogens	**X**	**X**	**X**	**X**

			discovered and risk characterization initiated; installation of equipment into collaborating diagnostic labs to increase diagnostic capability including pathogen discovery; trained of personnel utilizing new technologies; implemented and evaluated mobile technology; improved cold storage and cold-chain to ensure sample quality; deployable laboratories augmented and field tested; improved quality of collected specimens via enhanced utilization of sample stabilization technology where cold-chain is not reliable.				
1.4	Sample Tracking and Information Management	UCD, EHA, WCS, GVF, SI; D. Joly	Standardized field surveillance data collection across all countries; effective tracking of samples and diagnostics from wildlife species; global distribution of field and digital surveillance data through an open access platforms.	**X**	**X**	**X**	**X**
1.5	Program Management	UCD, EHA, WCS, GVF, SI; J. Mazet, S. Morse, L. Stevenson	Effective management of the project; successful flow of information among PREDICT partners; timely compliance with all reporting requirements.	**X**	**X**	**X**	**X**
	Risk Determination						
2.1	Develop Risk Filter Strategy	UCD, EHA, WCS, GVF, SI; J. Mazet, W. Karesh, P. Daszak	Improved understanding among USG agencies and key partners of the strategies and expected outcomes of the EPT program; increased external partners engaged in EPT-related activities globally.	**X**	**X**	**X**	**X**

2.2	Optimize models for diversity of disease emergence	UCD, EHA, WCS, GVF, SI; P. Daszak	Improved global risk models with predictive capabilities; finer-scale country level hotspots maps where country level driver data exists; predictive global vulnerability risk maps; detailed information on the effects of land use change and wildlife trade and consumption on zoonotic disease emergence.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - GLOBAL

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Countries performing wildlife surveillance field activities; countries with intact cold-chain for sample collection; timely reporting and tracking of samples and diagnostic results	GAINS database Rapid Survey Tool	Quarterly Annual	UCD (J. Mazet, T. Goldstein, W. Miller) WCS, EHA, GVF, regional leads, country coordinators
1.1.2 Laboratory System	In-country laboratories extracting and/or testing PREDICT samples; pathogen diagnostic and discovery protocols performed on PREDICT samples	GAINS database Rapid Survey Tool	Quarterly Annual	UCD (T. Goldstein), WCS, EHA (S. Anthony), GVF (J. Fair)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Operationalizing One Health	Individuals receiving training on wildlife surveillance and One Health concepts; individuals participating in One Health-related projects including or linked to PREDICT	PREDICT training logs Base-camp Quarterly Reports	Quarterly	UCD (J. Mazet), EHA (W. Karesh), WCS, GVF, SI (S. Murray, C. Whittier)
1.1.4 Capacity Assessment and Tracking of Development	Countries updating Rapid Survey Tool results; institutions and in-country partners assisting with and performing wildlife surveillance and diagnostic activities	GAINS database Rapid Survey Tool Reports	Quarterly Annual	UCD (T. Goldstein, W. Miller) WCS, EHA, GVF, SI, regional leads, country coordinators
1.2.1 Coordination of Surveillance	Effective and coordinated wildlife zoonotic disease surveillance in hotspot regions	GAINS database Biweekly surveillance team meetings Quarterly Reports	Monthly status review and quarterly reporting	EHA (W. Karesh), UCD (C. Johnson), WCS, GVF
1.3.1 Introduction of New Technologies	Introduction of new and sustainable technologies to support wildlife surveillance and pathogen detection	Documentation of new technology introduced and evaluation of utility and userability of each in Quarterly Reports	Quarterly and annual reporting and review of all results	GVF (J. Fair) and supporting partners WCS, EHA, SI, UCD

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.2 Pathogen Discovery	Diagnostic testing of priority PREDICT partner samples collected from wildlife and detection of new pathogens	GAINS database Reports to PREDICT partners Quarterly Reports	Daily, Monthly, Quarterly and annual reporting and review of all results	GVF (J. Fair) and EHA (S. Anthony), UCD (T. Goldstein), and supporting partners WCS, Center for Immunity and Infection, , UCSF
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS database Quarterly Reports	Monthly, Quarterly, Annually	WCS (D. Joly), HealthMap and supporting partners UCD, EHA, GVF, ProMED, Yale
1.4.2 Establish Open Access Database	Global distribution of digital and field surveillance data (specifically, field and digital surveillance data are accessible by the general public when released by country governements)	GAINS database Healthmap.org	Monthly, Quarterly, Annually	WCS (D. Joly) and supporting partners UCD, EHA, GVF, HealthMap, ProMED, Yale
1.5.1 General Management	Satisfactory progress on all objectives	Base-camp Advisory Committee guidance Quarterly Reports	Daily, Monthly, Quarterly, Annually	UCD (J. Mazet, S. Morse, L. Stevenson, A. Mahler), USAID and supporting partners WCS, EHA, GVF, SI
1.5.2 Fiscal Management	Near real-time expense tracking; adaptive fiscal management	Invoicing Expense tracking Budget projection	Monthly	UCD (L. Stevenson, J. Mazet) and supporting partners WCS, EHA, GVF, SI

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
		spreadsheets Quarterly Reports		
1.5.3 Communication	Functional utility of all communication systems	In-person meetings Advisories Web-based applications Base-camp Quarterly Reports	Daily (All), Weekly (Senior Mgmt, Executive Board), Quarterly (USAID Missions, EPT), Annually (PREDICT-all)	UCD (J. Mazet, S. Morse, L. Stevenson, A. Mahler) and supporting partners WCS, EHA, GVF, SI
1.5.4 Reporting	Complete, accurate, and timely technical and fiscal reporting	Administrative Reports as requested Quarterly Reports GAINS Base-camp HealthMap	Monthly, Quarterly, Annually	UCD (J. Mazet, L. Stevenson) and supporting partners WCS (D. Joly), EHA, GVF, SI
2.1.1 Develop Risk Filter Framework	Framework to guide and prioritize activities and contribute to overall EPT program direction	In-person meetings Quarterly Reports GAINS database Input from government partners and external experts	Monthly, Quarterly, Annually	UCD (J. Mazet), EHA (P. Daszak, W. Karesh) and supporting partners WCS, GVF, SI
2.1.2 Integrate Risk Strategy with Other Agencies	Improved understanding among USG agencies and key partners of the strategies and expected	In-person meetings Input from government partners Advisory Committee USAID	Quarterly, Annually	UCD (J. Mazet), EHA (P. Daszak, W. Karesh), WCS (D. Joly), GVF (J. Fair), SI (S. Murray, C. Whittier)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	outcomes of the EPT program			
2.2.1 Refine and Test Hotspot Models	Release of new global risk data and country level hotspots maps; refined driver databases; online data entry and analysis portal; refined EID event database	Online applications Quarterly Reports	Weekly, ad hoc basis as needed, Quarterly	EHA (P. Daszak) and supporting partners UCD, WCS, GVF
2.2.2 Improve Modeling Datasets	Correction of new maps by country coordinators and surveillance data; revision of hotspots maps per findings	Online applications Quarterly Reports	Weekly; ad hoc basis as needed, Quarterly	EHA (P. Daszak) and supporting partners UCD, WCS, GVF
2.2.3 Design Global Vulnerability Modeling Strategy	Global vulnerability map resulting from risk modeling activities	Online applications Quarterly Reports	Monthly, Quarterly, Annually	EHA (P. Daszak) and supporting partners UCD, WCS, GVF

OVERALL PROJECT MANAGEMENT

Organizational Relationships

PREDICT assigns responsibility for specific objectives and individual country management to one of its institutional partners, based on the technical thrust of the project, institutional experience and other factors. The managing organizations are led by UC Davis with subawards to the Wildlife Conservation Society (WCS), EcoHealth Alliance (EHA), Global Viral Forecasting (GVF) and the Smithsonian Institution (SI). Oversight of project activities is performed by the PREDICT Co-Directors J. Mazet and S. Morse; Senior Management Team A. Clements, A. Pereira, J. Mazet, S. Morse and W. Karesh; and Executive Board Members J. Mazet, S. Morse, P. Daszak/W. Karesh, D. Joly N. Wolfe/J. Fair and S. Murray. The project objectives are led by team members responsible for implementing each objective: Program Management (J. Mazet, S. Morse, L. Stevenson), Capacity Building (T. Goldstein, W. Miller, J. Mazet), Surveillance (W. Karesh, C. Johnson), Technology Development and Pathogen Discovery (J. Fair, S. Anthony), Sample Tracking and Information Management (D. Joly), Development of a Risk Filter Framework (J. Mazet, P. Daszak, W. Karesh) and Optimization of Models for Disease Emergence (P. Daszak).

Overview

The PREDICT team is a functionally collaborative and fully integrated working group that benefits from the experience of world leaders in wildlife surveillance, modeling and epidemiology. The Co-Directors accomplish the PREDICT objectives through the organizational structure described above. The team functions by holding task and deliverables-oriented conference calls daily or weekly as needed, as well as multiple in-person meetings

The Co-Directors benefit from the guidance of the Executive Board, which consists of the most senior representative of UC Davis, WCS, EHA and GVF, to ensure integration and coordination of activities. The Executive Board holds bi-weekly conference calls to review activities, identify programmatic gaps, determine progress toward objectives and coordinate capacity building and training plans.

External guidance is provided by a Technical Advisory Committee composed of experts in the fields of Infectious Diseases, Zoonotic Diseases and Public Health, which reviews progress and plans and advises on priorities and strategic focus.

Day-to-day management of the project and progress toward objectives is the overall responsibility of the Co-Directors, with assistance from the administrative staff. In addition to the management and coordination of program vision, direction and functional successes, the Co-Directors are responsible for the administration and integration of the entire program and review and approve budgets, assess ongoing budgetary needs and lead meetings with the Senior Management Team, Objective Leads, Executive Board

and the Technical Advisory Board to assess the program's productivity and accomplishments with respect to its goals. The Senioir Management Team (J. Mazet, S. Morse, W. Karesh) is the point of contact for communications with USAID and coordination with the other EPT arms, RESPOND, IDENTIFY and PREVENT.

Activities and Locations

All project objectives are managed and coordinated centrally in California (UC Davis, Global Viral Forecasting Inc.) and New York (Wildlife Conservation Society, EcoHealth Alliance), as described in the sections above. The project objectives are performed regionally and in each country as described in the detailed country descriptions below.

Partnerships

Besides the core partners (UCD, GVF, WCS, EHA, SI) who manage all of the project objectives, additional partners contribute to one or more of the objectives centrally. These partners include USAID Global Health Bureau, Colombia University, the Center for Immunity and Infection (also at Columbia University), HealthMap, ProMED, Yale University, RESPOND, IDENTIFY, PREVENT, DELIVER, CDC, OIE, FAO, WHO, USDA, DoD, USHS, Center for International Earth Science Information Network, IUCN Wildlife Health Specialist Group, White House EPT working group and National Institutes of Health.

Numerous in-country partnerships have also been established in all PREDICT countries and include national ministries, national and regional diagnostic laboratories, universities, NGOs, USAID Missions and US Embassies; these are described in detail for each country in the sections below.

Reporting

Reporting occurs daily to the Co-Directors, weekly (Senior Management, Executive Board, Objective Sub-teams), monthly (GAINS Database, Financial, Technical, Travel), quarterly (Training, Surveillance Activity, USAID, EPT) and annually (PREDICT annual coordination meeting with management, all objective leads, country coordinators and regional leads).

AFRICA REGION

Cameroon

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Coordination with local and national agencies to ensure all major interfaces are included in the surveillance plan; reinforced protocol adherence through training updates and refreshers for project staff and collaborators; continue to attend MoH and WHO weekly surveillance meetings to ensure rapid access to potentially important reports of zoonotic disease.

  - Sub-activity 1.1.2: **Laboratory System**: Continue identifying samples collected from high priority species in Cameroon at the GVF-CHP CRESAR laboratory; establish additional laboratory screening protocols for filoviruses, poxviruses, arenaviruses, hantaviruses, herpesviruses, alphaviruses and coronaviruses; train laboratory staff in biosecurity, biosafety and shipping, in order to decrease the risk of laboratory acquired infections.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Attend the EPT partner meetings in-country as scheduled by USAID; support public awareness activity in-country through collaboration with key EPT partners; continue to promote One Health knowledge with key Ministerial partners.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Collect information about infrastructural as well as institutional and legal improvements in the field of emerging infectious disease surveillance and research; use the information to update the PREDICT Rapid Survey Tool and maps when appropriate**.**

  Partners: Ministry of Health, Ministry of Forest and Fauna, WHO, RESPOND, PREVENT

  Expected results: Continued promotion and advocacy with key government partners will occur in liaison with EPT partners in-country; established quarterly meetings that facilitate joint-meetings and advocacy sessions with mutual government partners.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Cameroon:** Continue coordination with Ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** Non-human primates, bats, rodents, humans
    - **Interfaces:** Hunted, traded, confiscated, free-ranging, syndromic, peridomestic
    - **Proposed Locations:** East province (Ngoila, Lomie, Moloundou, Djoum), south province (Mvangan, Maan), south west province (Euyomojock)

  Partners: Care and Health Program of Cameroon (CHP-GVF), Centre Pasteur du Cameroon, Limbe Wildlife Center, WHO, other relevant NGOs and local stakeholders.

  Expected result(s): Continue surveillance coordination with partners; pathogen detection and discovery continued for acquired wildlife samples and use of GAINS for enhanced diagnostic efficiency; sustained strategic implementation of surveillance in proposed locations and development of collaborations with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure; continue dried blood spot cards and real-time PCR introduced in year 1 and 2 (PCR on these specimens will continue to be the mainstay of detection in remote areas in year 3); utilize sample stabilization technologies where appropriate to provide higher quality samples for in-country as well as advanced US pathogen discovery techniques; augment our portable field laboratory that contains mobile PCR and real-time PCR systems, and a mobile biohazard containment device (battery operated HEPA tents), to further include various supportive reagents, a portable refrigerator, -80°C freezer and additional equipment to allow effective and rapid deployment for outbreak response; introduce mobile electronic sample tracking devices in the field, for immediate entry of data and near real-time flow of information.

  - Sub-activity 1.3.2: **Pathogen discovery:** Continue to collect samples for pathogen detection according to the established protocols and

surveillance plan for each high-risk interface and identify laboratory needs and capacities to conduct pathogen discovery in-country in liaison with WHO/IDENTIFY. Specifically: broaden the local screening for virus families by implementing molecular protocols for filovirus, flavivirus, paramyxovirus, coronavirus, arenavirus, hantavirus, alphavirus, poxvivus; transfer and implement new "universal control" plasmid to diagnostic sites that safely acts as a positive control for 12 different assays and contains an integrated control sequence to allow for detection of positive control contamination in samples; adapt sample testing strategy as directed by new results to maximize pathogen discovery success.

Partners: Care and Health Program of Cameroon (CHP-GVF), WHO

Expected result(s): New technologies introduced and utilized; identified capacity gaps in CRESAR (CHP-GVF) Laboratory and appropriate training and material resources introduced where possible; expanded infrastructure of CRESAR (CHP-GVF) Laboratory to improve viral diagnostics capacity and cold storage for sample archive.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: CHP-GVF

  Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (including logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person

meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: N/A

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continue ongoing multi-faceted communication with in-country partners including the USAID Mission in Cameroon through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Cameroon Basecamp site; continued compliance on all reporting requests (financial, technical, environmental, travel); surveillance data entered into the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

Partners: N/A

Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data into GAINS on a monthly basis; data provided to the Modeling team as requested.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate Ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – CAMEROON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Ubald Tamoufe, GVF Country Coordinator	Continue developing relationships with key Ministry officials and collaborations with in-country EPT partners; establish communication with EPT partners in overlapping areas of intervention in-country.	**X**	**X**	**X**	**X**
1.2	Surveillance	Ubald Tamoufe, GVF Country Coordinator Brad Schneider, Director of Laboratory Sciences Wayland Bergman, Project Coordinator	Continue implementing framework for surveillance data coordination with partners; pathogen detection and discovery initiated for acquired wildlife samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.	**X**	**X**	**X**	**X**
1.3	Technology Development	Brad Schneider,	New technologies introduced and utilized, including a newly developed family-level	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	and Pathogen Discovery	Director of Laboratory Sciences; Wayland Bergman, Project Coordinator	viral discovery protocols; identified capacity gaps in CRESAR Laboratory diagnostic center and training and material resources introduced; expanded infrastructure of CRESAR to improve virology diagnostics and cold storage for sample archival.				
1.4	Sample Tracking and Information Management	Matthew LeBreton, GVF Ecology Director	All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data in GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Ubald Tamoufe, GVF Country Coordinator	Full fiscal disclosure and real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance with all reporting requests; surveillance data reported into GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for	Matthew LeBreton, GVF	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	diversity of disease emergence	Ecology Director	and optimized as needed; data in GAINS on a monthly basis; data provided to Modeling team as requested.				

PERFORMANCE MONITORING PLAN – CAMEROON

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Continued update of surveillance system	Quarterly Reports	Quarterly	Mat LeBreton GVF Ecology Director
1.1.2 Laboratory System	New protocols established Quality Assurance improved.	Quarterly Reports	Quarterly	Cyrille Djoko GVF Lab Director, Ubald Tamoufe GVF Country Coordinator, Brad Schneider GVF Director of Laboratory Sciences
1.1.3 Operationalizing One Health	Support and Participate in EPT partner meetings and activities	Quarterly Reports	Quarterly	Ubald Tamoufe GVF Country Coordinator, Erin Papworth GVF Regional Program Manager
1.1.4 Capacity Assessment and Tracking of Development	Continue trainings and support to key Ministerial partners	Quarterly Reports	Quarterly	Mat LeBreton GVF Ecology Director

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp & GAINS database	Monthly	Mat LeBreton GVF Ecology Director
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Cyrille Djoko GVF Lab Director, Brad Schneider GVF Director of Laboratory Sciences
1.3.2 Pathogen Discovery	Improved infrastructure at CRESAR for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly Reports	Cyrille Djoko GVF Lab Director Coordinator, Brad Schneider GVF Director of Laboratory Sciences
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Matt LeBreton GVF Ecology Director
1.5.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Matt LeBreton GVF Ecology Director, Karen Saylors GVF HQ
1.5.2 Fiscal Management	Near real-time expense tracking	Basecamp	Monthly	Ubald Tamoufe GVF Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Ubald Tamoufe GVF Country Coordinator, Erin Papworth GVF Program Manager
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Ubald Tamoufe GVF Country Coordinator, Erin Papworth GVF Program Manager
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Matthew LeBreton GVF Ecology Director Cyrille Djoko GVF-CHP Lab Director

COUNTRY PROJECT MANAGEMENT – CAMEROON

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for Cameroon are GVF and the Care and Health Program of Cameroon (CHP-GVF). Oversight of PREDICT activities in Cameroon will continue to be managed by Country Coordinator Ubald Tamoufe with support from Technical Team Leaders Cyrille Djoko, Erin Papworth and Matthew LeBreton.

Overview

Cameroon provides an opportunity for wildlife zoonotic disease surveillance at active wildlife-livestock-human interface areas in central, Sub Saharan Africa. Africa has been shown to be a major crossroads of zoonotic disease transmission, and active zoonotic transmission of simian retroviruses and other microbial agents in Cameroon has been reported by GVF and other groups. Most notably, recent studies have indicated that intensive hunting of non-human primates in Cameroon may have led to the introduction of pandemic HIV (HIV-1, Group M) into the human population. The country is also home to a number of wildlife conservation groups, animal sanctuaries and National Parks. In the densely forested regions of Southern Cameroon, consumption of wild animals or "bush meat" is extensive and places extreme pressure on animal populations and forests. Through partnering with CHP in Cameroon, PREDICT activities will be able to expand the wildlife surveillance program at these important interfaces.

Activities and Locations

PREDICT will continue to establish coordination with Ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** Non-human primates, bats, rodents, humans
- **Interfaces:** Hunted, traded, confiscated, free-ranging, syndromic, peridomestic
- **Proposed Locations:** East province (Ngoila, Lomie, Moloundou, Djoum), south province (Mvangan, Maan), south west province (Euyomojock)

Partnerships

In Cameroon partnerships have been established with the Care and Health Program of Cameroon, Cameroon military, Pasteur Center of Cameroon (Centre Pasteur du Cameroun), Limbe Wildlife Center, Ministry of Health and Ministry of Agriculture.

Reporting
The PREDICT Cameroon team has monthly meetings with the US Embassy in Cameroon. The PREDICT Country Coordinator, Ubald Tamoufe, and GVF Regional Program Manager, Erin Papworth, will lead oral updates on PREDICT activities to the Embassy and the local USAID representative. These monthly updates will be used as a forum to summarize monthly achievements and progress.

In addition, the Country Coordinator and the GVF team communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive "To-Do-Lists" through the Basecamp project site.

Democratic Republic of Congo

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

    - Sub-activity 1.1.1: **Surveillance System Improvements:** The PREDICT team in Kinshasa will participate in the weekly meetings on national surveillance of diseases at the Ministries of Health, Environment and Agriculture and other partners. During these meetings, surveillance data will be interpreted to assess all challenges encountered in the field and propose concrete solutions and responses. The team will expand the range and scope of human and animal surveillance activities in DRC. New communities will be targeted for animal and human surveillance through the animal-human interface project, leveraging ongoing active disease surveillance activities in the Sankuru District. When a case of suspected monkeypox is reported in a village, the staff will use the opportunity to provide community members with information on detection and notification of suspected cases of zoonotic diseases and the recognition of sick wild animals in nature and distribution of filter paper for collection of dried blood spots (DBS) from animals of interest. Communities will be encouraged to recognize and report any occurrences of sick animals or unusual animal behavior. Zoonotic surveillance activities will also be initiated throughout DRC with new partners located in additional provinces of DRC. Training and materials will be provided to partners to use in their communities to promote recognition, detection and reporting of sick wild animals in nature and distribution of filter paper for DBS collection. Continually update in-country wildlife SMART surveillance plan based on information gained from on-going surveillance activities and from in-country partners on new locations and/or high-risk interfaces in eastern DRC.

- Sub-activity 1.1.2: **Laboratory Systems:** Laboratory consumables and reagents will be supplied to the National Institute for Biomedical Research (INRB) in order to improve laboratory diagnostics of human emerging diseases of animal origins. In the event of an outbreak response, a mobile laboratory will be used to confirm diagnostics and follow biological parameters for suspected cases and prepare appropriate responses. A field laboratory has been set up in Kole, Kasai Oriental for real time processing of regionally collected animal samples. Identify opportunities for advancing capacity (e.g. equipment and supplies, protocols) in eastern DRC for wildlife sample processing and storage through training and provision of essential protocols and materials as needed.

- Sub-activity 1.1.3: **Operationalizing One Health:** Participate in the integrated surveillance system by sharing surveillance data with the Ministries of Health, Agriculture and Environment; continue to sensitize community members in targeted areas during village meetings to highlight the importance of ONE HEALTH concept; organize quarterly meetings with representatives of Ministries of Agriculture and Environment at the District level in Kole with the Field staff to discuss livestock, wildlife and human health. Establish new partnerships with local/international NGOs to highlight importance of ONE HEALTH concept and initiate/coordinate human and animal health improvement activities throughout DRC.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Update the Capacity Assessment Map for DRC with other in-country partners.

Partners: Kinshasa School of Public Health, Ministry of Health (Direction of Disease Surveillance and National Program for Monkeypox and Viral Hemorrhagic fevers), Ministry of Agriculture, Ministry of Environment, Congolese Institute for Conservation of Nature (ICCN), National Institute for Biomedical Research, UCLA, WWF, CI (Conservation International), CDC/DRC, USAID-CARPE Project, WCS-DRC, International Medical Corps (IMC), Mountain Gorilla Veterinary Project (MGVP)

Expected results: National Surveillance data and field PREDICT activities will be reported on a weekly basis; concrete and adapted solutions at national level are proposed and implemented for outbreaks; all implemented field activities are reported to the national level and evaluated for efficacy; community members are sensitized regarding zoonoses; laboratory results are available from all collected samples (animal and humans) and feedback sent to the field staff; the capacity assessment map for DRC is updated. Wildlife disease surveillance and pathogen detection appropriately and efficiently targeted at highest-risk interfaces for zoonotic disease emergence in eastern DRC; improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors in the region.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Democratic Republic of Congo:** Collect biological specimens from wild animals throughout DRC; monitor unusual health events reported in animals by local communities; collect samples from humans highly exposed to wild animals by hunting, butchering, or keeping as pets, as well as bush meat market workers in forested areas in Central DRC; continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Prioritized animal taxa:** primates, bats, rodents, birds, carnivores, ungulates
    - **Interfaces:** hunted, traded, confiscated, depredation, free-ranging, syndromic
    - **Proposed Locations:** Kasai Oriental Province: (Kole, Lomela, Tshudi-Loto, Bolobo, North and South Kivu provinces), Maniema Province (Kisangani), Kinshasa, Eastern Democratic Republic of the Congo (North and South Kivu provinces, including Virungas National Park, Kahuzi-Biega National Park and Mt. Tshiaberimu National Park and surrounding areas)

  Partners: Kinshasa School of Public Health, National Institute of Biomedical Research, UCLA, WWF-CARPO/PICBOU Malebo project, Lola ya Bonobo Sanctuary, Congolese Institute for Conservation of Nature (ICCN), International Medical Corps (IMC), Conservation International (CI), National Program for monkeypox and viral hemorrhagic fevers at the DRC Ministry of Health, Mountain Gorilla Veterinary Project

  Expected result(s): pathogen detection and discovery continued for acquired wildlife and human samples; strategically implemented surveillance in current and new locations in collaboration with in-country partners to achieve a trans-regional surveillance network; coordinated surveillance data collection at high risk interfaces with partners; integration of sample tracking and diagnostic data collection systems.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** PCR will continue to be the mainstay of diagnosis in Year 3; a portable field laboratory will include mobile real-time PCR and a mobile satellite terminal for improving

internet communication in the field; pilot test new cold chain technology for transport of specimens.

- Sub-activity 1.3.2: **Pathogen discovery:** Train new lab technician in viral family screening; supply laboratory equipment, reagents and consumables to the National Institute for Biomedical Research and the field laboratory in Kole for testing all animal and human samples; continue to implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface.

Partners: National Institute for Biomedical Research, Ministry of Health, UCLA

Expected result(s): New laboratory technician hired and trained for laboratory safety, processing, and shipping of samples, as well as improved cold chain; samples tested at the viral family-level and targeted serological rapid tests and real time PCR where appropriate; results entered into the GAINS database; outbreak investigations conducted as requested and appropriate with timely reporting of findings and data using new technologies.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Continue to collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: National Institute of Biomedical Research (INRB), Kinshasa School of Public Health, Ministry of Health (national program for monkeypox and viral hemorrhagic fevers and disease surveillance)

Expected result(s): All samples are tested for viral infections; data entered into GAINS; completed trainings on sample processing; standardized labeling and tracking system implemented; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners, USAID missions, and other in-country EPT projects through in-person meetings, conference calls, written advisories, and reports.

- Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; ensure the weekly reporting of country surveillance data and field activities to our organizational headquarters, and enter field and surveillance data into the GAINS database.

Partners: UCLA, MGVP, Kinshasa School of Public Health, National Institute of Biomedical Research, Ministry of Health, Ministry of Agriculture, Ministry of Environment.

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multi-faceted communication with in-country partners including the USAID Mission to DRC through regular updates and with the team through weekly Skype meetings and interaction on Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel); entry of surveillance data and laboratory results into the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: N/A

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided on at least a monthly basis; timely and efficient response to data requests from the Modeling team.

LOW 3: Outbreak Response Capacity Building
Respond to wildlife, livestock, and human outbreaks in coordination with appropriate ministries and RESPOND as they occur and assistance is requested.

LOW 4: Risk Reduction
In conjunction with PREVENT, community members in surveillance areas/interfaces will be informed on the risks of zoonotic infections and how to prevent transmission; voluntary counseling provided to participants who would like to know their results.

IMPLEMENTATION PLAN – DEMOCRATIC REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Prime Mulembakani, Country Coordinator; Anne Rimoin, Country Director; MGVP Veterinary Manager Jan Ramer with assistance from MGVP DRC Field Veterinarian Eddy Kambale; and Uganda/Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Strategic plan of surveillance optimized; data and field activities reported; requested responses to outbreaks conducted; community members apply the information gained through sensitization session to reduce transmission of zoonotic infections; wildlife disease surveillance and pathogen detection appropriately and efficiently targeted at highest-risk interfaces for zoonotic disease emergence in eastern DRC; improvements in wildlife disease surveillance capacity and awareness across governmental, institutional, and organizational sectors in the region.	**X**	**X**	**X**	**X**

1.2	Surveillance	Prime Mulembakani, Country Coordinator; MGVP Veterinary Manager Jan Ramer with assistance from MGVP DRC Field Veterinarian Eddy Kambale; and Uganda/Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Pathogen detection and discovery continued for wildlife and human samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network; integration of sample tracking and diagnostic data collection systems.	**X**	**X**	**X**	**X**
1.3	Technology Development and Pathogen Discovery	Brad Schneider, Senior Science Officer	Laboratory testing of wildlife and human samples performed in both laboratories (field and INRB); outbreak investigations conducted with the mobile laboratory as requested and appropriate.		**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Maria Makuwa, DRC Laboratory Coordinator	All sample data and lab results entered into GAINS; standardized labeling and tracking system implemented; timely and efficient response to requests for surveillance data.	**X**	**X**	**X**	**X**

1.5	Program Management	Prime Mulembakani, Country Coordinator; Anne Rimoin, Country Director	Full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting through the GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Prime Mulembakani, Country Coordinator	Sample data and results uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; timely and efficient response to data requests from the modeling team.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – DEMOCRATIC REPUBLIC OF CONGO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Data available from all areas/interfaces under surveillance; Wildlife SMART surveillance plan current and optimized	Basecamp & GAINS database	Monthly	Prime Mulembakani, Country Coordinator
1.1.2 Laboratory System	Laboratory results available; Wildlife samples processed	Laboratory records and	Monthly	Maria Makuwa, Laboratory Coordinator Brad Schneider, GVF Senior Science

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	and stored for testing in Kinshasa	GAINS		Officer
1.1.3 Operationalizing One Health	Meetings at the District and health zone levels between representatives of ministries of health, agriculture, environment, and field staff organized	Minutes from meetings	Quarterly	Prime Mulembakani, Country Coordinator
1.1.4 Capacity Assessment and Tracking of Development	DRC Capacity Assessment tool updated	Map on BASECAMP/ GAINS	Annually	Prime Mulembakani, Country Coordinator
1.2.1 Surveillance	Participants in Animal-Human Interface surveillance enrolled through informed consent procedures; animal and human samples collected and tested; coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of sample tracking and diagnostic data collection systems).	Basecamp & GAINS database	Monthly	Prime Mulembakani, Country Coordinator; MGVP Veterinary Manager Jan Ramer.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Introduction of New Technologies	PCR results available from animal and human samples; mobile laboratory in use in case of outbreaks	Laboratory records; GAINS	Monthly reports	Maria Makuwa, DRC Laboratory Coordinator for GVF;, Brad Schneider, GVF Senior Science Officer
1.3.2 Pathogen Discovery	New laboratory technician hired; new laboratory technician trained; testing of samples performed at the INRB and field laboratory	Administrative reporting; laboratory records; GAINS	Monthly reports	Maria Makuwa, DRC Laboratory Coordinator for GVF; Brad Schneider, GVF Senior Science Officer, Anne Rimoin, DRC Program Director
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Maria Makuwa, DRC Laboratory Coordinator for GVF
1.5.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Monthly	Prime Mulembakani, Country Coordinator; Anne Rimoin, DRC Country Director
1.5.2 Fiscal Management	Nearreal-time expense tracking	Basecamp	Monthly	Prime Mulembakani, Country Coordinator
1.5.3 Communication	Mission and Partner Updated	Basecamp	Monthly	Prime Mulembakani, Country Coordinator
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Prime Mulembakani, Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Prime Mulembakani, Country Coordinator
3 Outbreak Response Capacity Building	Outbreaks investigated as they occur and assistance is requested	Weekly reports	Weekly reports	Prime Mulembakani, Country Coordinator
4 Risk Reduction	Community members are aware of the route of infection and ways to reduce transmission of zoonotic diseases	Records from sensitization meetings; Quarterly Reports	Monthly; Quarterly	Prime Mulembakani, Country Coordinator,

COUNTRY PROJECT MANAGEMENT – DEMOCRATIC REPUBLIC OF CONGO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing and implementing organizations for the Democratic Republic of Congo are led by GVF and include UCLA, the University of Kinshasa School of Public Health, the National Institute of Biomedical Research, and the Mountain Gorilla Veterinary Project. Oversight of activities in DRC will be managed by Country Coordinator Prime Mulembakani with support from Technical Team Leader Maria Makuwa, both supervised by Anne Rimoin, the scientific director for DRC. In addition, there are nine staff members in country, including a field team in Kole, Lomela and Tshudi-Loto.

Overview

DRC provides an opportunity for wildlife zoonotic disease surveillance at active wildlife-livestock-human interface areas in central Africa and presents several unique and promising opportunities for surveillance for wildlife zoonoses with pandemic potential. The DRC has experienced outbreaks of Ebola and Marburg hemorrhagic fevers, as well as endemic monkeypox transmission and high diversity of circulating HIV subtypes. The high biodiversity of the Congo Basin and intensive hunting of wildlife in the region contribute to the high disease burden in DRC. Additionally, the DRC possesses extensive rainforest habitat known for the high degree of endemism and small mammal diversity, providing an exceptional opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the wealth of biodiversity and intimate interaction of populations in these interfaces, DRC's current capacity to conduct wildlife disease surveillance at a regional and national level is developing.Through the implementing partners, especially the National Institute of Biomedical Research and the Kinshasa School of Public Healthand collaborations with government veterinary and livestock ministries, wildlife authorities, and human health professionals, PREDICT will help to fill the wildlife surveillance gaps and expand surveillance at high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, birds, carnivores, ungulates
- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Potential Locations:** Kasai Oriental Province: (Kole, Lomela, Tshudi-Loto, Bolobo, North and South Kivu provinces), Maniema Province (Kisangani), Kinshasa, Eastern Democratic Republic of the Congo (North and South Kivu

provinces, including Virungas National Park, Kahuzi-Biega National Park and Mt. Tshiaberimu National Park and surrounding areas

Partnerships
In DRC, partnerships have been established through Kinshasa School of Public Health, the National Institute of Biomedical Research, Lola de Bonobo Sanctuary, ICCN (Congolese Institute of Environment), MGVP and WWF-CARPO/PICBOU project.

Reporting
The PREDICT DRC Country Coordinator, Prime Mulembakani, will provide oral updates to the USAID Mission in Kinshasa, DRC, as requested by the USAID office, and he will provide oral updates on PREDICT activities to the USAID Mission. These monthly updates will be used as a forum to summarize monthly achievements and progress.

In addition, the Country Coordinator and the GVF team communicate on a weekly basis through Skype meetings, sharing of weekly progress reports and generation of interactive “To-Do-Lists” through the Basecamp project site.

Equatorial Guinea

No PREDICT Activities in Year 3

Gabon

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Use updated disease risk modeling to improve site selection strategy; determine if breadth of surveillance interfaces reflects national risk by seeking information from partner agencies on new or unidentified risk interfaces that require surveillance.
    - Sub-activity 1.1.2: **Laboratory System:** Laboratory infrastructure development is expected to be minimal in this year, as CIRMF was recently renovated; additional equipment will be addressed, as needed.
    - Sub-activity 1.1.3: **Operationalizing One Health:** Continued human surveillance with WHO and the Ministry of Health; continued animal surveillance with the National Parks system.

Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Continue to update the PREDICT Rapid Survey Tool and maps when appropriate; develop the capacity of key Ministry officials during site visits.

Partners: International Center for Medical Research (CIRMF)

Expected results: Continued promotion and advocacy with key government partners will occur in liaison with EPT partners, in-country; established quarterly meetings sustained to continue to help facilitate joint-meetings and advocacy session with mutual government partners.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Gabon:** Continue coordination with ministries, hospitals, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** Non-human primates, bats, rodents, birds, carnivores, ungulates and insects
    - **Interfaces:** Hunted, traded, confiscated, free-ranging, syndromic
    - **Proposed Locations:** Northwestern, Central, and Central Western Gabon and from any new epidemic region

  Partners: International Center for Medical Research (CIMRF), National Parks System, Wildlife Conservation Society, Ministry of Health for Gabon

  Expected result(s): Approximately 200 human samples collected and tested for zoonotic pathogens; approximately 1000 wildlife samples collected and tested for zoonotic pathogens; human and animal samples analyzed by serology and PCR; unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis; surveillance data and diagnostic results entered in GAINS database monthly.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Continue use of new technologies implemented during year 2; introduce and utilize positive control plasmid developed by Columbia University; continue to utilize dried blood spot card technology introduced in year 1; deploy novel sample collection technologies and rapid response diagnostic kit acquired in year 2.

- Sub-activity 1.3.2: **Pathogen discovery:** Continue use of implemented protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface.

Partners: International Center for Medical Research (CIMRF), Care and Health Program

Expected result(s): New technologies implement during year 2 utilized; appropriate training and material resources introduced where possible; expanded infrastructure of CIRMF diagnostic center to improve viral diagnostics capacity and cold storage for sample archival.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data, using standardized templates, into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: International Center for Medical Research (CIMRF)

Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

Partners: International Center for Medical Research (CIMRF)

Expected result(s): Management and coordination of all Capacity Building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; communication with in-country partners including the USAID Mission to Gabon through regular updates and with the PREDICT team through weekly Skype meetings and interaction on Basecamp; compliance of all reporting requests (financial, technical, environmental, travel); surveillance data entered into the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: International Center for Medical Research (CIMRF), National Parks System, Wildlife Conservation Society, Ministry of Health for Gabon

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to Modeling team requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – GABON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Eric Leroy, Country Coordinator; Brad Scheider, GVF Director of Laboratory Services	Continue developing relationships with key Ministry officials and collaborations with in-country EPT partners; establish communication with EPT partners in overlapping areas of intervention in country.	**X**	**X**	**X**	**X**
1.2	Surveillance	Eric Leroy, Country Coordinator; Nadia Wauquier, GVF consultant; Brad Scheider, GVF Director of Laboratory Services	200 human samples collected and tested for zoonotic pathogens; 1000 wildlife samples collected and tested for zoonotic pathogens; human and animal samples analyzed by serology and PCR; unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis; surveillance data and diagnostic results entered in GAINS database monthly.	**X**	**X**	**X**	**X**
1.3	Technology Development and Pathogen Discovery	Eric Leroy, Country Coordinator, Brad Scheider, GVF Director of	New technologies implement during year 2 utilized; appropriate training and material resources introduced where possible; expanded infrastructure of CIRMF diagnostic center to improve viral	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Laboratory Services	diagnostics capacity and cold storage for sample archival.				
1.4	Sample Tracking and Information Management	Eric Leroy, Country Coordinator;Matthew Lebreton, GVF Ecology Director; Nadia Wauquier, GVF consultant; Brad Scheider, GVF Director of Laboratory Services	All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Jean-Paul Gonzalez, GVF Senior Scientist and Predict Gabon Admin PoC	Management and coordination of all capacity building and surveillance activities; communication with in-country partners including the USAID Mission to Gabon through regular updates and with the PREDICT team; compliance of all reporting requests; surveillance data entered into GAINS database.	**X**	**X**	**X**	**X**

	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Eric Leroy, Country Coordinator; Matthew Lebreton, GVF Ecology Director; Nadia Wauquier GVF consultant	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS monthly; timely response to Modeling team requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - GABON

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Data available from all areas/interfaces under surveillance; Wildlife SMART surveillance plan current and optimized	Basecamp & GAINS database	Quarterly	Eric Leroy, Country Coordinator; Matthew Lebreton, GVF Ecology Director
1.1.2 Laboratory System	Continue to maintain a state-of-the-art diagnostic laboratory	Quarterly Report	Quarterly	Eric Leroy, Country Coordinator; Brad Scheider, GVF Director of Laboratory Services
1.1.3 Operationalizing One Health	Hold advocacy meetings with key officials when in-country	Quarterly Report	Quarterly	Ubald Tamoufe, GVF Regional Coordinator; Matt LeBreton. GVF Ecology Director; Erin Papworth, GVF Regional Program Manager

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.4 Capacity Assessment and Tracking of Development	Develop capacity of key ministry officials when in-country	Quarterly Report	Quarterly	Ubald Tamoufe, GVF Regional Coordinator; Matt LeBreton. GVF Ecology Director
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Eric Leroy, Country Coordinator; Matthew Lebreton, GVF Ecology Director
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Eric Leroy, Country Coordinator; Brad Schneider, GVF Director of Laboratory Services
1.3.2 Pathogen Discovery	Improved infrastructure at CIMRF for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly	Eric Leroy, Country Coordinator; Brad Schneider, GVF Director of Laboratory Services
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Eric Leroy, Country Coordinator; Nadia Wauquier GVF consultant
1.5.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Eric Leroy, Country Coordinator; Nadia Wauquier GVF consultant

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.2 Fiscal Management	Near real-time expense tracking	Monthly estimates and Quarterly Reports	Monthly	Eric Leroy, Country Coordinator; Brad Schneider, GVF Director of Laboratory Services
1.5.3 Communication	Mission and Partner Updates	Partner Updates	Monthly	Eric Leroy, Country Coordinator; Brad Schneider, GVF Director of Laboratory Services
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Eric Leroy, Country Coordinator; Brad Schneider, GVF Director of Laboratory Services
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Eric Leroy, Country Coordinator; Matt Lebreton, GVF Ecology Director

COUNTRY PROJECT MANAGEMENT – GABON

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for Gabon are GVF and the International Center for Medical Research (French acronym CIMRF). Oversight of PREDICT activities in Country will be managed by Country Coordinator, Dr. Eric Leroy, with support from Technical Team Leaders Jean-Paul Gonzalez (CIMRF-Administrative), Joseph Fair (GVF Predict PoC), Brad Schneider (GVF Director of Laboratory Services, Matthew Lebreton, GVF Ecology Director and Nadia Wauquier (consultant for GVF).

Overview

The central African lowland rainforests in Gabon have a high diversity of wild animal species and have recently been the site of emergence or reemergence of a number of key pathogens. The rural communities within this African forest block are key sites for the surveillance of emerging infectious diseases.

Zoonotic pathogens have emerged in Gabon, and novel viruses may be putting people, animal and livelihoods at further risk. For example, ebola (EBOV) and Marburg (MARV) hemorrhagic fevers (HF) cause severe, often-fatal disease in humans and nonhuman primates (monkeys, gorillas and chimpanzees). Disease is caused by infection with either EBOV or MBVG and both viruses are members of a family of RNA viruses called the Filoviridae. Filovirus HF typically causes sporadic outbreaks, usually spread within a health-care setting but it is likely that sporadic, isolated cases occur and go unrecognized. Infections with filoviruses are acute and because the natural reservoir of the virus is unknown, the manner in which the virus first appears in a human at the start of an outbreak has not been determined. It is thought that the first patient becomes infected through contact with an infected animal and individuals in rural central Africa acutely infected with various pathogens may not seek treatment or may receive inaccurate diagnoses. Also, people who develop acute illness as the result of infection with zoonotic agents may not have access to clinical facilities.

EBOV and MARV are known to be endemic to the Republic of Gabon. Numerous human and animal outbreaks of EBOV Zaire have occurred in Gabon over the past 15 years and MBGV was recently isolated from fruit bats collected in Gabon. Through partnering with CIMRF in Gabon, PREDICT activities will increase surveillance for these hemorrhagic fevers and expand opportunities to detect other zoonotic pathogens.

Activities and Locations

PREDICT has established coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** Non-human primates, bats, rodents, birds, carnivores, ungulates and insects
- **Interfaces:** Hunted, traded, confiscated, free-ranging, syndromic
- **Proposed Locations:** Northwestern, Central and Central Western Gabon and from any new epidemic region

Partnerships
In Gabon, partnerships will be established through the National Parks System, Wildlife Conservation Society, Ministry of Health for Gabon

Reporting
The Country Coordinator and the GVF team communicate on a weekly basis through Skype meetings, monthly partner updates and sharing of quarterly progress reports.

Republic of Congo

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

    - Sub-activity 1.1.1: **Surveillance System Improvements:** Submit surveillance data to GAINS in a timely manner and report species selection and sampling interfaces to the Surveillance Team using standardized interface categorization for interface analysis and the identification of sampling gaps.

    - Sub-activity 1.1.2: **Laboratory System:** Increase the number of pathogens screened in-country relative to YR2; Upgrade laboratory systems so that a liquid nitrogen plant acquired in partnership with the Congolese National Public Health Laboratory and NIH/NIAID/RML will become functional in YR3, allowing for the establishment of effective and reliable cold chain capacity throughout the Republic of Congo.

    - Sub-activity 1.1.3: **Operationalizing One Health:** Continue to implement PREDICT wildlife surveillance and wildlife testing activities in partnership with the National Public Health authorities; communicate results and activities in real-time to the National Public Health authorities; continue to interface with the Faculty of Science and Health at Brazzaville's Marion Ngouabi University (MNU), reinforcing the link between human and wildlife health; offer training to students from MNU as it becomes available.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Conduct annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for disease surveillance and diagnostics.

Partners: Ministry of Health, National Public Health Laboratory; Ministry of Animal Agriculture; Ministry of Sustainable Development, Forest Economy and the Environment; National Institutes of Health/NIAID, Rocky Mountain Laboratories; Public Health Agency Canada; PREVENT

Expected results: Identified capacity gaps in the PREDICT Congo Laboratory and introduced appropriate training and material resources where possible; expanded infrastructure of the PREDICT Congo Laboratory to improve pathogen detection capacity and cold storage for sample archiving. Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through follow-up on the Capacity Building Rapid Survey Tool.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Republic of Congo:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure proper handling, accurate tracking and timely diagnostic testing of samples; continue timely reporting of data into the GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** Non-human primates, bats, rodents, shrews, porcines, ungulates, carnivores, domestic animals, as appropriate
    - **Interfaces:** Hunting, bushmeat markets, depredation, free-ranging animals (human-wildlife, livestock-wildlife), syndromic, outbreaks
    - **Proposed Locations:** North (Nouabalé-Ndoki National Park); North-central (Odzala-Kokoua National Park, Ngombé Forestry Management Unit and peripheral communities); South-central (Zanaga mining region) and Brazzaville.

  Partners: Ministry of Health, National Public Health Laboratory; Ministry of Health, Endemic Diseases; Ministry of Animal Agriculture; Ministry of Sustainable Development, Forest Economy and the Environment; National Institutes of Health/NIAID, Rocky Mountain Laboratories; National Institute of Allergic and Infectious Diseases; U.S. National Institute of Health,

Vaccine Research Center; Public Health Agency Canada; WHO-Congo Office; WHO-Afro Office; Centre International de Recherches Médicales de Franceville (CIRMF)/ Institut de recherche pour le dévelopement (IRD); PREVENT

Expected result(s): Continued surveillance data coordination with partners through a shared framework; collected and received samples; continued testing of wildlife and other animal samples for pathogens of concern; initiated pathogen detection and discovery for wildlife and other animal samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional and trans-organizational surveillance network; maintained dialog with PREVENT towards the coordination of activities involving community-based reporting networks in year 3 and beyond.

- **Activity 1.3: Technology Development and Pathogen Discovery**
  - Sub-activity 1.3.1: **Introduction of new technologies:** Continue the use of novel technologies, including blood spots on filter paper, RNA*later*® and liquid nitrogen, piloted in YR1; apply Mass Tag and consensus PCR, 454 pyrosequencing on fecal and tissue samples from primates and other relevant species.
  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; ship appropriate samples for pathogen discovery as agreed upon with the diagnostic laboratory; identify laboratory needs and capacities to increase and improve in-country testing.

    Partners: Columbia University; National Public Health Laboratory (NPHL); National Institutes of Health/NIAID, Rocky Mountain Laboratories; Public Health Agency Canada; Centre International de Recherches Médicales de Franceville (CIRMF)/Institut de recherche pour le développement (IRD); PREDICT DRC Laboratory

    Expected result(s): New technologies introduced and utilized; appropriate samples sent to CIRMF, Columbia University laboratory or other appropriate laboratories for pathogen discovery.
- **Activity 1.4: Sample Tracking and Information Management**
  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Compile and enter all field and surveillance data, using standardized templates, into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: PREDICT Information Management Team

Expected result(s): Added Administrative Assistant/Data Manager to the Congo team; all sample data entered into GAINS; reinforced training in sample tracking and data management; implemented standardized labeling and tracking system; provided data through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics); improve any administrative procedures when necessary and appropriate; maintain existing partnerships and facilitate new ones as appropriate; prepare and submitted travel requests as instructed when needed.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting; improve financial policies and reporting systems and practices when necessary and appropriate.

  - Sub-activity 1.5.3: **Communication:** Maintain communication between Country Coordinator and Regional Lead as well as with organizational headquarter staff, country partners, other EPT partners and US Embassy personnel through in-person meetings, conference calls, written advisories, web-based applications, and reports as required and requested [this will include at least regular weekly meetings between PREDICT Country Coordinator and Regional Lead, regular bi-weekly conference calls with all PREDICT Country Coordinators, Regional Lead and PREDICT and organizational headquarter staff; Skype meetings and/or phone calls as needed (>1-3 / week) with organizational headquarters; quarterly written updates to organization headquarter staff; reporting of field updates (bi-weekly, or as required) by email and conference calls to PREDICT Surveillance Team; updates on a monthly basis or when requested to the US Embassy Point of Contact for PREDICT and the US Ambassador]; continue frequent (at least bi-weekly) email and/or phone contact with Dr. Jean-Vivien Mombouli (Director de Recherche du Laboratoire National de Santé Public) Congolese Ministry of Health; hold weekly formal meetings and nearly daily email and phone contact with Mr. Landry Miguel, in-country laboratory technician for PREDICT and faculty member at Faculté des Sciences de la Santé, Université Marien NGOUABI, Brazzaville; conduct monthly email communications with Dr. Nancy Sullivan, National Institute of Allergic and Infectious Diseases, National Institutes of Health, Vaccine Research Center (NIAID/NIH/VRC); bi-monthly email or phone communications with

Dr. Heinz Feldmann and Dr. Vincent Munster, partners at the National Institute of Allergic and Infectious Diseases, National Institute of Health, Rocky Mountain Labs (NIAID/NIH/RML); meet with EPT partners when appropriate and/or requested.

- Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; submit field and surveillance data to the GAINS database within two weeks of collection.

  Partners: N/A

  Expected result(s): Management and coordination of all capacity-building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multi-faceted communication with in-country partners, including the National Public Health Laboratory; in-person and electronic meetings with the PREDICT team through weekly conference calls and interaction on PREDICT Basecamp site; continued compliance with all reporting requirements (financial, technical, environmental, travel, training) and uploading surveillance data to the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: PREDICT Modeling and Hotspot ID Team

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; provided data through GAINS within the requested timeframe; timely and efficient response to all requests for surveillance data; continued cooperation with PREDICT and PREVENT partners towards modeling and risk analysis.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with national ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Capacity building Team	Potential capacity gaps in the PREDICT Congo Laboratory identified and appropriate training and material resources introduced where possible; improved infrastructure of the PREDICT Congo Laboratory; continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through follow-up on the Rapid Survey Tool.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Surveillance Team	Continued surveillance data coordination with partners through a shared framework; collected and received samples; continued testing of wildlife and other animal samples for pathogens of concern; initiated pathogen detection and discovery for wildlife and other animal samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional and trans-organizational surveillance network; maintained dialog with PREVENT towards the coordination of activities involving community-	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			based reporting networks in year 3 and beyond.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Technology Development Team	New technologies introduced and utilized; identified capacity gaps in the PREDICT Congo Laboratory and introduced appropriate training and material resources where possible; expanded infrastructure of the PREDICT Congo Laboratory to improve pathogen detection capacity and cold storage for sample archiving; appropriate samples sent to CIRMF, Columbia University laboratory and/or other appropriate laboratories for pathogen discovery.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Information Management Team	Added Administrative Assistant/Data Manager to the Congo team; all sample data entered into GAINS; reinforced training on sample tracking and data management; implemented standardized labeling and tracking system; provided data through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

1.5	Program Management	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed	Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multi-faceted communication with in-country partners including the National Public Health Laboratory through in-person meetings and with the PREDICT team through weekly conference calls and interaction on PREDICT Congo Basecamp site; continued compliance in all reporting requirements (financial, technical, environmental, travel, training) and entering surveillance data through the GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Modeling Team	Data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; provided data through GAINS within the requested timeframe timely and efficient response to all requests for surveillance data; continued cooperation with PREDICT and PREVENT partners towards modeling and risk analysis.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – REPUBLIC OF CONGO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Surveillance data submitted to GAINS, and species selection and sampling interfaces reported to the Surveillance Team in a timely manner	Basecamp & GAINS database, calls with Surveillance Team	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.1.2 Laboratory System	The establishment of effective and reliable cold chain and an increased number of pathogens screened for in Brazzaville than in YR2	Basecamp, GAINS database, surveillance calls and quarterly reports	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.1.3 Operationalizing One Health	Wildlife surveillance and diagnostic testing activities coordinated with National Public Health laboratory and University Health Department	Basecamp, GAINS database, surveillance calls, quarterly reports and phone calls	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.1.4 Capacity Assessment and Tracking of Development	Rapid Survey Tool completed and provided to the Capacity Assessment Team as well as information on in-country capacity and activities	Basecamp, calls with Capacity Assessment Team, Rapid SurveyTool	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database, calls with Surveillance Team	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Basecamp, Quarterly Reports and phone calls with Technology Development and Diagnostic teams as needed	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Technology Development Lead Joseph Fair and Diagnostic Lead Tracey Goldstein
1.3.2 Pathogen Discovery	Improved laboratory infrastructure for viral diagnostics capacity and cold storage	Basecamp, Quarterly Reports and phone calls with Technology Development and Diagnostic teams as needed	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Technology Development Lead Joseph Fair and Diagnostic Lead Tracey Goldstein

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Bi-weekly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.5.1 General Management	Project updates with the PREDICT team	Skype, phone calls and Basecamp	Weekly	Country Coordinator Kenneth Cameron
1.5.2 Fiscal Management	Nearreal-time expense tracking	Basecamp, phone calls, Skype and financial reports	Monthly	Country Coordinator Kenneth Cameron
1.5.3 Communication	Mission and Partner Updates	Basecamp, phone calls, meetings	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.5.4 Reporting	Timely compliance of all reporting requirements; surveillance data reports	Basecamp & GAINS database, calls with Surveillance Team, quarterly reports	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revise surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Surveillance Lead Christine Johnson

COUNTRY PROJECT MANAGEMENT – REPUBLIC OF CONGO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Republic of Congo is the WCS. Oversight of PREDICT activities in Republic of Congo will be managed by Country Coordinator Kenneth Cameron and Regional Coordinator Patricia Reed, with support from Technical Team Leaders (Capacity Building, Surveillance, Monitoring, Technology and Diagnostics). In addition, PREDICT has 5 staff members in-country, including Veterinarian Alain Ondzie, Biologist Zorine N'Kouantsi, and Field Assistants Marc-Joël Akongo, Serge Kaba, Gerard Bounga, Ben Wivine Salva Mouellet and an administrative assistant Annie Rakotomahefa. An Assistant Veterinarian, Data Manager and Driver will be recruited for the Republic of Congo operations during year 3.

Overview

The Republic of Congo contains an astonishing level of wildlife biodiversity and large tracts of tropical rainforest. The significant presence of existing and prospecting extractive industries increase the risk for disease emergence by altering habitats, changing ranging patterns of key wildlife species and increasing human-wildlife interaction in remote areas; this adds to the potential for pathogen emergence and transmission. This year an accelerating outbreak of chikungunya virus in Brazzaville underscores the need to understand which factors are contributing to the emergence of this and other vector borne diseases. The vector, *Aedes albopictus,* has not yet been documented in the Republic of Congo, and the outbreak raises questions regarding environmental conditions (the role of globalization and climate change) and the identification of possible animal reservoirs that favor the spread and emergence of diseases, such as chikungunya in the region. The large number of cases (7,000) preceding the mass migration of Europeans for the summer months, also raises concern regarding the potential for globalization of disease vectors, as was observed in Italy in 2007.

The region also provides an optimal opportunity for wildlife disease surveillance at one of Africa's most active human-wildlife interfaces due, in large part, to the consumption of wildlife meat ("bushmeat"). As this is an Ebola virus-endemic region Ebola Hemorrhagic Fever outbreaks have repeatedly affected both human and wildlife populations, including large populations of gorillas and chimpanzees. Despite the wealth of biodiversity and intimate interaction of populations at these interfaces, the Republic of Congo's current capacity to conduct wildlife disease surveillance at a regional and national level is still developing. Through existing and future collaborations with wildlife authorities, animal agriculture, human health ministries and other wildlife and health professionals, PREDICT will work to help improve and expand current surveillance in high-risk regions and build in-country capacity to continue these surveillance activities in the future.

Activities and Locations
PREDICT will continue to establish coordination and partnerships with ministries and governmental and non-governmental organizations to facilitate the acquisition and sharing of surveillance samples and data. Our goal for the coming year it to continue to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and entering of results in the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk, focusing on:

- **Taxa:** Non-human primates, bats, rodents, shrews, porcines, other ungulates, carnivores, and livestock, as appropriate
- **Interfaces:** Hunting, bushmeat markets, depredation, free-ranging (human-wildlife, livestock-wildlife), sanctuary animals, syndromic
- **Proposed Locations:** North (Nouabalé-Ndoki National Park); North-central (Odzala-Kokoua National Park, Ngombé Forestry Management Unit and peripheral communities); South-central (Zanaga mining region) and Brazzaville.

Partnerships
In Republic of Congo partnerships have been established with the Ministry of Health, National Public Health Laboratory, Ministry of Health Endemic Diseases, Ministry of Animal Production, Ministry of Forest Economy, Center for Infection and Immunity at Columbia University, U.S. National Institute of Health, Rocky Mountain Labs; U.S. National Institute of Allergic and Infectious Diseases; U.S. National Institute of Health, Vaccine Research Center, Public Health Agency Canada, WHO-Congo Office, WHO-Afro Office, Centre International de Recherches Médicales de Franceville (CIRMF)/ Institut de recherché pour le développement (IRD) Gabon, The Jane Goodall Institute, Aspinall Foundation, Habitat Ecologique et Liberté des Primates (HELP), and EPT partners.

Reporting:
There is no USAID mission within the Republic of Congo. Preliminary PREDICT discussions were held with the US Embassy Ambassador, Christopher W. Murray. The official Point of Contact for PREDICT is Mr. DeMark Schulze, Political and Economic officer at the US Embassy in Brazzaville, the Republic of Congo. In addition, the country and regional coordinators communicate with each other and the WCS headquarters weekly or more often as needed

Rwanda

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Continually update in-country wildlife SMART surveillance plan based on information gained by country coordinators from on-going surveillance activities and from in-country partners on new locations and/or high-risk interfaces.

  - Sub-activity 1.1.2: **Laboratory System:** Continue to identify and fill gaps in capacity (e.g. personnel, equipment and supplies, protocols) at Rwanda Agricultural Board/Veterinary Services (RAB/VS) for wildlife diagnostics to advance competency in wildlife sample processing, nucleic acid extraction and storage and shipping through training as needed and provision of essential materials; introduce viral family testing as competency attained; facilitate established procedures for transfer of processed samples to East-Central Africa PREDICT regional laboratory at Makerere University for comprehensive viral family testing.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Participate and support multidisciplinary activities and one health initiatives of the ministries of health, agriculture, the wildlife authority, TRAC-Plus and non-governmental organizations, e.g. national task forces on human disease outbreak investigation and response and One Health Central-East Africa (OHCEA), to promote and enhance cooperation between the human, domestic animal and wildlife health sectors.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Complete the Rapid Survey Tool to assess progress in building capacity for wildlife zoonotic disease surveillance; provide geo-referenced SMART surveillance-related and capacity building information to mapping team on an on-going basis to depict development progress for wildlife zoonoses detection.

  Partners: Mountain Gorilla Veterinary Project (MGVP), Rwanda Agricultural Board/Veterinary Services; Rwanda Development Board/Tourism and Conservation; Ministry of Health/Trac-PLUS

  Expected results: Wildlife disease surveillance and pathogen detection appropriately and efficiently targeted at highest-risk interfaces for zoonotic disease emergence in Rwanda; in-country wildlife disease diagnostic testing available for first time in Rwanda; Rapid Survey Tool will reveal substantive

improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Rwanda:** Continue to coordinate with ministries, universities and non-governmental organizations to acquire and access shared surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** Non-human primates, bats, rodents; birds, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** Syndromic, free-ranging (ecotourism, shared water/food sources, urban wildlife), depredation, hunted, traded
    - **Proposed Locations:** Northwest (Volcanoes National Park, Ruhengeri/Kinigi area, Gisenyi/Lake Kivu), Southwest (Nyungwe National Park, Butare area, Burundi border), West/Central (Kigali area, Kibuye area), Northeast (Akagera National Park), and South (Burundi border)

  Partners: MGVP, Rwanda Development Board/Tourism and Conservation, Rwanda Agricultural Board/Veterinary Services, Ministry of Health/Trac-PLUS, Kigali Health Institute, US Centers for Disease Control –Rwanda

  Expected result(s): Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s).

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Introduce and implement new technologies as identified by PREDICT that support EPT activities in Rwanda, addressing identified gaps in existing technological infrastructure.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection and discovery according to the wildlife surveillance plan for each high-risk interface described above under sub-activity 1.2.1 (Surveillance); continue to identify laboratory needs and work to increase capacity to conduct pathogen detection in-country.

  Partners: MGVP

Expected result(s): New technologies introduced and utilized; on-going diagnostic capacity gaps identified at RAB/VS and appropriate training and requisite equipment and supplies acquired so that RAB/VS can advance as Rwanda's primary wildlife diagnostic laboratory for virology and wildlife sample archive.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: MGVP, RAB/VS

  Expected result(s): All sample data entered into GAINS database and provided; trainings conducted for appropriate personnel on sample tracking and data management as needed; all requests for surveillance data met in a timely manner.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of PREDICT in Rwanda and facilitate the efficient accomplishment of all activities (including logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional leads, in-country partners and USAID Mission to Rwanda through in-person meetings, conference calls, written advisories, web-based applications and reports.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

  Partners: MGVP

  Expected result(s): Management and coordination of all PREDICT activities in Rwanda under responsible organizational lead; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multifaceted communications with in-country partners, including the USAID Mission to Rwanda through regular updates, and with

the PREDICT team through weekly Skype meetings and interaction on PREDICT Rwanda Basecamp site; continued compliance with all reporting requests (financial, technical, environmental, travel) ; transmitting surveillance data as generated to PREDICT team.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: MGVP

  Expected result(s): Sample data uploaded into GAINS database in a timely manner so that data is accessible through GAINS; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as appropriate; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND as requested.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – RWANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Wildlife disease surveillance and pathogen detection targeted at highest-risk interfaces for zoonotic disease emergence; in-country wildlife disease diagnostic testing available for first time in Rwanda; Capacity Building Update Survey to reveal improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s).	**X**	**X**	**X**	**X**

1.3	Technology Development and Pathogen Discovery	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	New technologies introduced and utilized; on-going diagnostic capacity gaps identified at RAB/VS and appropriate training and requisite equipment and supplies acquired so that RAB/VS can advance as Rwanda's primary wildlife diagnostic laboratory for virology and wildlife sample archive.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	All sample data entered into GAINS database and provided; trainings conducted for appropriate personnel on sample tracking and data management as needed; all requests for surveillance data met in a timely manner.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Responsible coordination of all activities in Rwanda; full fiscal disclosure and near real-time expense tracking; ongoing communications with in-country partners, including the USAID Mission; full compliance with all reporting requests and surveillance data transmission.	**X**	**X**	**X**	**X**

	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Sample data uploaded into GAINS database in a timely manner so that data is accessible through GAINS; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - RWANDA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Wildlife SMART surveillance plan current and optimized	Basecamp & GAINS database	Monthly	Country Coordinator Julius Nziza and Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.1.2 Laboratory System	Wildlife samples processed at RAB/VS; extracted samples tested at East-Central Africa regional lab	GAINS	Bi-monthly	Country Coordinator Julius Nziza and Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.1.3 Operationalizing One Health	Wildlife pathogen surveillance a core component of OHCEA;	Quarterly reports	Quarterly	Country Coordinator Julius Nziza and Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	national task force-administered human health outbreak investigations also conducting wildlife zoonotic pathogen surveillance			
1.1.4 Capacity Assessment and Tracking of Development	PREDICT Rapid Survey Tool completion	Basecamp and GAINS database	Annually	Country Coordinator Julius Nziza
1.2.1 Surveillance	Established framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp and GAINS database	Monthly	Country Coordinator Julius Nziza and Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.2 Pathogen Discovery	Capacity increased for viral diagnostics at RAB/VS; extracted samples submitted to regional lab for comprehensive diagnostics	Quarterly Reports	Quarterly Reports	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein.
1.4.1 Sample Tracking and Information Management	Sample data received; standardized labeling and tracking system implemented	GAINS	Monthly	Country Coordinator Julius Nziza, Technical Assistant Olivier Nsengimana
1.5.1 General Management	Daily oversight of all project activities	Skype and Basecamp	Weekly	Country Coordinator Julius Nziza
1.5.2 Fiscal Management	Near real-time expense tracking	Basecamp	Monthly	Country Coordinator Julius Nziza
1.5.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Julius Nziza with review and approval by Rwanda Country Leads Michael Cranfield and Kirsten Gilardi
1.5.4 Reporting	Compliance with all reporting requests	Basecamp and GAINS database	Monthly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Sample data uploaded into GAINS so that data is accessible; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner	GAINS and Quarterly Report	Monthly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Surveillance Lead Christine Johnson.

COUNTRY PROJECT MANAGEMENT – RWANDA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Rwanda is University of California, Davis and the implementing organization within Rwanda is the Mountain Gorilla Veterinary Project (MGVP). Oversight of PREDICT activities in Rwanda will be managed by Country Coordinator Julius Nziza, with support from Operational Leads M. Cranfield and K. Gilardi (MGVP and UC Davis) and technical assistance from Olivier Nsengimana. In addition, PREDICT Rwanda employs a part-time field veterinarian J. Ramer.

Overview

Rwanda provides an optimal opportunity for wildlife zoonotic disease surveillance in continental Africa's most densely populated country (population of 10 million people live in a country the size of Massachusetts, at a density of 379.6 people per sq. km). Almost the entire country is cultivated for subsistence farming, and intensive human land use abuts the boundaries of all three national parks (Volcanoes, Nyungwe Forest and Akagera National Parks), forcing some wildlife species (particularly primates and birds) to utilize highly urbanized or agriculturalized habitats. As well, a robust ecotourism industry exists – 1 million visitors last year, and is the country's largest source of foreign revenue – largely centered around opportunities to view wild mountain gorillas in Volcanoes NP, bringing people into daily direct and indirect contact with mountain gorillas and by extension, other wildlife species, including primates like golden monkeys. Like other Rift Valley countries, Rwanda is promoting cave tourism, which also brings people into close contact with bats. UC Davis' implementing partner, MGVP, has operated in Rwanda since 1986 in close cooperation with the Rwanda Development Board/Tourism and Conservation, the jurisdictional authority for wildlife and protected areas, on mountain gorilla health and disease issues affecting other wildlife species. MGVP has also monitored multiple wildlife and domestic species for disease exposure, including bats. These highly productive working relationships in addition to newly established relationships with the Rwanda Agricultural Board/Veterinary Services (RAB-VS), Ministry of Health TRAC-Plus, and Umutara Polytechnic University, will allow for unique surveillance opportunities at the interface between wildlife, domestic animals and people in the context of intense animal and plant agriculture and wildlife tourism in Rwanda.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to continue to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. Furthermore, we aim to accomplish the majority of wildlife sample processing and extraction in Rwanda, with viral family testing occurring regionally; pathogen discovery work will be facilitated by PREDICT partners. We aim to continue to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk, focusing on:

- **Taxa:** Non-human primates, bats, and rodents; wild birds, carnivores, ungulates, and domestic livestock as appropriate
- **Interfaces:** Syndromic, free-ranging (ecotourism, shared water/food sources, urbanized wildlife), depredation, hunted, traded
- **Proposed Locations:** Northwest (Volcanoes National Park, Ruhengeri/Kinigi area, Gisenyi/Lake Kivu), Southwest (Nyungwe National Park, Butare area, Burundi border), West/Central (Kigali area, Kibuye area), Northeast (Akagera National Park), and South (Burundi border)

Partnerships
In Rwanda, partnerships have been established through MGVP with the Rwanda Development Board/Tourism and Conservation, the Rwanda Agricultural Board/Veterinary Services, the Ministry of Health/TRAC-Plus, Kigali Health Institute, Centers for Disease Control-Rwanda Office, National University of Rwanda, and Umutara Polytechnic University. PREDICT will continue to build on these partnerships to enhance collaboration in wildlife surveillance, expanding existing surveillance activities in Volcanoes National Park to the national level.

Reporting
In discussion with the USAID Mission in Rwanda, the PREDICT team has agreed be available for quarterly in-person meetings led by the Country Coordinator. In addition, the Country Coordinator and University of California teams communicate on a daily to weekly basis through electronic mail and Skype meetings, sharing of weekly progress reports, and generation of interactive “To Do” lists through the Basecamp project site.

Tanzania

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Continually update the SMART surveillance plan based on information obtained by country coordinator, principle investigator, regional coordinator, staff scientist and in-country partners; expand surveillance activities to newly identified interfaces and facilitate sample-sharing agreements with other active programs as necessary.
    - Sub-activity 1.1.2: **Laboratory System**: Continue to support the infrastructural and capacity development of the in-country wildlife disease diagnostic lab at Sokoine University of Agriculture (SUA) to advance competency in laboratory safety, sample processing, nucleic acid

extraction, storage and shipping of specimens and provision of training opportunities; introduce viral family testing as competency is attained; establish procedures for transfer of processed samples to the regional diagnostic laboratory at Makerere University for comprehensive viral family testing.

- Sub-activity 1.1.3: **Operationalizing One Health:** Participate and support all multi-disciplinary activities and One Health initiatives involving in-country ministries, partners, non-governmental organizations, national taskforces on disease outbreak investigation and response and One Health Central-East Africa (OHCEA) initiatives to promote and enhance cooperation among human, domestic animal and wildlife health sectors in Tanzania.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Complete Rapid Survey Tool update to evaluate progress in building zoonotic disease surveillance capacity since Year 1; provide capacity building and mapping teams with geo-referenced data on project surveillance activities, zoonotic disease outbreaks (as necessary) and relevant capacity building activities as they occur.

Partners: Sokoine University of Agriculture (SUA), Ministry of Livestock and Fisheries Development, Ministry of Health and Social Welfare, Ministry of Natural Resources and Tourism, Tanzania Wildlife Research Institute, Tanzania National Parks, Makerere University Walter Reed Project (MUWRP)

Expected results: Implementation of a dynamic and optimized SMART surveillance system targeting highest-risk interfaces identified by in-country team and partners; launch of the new wildlife health diagnostic laboratory at SUA for sample processing, extractions, and family-level pathogen testing (capacity dependent), with viral family-level testing of wildlife samples at regional laboratory; continued assessment and evaluation of in-country capacity building activities; continued participation and support of all One Health initiatives.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Tanzania:** Strengthen coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of collected samples, and coordinate sample tracking and data sharing through the GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk; and investigate interspecies wildlife pathogen dynamics.

- **Taxa:** Non-human primates, bats, rodents and other species as appropriate (i.e. opportunistic bushmeat sampling and outbreak response sampling)
- **Interfaces:** Hunting, bushmeat markets, peri-domestic, crop raiding, cave/mining camps, ecotourism
- **Proposed Locations:** South-central (Eastern Arc Mountains – Mikumi National Park & surrounding areas, Udzungwa, Uluguru, Kilombero Valley, Ruaha National Park & surrounding areas, and Mbinga district); Western (Katavi National Park & surrounding areas, Mahale National Park, Gombe National Park); North-West (Kahama and Geita – Mining areas); North (Serengeti Ecosystem); North-east (Eastern Arc - Usambara Mtns & Amboni carves); Eastern (Coastal, Dar es Salaam & surrounding areas); South-east (Selous National Park & surrounding areas)

Partners: SUA, HALI Project, National Institute of Medical Research, Muhimbili University Health and Allied Sciences, Ministry of Health and Social Welfare, Ministry of Natural Resources and Tourism, Ministry of Livestock and Fisheries Development, Central Veterinary Laboratory, Center for Disease Control and Prevention Laboratory in Dar es Salaam, Tanzania National Parks, Tanzania Wildlife Research Institute

Expected result(s): Regionally coordinated SMART surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; operational sample tracking system with GAINS for enhanced diagnostic efficiency.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement and introduce new technologies as identified by PREDICT that support EPT activities in Tanzania, and that address identified gaps in existing technological infrastructure.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; continue to identify laboratory needs and capacities to conduct pathogen detection in-country, including increasing laboratory space and procurement of additional laboratory equipment; facilitate the shipment of samples to regional diagnostic laboratory for pathogen discovery.

  Partners: SUA, HALI Project, MUWRP

  Expected result(s): Viral family-level testing at MUWRP; new technologies introduced and utilized in Tanzania; samples collected and transported to the

in-country SUA laboratory for processing and extractions; enhanced diagnostic capacity in SUA's laboratories through the introduction of appropriate training, resources and expanded infrastructure for viral diagnostics and specimen archival.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all surveillance data using appropriate data templates as advised by GAINS; implement and utilize standardized sample labeling and tracking system in-country.

  Partners: SUA, HALI Project

  Expected result(s): Timely updating, recording and reporting between the field site, laboratory and UC Davis team through Basecamp and GAINS database; trainings conducted as needed.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of PREDICT in Tanzania and facilitate the efficient accomplishment of all activities (includes logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field, surveillance data and laboratory results into the GAINS database.

  Partners: SUA, HALI Project

  Expected result(s): Coordinated management of all activities by SUA PI, CC and PREDICT East Africa Coordinator; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multi-faceted communication with in-country partners including the USAID Mission to Tanzania through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Tanzania Basecamp site; continued compliance with all reporting requests (financial,

technical, environmental, travel); distribution of surveillance data as generated through GAINS.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: SUA, HALI Project

  Expected result(s): Sample data uploaded to GAINS in a timely manner ensuring the data is accessible to the modeling team and UC Davis; all requests for surveillance data met in a timely manner.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND as requested. Application for ethical clearance to the national committee for human sampling in case of requested participation in outbreaks.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – TANZANIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	SUA PI Rudovick Kazwala, Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking	Wildlife disease surveillance and pathogen detection targeted at highest risk interfaces for zoonotic disease emergence; in-country wildlife disease diagnostic testing available at SUA; Rapid Survey Tool update revealing improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Harrison Sadiki, Assistant Coordinator Zikankuba Sijali, East Africa Operations Officer David Wolking, Staff Scientist Liz VanWormer, Surveillance Team	Coordinated surveillance data collection at highest risk interfaces with partners; pathogen detection and discovery on collected samples; sample tracking system integrated with GAINS for enhanced diagnostic efficiency; provision of data and reports to achieve a trans-regional surveillance network.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.3	Technology Development and Pathogen Discovery	SUA PI Rudovick Kazwala, SUA Lab Technicians, East Africa Operations Officer David Wolking, UC Davis Laboratory Leads Tracey Goldstein and Brett Smith	New technologies utilized; SUA laboratory diagnostic capacity enhanced; introduction of training and material resources; improved capacity to archive material at SUA.	**X**	**X**		
1.4	Sample Tracking and Information Management	Country Coordinator Harrison Sadiki, Assistant Coordinator Zikankuba Sijali, Information Management Team	Timely updating, recording and reporting between the field site and laboratory, Surveillance, Modeling and IM teams through Basecamp and GAINS.	**X**	**X**	**X**	**X**
1.5	Program Management	SUA PI Rudovick Kazwala, Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking	Responsible coordination of all activities in Tanzania; full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance with all reporting requests.	**X**	**X**	**X**	**X**

	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Harrison Sadiki, Assistant Coordinator Zikankuba Sijali, Staff Scientist Liz Vanwormer	Sample data uploaded into GAINS in a timely manner enabling data access, Surveillance, Modeling, and Hotspot ID teams; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - TANZANIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	SMART surveillance plan up to date and optimized	Basecamp & GAINS	Monthly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Staff Scientist Liz Vanwormer
1.1.2 Laboratory System	Wildlife samples processed at SUA; extracted samples tested at East Africa regional lab	GAINS	As needed	SUA PI Rudovick Kazwala, Country Coordinator Harrison Sadiki, and East Africa Operations Officer David Wolking, SUA Lab Technicians, MUWRP, UC Davis Laboratory Leads Tracey Goldstein and Brett Smith

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Operationalizing One Health	Wildlife disease surveillance, a core component of OHCEA; outbreak investigations (as needed); conducting wildlife zoonotic pathogen surveillance	Quarterly reports	Quarterly	SUA PI Rudovick Kazwala, Country Coordinator Harrison Sadiki, and East Africa Operations Officer David Wolking
1.1.4 Capacity Assessment and Tracking of Development	PREDICT Rapid Survey Tool completion	Basecamp and GAINS	Annually	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Staff Scientist Liz Vanwormer, Capacity Building Team
1.2.1 Surveillance	Established framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Staff Scientist Liz VanWormer, Surveillance Team
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports Skype meetings	Quarterly Weekly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein, SUA Lab team
1.3.2 Pathogen Discovery	Capacity increased for viral diagnostics at SUA; extracted	Quarterly Reports Skype meetings	Quarterly Weekly	Country Coordinator Harrison Sadiki, East Africa Operations

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	samples submitted to regional lab for viral family-level testing			Officer David Wolking, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein, SUA lab team
1.4.1 Sample Tracking and Information Management	Sample data received; standardized tracking system active	GAINS	Monthly	Country Coordinator Harrison Sadiki, Assistant Country Coordinator Zikankuba Sijali, Data Manager Zenna Babu, and Staff Scientist Liz Vanwormer
1.5.1 General Management	Daily oversight of all project activities with weekly reporting to regional leads	Skype and Basecamp	Weekly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking
1.5.2 Fiscal Management	Near real-time expense tracking	Email	Monthly	SUA PI Rudovick Kazwala, Project Administrator (TBD), Data Manager Zenna Babu, East Africa Operations Officer David Wolking
1.5.3 Communication	Mission and Partner Updates	Email	Monthly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, SUA PI Rudovick Kazwala

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.4 Reporting	Compliance with all reporting requests; surveillance data reported to GAINS	Basecamp & GAINS	Monthly	Country Coordinator Harrison Sadiki, Assistant Country Coordinator Zikankuba Sijali, Data Manager Zenna Babu, East Africa Operations Officer David Wolking
2.2 Optimize models for diversity of disease emergence	Sample data uploaded to GAINS; timely response to all Surveillance, Modeling, Hotspot ID, and Information Management team requests	GAINS	Monthly	Country Coordinator Harrison Sadiki, Assistant Country Coordinator Zikankuba Sijali, East Africa Operations Officer David Wolking, Staff Scientist Liz Vanwormer, Data Manager Zenna Babu, and Surveillance Lead Christine Johnson

COUNTRY PROJECT MANAGEMENT – TANZANIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Tanzania is the University of California, Davis (UCD) and the implementing organization within Tanzania is Sokoine University of Agriculture (SUA). Oversight of PREDICT activities in Tanzania will be managed by Country Coordinator, H. Sadiki (SUA), with support from Technical Team Leaders D. Wolking (UCD), R. Kazwala (SUA PI), and Staff Scientist L. Vanwormer. In addition, PREDICT has 8 staff positions in-country, including Assistant Country Coordinator Z. Sijali, Project Administrator Z. Babu, Field Assistant M. Salehe, Field Assistant and Driver E.P. Katowo, Driver A. Zacharia, Laboratory Technologist R. Maganga, Assistant to SUA PI (TBN) and Office/Laboratory Attendant (TBN). An additional four Game Scouts assist this core team in field surveillance through animal capture, handling and sampling support.

Overview

Tanzania provides an optimal opportunity for wildlife zoonotic disease surveillance at what is one of Africa's most active wildlife-livestock-human interface areas. In the more arid areas of the Rift Valley, water diversion and land conversion for agriculture coupled with continued population growth are restricting once vast livestock grazing areas for traditional livestock keepers. The result is an increase of livestock populations on remaining grazing land, often bordering villages and wildlife protected areas. The increasing density of livestock near protected areas coupled with water scarcity (with resultant flood/drought cycles due to watershed degradation) may change the dynamics of current zoonotic threats, and may facilitate transmission of diseases of pandemic potential across this interface. Additionally, Tanzania possesses many islands of rainforest habitat, most notably the Eastern Arc Mountains, which are biodiversity hotspots due to the high degree of endemism and small mammal diversity, providing an exceptional opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the wealth of biodiversity and intimate interaction of populations in these interfaces, Tanzania's current capacity to conduct wildlife disease surveillance at a regional and national level is still developing. Existing collaborations between SUA and the ministries and institutions responsible for livestock, wildlife, and human health enable PREDICT to increase and expand wildlife surveillance activities from the Southern Highlands region to other high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. PREDICT Tanzania will also continue development of a wildlife disease diagnostic laboratory at SUA. In Year 3, all wildlife surveillance samples will be processed and extracted in this new facility, while

viral family-level diagnostics testing occurs at the regional laboratory, Makerere University in Uganda (until the SUA team and facility are capable of implementing pathogen testing protocols). Pathogen discovery activities will be facilitated by PREDICT partners. We aim to continue to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk and to initiate an investigation of interspecies wildlife pathogen. These activities will be focusing on:

- **Taxa:** Non-human primates, bats, rodents and other species as appropriate (i.e. opportunistic bushmeat sampling and outbreak situations).
- **Interfaces:** Hunting, peri-domestic, crop raiding, caves/mines
- **Proposed Locations:** South-central (Eastern Arc Mountains – Mikumi National Park & surrounding areas, Udzungwa, Uluguru, Kilombero Valley, Ruaha National Park & surrounding areas, and Mbinga district); Western (Katavi National Park & surrounding areas, Mahale National Park, Gombe National Park); North-West (Kahama and Geita – Mining areas); North-east (Eastern Arc - Usambara Mtns & Amboni carves); Eastern (Coastal, Dar es Salaam & surrounding areas); South-east (Selous National Park & surrounding areas); North (Serengeti Ecosystem)

Partnerships

Partnerships have been established through Sokoine University of Agriculture with the National Institute of Medical Research, Muhimbili University Health and Allied Sciences, Ministry of Health and Social Welfare, Ministry of Natural Resources and Tourism, Ministry of Livestock and Fisheries Development, Central Veterinary Laboratory, Center for Disease Control and Prevention Laboratory in Dar es Salaam, Tanzania National Parks, Tanzania Wildlife Research Institute, and Makerere University Walter Reed Project. PREDICT will build on these partnerships to plan for enhanced collaboration in wildlife surveillance, expanding existing surveillance activities in the Southern Highlands to the national level.

Reporting

In discussions with in-country partners including the USAID Mission to Tanzania, the PREDICT Tanzania team has developed a monthly reporting structure led by the Country Coordinator. These “Partner Updates” summarize achievements and progress and are distributed to the USAID Mission contact. Following Mission review and comment, the Partner Updates are then shared with all key in-country partners facilitating an interactive communication structure encouraging feedback and partner participation.

In addition, the Country Coordinator, SUA Laboratory staff and University of California teams communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive “To-Do-Lists” and messages through the Basecamp project site.

Uganda

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

    - Sub-activity 1.1.1: **Surveillance System Improvements:** Initiate a new systematic sampling protocol throughout all of Year 3. This new protocol involves sampling in 5 grids located along a disturbance gradient, ranging from pristine habitat to urban habitat in Uganda to better inform the modeling team on the effects of land use on pathogen distribution and emergence; continually update in-country wildlife SMART surveillance plan based on information gained by country coordinators from on-going surveillance activities and from in-country partners on new locations and/or high-risk interfaces.

    - Sub-activity 1.1.2: **Laboratory System**: Assist Makerere University Walter Reed Project laboratory (MUWRP) with application of PREDICT viral family testing protocols on wildlife samples; continue to identify and fill any gaps in capacity (e.g. personnel, equipment and supplies, protocols) at MUWRP for wildlife diagnostics to ensure maximum competency in wildlife sample processing, nucleic acid extraction, viral family testing and storage and shipping, through training and provision of essential materials as needed; facilitate receipt of processed samples from other East-Central Africa PREDICT partners for viral family testing at MUWRP.

    - Sub-activity 1.1.3: **Operationalizing One Health:** Participate and support multidisciplinary activities and one health initiatives of the ministries of health, agriculture, the wildlife authority, Makerere University and non-governmental organizations, e.g. the National Task Force on Disease Outbreaks and Response, and One Health Central-East Africa (OHCEA), to promote and enhance cooperation between the human, domestic animal and wildlife health sectors.

    - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Complete the Rapid Survey Tool to assess progress in building capacity for wildlife zoonotic disease surveillance since Year 1; provide geo-referenced SMART surveillance-related and capacity-building information to mapping team on an on-going basis, to depict development progress for wildlife zoonoses detection.

  Partners: MGVP, Makerere University Walter Reed Project; Ministry of Animal Agriculture and Inland Fisheries; Ministry of Health

Expected results: Wildlife disease surveillance and pathogen detection appropriately and efficiently targeted at highest-risk interfaces for zoonotic disease emergence in Uganda; in-country wildlife disease diagnostic testing being implemented; Rapid Survey Tool will reveal substantive improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Uganda:** Continue to coordinate with ministries, universities and non-governmental organizations to acquire and access shared surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk; conduct opportunistic surveillance in 2011 Ebola Outbreak area as requested by National Task Force; initiate new surveillance activities including strategic sampling methodology developed by the Modeling and Hotspots ID Team to sample 5 areas along a disturbance gradient.

    - **Taxa:** Non-human primates, bats, and rodents; birds, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** Syndromic, free-ranging (ecotourism, shared water sources, urbanized wildlife), depredation, hunted, traded
    - **Proposed Locations:** North (Uganda/Sudan border); Central (Kibangya/Kafu River area, and Central Uganda districts, including 2011 Ebola outbreak area); Central (Kampala/Entebbe, Ngamba Island); East (Mt. Elgon National Park area); West (Budongo Forest Reserve); and Southwest (Bwindi Impenetrable Forest National Park, Mgahinga National Park, Queen Elizabeth National Park, Semliki and Rwennzori National Park areas)

  Partners: MGVP, Uganda Wildlife Authority, Makerere University Faculty of Veterinary Medicine and School of Public Health, Ministry of Health, Ministry of Animal Agriculture and Inland Fisheries (MAAIF)/National Task Force, Centers for Disease Control - Uganda Office, Institute of Tropical Forest Conservation (ITFC), Jane Goodall Institute (JGI), Nature Uganda

  Expected result(s): Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s); improved quality of data provided for model optimization.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Introduce and implement new technologies as identified by PREDICT that support EPT activities in Uganda, addressing identified gaps in existing technological infrastructure; continue to test and utilize cellphone-based Animal Mortality Monitoring technology introduced in Years 1 and 2, and expand to other high-risk geographic areas.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection and discovery according to the wildlife surveillance plan for each high-risk interface described above under sub-activity 1.2.1 Surveillance; work to increase capacity to conduct pathogen detection in-country.

  Partners: MGVP, Makerere University Walter Reed Project, Uganda Wildlife Authority (UWA)

  Expected result(s): New technologies introduced and utilized in current and new areas; on-going diagnostic capacity gaps identified at MUWRP and UWA and appropriate training and requisite equipment and supplies acquired so that these institutions can advance as Uganda's primary wildlife diagnostic laboratory for virology and wildlife sample archiving.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: MGVP

  Expected result(s): All sample data entered into GAINS database and provided; trainings conducted for appropriate personnel on sample tracking and data management as needed; all requests for surveillance data met in a timely manner.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of PREDICT in Uganda and facilitate the efficient accomplishment of all activities (including logistics).

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.5.3: **Communication:** Facilitate communication with regional leads, in-country partners and USAID Mission to Uganda through in-person meetings, conference calls, written advisories, web-based applications and reports.

- Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; and enter field and surveillance data into the GAINS database.

Partners: MGVP

Expected result(s): Management and coordination of all PREDICT activities in Uganda under responsible organizational lead; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued ongoing multifaceted communications with in-country partners, including the USAID Mission to Uganda through regular updates as requested, and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Basecamp site; continued compliance with all reporting requests (financial, technical, environmental, travel), and transmitting surveillance data as generated to PREDICT team.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: MGVP

  Expected result(s): Sample data uploaded into GAINS database in a timely manner so that data is accessible through GAINS; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner.

LOW 3: Outbreak Response Capacity Building
No pre-planned activities; respond to wildlife outbreaks as appropriate; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND as requested.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – UGANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Wildlife disease surveillance and pathogen detection targeted at highest-risk interfaces for zoonotic disease emergence and along a land use gradient; wildlife disease diagnostic testing occurring in-country; Rapid Survey Tool to reveal improvements in wildlife disease surveillance capacity and awareness across governmental, institutional and organizational sectors.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Coordinated surveillance data collection at high risk interfaces with partners, including in 2011 Ebola outbreak area; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s).	**X**	**X**	**X**	**X**

1.3	Technology Development and Pathogen Discovery	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	New technologies introduced and utilized, and previously-introduced cellphone-based Animal Mortality Monitoring Program technology utilized; diagnostic capacity gaps identified at MUWRP and appropriate training and requisite equipment and supplies acquired so that MUWRP can serve as Uganda's primary wildlife diagnostic laboratory for virology.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	All sample data entered into GAINS database and provided; trainings conducted for appropriate personnel on sample tracking and data management as needed; all requests for surveillance data met in a timely manner.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Responsible coordination of all activities in Uganda; full fiscal disclosure and near real-time expense tracking; ongoing communications with in-country partners, including the USAID Mission; full compliance with all reporting requests and surveillance data transmission.	**X**	**X**	**X**	**X**

	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Sample data uploaded into GAINS database in a timely manner so that data is accessible through GAINS; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - UGANDA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Wildlife SMART surveillance plan current and optimized	Basecamp & GAINS database	Monthly	Country Coordinator Benard Ssebide, and Uganda Country Leads Michael Cranfield and Kirsten Gilardi
1.1.2 Laboratory System	Wildlife samples processing and viral family testing at MUWRP; capacity built for pathogen discovery	GAINS	Bi-monthly	Country Coordinator Benard Ssebide, and Uganda Country Leads Michael Cranfield and Kirsten Gilardi
1.1.3 Operationalizing One Health	Wildlife pathogen surveillance a core component of	Quarterly Reports	Quarterly	Country Coordinator Benard Ssebide, and Uganda Country Leads Michael Cranfield and Kirsten Gilardi

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	OHCEA; national task force-administered human health outbreak investigations also conducting wildlife zoonotic pathogen surveillance			
1.1.4 Capacity Assessment and Tracking of Development	Rapid Survey Tool completed	Basecamp and GAINS database	Annually	Country Coordinator Benard Ssebide
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp and GAINS database	Monthly	Country Coordinator Benard Ssebide, and Uganda Country Leads Michael Cranfield and Kirsten Gilardi
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics; continued utilization of technologies introduced in Yrs 1-2	Quarterly Reports	Quarterly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.2 Pathogen Discovery	Viral diagnostics at MUWRP, including for extracted samples from Rwanda and Tanzania; capacity building for viral pathogen discovery	Quarterly Reports	Quarterly Reports	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein
1.4.1 Sample Tracking and Information Management	Sample data received; standardized labeling and tracking system implemented	GAINS	Monthly	Country Coordinator Benard Ssebide, Technical Assistant Rachael Mbabazi
1.5.1 General Management	Daily oversight of all project activities	Skype and Basecamp	Weekly	Country Coordinator Benard Ssebide
1.5.2 Fiscal Management	Near real-time expense tracking	Basecamp	Monthly	Country Coordinator Benard Ssebide
1.5.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Benard Ssebide, with review and approval by Uganda Country Leads Michael Cranfield and Kirsten Gilardi
1.5.4 Reporting	Compliance with all reporting requests	Basecamp and GAINS database	Monthly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Sample data uploaded into GAINS so that data is accessible; all requests for surveillance data from Modeling and Hotspot ID teams met in a timely manner	GAINS and Quarterly Report	Monthly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Surveillance Lead Christine Johnson

COUNTRY PROJECT MANAGEMENT – UGANDA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Uganda is UC Davis and the implementing organization within Uganda is the Mountain Gorilla Veterinary Project (MGVP). Oversight of PREDICT activities in Uganda are managed by Country Coordinator Benard Ssebide with support from Operational Leads Michael Cranfield and Kirsten Gilardi. In addition, PREDICT employs a full-time Technical Assistant, Rachael Mbabazi, in Uganda, as well as an administrative assistant.

Overview

Uganda presents several unique and promising opportunities for surveillance of zoonoses in wildlife with pandemic potential: the country has a long-standing and well-established network of national parks, all of which provide protection for several primate species, and all of which are surrounded by intensive animal agriculture and dense human communities, resulting in significant wildlife/livestock/human interactions and conflict. Uganda is home to half the world's population of mountain gorillas, for which there is a thriving ecotourism industry that brings people (local and foreign) into daily contact with gorillas. Mountain gorillas and other primates exit protected areas to forage in cultivated fields at park margins, thereby coming into direct and indirect contact with people and domestic animals; some primate species are abundant in human-inhabitated areas (e.g. vervets), coming into close contact with people frequently. Additionally, cave tourism is a growing industry in Uganda, which brings people (both Ugandans and tourists) into close contact with bat species. These factors, coupled with the significant infrastructure in place for monitoring and surveillance (e.g. Uganda Wildlife Authority and Makerere University, the latter of which already houses a state-of-the-art US Dept. of Defense-funded Makerere University Walter Reed Project laboratory) and the close working ties that already exist between the MGVP and these entities, facilitate a comprehensive wildlife zoonoses surveillance program in Uganda.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities and NGOs to acquire and facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk, focusing on:

- **Taxa:** Non-human primates, bats and rodents; wild birds, carnivores, ungulates and domestic livestock as appropriate
- **Interfaces:** Syndromic, free-ranging (ecotourism, shared water/food sources, urbanized wildlife), depredation, hunted, traded
- **Proposed Locations:** North (Uganda/Sudan border); Central (Kibangya/Kafu River area, and Central Uganda districts); Central (Kampala/Entebbe, Ngamba Island); East (Mt. Elgon National Park area);

West (Budongo Forest Reserve); and Southwest (Bwindi Impenetrable Forest National Park, Mgahinga National Park, Queen Elizabeth National Park, Semliki and Rwennzori National Park areas)

Partnerships

In Uganda, partnerships have been established through MGVP with the Uganda Wildlife Authority, Makerere University Faculty of Veterinary Medicine and School of Public Health, Makerere University Walter Reed Project, Ministry of Health, Uganda Virus Research Institute, Centers for Disease Control-Uganda Office, Institute of Tropical Forest Conservation, and the Jane Goodall Institute. PREDICT will build on these partnerships to enhance collaboration for wildlife surveillance and expand existing surveillance activities.

Reporting

Discussions with the USAID Mission to Uganda have occurred in formal, multi-project meetings only, as no Mission Point of Contact for EPT, including PREDICT, has been identified, with the exception that PREDICT Uganda provided daily updates to the USAID Mission to Uganda in May/June 2011 during the Ebola Outbreak investigation in Central Uganda. Now that a PoC is being established in the Mission, PREDICT will discuss and comply with the Mission's preferred communication format.

The Country Coordinator and University of California teams communicate on a weekly basis through electronic mail, Skype meetings, sharing of weekly progress reports and generation of interactive "To Do" lists through the Basecamp project site.

SOUTHEAST ASIA REGION

Cambodia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  Sub-activity 1.1.1: **Surveillance System Improvements:** Submit surveillance data to GAINS and risk modeling group in order to identify key high-risk interfaces, pathogens and species to target future surveillance; continue to coordinate with the Royal Government of Cambodia's (RGC) National Veterinary Research Institute (NAVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF), Forestry Administration (FA), the Ministry of Environment (MoE), the Wildlife Protection Department (WPD) and PREVENT to identify new high-risk interfaces between wildlife, livestock and humans, such as hunting, markets, trade and disease outbreaks involving wildlife; implement training for Khmer national staff associated with PREDICT project using materials and protocols developed to cover USAID and PREDICT policies; conduct training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide currently being developed for YR3; sample collection will focus on bats, rodents, non-human primates and bushmeat.

  - Sub-activity 1.1.2: **Laboratory System**: Continue to work with the Institut Pasteur du Cambodge (IPC) and NAVRI to support procurement of equipment, reagents, primers, probes and positive controls for family-level viral screening of wildlife samples; establish mechanism for training of NAVRI staff members at IPC to conduct diagnostics with high standards of biosafety and accuracy; work with IDENTIFY and RESPOND to coordinate support for training of new personnel to increase human capacity; work with IDENTIFY to improve capacity to handle, process, store and manage samples.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Continue to participate and share wildlife surveillance information at the Zoonoses Technical Working Group meetings held monthly in Phnom Penh; these meetings adopt the One Health approach to ensure integrated and improved disease surveillance, response and control in the country; the Working Group involves RGC participants from the animal and human health sectors, including the Director of Centers for Disease Control, Cambodia

(CDC), the Director of NAVRI, UNICEF, FAO, WHO, IPC and other NGOs and research institutions.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Annual assessment and monitoring using the Rapid Survey Tool to evaluate changes made through PREDICT regarding quantity and quality of wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture, handling, sampling, sample transport, storage, shipping and diagnostic testing.

Partners: Royal Government of Cambodia (RGC): National Veterinary Research Institute (NAVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF), Forestry Administration (FA), the Ministry of Environment (MoE), the Wildlife Protection Department (WPD); PREVENT, IDENTIFY, RESPOND, Institut Pasteur du Cambodge (IPC)

Expected results: Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health and pathogen detection in-country; use of GAINS and modeling team to target future surveillance activities; identify new interfaces to focus surveillance activities; improved in-country wildlife pathogen diagnostic capacity.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Cambodia:** Continue to coordinate with ministries, universities, multi-laterals and NGOs to facilitate sharing of surveillance samples and data; support development of ethical review committee for animal disease research projects; build collaborative relationships for diagnostics at appropriate laboratories; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; track media sources for reports of relevant symptomatic disease reports; identify zoonotic pathogen outbreaks and wildlife potential pathogens of pandemic risk.

    - **Taxa:** bats, rodents, carnivores, non-human primates, ungulates and livestock as appropriate
    - **Interfaces:** hunters, market confiscations, free-ranging
    - **Proposed Locations:**
      - In the west and northwest: Siem Reap, Odar Meanchey, Preah Vihear, Battambang and Pursat Provinces

- In the east and northeast: Kratie, Stung Treng, Rattanakiri and Mondulkiri Provinces
- In the central and south: Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, and Kandal Provinces
- In the southeast: Prey Veng and Svey Rieang Provinces, bordering Vietnam

Partners: Royal Government of Cambodia (RGC): National Veterinary Research Institut (NAVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF), Forestry Administration (FA), the Ministry of Environment (MoE), the Wildlife Protection Department (WPD); PREVENT, IDENTIFY, RESPOND, WWF, Hong Kong University (HKU), Institut Pasteur de Cambodge (IPC)

Expected result(s): Ensured that all projects are properly reviewed and approved on animal welfare and human ethical grounds by the appropriate committees; strategically implemented surveillance in key wildlife human interfaces in collaboration with in-country partners as contribution to a diverse national surveillance network; strengthened partnerships with PREVENT for coordination of activities involving community-based reporting networks and identifying high-risk behaviors; collected and received samples; coordinated entry of sampling and epidemiological data into GAINS system to ensure sharing of data and enhance cooperation with laboratories; initiated pathogen detection and discovery for newly acquired wildlife samples.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies to support EPT activities in-country that address previously identified gaps in existing technological infrastructure; continue use of novel sample preservation technologies, including blood spot filter paper, RNA*later*® and liquid nitrogen; cooperate with Institut Pasteur du Cambodge to introduce pyrosequencing technology in Cambodia; continue to use filter card sample collection to obtain diagnostically viable samples in remote areas, with trained personnel; and use technologies for improving adequate cold chain maintenance in more isolated rural sampling sites.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: IPC, NAVRI, MAFF, IDENTIFY

Expected result(s): New relevant technologies and laboratory technical knowledge introduced and used successfully; identified capacity gaps in Cambodia and introduced appropriate training and material resources where possible; cooperation with IDENTIFY to help expand Cambodian infrastructure to improve capacity to handle, process and store samples; identified regional or international laboratories with additional diagnostic capacity where appropriate.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter into the GAINS database all field surveillance data using standardized templates; implement and use standardized sample labeling and tracking system in-country.

  Partners:, Hong Kong University (HKU), Institut Pasteur de Cambodge (IPC), National Veterinary Research Institute (NAVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF), Duke National University of Singapore (Duke-NUS), PREDICT Information Management Team, PREVENT

  Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; implemented standardized labeling and tracking system; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities, including logistics.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare timely financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional leads, country partners and USAID mission through in-person meetings, conference calls, written advisories, web-based applications and reports.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports, and enter field and surveillance data into the GAINS database.

  Partners: Hong Kong University (HKU), Institut Pasteur de Cambodge (IPC), National Veterinary Research Institute (NaVRI), Ministry of Agriculture,

Forestry and Fisheries (MAFF), Duke National University of Singapore (Duke-NUS)

Expected result(s): Management and coordination of all capacity- building and surveillance activities under responsible organizational leads; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continue on-going multi-faceted communication between Country Coordinators, Regional Coordinators and through electronic media (including interaction on the Cambodia Basecamp site), scheduled conference calls and face-to-face meetings; continued regular communications with in-country partners including the USAID Mission to Cambodia and with the team through scheduled conference calls, emails and interaction on Cambodia Basecamp site; continued compliance with all reporting requests (financial, technical, environmental, travel); surveillance data entered through the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Teams.

  Partners: Hong Kong University (HKU), Institut Pasteur de Cambodge (IPC), National Veterinary Research Institute (NAVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF), PREVENT, Duke National University of Singapore (Duke-NUS)

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data sent through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREVENT partners on potential projects that contribute to risk determination.

LOW 3: Outbreak Response Capacity Building
No pre-planned activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No planned activities

IMPLEMENTATION PLAN – CAMBODIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool update; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health and pathogen detection in-country; use of GAINS and modeling activities to target future surveillance activities; identify new interfaces to focus surveillance activities; improved in-country wildlife pathogen diagnostic capacity.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional	Developed framework for surveillance data coordination with partners; pathogen detection and discovery on newly acquired wildlife samples; integrated existing Cambodia sample tracking system with GAINS; strategically implemented surveillance in proposed locations in	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Manager Angela Yang, Surveillance Team	collaboration with in-country partners to achieve a trans-regional surveillance network; coordination opportunities investigated with PREVENT.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang, Technology Development Team	New relevant technologies and laboratory technical knowledge introduced and utilized; identified capacity gaps in Cambodia and introduced training and material resources; cooperate with IDENTIFY to expand Cambodian infrastructure to improve capacity to handle, process and store samples; identified regional or international laboratories with additional diagnostic capacity.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang, IM Team	All sample data entered into GAINS; trainings completed on sample tracking and data management; implemented standardized labeling and tracking system; data into GAINS monthly; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.5	Program Management	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly , Regional Manager Angela Yang	Full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting through the GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly , Regional Manager Angela Yang, Modeling Team	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data sent through GAINS monthly; response to Modeling Team requests for surveillance data; cooperation with PREVENT partners on potential projects that contribute to risk determination.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - CAMBODIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Khmer personnel trained in protocols for wildlife sample collection for surveillance, including PPE and data collection and management; increased surveillance activities in wildlife	Basecamp, GAINS and Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.1.2 Laboratory System	Improved wildlife pathogen diagnostics in country; improved management of wildlife samples	Quarterly Reports, GAINS	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.1.3 Operationalizing One Health	Continued coordination with animal and human health sectors with RGC, NGOs, multi-lateral and research organizations	Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.1.4 Capacity Assessment and Tracking of Development	Wildlife surveillance and diagnostic testing capacity assessment; established partnerships with key agencies and ministries active in wildlife	Capacity Building Rapid Survey Tool Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	surveillance, public health and pathogen detection			
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.3.2 Pathogen Discovery	Improved infrastructure in local laboratories for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Bi-weekly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.5.1 General Management	Project updates with the PREDICT team	Skype, phone calls and Basecamp	Weekly	Country Coordinator Lucy Keatts

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.2 Fiscal Management	Near real-time expense tracking	Basecamp, phone calls, Skype and financial reports	Monthly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang
1.5.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly

COUNTRY PROJECT MANAGEMENT – CAMBODIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing and implementing organization for Cambodia is WCS. Oversight of all activities in-country will be managed by Cambodia Country Coordinator, Lucy Keatts with support from Asia Coordinator Damien Joly (WCS), Regional Manager Angela Yang (WCS) and Technical Team Leaders (Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein, Surveillance Lead Christine Johnson). In addition, PREDICT has two permanent staff members in-country: Field Assistant Chor Kimashalen and Financial Assistant Sar Soknan.

Overview

The trade in wildlife is increasingly recognized as a potential avenue for zoonotic pathogens to spread to from wildlife populations to humans. The regional trade of wild mammals may have played a role in the movement of SARS through Southeast Asia, and there is compelling evidence that SARS was first transmitted to humans in wild animal markets in Guangdong Province, China. Cambodia is a key source, conduit and consumer of wildlife and presents opportunities for advancing understanding of the risk drivers in pathogen emergence in a variety of interface settings.

Nearly 60% of Cambodia is still forested and provides a wealth of opportunities for wild game hunting. Wild animals are hunted and butchered before being sold in city and provincial markets. Markets also act as a central meeting point for live domestic animals and humans, including immuno-compromised individuals. As a result, markets provide an ideal situation for disease transmission. The high demand for wild animal meat and products, forest concessions being sold for industry development, and a growing middle class wealth in Cambodia combined with porous international borders results in an increased risk of contact with wildlife for humans and domestic animals. Thus, Cambodia provides the opportunity to conduct zoonotic disease surveillance at the wildlife-livestock-human interface within the wildlife trade arena.

PREDICT has developed positive relationships with wild animal trappers, wild game traders, middlemen and restaurant owners selling wild meat in several provinces throughout Cambodia. These relationships provide an excellent opportunity to examine relative risk among different trade species and settings and sample wild animals involved in events of high-risk human activities.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk focusing on:

- **Taxa:** bats, rodents, carnivores, non-human primates, ungulates and livestock as appropriate
- **Interfaces:** hunters, market confiscations
- **Proposed Locations:** In the west and northwest: Siemp Reap, Odar Meanchey, Preah Vihear, Battambang and Pursat Provinces; in the east and northeast: Kratie, Stung Treng, Rattanakiri and Mondulkiri Provinces; in the central and south: Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, and Kandal Provinces; in the southeast: Prey Veng and Svey Rieang Provinces, bordering Vietnam

Partnerships
In Cambodia, partnerships have been established with the Institut Pasteur de Cambodge, Ministry of Agriculture, Forestry and Fisheries, National Veterinary Research Institute, Duke-NUS, and Hong Kong University

Reporting
Country Coordinator Lucy Keatts reports as requested by email, phone or in-person with the USAID mission based at the US embassy in Cambodia.

In addition, the Country Coordinator, Asia Coordinator and Regional Manager communicate with each other and the WCS headquarters weekly or more often as needed.

Indonesia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** The first year of activities in Indonesia will be focused on creating and implementing a surveillance plan in partnership with Indonesian counterparts as part of building capacity to develop and implement a SMART surveillance strategy; initial wildlife surveillance activities will be focused on bats, primates and rodents in Year 3; wildlife surveillance activities will be developed in collaboration with the Ministries of Forestry, Agriculture, Health and Indonesian Institute of Sciences (LIPI) so as to ensure optimal integration; a roadmap for assistance with human surveillance at the human-animal interface will also be developed in close coordination with the Ministry of Health; country coordinator will participate in training on use of standardized Rapid Survey Tool; PREDICT staff and partner training

will be initiated in health and safety standards, overview of zoonotic disease and surveillance methods, wildlife capture and sampling skills, ethics/welfare, biohazard, PPE/safety, and diversity sensitivity; a new training guide for PREDICT in-country teams participation in outbreak response is being developed by the Capacity Building Team and will be used in Year 3; trainings will be delivered via Country Coordinator, PREDICT personnel and web modules.

- Sub-activity 1.1.2: **Laboratory System:** Conduct assessment on IPB and all labs that we will work with to ensure that it meets proper standards for biosafety, animal care and use; oversee the transfer of technology regarding the universal positive control and consensus PCR primers for pathogen detection; work closely with partner labs to identify other needs for training, equipment, supplies and protocol adaptation to local facilities; work with other EPT partners to share and help address needs identified for strengthening lab capacity; provide bioinformatics support as diagnostic results become available and as requested by partners.

- Sub-activity 1.1.3: **Operationalizing One Health:** Give presentations and arrange meetings on One Health and emerging pandemics for government, NGO and university partners to boost awareness of the importance of these topics within Indonesia; create a mechanism for inter-agency and inter-partner meetings to discuss plans and review results to date; work closely with Coordinating Ministry for Peoples' Welfare (KOMNAS Zoonoses) to ensure inter-ministerial coordination.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Conduct the PREDICT rapid assessment using existing Rapid Survey Tool and produce reports and maps to help guide PREDICT activities, as well as serve as baseline for future progress determination; use of the Rapid Survey Tool will help evaluate capacity in all aspects of wildlife/zoonoses disease investigations; provide PREDICT Capacity Building Team with the results of the review and the Rapid Survey Tool findings; hold stakeholder meetings and conduct laboratory and field site visits as needed.

Proposed Partners: Institut Pertanian Bogor (IPB), Primate Research Center (PRC) and Veterinary School Teaching Hospital; Indonesian Biorisk Association; Indonesian Institute of Sciences (LIPI); Ministry of Forestry; Ministry of Agriculture; Ministry of Health; Coordinating Ministry for People's Welfare; Indonesia Research Center for Veterinary Science (Balitvet); USAID-Indonesia; Centers for Disease Control - NIHRD Influenza Division, Indonesia; Food and Agriculture Organization-Indonesia; WHO-Indonesia; University of Indonesia, Faculty of Medicine; Institute for Human Virology and Cancer Virology

Expected results: PREDICT Rapid Survey Tool is completed; report is generated and reviewed; country-level capacity building needs are determined; training of country coordinator and relevant PREDICT Indonesia staff is completed.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Indonesia**: Hire and establish a PREDICT country coordinator to facilitate coordination with ministries, universities and NGOs; coordinate collection and sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk; work to obtain all necessary permits and agreements to conduct surveillance activities; while beginning to sample and conduct laboratory tests in Year 3, work to optimize SMART surveillance by exploring additional options i.e. high-risk interfaces, cost-effective sampling opportunities and taxa selection.

    - **Taxa:** non-human primates, bats, rodents and humans (to be added in Q4 of YR3). Additional taxa may be added during the year based on ongoing analyses
    - **Interfaces:** free-ranging wildlife, hunted wildlife, wildlife markets and confiscated wildlife, captive wildlife, wildlife workers, urban parks with potential human-wildlife conflict
    - **Proposed Locations:** Java (Western Java and Southern-Coastal Java, Mount Gede Pangrango National Park, Bogor area, Jakarta); Northeast Sulawesi (Manado, Tangkoko National Park)

Proposed Partners: IPB - Primate Research Center and Veterinary School Teaching Hospital; Indonesian Biorisk Association; LIPI; Ministry of Forestry; Ministry of Agriculture; Ministry of Health; Coordinating Ministry for People's Welfare; Balitvet; USAID-Indonesia; Centers for Disease Control - NIHRD Influenza Division, Indonesia; Food and Agriculture Organization-Indonesia; WHO-Indonesia; University of Indonesia, Faculty of Medicine; Prestasi; Taman Safari Indonesia; Eijkman Institut; Institute for Human Virology and Cancer Virology

Expected result(s): Developed framework for surveillance data coordination with partners; identified collaborators and partners for accomplishing surveillance in Indonesia; applications submitted for essential permits, licenses and agreements; wildlife samples collected and subset tested at in-country partner labs for selected zoonotic pathogens; agreements drafted and in process/established among PREDICT and in-country institutional partners; project surveillance sample tracking system integrated with GAINS;

strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a multi-regional surveillance network.

- **Activity 1.3: Technology Development and Pathogen Discovery**
  - Sub-activity 1.3.1: **Introduction of new technologies in high priority countries:** Identify and implement (as budget allows) new technologies capable of supporting EPT activities in-country; address identified gaps in existing technological infrastructure including equipment needed for cold chain from field to lab and barcoding equipment needed for sample management; share identified needs with other EPT partners.

  - Sub-activity 1.3.2: **Pathogen discovery**: Implement protocols to collect high-quality wildlife samples for pathogen detection according to the surveillance plan for each high-risk interface; conduct assessments on all labs that we will work with to ensure that it meets proper standards for biosafety, animal care and use; identify laboratory needs and capacities to conduct pathogen discovery in-country; transfer and optimize positive controls and consensus primers and will provide bioinformatics support as diagnostic results become available and as requested by partners.

  Potential Partners: Center for Infection and Immunity (CII), Columbia University; other EPT partners; IPB - Microbiology and Immunology Laboratory, Primate Research Center and Veterinary School Teaching Hospital; Indonesian Biorisk Association; LIPI - Research Center for Biology; Ministry of Forestry; Ministry of Agriculture; Ministry of Health; Coordinating Ministry for People's Welfare; Balitvet; USAID-Indonesia; Centers for Disease Control - NIHRD Influenza Division, Indonesia; Food and Agriculture Organization-Indonesia; WHO-Indonesia; University of Indonesia, Faculty of Medicine; Prestasi; Taman Safari Indonesia; Eijkman Institut; Institute for Human Virology and Cancer Virology

  Expected result(s): Introduction, optimization and utilization of new technologies; on-site pathogen discovery developed; collaborations initiated with partners listed above for programs in new technology development and pathogen discovery.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize a standardized sample labeling and tracking system in-country.

  Partners: IPB - Primate Research Center and Veterinary School Teaching Hospital; Indonesian Biorisk Association; LIPI; Ministry of Forestry; Ministry of Agriculture; Ministry of Health; Coordinating Ministry for People's Welfare;

Balitvet; USAID-Indonesia; Centers for Disease Control - NIHRD Influenza Division, Indonesia; Food and Agriculture Organization-Indonesia; WHO-Indonesia; University of Indonesia, Faculty of Medicine; Prestasi; Taman Safari Indonesia; Eijkman Institut; Institute for Human Virology and Cancer Virology

Expected result(s): Sample data will be uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to PREDICT partners through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Country coordinator will provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across the country to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.5.3: **Communication:** Once activities are approved, facilitate communication with regional lead, in-country partners and USAID Mission through in-person meetings, conference calls and written reports; bi-weekly teleconference communications will be held between country coordinator and relevant PREDICT partners.
  - Sub-activity 1.5.4: **Reporting**: Comply with all Indonesian government and USAID reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

  Partners: IPB - Primate Research Center; USAID-Indonesia

  Expected result(s): Management and coordination of all capacity building and surveillance activities; near real-time expense tracking, including monthly financial reporting; ongoing multi-faceted communication with in-country partners including the USAID Mission through regular updates with the PREDICT team; compliance of all reporting requests (financial, technical, environmental, travel); timely entering of surveillance data through the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence:** Provide data and information from sampling and testing to the Modeling and Hotspot ID Team; conduct a literature review of known zoonotic pathogens from Indonesia and share results with the modeling team; identify additional data sources from Indonesia that could contribute to refining hotspot models.

  Partners: IPB; LIPI; Balitvet

  Expected result(s): Completed local zoonoses literature review; collated data sources (country-specific and other data sources); sample collection and testing data entered into GAINS; begin to improve and refine models for emerging disease risk for Indonesia based on these data sources.

LOW 3: Outbreak Response Capacity Building

No pre-planned Activities; respond to wildlife outbreaks as they occur and assistance is requested; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction

No Planned Activities

IMPLEMENTATION PLAN – INDONESIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival	Rapid Survey Tool completed; PREDICT and One Health presentations delivered to government agencies, NGOs and university partners. Training for PREDICT in-country teams using web-based modules for standardized PREDICT policies, procedures and protocols. Training for PREDICT in-country teams for participation in outbreak response. Training workshop for PREDICT in-country teams for safe animal handling and sampling techniques.	X X	X X X X	X	X
1.2	Surveillance	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival	Developed framework for surveillance data coordination with partners. Identified collaborators and partners for accomplishing surveillance in Indonesia.	 X	X X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			Applications for essential permits, licenses and agreements submitted.	X	X		
			Conduct assessment on labs that PREDICT will work with to ensure that it meets proper standards for biosafety, animal care and use.	X	X	X	X
			Identify archived wildlife samples and begin testing a subset at in-country partner labs for selected zoonotic pathogens.	X	X	X	
			Identify archived human samples and begin testing a subset at in-country partner labs for selected zoonotic pathogens.				X
			Wildlife samples collected and subset tested at in-country partner labs for selected zoonotic pathogens.	X	X	X	
			Agreements drafted and in process/established among PREDICT and in-country institutional partners.		X	X	X
			Project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency.		X	X	X
					X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			Strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a multi-regional surveillance network.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, PREDICT Pathogen Discovery Coordinator Simon Anthony, PREDICT Technology and Development Lead Joseph Fair	Introduction and utilization of new technologies. Collaborations initiated with partners for programs in new technology development and pathogen discovery.	**X** **X**	**X** **X**	**X** **X**	**X** **X**
1.4	Sample Tracking and Information Management	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, Data Management Coordinator Damien Joly	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to PREDICT partners through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.		**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.5	Program Management	Country Liaison Kevin Olival, PREDICT Technical Director William Karesh, PREDICT Human-Animal Interface Lead Joseph Fair	Country Coordinator selected and approved and appropriate Indonesian Government authorities. Necessary permits and agreements in place to conduct PREDICT activities. Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and nearreal-time expense tracking, including financial reporting; continue ongoing multi-faceted communication with in-country partners including the USAID Mission through regular updates with the PREDICT team; compliance of all reporting requests (financial, technical, environmental, travel); timely entering of surveillance data through the GAINS database.	**X** **X** **X**	 **X** **X**	 **X**	 **X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Joko Pamungkas, Country Liaison, Kevin Olival,	Completed local literature review; collated data sources (country-specific and other data sources); sample collection and testing data entered into GAINS; begin to improve and refine models for emerging		**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		PREDICT Modeling and Hotspots ID Team	disease risk for Indonesia based on these data sources.				

PERFORMANCE MONITORING PLAN - INDONESIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Active wildlife surveillance of high-priority interfaces, locations and taxa; data sharing among inter-governmental agencies	GAINS; Quarterly Reports	Monthly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival
1.1.2 Laboratory System	Increased capacity in laboratories (necessary controls, primers and other equipment obtained)	Feedback from lab staff via email and test result reporting in GAINS	Monthly	Lab staff, Country Liaison Kevin Olival
1.1.3 Operationalizing One Health	Sustainable mechanism for inter-agency and inter-partner meetings to discuss plans and review results to date	Feedback from lab staff via email and notes from agency/partner meetings	Monthly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, agency and partner representatives

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.4 Capacity Assessment and Tracking of Development	Completed assessment and reviewed findings	Rapid Survey Tool progress; once assessment is completed, success benchmarks will be developed to monitor future progress	Monthly	Country Coordinator Joko Pamungkas, agency and partner representatives, Country Liaison Kevin Olival
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected, received and analyzed for targeted species, interfaces and proposed locations; sample testing conducted; country coordinator hired; permits acquired	Email, in-person and telephone communications among Country Coordinator, permitting agencies and Country Liason. Basecamp, and GAINS database	Monthly	Country Coordinator Joko Pamungkas, agency and partner representatives, Country Liaison Kevin Olival
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics; surveillance and diagnostic capacity gaps identified and communicated to other EPT partners	Quarterly Reports and Country Coordinator and Lab staff feedback	Quarterly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, PREDICT Technology and Development Lead Joseph Fair
1.3.2 Pathogen Discovery	Protocols implemented; lab needs identified; positive controls and primers transferred	Quarterly Reports and Country Coordinator and Lab staff feedback	Quarterly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, PREDICT Pathogen Discovery Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
				Simon Anthony, PREDICT Technology and Development Lead Joseph Fair
1.4.1 Sample Tracking and Information Management	Sample data received and standard templates used; implemented standardized labeling and tracking system	GAINS database	Quarterly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, Data Management Coordinator Damien Joly
1.5.1 General Management	Project updates with the PREDICT team	Email updates, Basecamp, video and tele-conferencing	Bi-weekly email updates and/or phone calls, semi-monthly video or teleconference meetings	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, PREDICT Technical Director William Karesh
1.5.2 Fiscal Management	Near real-time expense tracking and reporting; budget development and compliance with guidelines	Email and Basecamp	Monthly	Country Coordinator Joko Pamungkas
1.5.3 Communication	Mission and partner updates	Email, in-person visits, teleconferences and Basecamp	Monthly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp and GAINS database	Monthly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations; data provided to PREDICT Modeling and Hotspots ID Team; literature review conducted on known Indonesian zoonotic pathogens	GAINS database, email and documents	Monthly	Country Coordinator Joko Pamungkas, Country Liaison Kevin Olival, PREDICT Modeling and Hotspots ID Team, PREDICT Indonesia staff for literature review

COUNTRY PROJECT MANAGEMENT - INDONESIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program, established organizational contacts and networks and other factors. The managing organization for Indonesia is EcoHealth Alliance (EHA), with Global Viral Forecasting (GVF), University of California, Davis (UCD) and other PREDICT partners playing an important role in the success of the program. The proposed implementing organization within Indonesia is the Institut Pertanian Bogor (IPB) - Primate Research Center (PRC), where proposed country coordinator Dr. Joko Pamungkas is based. Country Coordinator and managing organization will work in conjunction with the USAID Mission to Indonesia, government ministries, and other Indonesian university and NGO partners. PREDICT Indonesia will pair specialized PREDICT organizations and scientists with Indonesian partner organizations, including the Ministry of Health, Wildlife, Agriculture and Science and Technology. EHA will serve as the managing organization, in close coordination with GVF, UCD and other EPT partners. EHA and UCD will coordinate activities involving wildlife, while GVF will focus on human disease and the human-animal interface.

Overview

Indonesia provides an extraordinary opportunity for wildlife zoonotic disease surveillance in one of the world's most populated countries and biodiverse environments. Indonesia is the fourth most populated country on earth, yet it maintains some of the highest recorded levels of biodiversity in the world (with 515 species of mammals, 1539 species of birds, etc.). Global geographic disease hotspot analyses have shown that these combined factors make Indonesia one of the world's "hottest" areas for the risk of zoonotic disease emergence. Because of its complex biogeographic history, tropical latitude and large number of small and large volcanic and continental islands, Indonesia is one of the greatest sites of biodiversity endemism in the world, with many species of vertebrates uniquely only found within the country. Recent zoonotic disease models have correlated unique levels of mammal diversity with increasing risk of zoonotic disease and an increasing risk of pathogen diversity at a landscape level. Further, recent analysis of deforestation trends using satellite imaging globally have shown that Southeast Asia in general, and Indonesia in particular, has some of the most rapid rates of deforestation and land use change in the Old and New World tropics. Wide-scale conversion of primary forest to agricultural and commercial crop (e.g. oil palm) landscapes poses an additional risk for disease emergence due to increased human contact with diverse wildlife species. Additionally, Indonesia is known to have high levels of wildlife consumption for food, and some areas (e.g. Java and North Sulawesi) are known to be ports of entry for the wildlife trade regionally. Despite the intimate interaction of human populations and diverse wildlife species at these interfaces, Indonesia's current capacity to conduct wildlife disease surveillance at a regional and national level is still developing. Our in-country implementing partner, IPB-PRC, has existing collaborations with government ministries, veterinary and livestock organizations, wildlife authorities and human health professionals that will enable

PREDICT to begin to fill the wildlife surveillance gap and expand surveillance to high-risk wildlife-human interfaces.

Activities and Locations
PREDICT Indonesia will establish coordination with ministries, universities and NGOs to facilitate surveillance and diagnostic activities and the sharing of collected data. Our goal for the year is to first establish and implement a work, management and communication plan, transferring technology to establish standardized testing protocols and build laboratory capacity for timely diagnostic testing. Collection of wildlife samples will begin at key localities and proper tracking of samples and results will be entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** non-human primates, bats, rodents and humans. Additional taxa may be added during the year based on ongoing analyses.
- **Interfaces:** free-ranging wildlife, wildlife markets and confiscated wildlife, captive wildlife, wildlife workers, urban parks with potential human-wildlife conflict
- **Proposed Locations:** Java (Western Java and Southern-Coastal Java, Mount Gede Pangrango National Park, Bogor area, Jakarta); Northeast Sulawesi (Manado, Tangkoko National Park)

Partnerships
We have begun to establish partnerships with the Institut Pertanian Bogor (IPB) - Primate Research Center and Veterinary School Teaching Hospital; Indonesian Biorisk Association; Indonesian Institute of Sciences (LIPI); Ministry of Forestry; Ministry of Agriculture; Ministry of Health; Coordinating Ministry for People's Welfare; Indonesia Research Center for Veterinary Science (Balitvet); USAID-Indonesia; Centers for Disease Control - NIHRD Influenza Division, Indonesia; Food and Agriculture Organization-Indonesia; WHO-Indonesia; University of Indonesia, Faculty of Medicine; Prestasi; Taman Safari Indonesia; Institute for Human Virology and Cancer Virology; and the Eijkman Institut

Reporting
The proposed Country Coordinator, Dr. Joko Pamungkas, will establish frequent communication with Country Liaison Dr. Kevin Olival, the USAID Mission to Indonesia, and other partner organizations and agencies. In addition, the Country Coordinator along with EHA, GVF and UCD teams, led by Country Liaison Dr. Kevin Olival and Technical Director Dr. William Karesh, will communicate on a bi-weekly basis through regular email exchanges, sharing of progress reports, semi-monthly video or teleconferences, and several in-person meetings over the course of the year.

Lao PDR

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  Sub-activity 1.1.1: **Surveillance System Improvements:** Submit surveillance data to GAINS and risk modeling group in order to identify key high-risk interfaces, pathogens and species to target future surveillance; continue to coordinate with the National Animal Health Centre (NAHC), Ministry of Agriculture and Forestry (MAF), Department of Forestry (DOF) and Department Of Forest Inspection (DOFI) and PREVENT to identify new high risk interfaces between wildlife, livestock and humans, such as hunting, markets, trade and incidences of disease outbreak involving wildlife; implement training for Lao national staff associated with PREDICT project using materials and protocols developed to cover USAID and PREDICT policies; conduct training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide currently being developed for YR3; ample collection will focus on bats, rodents, non-human primates and bushmeat.

  - Sub-activity 1.1.2**: Laboratory System:** Work with IDENTIFY and RESPOND to coordinate support for training of new personnel to increase human capacity; work with IDENTIFY to improve capacity to handle, process, store and manage samples and support creation of a wildlife sample bank at the NAHC.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Continue to share surveillance data through the Lao Government's National Emerging Infectious Disease Coordination Office (NEIDCO); the NEIDCO was set up by the Prime-Minister of Laos in order to improve the One Health approach to disease surveillance, response and control in the wake of highly pathogenic avian influenza (HPAI) emergence in Lao PDR; participate in Surveillance Working Group (SWG) meetings; the SWG is comprised of Government of Laos animal and human health ministerial representatives, U.S. CDC, USDA, CARE, WHO and FAO, among others.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Annual assessment and monitoring using the Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories;

continue to assess country capacities for wildlife capture, handling and sampling, sample transport, storage, shipping and diagnostic testing.

Partners: Ministry of Agriculture and Forestry (MAF) and within the Ministry: National Animal Health Centre (NAHC); District Agriculture and Forestry Offices (DAFOs) and Provincial Agriculture and Forestry Offices (PAFOs); Department of Forestry (DOF); Department of Forest Inspection (DoFI) and Provincial Office of Forest Inspection (POFI); PREVENT; RESPOND; IDENTIFY; US CDC; Pasteur Institute.

Expected results: Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; use of GAINS and modeling team to target future surveillance activities; identify new interfaces to focus surveillance activities; improved in-country wildlife pathogen diagnostic capacity.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Lao PDR:** Continue to establish coordination with ministries, universities, multi-laterals and NGOs to facilitate sharing of surveillance samples and data; support development of ethical review committee for animal disease research projects; build collaborative relationships for diagnostics at appropriate laboratories; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; track media sources for reports of relevant symptomatic disease reports; identify zoonotic pathogen outbreaks and wildlife potential pathogens of pandemic risk.

    - **Taxa:** bats will be the main initial target taxa, but focus will also be given to sampling of rodents, carnivores, shrews, ungulates and livestock as appropriate
    - **Interfaces:** hunting, village consumption, confiscations, markets, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic outbreaks
    - **Proposed Locations:** Vientiane Capital City Prefecture and Vientiane Province, Houapanh Province, Xieng Khouang Province, Khammouane, Bolikhamxay, Champassak and Attapeu provinces

Partners: Ministry of Agriculture and Forestry (MAF) and within the Ministry: National Animal Health Centre (NAHC); District Agriculture and Forestry Offices (DAFOs) and Provincial Agriculture and Forestry Offices (PAFOs);

Department of Forestry (DOF); Department of Forest Inspection (DoFI) and Provincial Office of Forest Inspection (POFI); PREVENT; RESPOND; IDENTIFY

Expected result(s): Ensured that all projects are properly reviewed and approved on animal welfare and human ethical grounds by appropriate committee; strategically implemented surveillance in key wildlife human interfaces in collaboration with in-country partners as contribution to a diverse national surveillance network; strengthened partnerships with PREVENT for coordination of activities involving community-based reporting networks and identifying high-risk behaviors; collected and received samples; coordinated entry of sampling and epidemiological data into GAINS system to ensure sharing of data and enhance cooperation with laboratories; initiated pathogen detection and discovery for newly acquired wildlife samples.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement innovative technologies capable of supporting EPT activities in country, addressing identified gaps in existing technological infrastructure; continue use of novel sample preservation technologies, including blood spot filter paper, RNA*later*® and liquid nitrogen; work with IDENTIFY to establish such relevant and appropriate technologies to implement new diagnostic testing within the National Animal Health Centre relevant to EPT activities; and introduce new technologies for adequate cold chain maintenance to more isolated rural sampling sites.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Ministry of Agriculture and Forestry (MAF), National Animal Health Centre (NAHC), IDENTIFY, Pasteur Institute, U.S. CDC, AFRIMS

  Expected result(s): New relevant technologies and laboratory technical knowledge introduced and used; identified capacity gaps in National Animal Health Centre laboratory diagnostic center; introduced appropriate training and material resources where possible; work with IDENTIFY to expand infrastructure of National Animal Health Centre laboratory diagnostic center to improve capacity to handle, process, store and manage samples.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized

templates into the GAINS database; implement and use standardized sample labeling and tracking system in-country.

Partners: National Animal Health Centre, PREVENT

Expected result(s): All sample data entered into GAINS; conducted trainings on sample tracking and data management; identified a project assistant to manage data; implemented standardized labeling and tracking system; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities, including logistics.
  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for timely reporting.
  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional leads, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.
  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports and enter field and surveillance data into the GAINS database.

    Partners: NAHC

    Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued on-going multi-faceted communication between Country Coordinators and Regional Coordinators through electronic media, scheduled conference calls and face-to-face meetings; continue regular communications with in-country partners, including the USAID Mission to Lao PDR and the RDMA Bangkok, through regular Partner updates and with team through scheduled conference calls, emails and interaction on Lao PDR Basecamp site; continued compliance in all reporting requests (financial, technical, environmental, travel).

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: NAHC, PREVENT

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREVENT partners for "ground truthing" the model examining the rate and nature of contact at the human-wildlife interface in Laos.

LOW 3: Outbreak Response Capacity Building
No pre-planned activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with national ministries and RESPOND.

LOW 4: Risk Reduction
No planned activities

IMPLEMENTATION PLAN – LAO PDR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health and pathogen detection in-country; use of GAINS and modeling team to target future surveillance activities; identify new interfaces to focus surveillance activities; improved in-country wildlife pathogen diagnostic capacity.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Surveillance	Developed framework for surveillance data coordination with partners; continued sampling and testing of samples for pathogens of concern; pathogen discovery initiated for wildlife and other animal samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Team	achieve a trans-regional and trans-organizational surveillance network; strengthened partnerships with PREVENT for coordination of community-based reporting networks.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Technology Development Team	New technologies introduced and utilized; identified capacity gaps in the NAHC; introduction of training and material resources; expanded infrastructure of the NAHC to improve pathogen detection capacity and cold chain storage for sample archiving; samples sent to regional laboratories for pathogen discovery.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Information Management Team	Added new project assistant to the Laos team; all sample data entered into GAINS; completed training on sample tracking and data management; implemented standardized labeling and tracking system; data through GAINS monthly; timely and efficient response to requests for surveillance data.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.5	Program Management	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly	Management and coordination of all Capacity Building and surveillance activities; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continue ongoing multi-faceted communication with in-country partners and with the PREDICT team through weekly conference calls and interaction on Laos Basecamp site; continued compliance of all reporting requests; surveillance data into the GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Modeling Team	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data sent through GAINS monthly; efficient response to Modeling team requests for surveillance data; cooperation with PREVENT partners for “ground truthing” the rate and nature of contact at the human-wildlife interface in Laos.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – LAO PDR

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Lao personnel trained in protocols for wildlife sample collection for surveillance, including PPE and data collection and management; increased surveillance activities in wildlife	Basecamp, GAINS and Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.1.2 Laboratory System	Improved wildlife pathogen diagnostics in country; improved management of wildlife samples	Quarterly Reports, GAINS	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly
1.1.3 Operationalizing One Health	Continued coordination with animal and human health sectors with Government of Laos, NGOs, multi-lateral and research organizations	Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.1.4 Capacity Assessment and Tracking of Development	Wildlife surveillance and diagnostic testing capacity assessment; established partnerships with key agencies and ministries active in wildlife surveillance, public health	Capacity Building Rapid Survey Tool Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Asia Coordinator Damien Joly, Regional Manager Angela Yang

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	and pathogen detection			
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Information Management team
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Technology Development Lead Joseph Fair and Diagnostic Lead Tracey Goldstein
1.3.2 Pathogen Discovery	Improved laboratory infrastructure for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Technology Development Lead Joseph Fair and Diagnostic Lead Tracey Goldstein

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Bi-Weekly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly
1.5.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Lucy Keatts
1.5.2 Fiscal Management	Near real-time expense tracking	Basecamp, phone calls, Skype and financial reports	Monthly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang
1.5.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly
1.5.4 Reporting	Timely compliance of all reporting requirements; surveillance data reports	Basecamp & GAINS database	Quarterly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revise surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Lucy Keatts, Regional Manager Angela Yang, Asia Coordinator Damien Joly, Surveillance Lead Christine Johnson

COUNTRY PROJECT MANAGEMENT – LAO PDR

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based the technical thrust of the program and other factors. The managing organization for Lao PDR is Wildlife Conservation Society and the implementing partner organization within Lao PDR is the National Animal Health Centre. Oversight of activities in Lao PDR will be managed by Country Coordinator, Lucy Ogg Keatts (WCS), with support from Southeast Asia Coordinator Damien Joly (WCS) and Regional Manager Angela Yang (WCS). In addition, PREDICT has two staff members in country, including Project National Coordinator Soubanh Silithammavong and Project Assistant Kongsy Khammavong. Additional staff will be hired to assist this core team in field surveillance through animal capture, handling, sampling and data management support as activities expand in YR3.

Overview

Lao PDR presents an ideal platform for trans-boundary and emerging zoonotic pathogens, having enumerable livestock-human and wildlife-human interfaces, reaching even to the downtown area of the capital city. Wildlife is still widely hunted across the country, eaten by villagers for subsistence, traded locally in wet and medicinal markets, and transported widely for domestic and international trade. The extensive and often geographically rugged borders of land-locked Lao PDR have been documented as extremely porous regarding import and export of illegal wildlife, livestock and other products, creating many pathogen entry and exit points around the country. Large areas of Lao PDR remain forested with high levels of biodiversity and low levels of development. A large proportion of the Lao population still resides in rural areas, and with high levels of poverty and low education, this leads to many perceived high-risk behaviors amongst these groups. Recently, Lao PDR has seen high levels of economic growth and along with it new roads, extractive and hydroelectric industries and increased intensive farming, deforestation and other dramatic land-use changes. All of these activities can potentially alter disease ecology and have led to a greater contact between people, livestock and wildlife and the diseases they carry.

Current capacity for wildlife disease surveillance in Lao PDR is extremely low, with a severe lack of trained human personnel, no veterinary school and minimal laboratory facilities. Despite the economic development of the last decade, the government remains very poor and reliant on foreign sponsors for surveillance, and research projects and infrastructure in many isolated parts of the country, particularly the rugged mountainous areas, are minimal. The existing animal health professionals are very enthusiastic to cooperate on scientific studies to improve the understanding of zoonoses within Lao PDR. Thus, despite the many challenges the country faces, with the coordination of the EPT partners there is great potential for capacity improvement and valuable work in this country where emerging new zoonotic pathogens remain a very real risk.

Activities and Locations
PREDICT will continue to establish coordination with ministries, universities, multi-laterals and NGOs in Lao PDR to facilitate sharing of surveillance samples and data. We will support development of ethical review committee for animal disease research projects; build collaborative relationships for diagnostics at appropriate laboratories; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; track media sources for reports of relevant symptomatic disease reports; and identify zoonotic pathogen outbreaks and wildlife potential pathogens of pandemic risk.

- **Taxa:** bats will be the main initial target taxa but focus will also be given to sampling of rodents, carnivores, ungulates and livestock as appropriate
- **Interfaces:** hunting, village consumption, confiscations, markets, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic, outbreaks
- **Proposed Locations:** Vientiane Capital City Prefecture and Vientiane Province, Houapanh Province, Xieng Khouang Province, Khammouane, Bolikhamxay, Champassak and Attapeu provinces

Partnerships
Ministry of Agriculture and Forestry (MAF) and within the Ministry: National Animal Health Centre (NAHC); District Agriculture and Forestry Offices (DAFOs) and Provincial Agriculture and Forestry Offices (PAFOs); Department of Forestry (DOF); Department of Forest Inspection (DoFI) and Provincial Office of Forest Inspection (POFI); PREVENT; RESPOND; IDENTIFY; U.S. CDC; Pasteur Institute

Reporting:
Formal reporting mechanisms to the new USAID Health representative in Lao PDR are still being finalized; though in YR 2, regular email and phone updates and in-person meetings only when specifically requested was the preferred method of reporting. Partner Updates are shared with all key in-country partners facilitating an interactive communication structure encouraging feedback and partner participation.

In addition, the Country Coordinator, Asia Coordinator and Regional Manager communicate on a weekly basis through Skype meetings and further with other team members in sharing of monthly progress reports. Compliance with Quarterly report requirements.

Malaysia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Continue to strengthen partnerships with the Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (VRI) and Ministry of Health (MOH); implement all official training materials; investigate possibility of new collaborations with universities on Peninsular Malaysia and with universities and government departments in Sabah and Sarawak; train PERHILITAN officers from HQ who will be a dedicated sampling team to conduct routine surveillance; train PERHILITAN officers in each new state where PREDICT carries out surveillance; train wildlife officers in different states to collect samples as part of their daily duties; **PREDICT and PERHILITAN** will identify a level of sampling that can be supported by PERHILITAN staff in the long-term; begin work with the Ministry of Health and the Department for Orang Asli Affairs to implement surveillance in persons highly exposed to wildlife, initially focusing on three areas of Peninsular Malaysia - Gua Musang in Keleantan, Kuala Lipis in Pahang and Kuala Kangsar in Perak (there are several Orang Asli settlements in each of these areas and permission to work in all of them has been granted).

  - Sub-activity 1.1.2: **Laboratory System:** Continue capacity building at PERHILITAN, including improved RNA extraction skills and techniques for screening novel pathogens; install equipment necessary to begin testing samples at VRI (-80 freezer and a bench top centrifuge); work on strengthening relations between PERHILITAN and VRI and establishing a system to move samples from PERHILITAN to VRI for screening with the positive controlsPREDICT, VRI and PERHILITAN will determine number of samples to be tested each month at CII, VRI and PERHILITAN; complete agreement on how samples will be shipped from PERHILITAN to VRI, and then to CII, and how results and data will be shared; positive controls and PCR protocol for in-country pathogen discovery will be initiated during YR3 at VRI and PERHILITAN; capacity building will continue to resolve any gaps in the ability of the labs to conduct new diagnostics; Ministry of Health will begin screening human samples at the National Public Health Laboratory (NPHL) at the viral family level; subset of samples may be sent to CII for pathogen discovery.

  - Sub-activity 1.1.3: **Operationalizing One Health:** continue training for PERHILITAN and VRI staff; begin training with officers from MOH, the

Department of Orang Asli Affairs and from the Departments of Health in Kelantan Pahang and Perak on how to conduct consent process, interviews and sample collection for human study; invite students from local universities to attend training; reinforce message of One Health to colleagues from government departments and universities in regular meetings; in addition to meetings and regular communication, provide senior officials at PERHILITAN, VRI and MOH with printed materials or emails that help reiterate the One Health concept and inter-ministerial collaboration through PREDICT.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Use results from Rapid Survey Tool update conducted in August 2011 to determine the remaining gaps in capacity and to focus capacity building efforts where it is needed most.

Partners: Department of Wildlife and National Parks (PERHILITAN); Veterinary Research Institute (VRI) Department of Veterinary Services (DVS), Ministry of Agriculture; University Putra Malaysia (UPM); Ministry of Health (MOH); National Public Health Laboratory (NPHL); Sabah Wildlife Department; Sabah Health Department; Institute for Tropical Biology and Conservation and Biotechnology Research Institute (BRI) at University Malaysia, Sabah

Expected results: Establish a sustainable system for regular, ongoing surveillance and testing that includes moving samples from PERHLITAN to VRI and the Center for Infection and Immunity (CII) at Columbia University; training for PERHILITAN and VRI staff as well as students from local universities; improved laboratory capacity at VRI and PERHILITAN through further training and use of positive controls; engage MOH through surveillance activities of human populations exposed to wildlife; begin to collect and screen wildlife samples in Sabah.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Malaysia:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk; expand surveillance activities to Sabah and explore possibility of working in Sarawak, Malaysian Borneo; initiate meetings with Sarawak Health Department, Forest Department Sarawak and University Malaysia Sarawak (UNIMAS); meet with other potential academic and NGO partners in Sarawak; initiate meetings with Sabah Health Department; follow-up on initial meetings with Sabah Wildlife Department, the Institute for Tropical Biology and Conservation (who will assist with sample

collection) and the Biotechnology Research Institute (who will assist with sample testing); meet with other potential academic and NGO partners in Sabah; PREDICT training with staff from Sabah Wildlife Department and students from Institute for Tropical Biology and Conservation and Biotechnology Research Institute (BRI) at University Malaysia, Sabah; continue with surveillance and training on Peninsular Malaysia; depending on MOH approval of agreements and protocols, implement surveillance in people highly exposed to wildlife on Peninsular Malaysia; **c**ontinue to sample conflict and confiscated wildlife on Peninsular Malaysia; taxa and field surveillance locations will include:

- **Taxa:** Primates, bats, rodents, carnivores and ungulates
- **Interfaces:** Hunting, deforestation, free-ranging, bush meat, conflict species, confiscated species
- **Current locations:** Sungai Dusun (Selangor); Sungkai (Perak), the next site will be Krau (Pahang); sites will be sampled multiple times at different times of year.
- **Potential additional locations:** Additional sites in the states of Perak, Selangor and Pahang (including Taman Negara); expand sampling to other states in Peninsular Malaysia - Terengganu, Perlis and Johor; Sabah sites will be discussed and necessary permits will be requested; aim to conduct first sampling trip in Sabah before end of Year 3

Partners: PERHILITAN; VRI; UPM; MOH; Sabah Wildlife Department; Sabah Health Department; Institute for Tropical Biology and Conservation; BRI at University Malaysia Sabah

Expected result(s): Develop a framework for surveillance data coordination with partners; collect and receive samples; initiate pathogen detection and discovery for wildlife samples; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure; continue to train staff from PERHILITAN and VRI on use of Biomerieux automated extraction robot provided by DELIVER; train staff from VRI and PERHILITAN to use the viral family-level positive controls and diagnostic protocols developed by PREDICT.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for

animals at each high-risk interface and from people exposed to wildlife at these interfaces; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: PERHILITAN; VRI; MOH; NPHL; UPM; CII

Expected result(s): Enhancement of laboratory capacity for wildlife disease surveillance at PERHILITAN, VRI, and NPHL; development of PCR protocols for pathogens of interest; use of the automated extraction robot at VRI, which will significantly improve throughput for molecular diagnostics.

- **Activity 1.4: Sample Tracking and Information Management**
  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Continue to collect and enter all field and surveillance data using standardized templates into the GAINS database within two weeks of collection; implement and utilize standardized labeling and tracking system in-country.

Partners: PERHILITAN; VRI; UPM

Expected result(s): The standardized animal and human identification numbers, labeling and tracking system will be implemented; identification of capacity gaps in University Putra Malaysia's Veterinary School laboratory; appropriate training and material resources introduced.

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures for PREDICT Malaysia to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID Mission through in-person meetings, conference calls, written advisories, web-based applications, and reports.
  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

Partners: PERHILITAN; VRI; UPM

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife and human surveillance, public health and pathogen detection in-country; reporting and communication with U.S. Embassy and USAID representatives (Thailand RDMA); communication and coordination with other components of EPT program.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by PREDICT Modeling and Hotspots ID Team.

  Partners: PERHILITAN; VRI; UPM; MOH; Modeling and Hotspots ID Team

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; hotspots map refinement and priorities for future sampling identified.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – MALAYSIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Tom Hughes, Asia Regional Coordinator Jonathan Epstein, Country Liaison Elizabeth Loh, Technical Advisors Kevin Olival and Mei Ho Lee, Pathogen Discovery Coordinator Simon Anthony	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Rapid Survey Tool; strengthened partnerships with PERHILITAN, VRI and Ministry of Health; implementation of all official training materials; pending agreement approval by MOH - begin human surveillance activity; investigate possibility of new collaborations; train PERHILITAN officers in each new state; train wildlife officers in different states to collect samples; continued capacity building at PERHILITAN - improved RNA extraction skills, techniques for screening different pathogens; conduct training for in-country teams to prepare them for outbreak response using the recently developed Outbreak Response Guide.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Tom Hughes, Technical Advisor Mei-Ho Lee, PERHILITAN	Strategically implemented surveillance in proposed locations in collaboration with in-country partners; continued testing animal samples at PERHILITAN and UPM; animal	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		staff, Sabah Wildlife Department	sample testing at VRI; human sample testing at NPHL (pending MOH approval); samples to CII for testing; developed framework for surveillance data coordination with partners; sampled at new location Krau in Pahang; identified new sites on Peninsular Malaysia, Sabah and Sarawak.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Tom Hughes, Asia Regional Coordinator Jonathan Epstein, Country Liaison Elizabeth Loh, Technology Development Lead Joseph Fair, Pathogen Discovery Coordinator Simon Anthony	Laboratory enhancement at PERHILTAN and VRI; use of Biomerieux automated extraction robot at VRI and PERHILITAN; implementation of sampling protocols for pathogen discovery and export of samples to CII.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Tom Hughes	Data entered into GAINS database within a two-week timeframe; capacity building at VRI and PERHILITAN; barcode scanner installed at PERHLITAN; for sample tracking, integrate VRI sample tracking system with GAINS; barcoding of samples during field surveillance activities.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.5	Program Management	Country Coordinator Tom Hughes, Asia Regional Coordinator Jonathan Epstein, Country Liaison Elizabeth Loh	Weekly project updates with the team via phone conferences; continued compliance of all reporting requests; surveillance data reporting through GAINS database; management and coordination of all activities in Malaysia; full fiscal disclosure and near real-time expense tracking.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Tom Hughes	All sample data entered into GAINS; completed trainings on sample tracking and data management; timely response to requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - MALAYSIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Training of new sampling team; training PERHILITAN officers from other states; training students from Institute for Tropical Biology and Conservation; routine sample	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	collection from conflict and confiscated species; established system for shipping and screening samples that can keep pace with the number being collected; MOH training of field officers to implement human surveys and sample collection (pending approval of agreement)			
1.1.2 Laboratory System	Molecular family-level viral screening implemented at partner laboratories: VRI, PERHILITAN, and NPHL	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes
1.1.3 Operationalizing One Health	Increased cooperation and collaboration between MOH, VRI and PERHILITAN	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes
1.1.4 Capacity Assessment and Tracking of Development	Increased capacity for sample collection and testing and in other areas initially highlighted for capacity building	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Email, Basecamp and GAINS database	Monthly	Country Coordinator Tom Hughes

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Introduction of New Technologies	Utilized new PCR protocols and positive controls, as well as new technologies (Biomerieux machine); identify capacity gaps partner labs	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes, Science Officer Brad Schneider
1.3.2 Pathogen Discovery	Improved infrastructure at PERHILITAN and VRI for viral diagnostic capacity and cold storage; molecular family-level viral screening implemented at partner laboratories	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes, Asia Regional Coordinator Jonathan Epstein, Pathogen Discovery Coordinator Simon Anthony
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS database	Monthly	Country Coordinator Tom Hughes
1.5.1 General Management	Project updates with the team	Email updates, Basecamp, video and tele-conferencing	Weekly	Country Coordinator Tom Hughes
1.5.2 Fiscal Management	Near real-time expense tracking	Email, Basecamp and Skype	Monthly	Country Coordinator Tom Hughes

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.3 Communication	U.S. Embassy and partner updates	Email, in-person visits and Basecamp	Quarterly	Country Coordinator Tom Hughes
1.5.4 Reporting	Compliance in all reporting requests; surveillance data reports	Quarterly reports, financial reports, email, Basecamp and GAINS database	Quarterly/Monthly	Country Coordinator Tom Hughes
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revised surveillance plan	GAINS database Quarterly Reports	Monthly Quarterly	Country Coordinator Tom Hughes

COUNTRY PROJECT MANAGEMENT- MALAYSIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Malaysia is EcoHealth Alliance with GVF as the second institutional partner managing human health studies. The implementing organizations within Malaysia are the Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), the Ministry of Health and University Putra Malaysia. Oversight of all activities in Malaysia is managed by Country Coordinator Mr. Tom Hughes with support from Asia Regional Coordinator Dr. Jonathan Epstein, Country Liaison Ms. Elizabeth Loh, and Modeling and Hotspots ID Team. In addition, there are two staff members in-country, Ms. Mei-Ho Lee, a microbiologist who will assist with sample testing and capacity building at PERHILITAN and VRI and Mr. Jimmy Lee, a field scientist who will help with surveillance and lab testing.

Overview

South East Asia has some of the greatest wildlife biodiversity on Earth and has experienced some of the most rapid deforestation. This results in bringing human settlements and commercial agriculture into close proximity with wildlife. In addition, the illegal and legal wildlife trade is pervasive in Southeast Asia, including Malaysia. Bush-meat hunting for sport and food, as well as for trade to other countries brings people into close contact with a large variety of wildlife and creates a high level of risk to exposure of zoonotic pathogens, especially while handling wounded animals and during the butchering and skinning of carcasses. Malaysia is where Nipah virus was first discovered, a lethal paramyxovirus carried by *Pteropus vampyrus*, a fruit bat that is widely hunted for food, sport and the belief that they have medicinal benefits. The high degree of contact between people and wildlife makes Malaysia highly vulnerable to zoonotic disease emergence and thus a priority area for initiating wildlife disease surveillance on a national scale.

The emergence of Nipah virus illustrated that when large-scale agricultural operations are situated in wildlife habitat, zoonotic pathogens can be transmitted to livestock and people. Malaysia has a high degree of animal biodiversity located throughout the country, and in its villages, there are little or no barriers between people, their domestic animals and wildlife. Continued surveillance activities are critical because the diversity of potentially zoonotic pathogens hosted by wildlife is likely to be commensurate with the diversity of wildlife, thus putting Malaysia at higher risk for the next outbreak of a zoonotic disease.

Activities and Locations

Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples across the range of disturbance gradients and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We will continue with our capacity building efforts at PERHILITAN and VRI

laboratories and with PERHILITAN wildlife officers. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** Non-human primates, bats, rodents, carnivores and ungulates
- **Interfaces:** Hunting, deforestation, free-ranging, bush meat, conflict species
- **Potential Locations:** Sites in the states of Perak, Selangor and Pahang; expand sampling to other states in Peninsular Malaysia - Terengganu, Johor and Perlis

Pending agreement approval by the Ministry of Health, we will implement human surveillance in populations highly exposed to wildlife, including the Orang Asli (Malaysia's indigenous population), hunters and food industry workers.

Partnerships
Department of Veterinary Services (DVS), Ministry of Agriculture; Veterinary Research Institute (VRI); Department of Wildlife and National Parks (PERHILITAN); University Putra Malaysia, (UPM); Ministry of Health (MOH), Malaysia; National Public Health Laboratory in Malaysia; Sabah Wildlife Department; Sabah Health Department; Institute for Tropical Biology and Conservation; Biotechnology Research Institute (BRI) at University Malaysia, Sabah

Reporting
The Country Coordinator has met with and provided updates to the USAID Mission RDMA/OPH Mr. Dan Schar in Thailand and is in communication with the U.S. Embassy in Kuala Lumpur.

The Country Coordinator and EHA team communicate on a weekly basis through Skype meetings or phone conferences.

Thailand

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Maintain regular communication with the National Park, Wildlife and Plant Conservation Department (DNP) to advise and assist in the optimization and development of their ongoing wildlife surveillance efforts; through capacity development of laboratory systems (below), we will support DNPs efforts to test wildlife samples collected during ongoing surveillance; conduct training for in-country teams to prepare them for outbreak response using

the PREDICT Outbreak Response Guide being developed by the Capacity Building Team.

- Sub-activity 1.1.2: **Laboratory System:** Focus on continued support for building laboratory diagnostic capacity and transferring diagnostic technologies with partners; finalize transfer of protocols to utilize the newly developed universal, synthetic positive controls for diagnostics at a viral family level; transfer of protocols and primer sequences for viral family diagnostics; communication with IDENTIFY will be strengthened through regular in-country meetings; continued support will also be given to further trial and optimize next-generation sequencing technology for novel viral discovery in wildlife; continue with training and support for next-generation sequencing bioinformatics analyses.

- Sub-activity 1.1.3: **Operationalizing One Health:** Increased awareness and training of staff in One Health through regular visits and meetings; communication with country lead organization and through synergistic activities with other EPT partners, particularly, via regular attendance and participation in the monthly EID Preparedness Forum held in Bangkok.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Conduct the rapid assessment using existing tool and produce reports and map to help guide activities as well as serve as baseline for future progress determination; provide the Capacity Building Team with the results of the Rapid Survey Tool update.

Partners: Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases and WHO Collaborating Center for Research and Training on Viral Zoonoses (hereafter, Chulalongkorn University); National Park, Wildlife and Plant Conservation Department (DNP); IDENTIFY; RESPOND

Expected results: Laboratory diagnostic technology is transferred, including universal positive controls and protocols and viral family primers testing kit and protocols; regular communication between PREDICT and other EPT partners is maintained; EID Preparedness Forum is attended regularly; training of staff using PREDICT Outbreak Response Guide is completed; Rapid Survey Tool update is completed.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Thailand:** No field surveillance activity planned in YR3; Country Coordinator will communicate regularly with veterinarians from DNP and staff from RESPOND to stay informed of ongoing wildlife disease surveillance activities in Thailand.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Continue to support next-generation sequencing analysis and protocol optimization for novel pathogen discovery on archived wildlife samples; provide bioinformatics support, training and tools, as necessary; transfer of synthetic positive control protocols for diagnostics at a viral family level; transfer of protocols and consensus primer sequences for viral family diagnostics.

  - Sub-activity 1.3.2: **Pathogen discovery:** Provide protocols, primers and positive controls for priority pathogens; diagnostic testing on archived wildlife samples for follow-up on potential new pathogens identified using next-generation sequencing from activities supported in Year 1 and 2.

  Partners: Chulalongkorn University; Center for Infection and Immunity (CII), Columbia University

  Expected result(s): New technologies introduced, optimized and utilized; wildlife samples screened using new protocols and results shared with EPT and government partners as appropriate.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Enter all lab diagnostic results into GAINS database.

    Partners: Chulalongkorn University

    Expected result(s): All data entered into GAINS; conduct trainings on use of GAINS with country coordinator and relevant staff.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Country coordinator will provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities; managing organization will communicate regularly with country coordinator to facilitate implementation.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Bi-weekly teleconference and regular email communication between Country Coordinator and managing

organization; maintain regular communication with country partners and USAID Mission through in-person meetings and conference calls; communication with other EPT partners (RESPOND, PREVENT, IDENTIFY) through monthly EID Preparedness Forum and regional EPT meetings; regular phone and email communication with DNP veterinarians.

- Sub-activity 1.5.4: **Reporting**: Comply with all government and USAID reporting requirements, including all financial, technical, environmental and travel reports as required.

Partners: Chulalongkorn University; DNP; RESPOND; PREVENT; IDENTIFY

Expected result(s): Management and coordination of all activities; full fiscal disclosure and near real-time expense tracking; ongoing multi-faceted communication with in-country partners including the USAID Mission and other EPT partners through regular updates; compliance of all reporting requests (financial, technical, environmental, travel).

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence:** Provide laboratory diagnostic data to Modeling and Hotspots ID Team.

Partners: Chulalongkorn University; Modeling and Hotspots ID Team

Expected results: Diagnostic data shared through GAINS database; mammal-virus host range database updated based on any new results; country-level disease hotspots map refined.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate government ministries and RESPOND.

LOW 4: Risk Reduction No Planned Activities

IMPLEMENTATION PLAN – THAILAND

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival	Laboratory diagnostic technology is transferred, including universal positive controls and protocols and viral family primers testing kit and protocols; regular communication with other EPT partners is maintained; EID Preparedness Forum is attended regularly; training of staff using Outbreak Response Guide is completed; Rapid Survey Tool update is completed.	X	X	X	X
1.2	Surveillance		No planned surveillance in YR3.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein,	New technologies introduced, optimized and utilized; wildlife samples screened using new protocols and results shared with EPT and government partners as appropriate.	X	X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Country Liaison Kevin Olival					
1.4	Sample Tracking and Information Management	Country Coordinator Supaporn Wacharapluesadee	All data entered into GAINS; conducted trainings on use of GAINS with Country Coordinator and relevant staff.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival	Management and coordination of all activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking; ongoing, multi-faceted communication with in-country partners including the USAID Mission and other EPT partners through regular updates; compliance of all reporting requests (financial, technical, environmental, travel).	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Supaporn Wacharapluesadee Country	Diagnostic data shared through GAINS database; mammal-virus host range database updated based on any new results; country-level disease hotspots map refined.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Liaison and Modeling and Hotspots ID Team Member Kevin Olival					

PERFORMANCE MONITORING PLAN - THAILAND

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Data sharing among inter-governmental agencies; regular communication with DNP	Quarterly Reports	Quarterly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.1.2 Laboratory System	Increased capacity in laboratories; necessary controls, primers and protocols obtained and optimized	Feedback from lab staff via email and test results reporting in GAINS	Monthly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Operationalizing One Health	Monthly communication with other EPT members and partners in Thailand; attending monthly One Health workshop	Feedback from staff via email and notes from agency/partner meetings	Monthly	Country Coordinator Supaporn Wacharapluesadee, Agency and partner representatives, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.1.4 Capacity Assessment and Tracking of Development	Completed assessment and reviewed findings	Once assessment is completed, success benchmarks will be developed to monitor future progress	Quarterly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.2.1 Surveillance	n/a			
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for viral discovery and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.3.2 Pathogen Discovery	Improved infrastructure and optimized protocols for next-generation sequencing and viral	Quarterly Reports	Quarterly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival, Pathogen Discovery Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	family-level screening for pathogen discovery			Simon Anthony
1.4.1 Sample Tracking and Information Management	Diagnostic results uploaded into GAINS database	GAINS database	Monthly	Country Coordinator Supaporn Wacharapluesadee
1.5.1 General Management	Project updates	Email updates, Basecamp, video and tele-conferencing	Bi-Weekly	Country Coordinator Supaporn Wacharapluesadee, Advisor Thiravat Hemachudha
1.5.2 Fiscal Management	Near real-time expense tracking	Email and Basecamp	Monthly	Country Coordinator Supaporn Wacharapluesadee
1.5.3 Communication	Mission and partner updates	Email, in-person visits, teleconference, and Basecamp	Monthly	Country Coordinator Supaporn Wacharapluesadee, Advisor Thiravat Hemachudha, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.5.4 Reporting	Compliance in all reporting requests	Email, Basecamp and GAINS database	Monthly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Diagnostic data/results sent to Modeling and Hotspots ID Team; databases and hotspots risk maps updated	GAINS and Quarterly reports	Quarterly	Country Coordinator Supaporn Wacharapluesadee, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival, PREDICT Modeling and Hotspots ID Team

COUNTRY PROJECT MANAGEMENT - THAILAND

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Thailand is EcoHealth Alliance, and the implementing organization within Thailand is Chulalongkorn University. Oversight of activities in-country will be managed by Country Coordinator, Dr. Supaporn Wacharapluesadee, with additional oversight by Dr. Thiravat Hemachudha from Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases and the WHO Collaborating Center for Research and Training on Viral Zoonoses. Country Coordinator, Dr. Supaporn Wacharapluesadee, communicates regularly with Asia Regional Coordinator, Dr. Jonathan Epstein and Country Liaison, Dr. Kevin Olival to manage and implement the objectives of the program. Additionally, the implementing organization has structural relationships with key personnel within the National Park, Wildlife and Plant Conservation Department; Ministry of National Resources and Environment; Ministry of Public Health; and the Food and Agriculture Organization.

Overview

As one of the more developed countries in Southeast Asia, Thailand is an optimal place to expand and build a robust wildlife disease surveillance system. PREDICT Thailand is well-established with the wildlife and national park system, and some linkages among environment, wildlife, and health ministries are already established. Through activities we can further increase the capacity to detect and identify novel pathogens of zoonotic potential and expand One Health linkages. Thailand is an ecologically diverse nation with a central geographic position among neighboring SE Asian states. It covers a range of ecosystem types, from mangroves to rainforests, spread across southern boundaries with Malaysia, northern boundaries with Myanmar and Laos, and to the eastern border with Cambodia. Southeast Asia has some of the greatest wildlife biodiversity on Earth, the highest rate of tropical deforestation in the past decade and a rapidly growing human population - bringing human settlements and commercial agriculture into close proximity with a range of wildlife species. In addition, the wildlife trade is pervasive in Southeast Asia, including Thailand. All these factors create a high level of risk to exposure with zoonotic pathogens and make Thailand an important site for activities. Our laboratory capacity building activities supported in Year 1 and 2 in Thailand have already made measurable improvements in the ability to identify and recognize novel viruses from clinical wildlife samples. We also have recognized a high level of enthusiasm from our in-country partners to improve linkages among government ministries and integrate wildlife surveillance into the public health structure, and view this as a positive sign that activities will continue to be successful in Thailand.

Activities and Locations

Chulalongkorn University is the primary partner in Thailand to perform viral diagnostics in a state-of-the-art molecular virology lab and new facility for next-generation sequencing and pathogen discovery. Through the relationships formed by our faculty partners at Chulalongkorn with wildlife, environment and health ministries in Thailand in

the past, PREDICT Thailand was able to begin targeted wildlife diagnostics on high-quality archived samples. Our laboratory capacity building activities in Year 1 and 2 have already made measurable improvements in the capacity to identify and recognize novel viruses from clinical wildlife samples that were collected, processed and analyzed in-country. Will continue to establish coordination and maintain strong communication with relevant ministries, universities, government partners, NGOs and other EPT partners to operationalize One Health and continue to strengthen capacity. We will continue to transfer new technologies to Chulalongkorn University labs for viral discovery and diagnostics, including a universal positive control with protocols and consensus viral family primers kit and protocols. Further, we anticipate strengthened communication with RESPOND partners to further build capacity and expand training necessary for a robust wildlife disease surveillance system with IDENTIFY's FAO and WHO, both of which have regional headquarters in Bangkok.

Partnerships
Chulalongkorn University; National Park, Wildlife and Plant Conservation Department; IDENTIFY; PREVENT; RESPOND; and USAID mission

Reporting
The Thailand team, including the Country Coordinator, Dr. Supaporn Wacharapluesadee, and Dr. Thiravat Hemachudha from Chulalongkorn University, Asia Regional Coordinator, Dr. Jonathan Epstein, Country Liaison, Dr. Kevin Olival, will provide the USAID RDMA regular updates on activities. Over the past two years, this has been primarily through in-person meetings and phone conversations with the USAID Mission in Bangkok. In addition, the Country Coordinator and EcoHealth Alliance team will communicate on a bi-weekly basis through email and Skype meetings, sharing of bi-weekly progress reports and sharing documents as needed through the Basecamp project site.

Vietnam

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Continued input of all surveillance data into GAINS and to PREDICT's risk Modeling Team in order to build understanding of Vietnam's risk interfaces; quarterly review of surveillance plan to ensure it is targeted according to updated risk models and maps; track media reports of disease outbreaks in humans, livestock and wildlife and ongoing discussion with the Ministry of Agriculture and Rural Development's (MARD) Department of Animal Health (DAH) and Forestry Directorate (FD) to identify emerging

interfaces between people, livestock and wildlife; coordinate with the planned WHO zoonotic disease risk assessment for Vietnam; assist the DAH Department of Epidemiology to develop a national strategy for wildlife disease surveillance to complement existing surveillance for disease in livestock; continue to incorporate training on biosafety, use of PPE, sample collection, cold chain and sample submission with government authorities whenever implementing surveillance; conduct training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide currently being developed for YR 3.

- Sub-activity 1.1.2: **Laboratory System**: Build on existing relationships with Regional Animal Health Office No. 6 in Ho Chi Minh City, the Hanoi Agriculture University Faculty of Veterinary Medicine Microbiology Laboratory and other Department of Animal Health laboratories as appropriate to improve the capacity for molecular diagnosis of disease in wildlife, as wellas procurement of laboratory equipment, reagents and primers; increase the number of viral family-level protocols successfully being implemented in partner laboratories activities; help establish links between national veterinary laboratories and international partner laboratories to improve national diagnostic capacity; work with IDENTIFY and RESPOND to coordinate support for training of in-country personnel to increase human capacity; work with IDENTIFY to improve capacity to handle, process, store and manage samples; ongoing coordination of planning with PREVENT.

- Sub-activity 1.1.3: **Operationalizing One Health:** Continue to work with government partners in the Ministry of Agriculture and Rural Development (MARD) to incorporate the 'One Health' approach into all EPT-led activities as appropriate; continue to incorporate a 'One Health' component to all wildlife law enforcement training programs; continue to provide input into the development of Vietnam's "*Integrated National Operational Program on Avian Influenza, Pandemic Preparedness and Other Emerging Infectious Diseases (AIPED), 2011-2015",* where appropriate; ongoing involvement in the regular Avian and Pandemic Influenza meetings held by USAID; these meetings include all recipients of USAID funding for Avian and Pandemic Influenza preparedness and other related programs, and include multilateral bodies such as WHO and FAO, participants from both human and animal health NGOs and consulting firms, such as Abt Associates and ASVELIS, and the Vietnamese government-led Partnership for Avian and Human Influenza (PAHI).

  Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Use of the Rapid Survey Tool to assess Vietnam's wildlife disease surveillance and outbreak response systems and to monitor for changes in capacity which are directly related to PREDICT and other EPT

activities; cooperate with IDENTIFY-led assessments of Vietnam's Veterinary Services to ensure no duplication of efforts; evaluate any changes in Vietnam's ability to identify, report, diagnose and respond to outbreak of unknown disease using this tool; continue to identify key country stakeholders, including relevant government departments, laboratories, universities.

Partners: Ministry of Agriculture and Rural Development (MARD) – Department of Animal Health (Department of Epidemiology, National Centre for Veterinary Diagnostics, Regional Animal Health Office 6 (RAHO 6), Department of Quarantine and Customs); Forestry Directorate (Forest Protection Department (FPD), CITES Management Authority); Hanoi Agriculture University (HAU) - Faculty of Veterinary Medicine; Oxford University Clinical Research Unit (OUCRU); US CDC; PREVENT; RESPOND; IDENTIFY

Expected results: Surveillance for new and emerging diseases targeted at the most appropriate wildlife/human interfaces; improved national capacity for surveillance and diagnosis of new and emerging diseases in wildlife; strengthened relationships with key government partners to ensure ongoing incorporation of the "One Health" approach in national decision making processes related to animal, human and wildlife management.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Vietnam:** Continue to coordinate with the appropriate government departments, universities, other NGOs and UN technical agencies to facilitate sharing of surveillance results and data for Vietnam; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk; cooperate with RESPOND and the newly established 'One Health' university network to coordinate activities focused on outbreaks of disease in wildlife, humans and livestock.

    - **Taxa:** rodents, birds, carnivores, ungulates and non-human primates
    - **Interfaces:** Wildlife trade (confiscations), wildlife farms, private wildlife collections, wildlife rescue centres, free-ranging
    - **Proposed Locations:** Hanoi, Ho Chi Minh, Dong Nai Province, Lam Dong Province, Quang Ninh Province, Son La Province

Partners: MARD–DAH (Department of Epidemiology, National Centre for Veterinary Diagnostics, RAHO6, Department of Quarantine and Customs),

Forestry Directorate (FPD, CITES Management Authority), HAU - Faculty of Veterinary Medicine: OUCRU, other EPT partners

Expected result(s): Implemented field sampling activities in key human/wildlife interfaces in coordination with in-country partners; standard protocols applied to collection, cold chain, transportation and storage of samples from wildlife; activities reviewed and approved for animal welfare and human ethical grounds criteria by appropriate committees; samples collected and pathogen detection and discovery initiated; coordinated entry of sampling and epidemiological data into GAINS system to ensure sharing of data and enhance cooperation with partners; coordinated sampling activities with risk characterization activities implemented by PREVENT.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Continue to work with national laboratories to develop skills in implementation of new technologies and protocols to support diagnosis of samples; work with in-country partners to identify gaps in existing technological infrastructure and work with other EPT partners to identify solutions to these gaps; continue to train national partners in the utilization of filter card sample collection as a means of obtaining diagnostically viable samples in remote areas.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen identification in country;,work with in-country partner laboratories to develop relationships with other regional and international laboratories to develop skills in pathogen discovery.

Partners: MARD–DAH (Department of Epidemiology, National Centre for Veterinary Diagnostics, RAHO6, Department of Quarantine and Customs), Forestry Directorate (FPD, CITES Management Authority), HAU - Faculty of Veterinary Medicine, OUCRU, other EPT partners

Expected result(s): New technologies introduced and utilized; identified capacity gaps in Regional Animal Health Office No. 6 (RAHO 6) and HAU Veterinary Faculty diagnostic centers and appropriate training and material resources introduced; worked with IDENTIFY to improve capacity of HAU and RAHO 6 to handle, process and store samples; assisted in the development of a working relationship between PREDICT in-country laboratories and regional or international laboratories with additional diagnostic capacity where appropriate.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Train two national veterinarians and partner laboratory technicians in the use of GAINS appropriate field datasheets and Barcode labeling system; implement sample management system in partner laboratories to ensure all samples archived in ultralow freezers for future analysis are readily available if required; enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: MARD–DAH (Department of Epidemiology, National Centre for Veterinary Diagnostics, RAHO6), Hanoi Agriculture University (HAU) - Faculty of Veterinary Medicine, OUCRU

  Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; implemented standardized labeling and tracking system; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities, including logistics.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for timely reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional leads, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter all field and surveillance data into the GAINS database.

  Partners: MARD–DAH, Forestry Directorate; HAU - Faculty of Veterinary Medicine

  Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued on-going multi-faceted communication between Country

Coordinators, Regional Coordinators and the U.S. through electronic media, scheduled conference calls and face-to-face meetings; continue regular communications with in-country partners including the USAID Mission to Vietnam; continued compliance of all reporting requests (financial, technical, environmental, travel, and entering surveillance data through the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: MARD-DAH, FPD, Quarantine, HAU - Faculty of Veterinary Medicine, Ministry of Natural Resources and Environment (MONRE), MOF (Customs), MOS (Environmental Police), OUCRU, PREVENT

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperate with PREVENT partners on potential projects that contribute to risk determination.

LOW 3: Outbreak Response Capacity Building
No pre-planned activities, Respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No planned activities

IMPLEMENTATION PLAN – VIETNAM

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	Surveillance for new and emerging diseases targeted at the most appropriate wildlife/human interfaces; improved national capacity for surveillance and diagnosis of new and emerging diseases in wildlife; strengthened relationships with key government partners to ensure ongoing incorporation of the "One Health" approach in national decision making processes related to animal, human and wildlife management.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	Implemented field sampling activities in key human/wildlife interfaces in coordination with in-country partners, standard protocols applied to collection, cold chain, transportation and storage of samples from wildlife; activities reviewed and approved for animal welfare and human ethical grounds criteria by appropriate committees; samples collected and pathogen detection and discovery initiated; coordinated entry of sampling and epidemiological data into GAINS system to ensure sharing of data	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			and enhance cooperation with partners; coordination of sampling activities with risk characterization activities implemented by PREVENT.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	New technologies introduced and utilized; identified capacity gaps in Regional Animal Health Office No. 6 (RAHO 6) and HAU Veterinary Faculty diagnostic centers; appropriate training and material resources introduced; worked with IDENTIFY to improve capacity of HAU and RAHO 6 to handle, process and store samples; assisted in the development of a working relationship between PREDICT in-country laboratories and regional or international laboratories with additional diagnostic capacity where appropriate.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	All sample data entered into GAINS; completed trainings on sample tracking and data management; implemented standardized labeling and tracking system; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

1.5	Program Management	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	Management and coordination of all Capacity Building and surveillance activities; full fiscal disclosure and near real-time expense tracking, including monthly financial reporting; continued on-going multi-faceted communication between Country Coordinators, Regional Coordinators and WCS through electronic media, scheduled conference calls and face-to-face meetings; continued regular communications with in-country partners including the USAID Mission to Vietnam; continued compliance of all reporting requests (financial, technical, environmental, travel), and entering surveillance data through the GAINS database.	**X**	**X**	**X**	**X**
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREVENT partners on potential projects that contribute to risk determination.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - VIETNAM

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Surveillance plan updated according to data/modeling team improvements of risk map for Vietnam Increased numbers of Vietnamese wildlife/human and animal health workers trained in PPE, biosafety and other PREDICT protocols	Quarterly Reports	Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.1.2 Laboratory System	Improved wildlife pathogen diagnostics in country; improved human resources and equipment for investigation of diseases in wildlife; improved management of wildlife samples in partner laboratories	Quarterly Reports, GAINS	Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.1.3 Operationalizing One Health	Continue to be invited to provide input and feedback to government policies and activities related to 'One Health'	Quarterly Reports	Quarterly	Country Coordinator Leanne Clark.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	"One Health" a key component of all training activities			
1.1.4 Capacity Assessment and Tracking of Development	Rapid Survey Tool completed Relationships with key national partners established	Rapid Survey Tool report Quarterly Report	Annual Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations	Basecamp GAINS database	Monthly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly
1.3.2 Pathogen Discovery	Improved infrastructure at DAH/HAU for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Bi-weekly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.1 General Management	Project updates with the team	Skype, email and Basecamp	Weekly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly
1.5.2 Fiscal Management	Near real-time expense tracking	Email and Basecamp and Financial Report	Monthly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang
1.5.3 Communication	Mission and Partner Updates	Verbal face-to-face meetings with partners and Mission	Monthly (may be more regularly where required)	Country Coordinator Leanne Clark
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly, Regional Manager Angela Yang
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Data utilized to create an improved understanding of drivers of disease emergence in Vietnam	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Leanne Clark, Asia Coordinator Damien Joly

COUNTRY PROJECT MANAGEMENT - VIETNAM

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Vietnam is Wildlife Conservation Society, and the implementing organizations will be Wildlife Conservation Society, the Department of Animal Health and the Forestry Directorate of the Ministry of Agriculture and Rural Development and Hanoi Agriculture University Faculty of Veterinary Medicine. Oversight of activities in Vietnam will be managed by Country Coordinator Leanne Clark (WCS) in coordination with Asia Coordinator Damien Joly (WCS) and Regional Manager Angela Yang (WCS) with support from PREDICT Technical Team Leaders Technology Development Lead Joseph Fair (GVF), Diagnostic Lead Tracey Goldstein (UCD), Surveillance Lead Christine Johnson (UCD), and modeling support Kevin Olival (EHA). In addition, PREDICT Vietnam has two full-time staff members, including a national veterinarian and an administrative support officer and one veterinary intern (Vietnamese national). Additional staff will be hired to assist this core team in field surveillance through animal capture, handling, sampling, and data management support as activities expand in YR3.

Overview

Vietnam represents an important country for the potential of emergence and spillover of infectious zoonotic pathogens from wildlife to humans. Vietnam is widely recognized as a significant source, transit and consumer country of both the trade in wildlife and wildlife products. While Vietnam's biodiversity has been significantly threatened by a history of deforestation and hunting, the poaching of all species of protect wildlife continues. Regional wildlife trade dynamics have also highlighted the country's important position along the major land, sea and air transport routes for wildlife *en route* to the wildlife markets of China. The crowded, often unhygienic nature of the wildlife trade creates ideal conditions for the transmission of infectious pathogens between stressed, often injured, and potentially immunologically naïve animals.

Consumption of wildlife within Vietnam, including wild meat in specialized restaurants and the use of wildlife products as remedies in traditional medicine, is also increasing. Practices associated with slaughter and preparation meat for consumption provide opportunity for exposure of people and other animals to potential pathogens. Legal farming of a wide range of wild species, in an attempt to provide a sustainable source of animals to supply the wildlife trade, is also developing rapidly. Surveys of wildlife farms in Vietnam by WCS identified these as significant risks to public health due to the number of species in close contact. Farming of livestock also remains very important across the country. Continued clearing of forest for human settlement and encroachment of displaced wildlife into areas of human settlement creates increasing opportunities for contact between people, livestock and wildlife and the potential for pathogen transmission.

Wildlife disease investigation in Vietnam falls under the Department of Animal Health within the Ministry of Agriculture and Rural Development. Diagnostic facilities include

the National Centre for Veterinary Diagnostics in Hanoi, as well as a regional system of Animal Health Offices spread throughout the country. A nationwide system of Provincial, District and Community level animal health workers also exists. While this system facilitates the rapid identification and response to disease outbreaks in livestock, resources limit activities at the district and community levels. Significant advances have been made recently in the development of surveillance networks for diseases in livestock as a result of the response to avian influenza infection within the country. Thus, existing networks provide an ideal platform from which to develop a national surveillance system for wildlife diseases in Vietnam.

Activities and Locations
Will continue to establish coordination with government departments, universities, multi-laterals and NGOs in Vietnam to facilitate sharing of surveillance samples and data, as well as build collaborative relationships to increase capacity for viral diagnostics at appropriate laboratories and identify zoonotic pathogen from wildlife with potential pandemic risk.

- **Taxa:** primates, birds, bats, rodents, carnivores, ungulates and livestock as appropriate
- **Interfaces:** Wildlife trade (after confiscations at national borders by quarantine and customs, and internally at FPD stations), wildlife farms, private wildlife collections, wildlife rescue centres, free-ranging, syndromic
- **Proposed Locations:** Quang Ninh Province, Dong Nai Province, Lam Dong Province, Ho Chi Minh City and greater metropolitan area, Hanoi Province, and Son La Province

Partnerships
Ministry of Agriculture and Rural Development (MARD) – Department of Animal Health (Department of Epidemiology, National Centre for Veterinary Diagnostics, Regional Animal Health Office 6, Department of Quarantine and Customs), Forestry Directorate (Forest Protection Department (FPD), CITES Management Authority); Hanoi Agriculture University (HAU) - Faculty of Veterinary Medicine; Oxford University Clinical Research Unit (OUCRU); US CDC; WHO; OIE;FAO

Reporting
Country Coordinator Leanne Clark will give brief weekly verbal updates to the Vietnam USAID mission representative, Tim Mienke. Staff will also be involved in the existing USAID Pandemic Influenza partners meetings (held on a semi-regular basis).

In addition, the Country Coordinator, Asia Coordinator and Regional Manager communicate on a weekly basis via Skype meetings, and using email and other means as required. Compliance with Quarterly reporting requirements will be continued.

GREATER ASIA REGION

Bangladesh

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Continue to identify new areas with wildlife-human interfaces and develop surveillance strategies for these areas using a One Health approach, including an anthropology team to assess behavioral causes of human interactions with wildlife and develop educational outreach; in these identified areas, establish wildlife disease surveillance; continue training veterinary personnel from the Bangladesh Forest Department in integrated surveillance activities; didactic training at the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B); integration of Forestry Department personnel in the scientific planning and implantation of surveillance; conduct training for PREDICT in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide.

  - Sub-activity 1.1.2: **Laboratory System**: Initiate diagnostic testing utilizing the PREDICT family-level PCR protocols and positive controls to screen bat, rodent and other small mammal samples for potential zoonotic agents; other samples will be sent to the Center for Infection and Immunity (CII), Columbia University for 454 pathogen discovery; continued implementation of the sample-tracking (barcoding) system.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Organize One Health meetings that include scientists and ministerial staff to discuss One Health scientific collaboration and policy among South Asian countries; collaborate with the One Health Alliance of South Asia (OHASA) to hold these meetings.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Refinement of capacity maps in Year 3 and the completion of the Rapid Survey Tool update for Bangladesh.

  Partners: International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B); Bangladesh Forest Department; Institute of Epidemiology, Disease Control and Research (IEDCR) of the Bangladeshi Ministry of Health; Bangladeshi Department of Livestock Services

Expected results: Train new personnel from the Bangladesh Forest Department in surveillance techniques and collaborate with them in surveillance and outbreak response efforts; establish the capacity for in-country laboratory detection of novel and known agents in wildlife samples collected; organize meetings to promote One Health and collaboration between scientists and policy makers in Bangladesh and Southeast Asia.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Bangladesh:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk; assist in-country and EPT partners with wildlife surveillance in the context of human outbreak investigation where zoonoses are suspected.

    - **Taxa:** bats, rodents, shrews, carnivores, lagomorphs and primates
    - **Interfaces:** free-ranging wildlife, captive and semi-captive wildlife, urban-rural interface, undisturbed/disturbed, rural-wildlife interface, urban-wildlife interface
    - **Current surveillance locations:** Rajbari, Faridpur, Sylhet, Cox's Bazar, Lalmonirhat, Comilla, Dhaka, Chittagong
    - **Proposed Locations:** Lawachara National Park/West Bhanugach Reserve (pristine/edge of tea plantation), Chunati Wildlife Sanctuary, Madhupur National Park, Bhawal National Park

  Partners: ICDDR,B; Bangladesh Forest Department (under the Ministry of Environment and Forest); Chittagong Veterinary and Animal Sciences University; Chunati Wildlife Sanctuary; US CDC

  Expected Result(s): Implement wildlife surveillance and data coordination in-country; initiate pathogen detection of collected wildlife samples; surveillance sample tracking system integrated with GAINS; apply for permits to expand species list for sampling; implement wildlife surveillance in proposed locations in collaboration with partners in order to achieve a regional surveillance network; implement joint outbreak investigations with Bangladesh Forest Department.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies**: Implement the PCR protocols for filoviruses, coronaviruses, arenaviruses, hantaviruses, seadornaviruses, bocaviruses, paramyxoviruses (including Nipah) and

alphaviruses; conduct ELISA testing of serum samples for high priority pathogens.

- Sub-activity 1.3.2: **Pathogen discovery**: Test selected wildlife samples for selected diseases at ICDDR,B laboratory in Dhaka; export selected wildlife samples to other partner laboratories for pathogen discovery.

Partners: ICDDR,B; CII, Columbia University; Bangladesh Forest Department; Chittagong Veterinary and Animal Sciences University

Expected Result(s): The acquisition of PCR reagents, positive controls and PREDICT PCR protocols; subset of bat and rodent samples screened by PCR for paramyxoviruses (Nipah virus), coronaviruses and arenaviruses; additional PCR testing for filoviruses, coronaviruses, arenaviruses, hantaviruses, seadornaviruses, bocaviruses, paramyxoviruses (including Nipah) and alphaviruses; selected wildlife samples sent to CII for pathogen discovery.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system**: Continue to enter field and surveillance data using standardized templates into the GAINS database; continue to use standardized labeling and tracking system in-country, including barcode labels.

  Partners: ICDDR,B

  Expected Result(s): Sample tubes labeled using barcode system; GAINS database updated.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management**: Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities and logistics; scheduling of surveillance activities; integration of the Bangladesh Forest Department into surveillance activities; planning of training sessions.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop and maintain expenses within the annual budget; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication**: Facilitate communication with regional lead, country partners and USAID Mission through in-person meetings, conference calls, written advisories, web-based applications

and reports; continue regular in-person meetings and telephone communication with the Bangladesh Forest Department.

- Sub-activity 1.5.4: **Reporting**: Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database; report sample collection activities to the Bangladesh Forest Department; report wildlife outbreak investigation summaries to the Bangladesh Forest Department.

Partners: ICDDR,B; Bangladesh Forest Department

Expected Result(s): Manage and coordinate all capacity building and surveillance activities; regular communication between Asia Regional Coordinator and Country Coordinator via bi-weekly conference calls and email; regular communication between Country Coordinator and Chief Conservator of Forestry Office; surveillance activities scheduled and conducted; training needs for Year 3 identified and scheduled (if necessary); all samples collected entered into GAINS database; surveillance activities and outbreak response are communicated to Asia Regional Coordinator and PREDICT Executive Board.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence:** Work with Modeling and Hotspots ID Team to refine map of predicted hotspots.

Partners: ICDDR,B; Modeling and Hotspots ID Team.

Expected Result(s): Refine map of predicted hotspots with the Modeling and Hotspots ID Team.

LOW 3: Outbreak Response Capacity Building

- **Training of Government Forest Officers in Wildlife Surveillance Activities in the Context of an Outbreak Investigation**: Train Forest Department staff at ICDDR,B in outbreak investigations, epidemiology and disease surveillance; coordinate and explore opportunities with RESPOND; facilitate the inclusion of Forest Department staff and officials (wildlife professionals) in joint outbreak response teams; train Forest Department officials in Geographic Information Systems.

Partners: ICDDR,B; Bangladesh Forest Department; RESPOND

Expected Result(s): Participation of wildlife surveillance activities in outbreak response with in-country and other EPT partners (if present);

incorporation of Forest Department field staff into PREDICT team and wildlife surveillance activities (including outbreak investigation, if opportunity occurs); GIS training completed for Forest Department staff through ICDDR,B course.

LOW 4: Risk Reduction

No Planned Activities

IMPLEMENTATION PLAN – BANGLADESH

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan	Train new personnel from the Bangladesh Forest Department in surveillance techniques and collaborate with them in surveillance and outbreak response efforts; establish the capacity for in-country laboratory detection of novel and known agents in wildlife samples collected; organize meetings to promote One Health and collaboration between scientists and policy makers in Bangladesh and Southeast Asia; conduct training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide being developed by the Capacity Building Team.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Andrea Mikolon, Technical Team Leader Md.	Implement wildlife surveillance and data coordination in-country; initiate pathogen detection of collected wildlife samples; surveillance sample tracking system integrated with GAINS; apply	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Salah Uddin Khan, GAINS Leader Nazmul Haider	for permits to expand species list for sampling; implement wildlife surveillance in proposed locations in collaboration with partners in order to achieve a regional surveillance network; implement joint outbreak investigations with Bangladesh Forest Department.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Laboratory Coordinator Dr. Mustafiz	The acquisition of PCR reagents, positive controls and PREDICT PCR protocols; subset of bat and rodent samples screened by PCR for paramyxoviruses (Nipah virus), coronaviruses, and arenaviruses; additional PCR testing for filoviruses, coronaviruses, arenaviruses, hantaviruses, seadornaviruses, bocaviruses, paramyxoviruses (including Nipah) and alphaviruses; selected wildlife samples sent to CII for pathogen discovery.	**X**	**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Andrea Mikolon, Technical Team Leader Md.	Sample data uploaded into GAINS; data provided into GAINS on a monthly basis; respond in a timely and efficient manner to requests for surveillance data.	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Salah Uddin Khan, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival					
1.5	Program Management	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival	Manage and coordinate all capacity building and surveillance activities. Bi-weekly communication of activities to Asia Regional Coordinator and quarterly financial reporting ; communication with in-country partners including the USAID Mission to Bangladesh through quarterly partner updates and with the team through monthly phone conferencing meetings; continued compliance in all reporting requests from USAID through UC Davis via EcoHealth Alliance; entering of surveillance data through the GAINS database.	**X**	**X**	**X**	**X**

	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, PREDICT Modeling and Hotspots ID Team	Sample data uploaded into GAINS; collect and provide country-specific data as needed for country-scale hotspots modeling effort; provide data to Modeling and Hotspots ID Team to understand and quantify risks of spill-over.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - BANGLADESH

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Geographic expansion of surveillance activities	Quarterly reports, GAINS database	Quarterly	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, GAINS Leader Nazmul Haider
1.1.2 Laboratory System	Successful processing of samples and reporting of diagnostic results to PREDICT and Ministry contacts	GAINS database	Quarterly	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, GAINS Leader Nazmul Haider

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Operationalizing One Health	Meetings that include ministry and scientific partners on One Health implementation	Quarterly Reports	Bi-annual	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan
1.1.4 Capacity Assessment and Tracking of Development	Revised Rapid Survey Tool	Capacity Update	Annual	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp and GAINS database	Monthly	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Laboratory Coordinator Dr. Mustafiz
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Andrea Mikolon, Laboratory Coordinator Dr. Mustafiz
1.3.2 Pathogen Discovery	Improved infrastructure at ICDDR,B for viral diagnostic capacity and cold storage; shipment to CII for pathogen discovery	Quarterly Reports	Quarterly	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival, Pathogen Discovery Coordinator Simon Anthony

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.1 Sample Tracking and Information Management	Sample data and analysis results entered into GAINS; implemented standardized labeling and tracking system	GAINS database	Monthly	Country Coordinator Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, GAINS Leader Nazmul Haider, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.5.1 General Management	Project updates with the PREDICT team	Email updates, Basecamp, video and tele-conferencing	Weekly	Country Coordinator Andrea Mikolon, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
1.5.2 Fiscal Management	Near real-time expense tracking	Email and Basecamp	Monthly	Country Coordinator Andrea Mikolon
1.5.3 Communication	Mission and Partner Updates	Email, in-person visits and Basecamp	Quarterly	Country Coordinator Andrea Mikolon, Asia Coordinator Jonathan Epstein
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Quarterly reports, email, Basecamp and GAINS database	Monthly	Country Coordinator Andrea Mikolon, Asia Regional Coordinator Jonathan Epstein, Country Liaison Kevin Olival
2.2 Optimize models for diversity of disease	Samples collected or received and analyzed for targeted species, interfaces, and	GAINS database	Monthly	Country Coordinator Andrea Mikolon, Country Liaison Kevin Olival, PREDICT Modeling

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
emergence	proposed locations Revised surveillance pla	 Quarterly Report	 Quarterly	and Hotspots ID Team

COUNTRY PROJECT MANAGEMENT - BANGLADESH

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Bangladesh is EcoHealth Alliance and the implementing organization within Bangladesh is the Center for Diarrheal Disease Research, Bangladesh (ICDDR,B). Oversight of activities will be managed by Country Coordinator Dr. Andrea Mikolon (Director, Zoonotic Disease Cluster, Programme on Infectious Disease and Vaccine Sciences, ICDDR,B). Fieldwork and training will be supported by EcoHealth Alliance's Field Veterinarian Dr. Ariful Islam and a team of wildlife technicians. Dr. Islam coordinates the Nipah virus ecology bat investigation for EcoHealth Alliance and works alongside ICDDDR,B scientists. ICDDR,B also has existing institutional partnerships with USAID, the Bangladesh Forest Department (under the Ministry for Environment and Forest), the Division of Livestock Services (under the Ministry of Agriculture), and the Institute for Epidemiology, Disease Control and Research (IEDCR) (under the Ministry of Health and Family Welfare). These relationships with government agencies will be instrumental in achieving surveillance goals, as well as provide scientific and logistical support.

Overview

Bangladesh provides an optimal opportunity for wildlife zoonotic disease surveillance at what is one of the most active wildlife-livestock-human interface areas in the world. Dense human population co-occurs with rich biodiversity in a country that depends intensively on agriculture by both human and animal labor. This high density of people and livestock in a highly fragmented landscape that forces wildlife to live among villages, coupled with strong seasonal variation in water availability increases the risk of zoonotic threats and may facilitate transmission of diseases of pandemic potential across this interface. Despite the resident biodiversity and intimate interaction of populations in these interfaces, Bangladesh's current capacity to conduct wildlife disease surveillance at a regional and national level is developing. Through the implementing partner, ICDDR,B, in conjunction with Chittagong Veterinary and Animal Sciences University (CVASU), existing collaborations with government veterinary and livestock ministries, wildlife authorities and human health professionals enable PREDICT to fill the wildlife surveillance gap and expand surveillance to other high-risk wildlife-livestock-human interfaces.

Activities and Locations

Will continue to coordinate with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, small carnivores, primates and ungulates
- **Interfaces:** free-ranging, depredation, syndromic

- **Potential Locations:** Lawachara National Park/West Bhanugach Reserve (pristine/edge of tea plantation); Chunati Wildlife Sanctuary, Madhupur National Park, Bhawal National Park, Faridpur District (Ramnagar and Dumra Kandi) Village, Tangail, Dijnaspur, Chittagong

Partnerships
Partnerships have been established through Center for Diarrheal Disease Research, Bangladesh (ICDDR,B) in conjunction with Chittagong Veterinary and Animal Sciences University

Reporting
The USAID Mission is in the process of replacing its RDMA/OPH, formerly, Dr. Zandra Andre, with whom Dr. Epstein has met. Upon the appointment of the new Mission Representative, a meeting will be scheduled to establish reporting requirements.

In addition, the Country Coordinator and EcoHealth Alliance teams, led by Asia Regional Coordinator Dr. Jonathan Epstein and Country Liaison Dr. Kevin Olival will communicate with ICDDR,B personnel on a regular basis through email exchanges, sharing of weekly progress reports and semi-monthly video or teleconferences.

China

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Adjust surveillance field sites and species selection based on results from previous work and hotspots maps from the modeling team to ensure comprehensive data on pathogen load of target species; progress towards full implementation of the GAINS system in China; coordination with local and regional agencies to ensure all major interfaces are included in surveillance plan; reinforce protocol adherence through training updates for project staff and collaborators; training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide.
    - Sub-activity 1.1.2: **Laboratory System**: Identify gaps in diagnostic needs on an ongoing basis; increase diagnostic capacity based on needs; develop process for reporting on impact of added capacity; share protocols and reagents developed for the program with all in-country partners; augment laboratory protocols with additional screening protocols including filovirus, hantavirus and coronavirus; implement new universal

control plasmid to allow testing of filovirus, flavivirus, paramyxovirus, coronavirus, arenavirus, hantavirus, alphavirus, poxvivus; transfer technology to allow additional ELISA testing beyond Ebola and SARS Co virus.

- Sub-activity 1.1.3: **Operationalizing One Health:** Regional and Country Coordinators will continue to communicate and work with in-country partners and key individuals in governmental agencies, including the Ministry of Forestry and CDC Beijing to promote One Health knowledge.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Country Coordinator and in-country partners will conduct capacity assessments (Rapid Survey Tool) and report and will set-up a procedure for tracking development across all partners.

Partners: East China Normal University (ECNU); Centers for Disease Control and Prevention of Guangdong Province (GDCDC); Wuhan Institute for Virology (WIV); Guangdong Entomological Institute/South China Institute of Endangered Animals (GDEI)

Expected results: Overall improved efficiency and capacity between surveillance and laboratory systems; increased collaboration and communication with regards to operationalizing One Health; timely updates on and response to capacity assessments; implementation of the GAINS system within China; increased participation and cooperation with all in-country partners.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across China:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk; follow-up of human participants enrolled in emerging zoonotic pathogens cohort study in Southern China; assist human public health organizations in China to increase their capacity to work with wildlife populations; integrate primate feces sampling into existing surveillance activities.

    - **Taxa**: primates, bats, rodents, carnivores, ungulates, birds and livestock, as appropriate
    - **Interfaces**: hunting, depredation, free-ranging (horticulture-wildlife, shared water sources), syndromic
    - **Potential Locations**: Southern China (from Hainan to Yunnan) and Central China (from Beijing to Shanghai)

Partners: ECNU; GDCDC; WIV; GDEI

Expected result(s): Strategically continue surveillance in field locations as well as new locations identified in assessment of previous work and updated hotspots maps, in collaboration with in-country partners to achieve a trans-regional surveillance network; pathogen detection and discovery continued for collected wildlife and human samples; existing project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies identified capable of supporting EPT activities in-country; address identified gaps in existing technological infrastructure as result of Capacity Assessment Update; dried blood spot cards and real-time PCR introduced in Year 2, and PCR will continue to be the mainstay of diagnosis in Year 3; new sample preservation systems will be put in place to facilitate enhanced quality of collected tissues and elevated pathogen discovery success.

  - Sub-activity 1.3.2: **Pathogen discovery:** Continue to implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; continue to identify laboratory needs and capacities to conduct pathogen discovery in-country; obtain DNA sequences for pathogens of interest detected in samples; increase total number of pathogens that in-country laboratories can test, specifically, broaden the local screening for virus families by implementing molecular protocols for filovirus, flavivirus, paramyxovirus, coronavirus, arenavirus, hantavirus, alphavirus, poxvivus; transfer new universal control to diagnostic sites that safely act as a positive control for 12 different assays and contains an integrated control sequence to allow for detection of positive control contamination in samples.

  Partners: ECNU; GDCDC; WIV; GDEI

  Expected result(s): New technologies introduced and utilized; capacity gaps identified in laboratory diagnostic centers; appropriate training and material resources introduced where possible; expanded infrastructure to improve viral diagnostic capacity and cold storage for sample archival.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; provide feedback for GAINS

database development; implement and utilize standardized labeling and tracking system in-country.

Partners: ECNU; GDCDC; WIV; GDEI

Expected result(s): All sample data entered into GAINS to be included in surveillance committee calls and quarterly reports; completed trainings on sample tracking and data management for new staff; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; standardized labeling and tracking system implemented.

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID Mission through in-person meetings, conference calls, written advisories, web-based applications and reports.
  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

  Partners: ECNU; GDCDC; WIV; GDEI

  Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near real-time expense tracking, including financial reporting; continue ongoing multi-faceted communication with in-country partners including the USAID Regional Mission through regular updates and with the managing organization through bi-weekly Skype meetings and interaction via Basecamp; continued compliance of all reporting requests (financial, technical, environmental, travel), and entering surveillance data through the GAINS database.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspots ID Team.

  Partners: ECNU; GDCDC; WIV; GDEI; EHA; GVF; PREDICT Modeling and Hotspots ID Team

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – CHINA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Shuyi Zhang, Asia Regional Coordinator Jonathan Epstein, Asia Regional Coordinator Corina Monagin	Conduct capacity assessments; identify ways to fill capacity gaps in-country and initiate action towards increasing capacity; increased awareness of One Health as well as the applications of the program; increased participation and cooperation with all in-country partners; conduct training for in-country teams to prepare them for outbreak response using the PREDICT Outbreak Response Guide.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Shuyi Zhang, Asia Regional Coordinator Jonathan Epstein, Asia Regional Coordinator Corina Monagin	Strategically implement surveillance in proposed locations in collaboration with in-country partners; develop framework for surveillance data coordination in-country; pathogen detection and discovery initiated for acquired wildlife and human samples; existing surveillance sample tracking system integrated with GAINS.	**X**	**X**	**X**	**X**

1.3	Technology Development and Pathogen Discovery	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi, Asia Regional Coordinator Jonathan Epstein, Director of Laboratory Sciences Brad Schneider	New technologies introduced and utilized; capacity gaps identified in ECNU, WIV, GDCDC and GDEI labs; training and material resources introduced; expanded infrastructure of ECNU and WIV labs to improve viral diagnostic capacity and cold storage for sample archival; expanded number of pathogens assayed in-country.		**X**	**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi, Asia Regional Coordinator Jonathan Epstein	All sample data entered into GAINS; trainings completed on sample tracking and data management; data provided to UCD through GAINS monthly; response to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Shuyi Zhang, Asia Regional Coordinator Jonathan Epstein, Asia Regional	Full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates with the team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data into GAINS database.	**X**	**X**	**X**	**X**

		Coordinator Corina Monagin					
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi, Modeling and Hotspots ID Team	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UCD through GAINS monthly; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - CHINA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Support for continuing and expanding surveillance efforts, as part of an adaptive process; Implementation of the GAINS system	GAINS database, Modeling and Hotspots ID Team	Monthly	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi, EHA Asia Regional Coordinator Jonathan Epstein, GVF Asia Regional Coordinator Corina Monagin

1.1.2 Laboratory System	Increased capacity for pathogen detection and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein
1.1.3 Operationalizing One Health	Framework for communication between all in-country partners (animal and human); established relationships with key individuals at ministries, institutions, and NGOs	Email, meetings, conference calls	Monthly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein, GVF Asia Regional Coordinator Corina Monagin
1.1.4 Capacity Assessment and Tracking of Development	Developed process for continued capacity assessment and network of information collection for tracking development and progress	Email, Basecamp and GAINS database	Quarterly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein
1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp and GAINS database	Monthly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein, GVF Asia Regional Coordinator Corina Monagin

1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Shuyi Zhang, GVF Science Officer Brad Schneider, Pathogen Discovery Coordinator Simon Anthony
1.3.2 Pathogen Discovery	Improved infrastructure at ECNU and WIV for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein, GVF Science Officer Brad Schneider, Pathogen Discovery Coordinator Simon Anthony
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS database	Monthly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein, GVF IT and Innovation Director Lucky Gundesekara
1.5.1 General Management	Project updates with managing organization	Email updates, Basecamp, video and tele-conferencing	Weekly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein, GVF Asia Regional Coordinator Corina Monagin
1.5.2 Fiscal Management	Near real-time expense tracking	Email and Basecamp	Monthly	Country Coordinator Shuyi Zhang
1.5.3 Communication	Mission and partner updates	Email, in-person visits and Basecamp	Monthly	Country Coordinator Shuyi Zhang, EHA Asia Regional Coordinator Jonathan Epstein

1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp and GAINS database	Monthly	Country Coordinator Shuyi Zhang
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revised surveillance plan	GAINS database Quarterly Report	Monthly Quarterly	Country Coordinator Shuyi Zhang, PREDICT Modeling and Hotspots ID Team

COUNTRY PROJECT MANAGEMENT - CHINA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for China is EcoHealth Alliance, and the implementing organization within China is East China Normal University. Oversight of PREDICT activities in China will be managed by Country Coordinator Dr. Shuyi Zhang with support from Technical Team Leader and EHA Asia Regional Coordinator Dr. Jonathan Epstein and GVF Asia Regional Coordinator Ms. Corina Monagin.

Overview

South East Asia has some of the greatest wildlife biodiversity on earth, and has experienced some of the most rapid deforestation, bringing human settlements and commercial agriculture into close proximity with wildlife. In addition, the wildlife trade is pervasive in Southeast Asia, including China, Malaysia and Thailand. Bushmeat hunting for sport and food, as well as for trade to other countries brings people into close contact with a large variety of wildlife and creates a high level of risk to exposure of zoonotic pathogens. Guangdong Province is where the first cases of SARS were reported in November 2002. Guangdong CDC, the Institute of Zoology in Beijing and East China Normal University's Life Sciences Department have been collaborating with EHA and GVF for over five years in China. In-depth laboratory analysis is being conducted at the Wuhan Institute of Virology, which is one of the premiere diagnostic labs in the world and is equipped with BSL3 capabilities. Dr. Zhengli Shi, at the Wuhan Institute of Virology, has collaborated closely with EHA for almost ten years. We have collaborating projects throughout China that examine the risk of zoonotic disease emergence through hunting, livestock and market animals. We will target our wildlife surveillance in areas of high human-wildlife contact in Guangdong and Guangxi provinces and will initiate linkages of labs in China with our lab partners outside China (including in the U.S. and Australia) to facilitate technology transfer.

Activities and Locations

Will work to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We will follow-up with all enrolled participants in the human cohort study, as well as continue diagnostic testing. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa**: primates, bats, rodents, carnivores, ungulates, some bird species and livestock as appropriate
- **Interfaces**: free-ranging, hunting, depredation, syndromic
- **Potential Locations**: Southern China (from Hainan to Yunnan) and Central China (from Beijing to Shanghai)

Partnerships
Partnerships have been established with East China Normal University, Guangdong CDC, Wuhan Institute of Virology, Guangdong Entomological Institute/South China Institute of Endangered Animals, and Institute of Pathogen of Medical Academy of China. PREDICT will build on these partnerships to enhance collaboration for wildlife surveillance expanding existing surveillance activities in Southern and Central China to the national level.

Reporting
Develop a reporting structure in conjunction with the USAID Mission and led by the Country Coordinator. These updates will summarize achievements and progress.

In addition, the Country Coordinator, EcoHealth Alliance and Global Virus Forecasting teams will communicate on a weekly basis through Skype meetings, sharing of weekly progress reports and generation of interactive "To-Do-Lists" through the Basecamp project site.

Nepal

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** The first exploratory year of activities in Nepal will be focused on evaluating current capacity and potential for successful and productive wildlife pathogen surveillance, disease detection and risk characterization (budgeted in global); if potential for success is high, we will explore the creation and implementation of a surveillance plan in partnership with Nepalese counterparts as part of building capacity to develop and implement a SMART surveillance strategy; YR3 planned activities are limited to exploratory visits by PREDICT leadership and technical experts for assessment; additional activities may be submitted for approval throughout the year, depending on potential for implenation efficiency and success, as well as pandemic risk.

LATIN AMERICA REGION

Bolivia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** PREDICT will expand surveillance of bat populations in conjunction with the National Animal Health Service (SENASAG), the Bolivian Bat Conservation Program (BIOTA/EHA) and the Ministry of Health and Sports (Departmental Services of Health, SEDES); opportunistic sampling of vampire bats will be performed on individuals captured by the National Rabies Control Program; similar efforts will be formalized with the Amazon Conservation Association Bolivia (ACA) for monitoring free-raging bats and rodents in indigenous territories (Takana II Indigenous Territory, northern Bolivia) conduct training to prepare in-country teams for outbreak response.

  - Sub-activity 1.1.2: **Laboratory System:** Public laboratories (CENETROP, INLASA, LIDIVET and IBMB) possess adequate diagnostic infrastructure, but lack sufficient funding, standardized molecular protocols and certain supplies (e.g., positive controls) to conduct routine family-level viral screening on wildlife samples; work to help resolve these major gaps by providing technical assistance and oversight.

  - Sub-activity 1.1.3: **Operationalizing One Health:** As a result of increased awareness of animal diseases and outbreak reporting in indigenous territories, the National Animal Health Service (SENASAG) will formalize a cooperative agreement with PREDICT for assistance in developing community-based surveillance of notable diseases in northern Bolivia; on-the-job training of key collaborators (government personnel, indigenous hunters) will continue to be provided to help develop long-term sustainability for zoonoses screening.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Compare findings detailed in the Rapid Survey Tool with current status and needs for wildlife pathogen surveillance in-country, in order to assess and track progress made toward project's objectives; continue to work along with the Capacity Assessment team to finalize a capacity and interface map for Bolivia and provide an overview of disease risks for government decision-makers.

Partners: National Animal Health Service (SENASAG, Epidemiology and Quarantine Inspection Divisions, and Laboratory Services); General Directorate of Biodiversity (DGB); Ministry of Public Health and Sports (Departmental Services of Health-SEDES, and National Zoonoses Program); Institute of Molecular Biology and Biotechnology (IBMB, University of San Andres); National Center of Tropical Diseases (CENETROP); Veterinary Research and Diagnostic Laboratory (LIDIVET); National Institute of Health Laboratories (INLASA); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (Tumupasa, San Silvestre, Esperanza del Enapurera, Carmen del Emero, Cachichira and San Antonio del Tequeje); San Jose de Uchupiamonas indigenous territory; Bolivian Bat Conservation Program (PCMB-BIOTA/partner EHA); Amazon Conservation Association Bolivia (ACA)

Expected results: Develop a network for wildlife surveillance, based on strategic interactions and formalizations among partners and government agencies; efficient coordination of efforts at a national scale; increase prompt notifications of animal die-offs and disease events to public agencies; monitor priority species (bats, rodents, primates) routinely in new target areas; establish basic capacity for molecular family-level viral screening at public laboratories; provide on-the-job training to indigenous collaborators (hunters, health promoters), government personnel (SENASAG, DGB) and partners (e.g., ACA Bolivia); improve capacity for wildlife disease surveillance; evaluate changes by comparing the Rapid Survey Tool data with current status and needs; finalize health map for Bolivia with the Capacity Assessment team.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Bolivia:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database to be completed by third quarter; identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk.

    - **Taxa:** primates, rodents and bats
    - **Interfaces:** hunted animals (subsistence bushmeat), wild caught free-ranging and syndromic; to a lesser degree, traded wildlife and livestock, when appropriate and in coordination with SENASAG
    - **Potential Locations:** Takana, Tsimane-Mosetén and Uchupiamonas indigenous territories (Madidi National Park, Madre de Dios River, and Pilón Lajas Biosphere Reserve, northern Bolivia); peri-urban areas in Carmen Pampa (Coroico District, La Paz), Cochabamba and Santa

Cruz; rescue centers and zoos in La Paz, Coroico District (Department of La Paz) and Villa Tunari District (Department of Cochabamba)

Partners: National Animal Health Service (SENASAG, Epidemiology and Quarantine Inspection Divisions and Laboratory Services); General Directorate of Biodiversity (DGB); Ministry of Public Health and Sports (Departmental Services of Health-SEDES and National Zoonoses Program); Municipality of El Alto (Zoonoses Unit); Institute of Molecular Biology and Biotechnology (IBMB, University of San Andres); National Center of Tropical Diseases (CENETROP); Veterinary Research and Diagnostic Laboratory (LIDIVET); National Institute of Health Laboratories (INLASA); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (Tumupasa, San Silvestre, Esperanza del Enapurera, Carmen del Emero, Cachichira and San Antonio del Tequeje); San Jose de Uchupiamonas indigenous territory; Bolivian Bat Conservation Program (PCMB-BIOTA/partner EHA); "La Senda Verde Wildlife Rescue Center" (Coroico); Municipal Zoo "Vesty Pakos" (La Paz); Inti Wara Yassi Community and Rescue Centers; Amazon Conservation Association Bolivia (ACA); Universidad Mayor de San Simon/Cochabamba (CBG)

Expected result(s): Establish collaboration with additional public and private institutions for accomplishing surveillance and data sharing; surveillance at targeted interfaces and lab testing for zoonotic pathogens as scheduled; pathogen detection and discovery on acquired wildlife samples; field data in GAINS database on a monthly basis; notification of animal disease outbreaks to governmental agencies by community leaders; adopt a surveillance strategy to increase pathogen detection in wildlife at hotspot sites, prioritized through eco-epidemiological analysis by epidemiology leads.

- **Activity 1.3: Technology Development and Pathogen Discovery**
  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure; new technologies include: lysis buffer (RNA Later and Nuclisens), FTA Cards, Blood Spot/Protein Binding Cards, liquid nitrogen storage and satellite phones for communications in remote areas; continue to cooperate with partners on the introduction of other novel technologies with relevant field application in Bolivia.
  - Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface in first two quarters; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: National Animal Health Service (SENASAG); Institute of Molecular Biology and Biotechnology (IBMB, University of San Andres); National Center of Tropical Diseases (CENETROP); Veterinary Research and Diagnostic Laboratory (LIDIVET); National Institute of Health Laboratories (INLASA); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (Tumupasa, San Silvestre, Esperanza del Enapurera, Carmen del Emero, Cachichira and San Antonio del Tequeje); San Jose de Uchupiamonas indigenous territory; Bolivian Bat Conservation Program (PCMB-BIOTA/partner EHA)

Expected result(s): Public agencies and partners will adopt new field sampling collection technologies (e.g. for vampire bat sampling by the National Rabies Control Program for rodent sampling by ACA); accurately assess and communicate technology needs of partner laboratories; increase diagnostic infrastructure at IBMB-UMSA, CENETROP and LIDIVET labs for molecular family-level viral screening; identify export mechanisms for samples destined for complex pathogen discovery techniques to regional reference labs (e.g., NAMRU-6 in Lima, Peru) and PREDICT state-of-the-art lab (Center for Infection & Immunity, Columbia University.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement standardized sample labeling and tracking system in-country.

Partners: National Animal Health Service (SENASAG); Institute of Molecular Biology and Biotechnology (IBMB, University of San Andres); National Center of Tropical Diseases (CENETROP); Veterinary Research and Diagnostic Laboratory (LIDIVET); National Institute of Health Laboratories (INLASA); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (Cachichira, Tequeje); San Jose de Uchupiamonas Indigenous Council; Bolivian Bat Conservation Program (PCMB-BIOTA/partner EHA)

Expected result(s): Accurate data collection in the field and at partner laboratories (packing list and test results templates), in accordance with recommendations of Information Management Team; implementation of barcode labeling and unique identification of samples to allow for standardized sample tracking and data management; monthly data uploads to

GAINS database; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**
    - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across country to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.
    - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

    Partners: N/A

    Expected result(s): Effective day-to-day management of in-country activities and administrative procedures supervised by regional coordinator and supervisor and the director of WCS Bolivia office; appropriate management of year 3 budget in accordance with USAID regulations. USAID Mission updated on project progress; accurate reports on technical, environmental and financial activities, and additional write-ups to be prepared as requested; regularly report field data through GAINS; ensure frequent communication with in-country partners and stakeholders.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Modeling Team

  Expected result(s):
  Surveillance data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to the Modeling Team through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – BOLIVIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Erika Alandia (Country Coordinator), WCS in-country staff, Alberto Perez (Regional Coordinator).	Developed a network for wildlife surveillance, based on strategic interactions among non-governmental partners and government agencies, and efficient coordination at a national scale; improved timeliness of notifications of animal die-offs and disease events to public agencies; priority species (bats, rodents, primates) routinely monitored in new target areas; established basic capacity for molecular family-level viral screening at public laboratories, following PREDICT protocols and technical assistance from Diagnostic lead; on-the-job training provided to indigenous collaborators (hunters, health promoters), government personnel (SENASAG, DGB) and partners (e.g., ACA Bolivia); improved capacity for wildlife disease surveillance, evaluated using the Rapid Survey Tool with current status and needs; Health map finalized for Bolivia.	X	X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.2	Surveillance	Erika Alandia (Country Coordinator), WCS in-country staff, Alberto Perez (Regional Coordinator), Luis F. Aguirre (EHA country representative), M. Isabel Moya (EHA Operative and Logistic Coordinator)	Established collaboration with additional public and private institutions for surveillance and data sharing; surveillance activities performed at targeted interfaces; lab testing for zoonotic pathogens conducted; pathogen detection and discovery run on acquired wildlife samples; field data entered monthly into GAINS database; notification of animal disease outbreaks to governmental agencies by community leaders; surveillance strategy adapted to increase pathogen detection in wildlife at hotspot sites, prioritized through eco-epidemiological analysis by epidemiology leads.	**X**	**X**		
1.3	Technology Development and Pathogen Discovery	Erika Alandia (country coordinator), Alberto Perez (Regional Coordinator)	New field sampling collection technologies adopted by public agencies and partners (e.g., for vampire bat sampling by the National Rabies Control Program; for rodent sampling by ACA); further technology needs of partner laboratories accurately assessed and communicated to Diagnostic Lead; increased diagnostic infrastructure at IBMB-UMSA, CENETROP and LIDIVET labs for molecular family-level viral screening;	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			identified export mechanisms for samples destined for complex pathogen discovery techniques to regional reference labs (e.g., NAMRU-6 in Lima, Peru) and PREDICT state-of-the-art lab (Center for Infection & Immunity, Columbia University), through coordination and guidance from Pathogen Discovery Coordinator.				
1.4	Sample Tracking and Information Management	Erika Alandia (Country Coordinator), Luis F. Aguirre (EHA country representative) M. Isabel Moya (EHA Operative and Logistic Coordinator)	PREDICT data sheets accurately completed in the field and at partner laboratories (packing list and test results templates), in accordance with Information Management Team; implementation of barcode labelling and unique identification of samples to allow for sample tracking and data management; data uploaded monthly to GAINS database; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Erika Alandia (Country Coordinator), Alberto Perez (Regional Coordinator), Marcela Uhart	Effective day-to-day management of in-country activities and administrative procedures, supervised by regional coordinator and supervisor and the director of WCS Bolivia office; appropriate management of year 3 budget; USAID Mission updated on project progress;	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		(Regional Supervisor), Lilian Painter (WCS Bolivia Director), Luis F. Aguirre (EHA representative), M. Isabel Moya (EHA Operative and Logistic Coordinator)	accurate reports on technical, environmental and financial activities and additional write-ups to be prepared as requested; field data regularly reported through GAINS; frequent communication with in-country partners and stakeholders.				
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Erika Alandia (Country Coordinator), Luis F. Aguirre (EHA country representative) and M. Isabel Moya (EHA Operative & Logistic Coordinator)	Sample data uploaded into GAINS gap analysis conducted on surveillance plan and optimized as needed data provided to the Modeling Team through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - BOLIVIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Network for wildlife surveillance; notifications of animal die-offs and disease events to public agencies; priority species monitored in new target areas	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), PREDICT in-country staff, A. Perez (Regional Coordinator), PREDICT Surveillance Team
1.1.2 Laboratory System	Molecular family-level viral screening implemented at public laboratories	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), Diagnostic lead Tracey Goldstein
1.1.3 Operationalizing One Health	Cooperative agreements signed with partners and stakeholders; on-the-job training provided to public and private collaborators	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), PREDICT in-country partners and stakeholders
1.1.4 Capacity Assessment and Tracking of Development	Changes in capacity for wildlife disease surveillance evaluated through the Rapid Survey Tool; Healthmap finalized for Bolivia	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), Capacity Assessment Team (Kate Thomas)
1.2.1 Surveillance	Framework for surveillance data coordination; samples	Basecamp, Email & GAINS database	Monthly	Erika Alandia (Country Coordinator), PREDICT in-

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	collected or received and analyzed for targeted species, interfaces, and proposed locations			country staff, A. Perez (Regional Coordinator), PREDICT Surveillance Team
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), EHA Operative and Logistic Coordinator M. Isabel Moya
1.3.2 Pathogen Discovery	Improved infrastructure at Institute of Molecular Biology (Major University of San Andrés) for viral diagnostics capacity and long-term cold storage	Quarterly Reports	Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), Technology Development Lead Joseph Fair, Diagnostic Lead Tracey Goldstein
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Bi-Weekly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), EHA Operative and Logistic Coordinator M. Isabel Moya, Information Management Team
1.5.1 General Management	Project updates	Skype, Email and Basecamp	Weekly	Erika Alandia (Country Coordinator), Alberto Perez

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
				(Regional Coordinator), Marcela Uhart (Regional Supervisor), Lilian Painter (WCS Bolivia Director), Luis F. Aguirre (EHA country representative), M. Isabel Moya (EHA Operative and Logistic Coordinator)
1.5.2 Fiscal Management	Near real-time expense tracking	Skype, Email and Basecamp and financial reports	Monthly	WCS Bolivia office administrative staff, Erika Alandia (Country Coordinator), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), Lilian Painter (WCS Bolivia Director), Luis F. Aguirre (EHA country representative), M. Isabel Moya (EHA Operative and Logistic Coordinator)
1.5.3 Communication	Mission and Partner Updates	Skype, Email and Basecamp	Monthly, or as requested by Mission and partners	Erika Alandia (Country Coordinator), Lilian Painter (WCS Bolivia Director), Alberto Perez (Regional Coordinator) and Marcela Uhart (Regional Supervisor)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database Quarterly Reports	Quarterly or as requested	Erika Alandia (Country Coordinator), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), M. Isabel Moya (EHA Operative and Logistic Coordinator)
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Updated data provided on country and regional level drivers, contact activities and interfaces	GAINS Quarterly Report	Monthly Quarterly	Erika Alandia (Country Coordinator), A. Perez (Regional Coordinator), EHA Operative and Logistic Coordinator M. Isabel Moya, Modeling Team

COUNTRY PROJECT MANAGEMENT - BOLIVIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Bolivia is the Wildlife Conservation Society, and the implementing organizations within Bolivia are the Wildlife Conservation Society, EcoHealth Alliance and Centro de Estudios en BiologíaTeórica y Aplicada (BIOTA). Oversight of PREDICT activities in Bolivia will be managed by Country Coordinator Erika Alandia, with support from WCS Regional Supervisor Marcela Uhart, Alberto Perez (Regional Coordinator), Lilian Painter (WCS Bolivia Office Director) and Robert Wallace (WCS Director of Great Madidi-Tambopata Landscape Conservation Program). In addition, the support team includes Fabiola Suárez, José Luis Mollericona, Glenda Ayala, Rolando Limachi, Rosario Barradas and Herminio Ticona. Oversight of EcoHealth Alliance activities in Bolivia will be managed by Luis F. Aguirre and Operative and Logistics Coordinator M. Isabel Moya (EHA/BIOTA), in close coordination with, and reporting through, Country Coordinator Erika Alandia.

Overview

Bolivia offers a unique location to identify and characterize zoonotic diseases of wildlife origin. Its highly diverse ecosystems contain a wide diversity of flora and fauna. There are 1,415 known species of birds and 389 species of mammals, a third of which (125) are bats. Many of the ecosystems have been used by humans for thousands of years, and at present, the increase in human population, coupled with land use change driven by agricultural practices and/or cattle grazing, has increased pressures on wildlife which facilitates the transmission of diseases that have potential to become zoonotic and epidemic.

The 42,500 sq. mile Madidi-Tambopata landscape in Bolivia presents unique opportunities for rapid development and implementation of a comprehensive wildlife zoonoses surveillance program. The landscape spans the borders of northern Bolivia and southern Peru, with five protected areas and vast indigenous peoples' territories. Madidi hosts over 300 species of mammals, including 11 primate species, 115 bats and about 100 rodents, with new species still being reported. The current human population in the Madidi-Tambopata area includes 100 rural communities ranging from 10-1,000 people, and an expanding agricultural frontier, increasing the risk of disease transmission between humans, domestic animals and wildlife. Newcomers from urban areas, working for major infrastructure development projects such as highway construction; expansion of gas, oil and hydropower projects; timber extraction; and mining bring people into closer contact with forest wildlife and pathogens. Wildlife trade is another route of disease exposure in humans, as illegal wildlife markets (live, bushmeat and medicinal products) are common and increasing, in part due to hunting to feed workers moving to rural areas to work on development projects.

Activities and Locations
Activities will include opportunistic sampling of hunter-harvested wildlife in Tsimane-Mosetén indigenous territories (Asunción del Quiquibey and San Luis Chico) within Pilón Lajas Biosphere Reserve, Takana indigenous territories throughout Madidi National Park and Madre de Dios River (northern Bolivia). Free-ranging wildlife will be monitored across northern Bolivia, in conjunction with partner institutions (e.g., Amazon Conservation Association Bolivia, ACA), and PREDICT will capitalize on ongoing WCS landscape level conservation projects. To a lesser degree, we will continue surveillance of wildlife at rescue centers and zoos in the Departments of La Paz, Cochabamba and Santa Cruz, as available and in combination with the General Directorate of Biodiversity (DGB). Joint sampling efforts will be conducted with EcoHealth Alliance and the Bolivian Bat Conservation Program (BIOTA) in peri-urban areas within the Departments of La Paz (Carmen Pampa, Coroico District) and Santa Cruz. Particular attention will be focused on high-priority taxa for EPT (primates, bats and rodents) and associated pathogens in YR3. Comparing results obtained from hunted wildlife in indigenous communities, wild caught free-ranging and wildlife at rescue centers, will enable baseline information on disease transmission in Bolivia and characterization of certain high-risk practices across wildlife, livestock and human interfaces where zoonotic pathogens are most likely to emerge.

Partnerships
National Animal Health Service (SENASAG, Epidemiology and Quarantine Inspection Divisions, and Laboratory Services); General Directorate of Biodiversity (DGB); Ministry of Public Health and Sports (Departmental Services of Health-SEDES, and National Zoonoses Program); Municipality of El Alto (Zoonoses Unit); Institute of Molecular Biology and Biotechnology (IBMB, University of San Andres); National Center of Tropical Diseases (CENETROP); Veterinary Research and Diagnostic Laboratory (LIDIVET); National Institute of Health Laboratories (INLASA); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); Tsimán-Mosetén Indigenous Council (CRTM) and local communities (Asunción del Quiquibey and San Luis Chico); Takana Indigenous Council (CIPTA) and local communities (Tumupasa, San Silvestre, Esperanza del Enapurera, Carmen del Emero, Cachichira and San Antonio del Tequeje); San Jose de Uchupiamonas indigenous territory; Bolivian Bat Conservation Program (PCMB-BIOTA/partner EHA); “La Senda Verde Wildlife Rescue Center” (Coroico); Municipal Zoo “Vesty Pakos” (La Paz); Inti Wara Yassi Community and Rescue Centers; Amazon Conservation Association Bolivia (ACA); Universidad Mayor de San Simon/Cochabamba (CBG); Bolivian Network to Combat Wildlife Traffic (REBOCTAS)

Reporting
In-country team will ensure that USAID local Mission is regularly updated on activities and progress, following mechanisms agreed with Dr. Alicia Dinerstein (former Health Office Director) and Dr. Stanley Blanco (Health Office Associate Director) in year 2, specifically via telephone, email communications and/or write-ups as appropriate.

Brazil

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**

  - Sub-activity 1.1.1: **Surveillance System Improvements:** Initiate a new systematic sampling protocol throughout all of Year 3; this new protocol involves sampling in 6 grids located along a disturbance gradient, ranging from pristine habitat to urban habitat in Central Amazonia to better inform the modeling team on the effects of land use on pathogen distribution and emergence; systematic field work will involve new local partners from the National Research Institute of Amazonia (INPA Manaus) and Federal University of Amazonia (UFAM); surveillance will be expanded toward high-priority taxa (bats, rodents, primates) through exploration surveys conducted with the National Research Institute of Amazonia (INPA Manaus) in remote areas of the Amazon rainforest; subsistence hunting will be monitored in sustainable reserves within the State of Amazonas, in conjunction with Mamirauá and Piagaçu Institutes; conduct training for in-country teams to prepare them for outbreak response using the Outbreak Response Guide.

  - Sub-activity 1.1.2: **Laboratory System**: Positive controls and PCR protocols developed by the pathogen discovery team and the delivery of the Biomag machine by DELIVER will be disbursed at the end of Year 2; new diagnostics and protocols for in-country pathogen discovery will be initiated during Year 3 at the ICB II Virology Laboratory of the Institute of Biomedical Sciences, University of Sâo Paulo; capacity building will continue to identify any gaps that may affect the lab's ability to conduct the new diagnostics.

  - Sub-activity 1.1.3: **Operationalizing One Health:** Initiate a collaboration with two institutions in Manaus: the National Research Institute of Amazonia (INPA, Manaus) and Federal University of Amazonia (UFAM) to develop systematic surveillance activities for Year 3 in different areas in Central Amazonia; cooperative agreements will be formalized with Mamirauá and Piagaçu Institutes to help develop a sustainable framework for wildlife surveillance across northwestern Brazil.

  - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** The Rapid Survey Tool conducted during the end of YR2 will be used to identify gaps in capacity that still need to be addressed, which will facilitate the assessment of the capacity building goals and track progress.

Partners: ICB II Virology Laboratory and Preventive Medicine Department, Veterinary Faculty (VPS) of University of São Paulo (USP); Biotrópicos Institute; Mammals of Cerrado; Brazilian Institute of Environment and Natural Resources (IBAMA); Universidade de Santo Amaro (UNISA); Institute "Chico Mendes" of Conservation and Biodiversity (ICMBIO); Ministry of Agriculture and Livestock (MAPA); Ministry of Health, National Foundation of Health (FUNASA); University of Brasilia (UNB); National Institute for Research in Amazônia (INPA); Federal University of Amazonia (UFAM); Arca de Noé – Criadouro Conservacionista; Wildlife Comparative Pathology Lab, University of São Paulo; Mamirauá Institute of Sustainable Development (in Tefé); Piagaçu Institute of Sustainable Development (in Manaus)

Expected results: Molecular diagnostics for new emergent pathogens will be established at the Virology Laboratory of Institute of Biomedical Sciences, University of São Paulo (ICB II), using the positive controls and PCR protocols that will be delivered in Year 2; a systematic surveillance strategy will be established in Year 3 for Central Amazonia in 6 areas located along a disturbance gradient ranging from pristine to urban, and with varying degrees of human disturbance; priority species (bats, rodents, primates) will be monitored in new target areas; field training of technical staff and hunters will be conducted in Mamirauá and Piagaçu-Purus Sustainable Reserves to monitor zoonotic disease risks from subsistence hunting; relationships with new partners at the National Research Institute of Amazonia (INPA, Manaus), Federal University of Amazonia (UFAM), Mamirauá and Piagaçu will be solidified; changes in surveillance capacity will be evaluated by comparing Year 1 Rapid Survey Tool data with current status and needs.

- **Activity 1.2: Surveillance**
  - Sub-activity 1.2.1: **Coordination of surveillance activities across Brazil:** Initiate new surveillance activities including: 1) the new strategic sampling methodology developed by the Modeling and Hotspots ID Team to sample 6 areas along a disturbance gradient; 2) exploration surveys in uninhabited areas of the deep Amazon rainforest and; 3) sampling of hunter-killed wildlife at Mamirauá and Piagaçu-Purus Sustainable Reserves; continue to collaborate and initiate new collaborations with ministries, universities and NGOs in Brazil to facilitate the sharing of surveillance samples and data; with deforestation of the Brazilian Amazon increasing, developing an appropriate surveillance strategy is essential for regions such as Manaus and Pará.
    - **Taxa:** Primates, bats, rodents, ungulates, livestock, xenarthra and marsupials

- **Interfaces:** Wild caught free-ranging, hunted animals (subsistence, bushmeat) and syndromic, along a gradient designed to indicate frequency of human-wildlife contact
- **Proposed Locations:** Manaus, located in the State of Amazonas (northwestern Brazil) including unaltered and uninhabited areas of the Amazon rainforest along Jatapu River, State Road BR-319, Bravo River, Aripuanã River; Cuniuá River and remote communities within Mamirauá and Piagaçu-Purus Sustainable Reserves; State of Rondonia, Morro do Diabo State Park in western São Paulo State; Morro Reuter in Rio Grande do Sul

Partners: ICB II Virology Laboratory, Wildlife Comparative Pathology Lab and VPS at USP; Biotrópicos Institute; Mammals of Cerrado; IBAMA; UNISA; ICMBIO; MAPA; FUNASA; UNB; INPA; UFAM; Arca de Noé - Criadouro Conservacionista; Mamirauá Institute of Sustainable Development (in Tefé); Piagaçu Institute of Sustainable Development (in Manaus)

Expected result(s): Conduct new surveillance activities including a new strategic sampling methodology developed by the Modeling and Hotspots ID Team to sample 6 areas along a pristine to urban/human-wildlife contact gradient, as well as exploration surveys in uninhabited areas of the deep Amazon rainforest; sampling of hunter-killed wildlife at Mamirauá and Piagaçu-Purus Sustainable Reserves; diagnostic testing will be increased with the use of the positive controls and PCR protocols.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** Nuclysens easy mag IVD-labeled automated system will be utilized to increase the efficiency of laboratory diagnostics; implement new technologies identified by and required to support EPT activities in-country; initiate and complete diagnostic testing utilizing positive controls and PCR protocols for emergent disease families; utilize new technologies, such as: lysis buffer (RNAlater and Nuclisens), FTA Cards, Blood Spot/Protein Binding Cards, liquid nitrogen storage and satellite phones for communications in remote areas.

  - Sub-activity 1.3.2: **Pathogen discovery:** Implement PCR protocols and utilize the positive controls to conduct family-level viral screening and sequence results for all samples within the year; conduct pathogen detection according to the surveillance plan for each high-risk interface; identify and address laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: ICB II Virology Laboratory, Wildlife Comparative Pathology Lab, and VPS OF USP; INPA; Mamirauá Institute of Sustainable Development (inTefé); Piagaçu Institute of Sustainable Development (in Manaus)

Expected result(s): New PCR protocols and positive controls will be utilized to initiate and complete pathogen discovery from samples collected in Years 1 through 3; new the Nuclysens easy mag IVD-labeled automated system sent by DELIVER will be utilized for DNA/RNA extraction and yield greater throughput; an update of the Rapid Survey Tool will be utilized to identify other capacity needs in the lab.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system**: Continue to collect and enter all surveillance data collected in the field and in the laboratory using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: ICB II Virology Laboratory, Wildlife Comparative Pathology Lab, and VPS of USP; MAPA; Ministry of Health

  Expected result(s): Ensure data sheets are accurately completed in accordance with the Information Management Team; sample data is entered into GAINS within 2 weeks of collection; standardized animal identification numbers, labeling and tracking system will be implemented; timely and efficient responses and reports will be submitted to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Continue to provide day-to-day management and oversight of the country project including the coordination of all governmental, university and NGO collaborators; facilitate the efficient accomplishment of all activities including logistics, inventory, laboratory diagnostics and field collection trips.

  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports; maintain continued communication with all in-country partners, including those at universities, NGOs and the government;

continue bi-weekly conference calls and regular communication via email, phone and information from Basecamp.

Partners: ICB II Virology Laboratory and VPS of USP; Biotrópicos Institute; IBAMA

Expected result(s): Coordination of all surveillance activities, including both field work and laboratory diagnostics; appropriate management of Year 3 budget; maintain continuous communication with all in-country partners and with EHA and WCS through e-mail and video conferences; continue bi-weekly Skype meetings and email communication with managing organization for planning and follow-up activities; communication will be maintained with the USAID Mission in Brazil; ensure that all data is entered into GAINS within two weeks of collecting sample or conducting the diagnostic test; continued compliance with all reporting requests (financial, technical, environmental, travel).

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**: Provide data and information as requested by the Modeling and Hotspots ID Team; continue to provide information as requested by the Capacity Building Team.

  Partners: ICB II, Virology Laboratory University of São Paulo; Modeling and Hotspots ID Team

  Expected result(s): Sample data and analysis results will be uploaded into GAINS; data will be utilized by the Modeling and Hotspots ID Team to identify associations between potential pathogen prevalence and emergence risk and land use change and disturbance; data will be used to update the capacity maps produced by the Capacity Assessment Team.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – BRAZIL

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator Jansen de Araújo, WCS Latin America Regional Coordinator Alberto Pérez	Molecular diagnostics for emergent pathogens will be established at ICB II Virology Laboratory at Institute of Biomedical Sciences, University of Sâo Paulo, using positive controls and PCR protocols to be delivered in Year 2; a systematic surveillance strategy will be established in Year 3 for Central Amazonia in 6 areas, along a pristine to urban gradient and varying degrees of human disturbance; priority species (bats, rodents, primates) will be monitored in new target areas; field training of technical staff and hunters will be conducted in Mamirauá and Piagaçu-Purus Sustainable Reserves to monitor zoonotic disease risks from subsistence hunting; relationships with new partners at the National Research Institute of Amazonia (INPA, Manaus), Federal University of Amazonia (UFAM), Mamirauá and Piagaçu will be solidified; changes in surveillance capacity will be evaluated by comparing Year 1 Rapid Survey Tool assessment to	X	X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			the update; conduct training for in-country teams to prepare them for outbreak response using the Outbreak Response Guide.				
1.2	Surveillance	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator Jansen de Araújo, WCS Latin America Regional Coordinator Alberto Pérez	Conduct new surveillance activities including the strategic sampling methodology developed by the Modeling and Hotspots ID Team to sample 6 areas along a pristine to urban/human-wildlife contact gradient, as well as exploration surveys in uninhabited areas of the deep Amazon rainforest; sampling of hunter-killed wildlife at Mamirauá and Piagaçu-Purus Sustainable Reserves; diagnostic testing will be increased and completed with the use of the positive controls and PCR protocols.	**X**	**X**	**X**	**X**
1.3	Technology Development and Pathogen Discovery	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator	New PCR protocols and positive controls will be utilized to complete pathogen discovery from samples collected in Years 1 through 3; new Nuclysens easy mag IVD-labeled automated system sent by DELIVER will be utilized for DNA/RNA extraction and yield greater throughput; Rapid Survey Tool update will be utilized to identify other	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Jansen de Araújo, WCS Latin America Regional Coordinator Alberto Pérez	capacity needs in the lab.				
1.4	Sample Tracking and Information Management	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator Jansen de Araújo	Ensure data sheets are accurately completed in accordance with the Information Management Team guidelines; sample data is entered into GAINS within 2 weeks of collection; standardized animal identification numbers, labeling and tracking system will be implemented; timely and efficient responses and reports will be submitted to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator Jansen de Araújo, Field Activities	Coordination of all surveillance activities, including both fieldwork and laboratory diagnostics; appropriate management of Year 3 budget in accordance with USAID regulations; maintain continued communication with all in-country partners and with EHA and WCS via e-mail and video conferences; continue bi-weekly Skype meetings and email communication with managing organization for planning and follow-up activities; communication will be	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Coordinator Monica Solorio, EHA Latin America Regional Coordinator Melinda Rostal, WCS Latin America Regional Coordinator Alberto Pérez, WCS Regional Supervisor Marcela Uhart, WCS Brazil Director Jean Boubli	maintained with the USAID Mission in Brazil; ensure all data is entered into GAINS within two weeks of collecting sample or conducting diagnostic test; continued compliance in all reporting requests (financial, technical, environmental, travel).				
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, Laboratory Coordinator Jansen de Araújo	Data will be utilized by the Modeling and Hotspots ID Team to refine the hotspots maps and identify linkages between pathogen emergence risk and land use and disturbance; data will be used to update the capacity maps produced by the capacity assessment team.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - BRAZIL

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Implement new sampling protocol in Central Amazonia, including the new pristine to urban/human-wildlife contact gradient sampling methodology; exploratory surveys and the initiation of surveillance of subsistence hunting; focus on priority species (bats, rodents, primates)	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative Catia Dejuste, Surveillance team
1.1.2 Laboratory System	Molecular family-level viral screening implemented at partner laboratories	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, Diagnostic Lead Tracey Goldstein
1.1.3 Operationalizing One Health	Meetings with partners and collaborators in all sites across Brazil; on-the-job training provided to technical staff and hunters in Mamirauá and Piagaçu-Purus Sustainable Reserves	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava, in-country partners and stakeholders

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.4 Capacity Assessment and Tracking of Development	Compare the initial Rapid Survey tool from YR1 to the Capacity Assessment Update at the end of YR2, identifyinggaps and permit capacity building	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava
1.2.1 Surveillance	Number of samples collected and analyzed in Brazil from targeted species, interfaces and proposed locations	Email, Basecamp and GAINS database	Monthly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative Catia Dejuste, in-country staff, WCS Latin America Regional Coordinator Alberto Pérez, Surveillance Team
1.3.1 Introduction of New Technologies	Utilize new PCR protocols and positive controls as well as new technologies (Biomag machine); identify capacity gaps in partner labs	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative Catia Dejuste
1.3.2 Pathogen Discovery	Molecular family-level viral screening implemented at partner laboratories	Quarterly Reports	Quarterly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
				Catia Dejuste, Diagnostic Lead Tracey Goldstein, Pathogen Discovery Coordinator Simon Anthony
1.4.1 Sample Tracking and Information Management	Implement standardized labeling and tracking system; enter all samples and test results into GAINS within two weeks	GAINS database	Monthly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative Catia Dejuste, Information Management Team
1.5.1 General Management	Project updates	Email updates, Basecamp, video and tele-conferencing, and Skype	Weekly	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, EHA Latin America Regional Coordinator Melinda Rostal, WCS Latin America Regional Coordinator Alberto Pérez, WCS Regional Supervisor Marcela Uhart, WCS Brazil Director Jean Boubli

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.2 Fiscal Management	Expense tracking and budget maintenance	Email, Basecamp and Skype	Monthly	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, EHA Latin America Regional Coordinator Melinda Rostal, WCS Latin America Regional Coordinator Alberto Pérez, WCS Regional Supervisor Marcela Uhart, WCS Brazil Director Jean Boubli
1.5.3 Communication	Mission and partner updates	Email, in-person visits and Basecamp	Quarterly	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, EHA Latin America Regional Coordinator Melinda Rostal, WCS Latin America Regional Coordinator Alberto Pérez, WCS Regional Supervisor Marcela Uhart, WCS Brazil Director Jean Boubli

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.4 Reporting	Compliance in all reporting requests; surveillance data reports	Quarterly reports, financial reports, email, Basecamp and GAINS database	Monthly	Country Coordinator Alessandra Nava, WCS Country Representative Catia Dejuste, WCS Latin America Regional Coordinator Alberto Pérez
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revised surveillance plan	GAINS database Quarterly Report	Monthly Quarterly	Country Coordinator Alessandra Nava, Laboratory Coordinator Jansen de Araújo, WCS Country Representative Catia Dejuste

COUNTRY PROJECT MANAGEMENT - BRAZIL

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Brazil is EcoHealth Alliance (EHA), and the implementing organizations within Brazil are EcoHealth Alliance and Wildlife Conservation Society (WCS). Oversight of PREDICT activities in Brazil will be managed by Country Coordinator Dr. Alessandra Nava with support from technical team leaders, Laboratory Coordinator Jansen de Araújo, and Field Coordinators Renata Hurtado and Monica Solório, in coordination with WCS Country Representative Dr. Catia Dejuste. Support will be provided by EHA Latina America Regional Coordinator Dr. Melinda Rostal and Peter Daszak, and WCS Latina America Regional Coordinator Alberto Pérez and WCS Supervisor Dr. Marcela Uhart.

Overview

Brazil's social and environmental conditions and its rich biodiversity support the conditions necessary for emergence and reemergence of infectious diseases. Thus, there is an increasing need to bolster surveillance activities to better control and prevent outbreaks. A major part of the Amazon basin (40%), holding the largest rainforest in the world, is included within Brazil's national territory. Anthropogenic changes, such as deforestation, expanding agriculture, trade and hunting, have increased interactions between wildlife, domestic animals and humans in certain areas, posing significant risks for pathogens transmission. Brazil has a variety of arboviruses that are maintained in enzootic cycles in the Amazon region and can infect humans in close contact with wild habitats. Investigations in the Amazon region in the 1960s and 70s during the construction of the Trans-Amazonian highway and in Altamira and Tucurí during and after the construction of the hydroelectric station, identified viruses of significant relevance to public health. As a result, new viral members of the *Buynyaviridae* and *Reoviridae* families were isolated, as well as others of unknown taxonomy. Deforestation for cattle production has also played an important role as a driver for the re-emergence of diseases in recent years. Development in Brazil has resulted in the industrialization of the southwestern region while keeping the rural regions underdeveloped. One of the symptoms of this development strategy is that actions for containing outbreaks or investigations on emerging/reemerging diseases are typically carried out when diseases are directly threatening the great urban centers. As is often the case, the urbanization process has favored the emergence and dissemination of new diseases formerly confined to endemic niches, lending itself to the need for the development of an extended surveillance system.

Activities and Locations

Continue to coordinate with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. The goal for Year 3 is to collect priority wildlife samples from Amazonian areas, and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database, with the aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** Primates, bats, rodents, ungulates, livestock, xenarthra and marsupials
- **Interfaces:** Wild caught free-ranging, hunted animals (subsistence, bushmeat) and syndromic, along a gradient designed to indicate frequency of human-wildlife contact
- **Proposed Locations:** Manaus, located in the State of Amazonas (northwestern Brazil) including unaltered and uninhabited areas of the Amazon rainforest along Jatapu River, State Road BR-319, Bravo River, Aripuanã River; and Cuniuá River and remote communities within Mamirauá and Piagaçu-Purus Sustainable Reserves; State of Rondonia, Morro do Diabo State Park in western São Paulo State; Morro Reuter in Rio Grande do Sul

Partnerships
ICB II Virology Laboratory at Institute of Biomedical Sciences, University of Sâo Paulo; Preventive Medicine Department, Veterinary Faculty (VPS) of University of São Paulo; Biotrópicos Institute; Mammals of Cerrado; Brazilian Institute of Environment and Natural Resources (IBAMA); Universidade de Santo Amaro (UNISA); Institute "Chico Mendes" of Conservation and Biodiversity (ICMBIO); Ministry of Agriculture and Livestock (MAPA); Ministry of Health, National Foundation of Health (FUNASA); University of Brasilia (UNB); National Institute for Research in Amazônia (INPA); Federal University of Amazonian (UFAM); Arca de Noé - Criadouro Conservacionista; Wildlife Comparative Pathology Lab, University of São Paulo; Mamirauá Institute of Sustainable Development (in Tefé); Piagaçu Institute of Sustainable Development (in Manaus)

Reporting
During Year 3, the in-country team will continue providing the local USAID Mission with regular updates on activities and progress. The country coordinator and managing organization will communicate on a weekly basis via Skype meetings, phone conferences and/or through regular email exchanges and progress reports. All requested reports (financial, quarterly, surveillance etc.) will be completed as requested.

Colombia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** No surveillance activities are planned for YR3.

In YR3, the Colombian Ministries of Environment, Agriculture and Public Health are promoting an important multidisciplinary initiative involving public scientific institutions and NGOs in a national wildlife disease surveillance network; PREDICT will contribute to building surveillance capacity by providing technical assistance, training and support for sample storage.

- Sub-activity 1.1.2: **Laboratory System:** To support the Colombian inter-ministerial initiative, PREDICT will provide technical guidance and training and support to facilitate long-term storage of wildlife samples through the recent purchase of an ultra-low freezer.

- Sub-activity 1.1.3: **Operationalizing One Health:** To increase awareness of the One Health concept in Colombia, PREDICT plans to provide technical assistance and training of public and private staff, as a valuable contribution to the development of local capacity for zoonoses surveillance.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** A final report of developed capacity in Colombia will be prepared.

Partners: Ministry of Environment, Ministry of Agriculture (ICA), National Institute of Health (INS)

Expected results: Initial development of a framework for wildlife surveillance in-country, based on strategic interactions among partners and public agencies; training of key institutions on wildlife health issues; basic capacity for long-term cold storage of wildlife samples in Colombia.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Colombia:** No activities planned in YR3.

  Partners: N/A

  Expected result(s): N/A

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** No activities in YR3.

  - Sub-activity 1.3.2: **Pathogen discovery:** No activities in YR3.

Partners: N/A

Expected result(s): N/A

- **Activity 1.4: Sample Tracking and Information Management**
  - Sub-activity 1.4.1: **Optimize surveillance data management system:** No activities in YR3.

  Partners: N/A

  Expected result(s): N/A

- **Activity 1.5 Program Management**
  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of in-country activities.
  - Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across Colombia to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.
  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports.

  Partners: Ministry of Environment, Ministry of Agriculture (ICA), National Institute of Health (INS)

  Expected result(s): Effective day-to-day management of in-country activities and administrative procedures, supervised by regional coordinator and supervisor and the director of WCS Colombia office; appropriate management of YR3 budget; USAID Mission updated on progress; accurate reports on technical, environmental and financial activities, and additional write-ups to be prepared as requested.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  No activities in YR3.

Partners: N/A

Expected result(s): N/A

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – COLOMBIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart	Initiated development of a framework for wildlife surveillance in-country, based on strategic interactions and formalizations among partners and public agencies; training provided to key institutions on wildlife health issues and diagnostics; established basic capacity for long-term storage of wildlife samples (purchased an ultra low freezer).	**X**	**X**	**X**	**X**
1.2	Surveillance		No activities in year 3.				
1.3	Technology Development and Pathogen Discovery		No activities in year 3.				
1.4	Sample Tracking and Information Management		No activities in year 3.				
1.5	Program	WCS Country	Effective day-to-day management of	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Management	Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart	in-country activities and administrative procedures, supervised by regional coordinator and supervisor and the director of WCS Colombia office; appropriate management of budget; USAID Mission updated on progress; accurate reports on technical, environmental and financial activities and additional write-ups to be prepared as requested.				
	Risk Determination						
2.2	Optimize models for diversity of disease emergence		No activities in year 3.				

PERFORMANCE MONITORING PLAN - COLOMBIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Framework for wildlife surveillance in-country, based on strategic interactions and	Quarterly report	Quarterly	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	formalizations among partners and public agencies			Supervisor, Marcela Uhart
1.1.2 Laboratory System	Implementation of cold storage capacity with purchased ultra-low freezer	Quarterly report	Quarterly	WCS Country Director, Padu Franco
1.1.3 Operationalizing One Health	Cooperative agreements signed with partners and stakeholders; training provided to key institutions on wildlife health issues and diagnostics	Quarterly report	Quarterly	WCS Country Director, Padu Franco; PREDICT partners and stakeholders
1.1.4 Capacity Assessment and Tracking of Development	Commitment to development of ministries to expand pathogen surveillance in wildlife	Final report on in-country capacity	Annual	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart
1.2.1 Surveillance	N/A	N/A	N/A	N/A
1.3.1 Introduction of New Technologies	N/A	N/A	N/A	N/A
1.3.2 Pathogen Discovery	N/A	N/A	N/A	N/A

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.1 Sample Tracking and Information Management	N/A	N/A	N/A	N/A
1.5.1 General Management	Project updates	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart
1.5.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp and financial reports	Monthly	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp.	Quarterly	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	WCS Country Director, Padu Franco; Regional Coordinator, Alberto Perez; Regional Supervisor, Marcela Uhart
2.2 Optimize models for diversity of disease emergence	N/A	N/A	N/A	N/A

COUNTRY PROJECT MANAGEMENT – COLOMBIA

Organizational Relationships
PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. In year 3, the managing organization for Colombia will shift from a surveillance–oriented EcoHealth Alliance-managed program to a capacity-strengthening Wildlife Conservation Society-managed one. Oversight of activities in Colombia will be managed by WCS Country Director, Padu Franco with support from Regional Coordinator, Alberto Perez and Regional Supervisor, Marcela Uhart.

Activities and Locations
No sampling activities planned for YR3.

In YR3, the Colombian Ministries of Environment, Agriculture and Public Health are promoting an important multidisciplinary initiative involving public scientific institutions and NGOs in a national wildlife disease surveillance network. PREDICT will contribute to building surveillance capacity by providing technical assistance, training and support for sample storage.

Partnerships
Ministry of Environment, Ministry of Agriculture (ICA), National Institute of Health (INS), Pontificia Universidad Javeriana

Reporting
PREDICT country lead, Padu Franco, is responsible for keeping USAID Mission updated about capacity building activities, during year 3.

Ecuador

No PREDICT Activities in Year 3

Mexico

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Continue to strengthen the relationship between the Mexican government, universities and conservation and public health NGO´s in order to conduct efficient surveillance of zoonotic diseases in bats and rodents; sampling and

surveillance in the proposed sites; continue to investigate human-wildlife interfaces based on the sampling design provided by the Modeling and Hotspots ID Team; conduct training for in-country teams to prepare them for outbreak response using the Outbreak Response Guide.

- Sub-activity 1.1.2: **Laboratory System:** Each of the three collaborating laboratories are already equipped and prepared to analyze samples for pathogens selected by the Modeling and Hotspots ID and Pathogen Discovery Teams.

- Sub-activity 1.1.3: **Operationalizing One Health:** Continue to strengthen the relationship made during PREDICT YR2 with the following Mexican government departments: Secretaria De Agricultura Ganaderia Y Pesca (SAGARPA), Secretaria Del Medio Ambiente Y Recursos Naturales (SEMARNAT) and Comisión Nacional De Salud Animal (CONASA); work with these departments to disseminate the ONE HEALTH concept through lectures at universities and research institutes in Mexico; work with the government to lead a national congress to discuss the One Health concept.

- Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Annual assessment and monitoring will be conducted using theRapid Survey Tool to evaluate changes that have been made regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess the Mexican capacity for wildlife capture and handling, sample transport, storage, shipping and diagnostic testing as part of a nationwide zoonotic disease surveillance system.

Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of Universidad Nacional Autónoma de México (UNAM); Comisión Nacional de Áreas Naturales Protegidas (CONANP)

Expected results: Continue to manage and coordinate capacity building and surveillance activities; ongoing project communication will be maintained between in-country partners, including the USAID Mission monthly updates, via biweekly Skype meetings and interaction on Basecamp site; capacity building will be achieved through implementing and leading workshops aimed at advancing in-country awareness and application of the One Health concept and strategies for the improvement of human and animal health.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Mexico:** Continue to establish relationships with ministries, universities

and NGOs to facilitate sharing of surveillance samples and data; ensure the timely diagnostic testing of samples collected following implementation of PCR protocols and positive controls; sample information and diagnostic results will be entered into the GAINS database within two weeks of data collection; continue work with the Center for Infection and Immunity (CII), Columbia University to identify potential pathogens of pandemic risk in wildlife.

- **Taxa:** bats and rodents and where possible opportunistic sampling of carnivores and marsupials
- **Interfaces:** free-ranging (including the following interfaces: farming wildlife, livestock-wildlife, shared water sources)
- **Proposed Locations:** Lacandona Rain Forest, Chiapas or Calakmul, Campeche

Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of UNAM; Comisión Nacional de Áreas Naturales Protegidas (CONANP)

Expected result(s): Continue developing the framework for the collection and analysis of surveillance data with in-country collaborators; work with in-country labs and CII, Columbia University to detect pathogens and discover new viruses from wildlife samples; continue to strategically implement targeted surveillance of bats and rodents based on the strategy devised by the Modeling and Hotspots ID Team; work with in-country partners to achieve a trans-regional surveillance network in Mexico.

- **Activity 1.3: Technology Development and Pathogen Discovery**

  - Sub-activity 1.3.1: **Introduction of new technologies:** With the initiation of laboratory testing, gaps in existing technological infrastructure will be identified and new technologies will be acquired as needed.

  - Sub-activity 1.3.2: **Pathogen discovery:** With the positive control and testing protocols from CII, Columbia University laboratory, testing will be initiated; pathogen discovery for known viruses in a new range will be conducted in Mexico; continue to ship samples to the CII for pathogen discovery of novel viruses.

  Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of UNAM; Comisión Nacional de Áreas Naturales Protegidas (CONANP); Center for Infection and Immunity (CII), Columbia University

  Expected result(s): Continue to evaluate the diagnostic capacity in Mexico; appropriate training and material resources will be provided as necessary to expand infrastructure, improve viral diagnostic capabilities and sample

archival storage; laboratory testing will be initiated in Year 3 and samples will continue to be sent to CII.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** All samples will continue to be entered in the GAINS database; results when available will also be entered into the GAINS database; standardized labeling and tracking system will continue to be used in-country.

  Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of UNAM; Comisión Nacional de Áreas Naturales Protegidas (CONANP)

  Expected result(s): Continue to enter all sample data and results into GAINS database within two weeks of sample collection or diagnostic analysis.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Continue to provide day-to-day management and oversight of the project, including the coordination of all governmental, university and NGO collaborators; continue management of logistics, inventory, sample storage and field collection trips.

  - Sub-activity 1.5.2: **Fiscal Management:** Continue to maintain expenses within budget; expenses will be recorded and submitted as required; requested financial documents will be completed.

  - Sub-activity 1.5.3: **Communication:** Continue to maintain constant communication with in-country team and managing organization through in-person meetings, conference calls, bi-weekly Skype meetings, written advisories, web-based applications and reports; regular communication will be maintained with the USAID Mission.

  - Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; field and surveillance data will be entered into the GAINS database.

  Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of UNAM; Comisión Nacional de Áreas Naturales Protegidas (CONANP)

  Expected result(s): Continue to manage and coordinate all capacity building and surveillance activities through the maintenance of communication between in-country partners and managing organization; fiscal management will include budget and financial reporting; continue to complete all reports as requested.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**: Provide data and information as requested by the Modeling and Hotspots ID Team.

  Partners: Institute of Ecology, Veterinary Faculty and Science Faculty of UNAM; Comisión Nacional de Áreas Naturales Protegidas (CONANP)

  Expected result(s): Sample data will be uploaded into GAINS to be used by the Modeling and Hotspots ID Team to detect any gaps in the surveillance plan; surveillance plan will be adjusted as needed.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities. Respond to wildlife outbreaks as they occur and respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – MEXICO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	A One Health conference will be held in conjunction with the Mexican government to increase in-country awareness and application of the One Health concept and strategies for the improvement of human and animal health; positive controls and PCR protocols will be utilized by in-country partners to initiate pathogen analysis; conduct training for in-country teams to prepare them for outbreak response using the Outbreak Response Guide.	**X**	**X**	**X**	**X**
1.2	Surveillance	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	Continue developing the framework for coordinating the collection and analysis of surveillance data with in-country collaborators; work with in-country labs and CII, Columbia University, to detect pathogens and discover new viruses from wildlife samples; continue to strategically implement targeted surveillance of bats and rodents based on the Modeling and Hotspots ID Team instruction; work with		**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
			in-country partners to achieve a trans-regional surveillance network.				
1.3	Technology Development and Pathogen Discovery	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	Continue to evaluate the diagnostic capacity; appropriate training and material resources will be provided as necessary to expand infrastructure, improve viral diagnostic capabilities and sample archival storage; laboratory testing will be completed in Year 3 and samples will continue to be sent to CII, Columbia University.			**X**	**X**
1.4	Sample Tracking and Information Management	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	All sample data and results will continue to be entered into GAINS database within two weeks of sample collection or diagnostic analysis.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Rodrigo A. Medellín, Co-Coordinator	Continue to manage and coordinate all capacity building and surveillance activities through communication between our in-country partners and HQ; fiscal management will include budget	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	maintenance and financial reporting; all requested reports will continue to be completed as requested.				
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	Sample data will be uploaded into GAINS to be used by the Modeling and Hotspots ID Team to detect any gaps in the surveillance plan; surveillance plan will be adjusted as needed.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - MEXICO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Framework for surveillance data coordination	Quarterly reports and GAINS database	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.2 Laboratory System	Framework for diagnosis in Mexican laboratories	GAINS database	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.1.3 Operationalizing One Health	Framework for training and knowledge of the One Health concept	Workshops and leading conference	Semi-annual	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.1.4 Capacity Assessment and Tracking of Development	Establish partnerships with key agencies and ministries active in wildlife surveillance, public health and pathogen detection	Capacity Building Rapid Survey Tool	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.2.1 Surveillance	Framework for surveillance data coordination; bat and rodent samples collected; samples analyzed	Email updates for surveillance calls, enter data into GAINS database	Bi-weekly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.3.1 Introduction of New Technologies	New technologies to be introduced and utilized for sampling and diagnostics, as needed	Quarterly Reports	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.2 Pathogen Discovery	Improved infrastructure at UNAM for viral diagnostics and cold storage; report new discoveries into GAINS database	Quarterly reports and GAINS database	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.4.1 Sample Tracking and Information Management	Sample data entered into GAINS; utilize standardized labeling and tracking system	GAINS database	Monthly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.5.1 General Management	Project updates with the PREDICT team	Email updates, Basecamp, video and tele-conferencing	Weekly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.5.2 Fiscal Management	Expense tracking and budget maintenance	Email and Basecamp	Monthly	Country Coordinator Rodrigo A. Medellín, Co- Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.5.3 Communication	Mission and partner updates	Email, in-person visits, bi-weekly Skype calls with EHA, and accessing Basecamp	Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

1.5.4 Reporting	Compliance of all reporting requests	Quarterly reports, financial reports and entering data into the GAINS database	Monthly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations Revised surveillance plan	GAINS database Quarterly Report	Monthly Quarterly	Country Coordinator Rodrigo A. Medellín, Co-Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

COUNTRY PROJECT MANAGEMENT - MEXICO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing organization for Mexico is EcoHealth Alliance, and the implementing organization within Mexico is Bioconservación, Educación y Ciencia (BIOCONCIENCIA). Oversight of activities will be managed by Country Coordinator Dr. Rodrigo Medellín with support from Latin America Regional Coordinator Dr. Melinda Rostal. In addition, there are three staff members, including Co-Coordinator Dr. Gerardo Suzán, Administrative Assistant Ms. Osiris Gaona and Field Assistant Mr. Oscar Rico.

Overview

The expanding agricultural frontier in Mexico brings pristine areas in close contact with areas used by humans and livestock. Mexico is the only country in the world spanning the length of two greater biogeographic regions, the Nearctic and the Neotropics. In addition, Mexico is a mega-diverse country that contains between 5 and 10% of the world's biodiversity in less than 1% of the earth's land surface and serves as a major migratory corridor for many species of mammals and birds. The complex and diverse landscape provides an opportunity for expanding wildlife surveillance at an active human-livestock-wildlife interface that could have important implications for public health in Mexico.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify new wildlife pathogens with the potential for pandemic risk, focusing on:

- **Taxa:** principally bats and rodents, and, where possible, opportunistic sampling of carnivores and marsupials
- **Interfaces:** hunting, depredation, free-ranging, syndromic
- **Potential Locations:** South, Lacandonia Rain Forest, Chiapas

Partnerships

Bioconservación, Educación y Ciencia (BIOCONCIENCIA); National Autonomous University of Mexico (UNAM); Comisón Nacional de Áreas Naturales Protegidas (CONANP)

Reporting

Maintain communication with the USAID Mission to keep them updated regularly on activities and progress. The Country Coordinator and EcoHealth Alliance team communicate bi-weekly via Skype meetings, phone conferences and/or through regular email exchanges, sharing progress reports.

Peru

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Capacity Building (includes infrastructure, training, coordination and systems improvements toward sustainability)**
    - Sub-activity 1.1.1: **Surveillance System Improvements:** Expand surveillance of bat populations in conjunction with the National Ministry of Health (Zoonoses Surveillance Unit) and the Peruvian Veterinary Service (SENASA); opportunistic sampling of vampire bats will be performed on individuals captured by the National Rabies Control Program; joint sampling efforts will be conducted with the Ucayali Regional Unit of Environmental Health (DESA) on free-ranging rodents; these animals will be systematically captured by the Leptospirosis Control Program in peri-urban areas and at markets in central Peruvian Amazonia; conduct training for in-country teams to prepare them for outbreak response using the Outbreak Response Guide.
    - Sub-activity 1.1.2: **Laboratory System:** Public laboratories (INS Iquitos, INS Lima, UNMSM, NAMRU-6) possess adequate diagnostic infrastructure, but lack enough funding, standardized molecular protocols and procurement of certain supplies (e.g., positive controls) to conduct routine family-level viral screening on wildlife samples; PREDICT will work to help resolve these major gaps in YR3 in conjunction with the Diagnostic Lead by providing technical assistance and oversight.
    - Sub-activity 1.1.3: **Operationalizing One Health:** Formalize cooperative agreements with the Regional Administrations of Forestry and Wildlife (ATFFS) and Regional Directorates of Health (Executive Units of Environmental Health, DESAs) in order to support SENASA's initiative of a national wildlife disease network (named "VEAS"); on-the-job training of key local collaborators (community hunters; inspector officers) will continue to be provided to help develop long-term sustainability for zoonoses surveillance.
    - Sub-activity 1.1.4: **Capacity Assessment and Tracking of Development Progress:** Compare findings detailed in the Rapid Survey Tool with current status and needs for wildlife pathogen surveillance in-country in order to assess and track progress toward project objectives; continue to work along with the Capacity Assessment team to finalize a health map for Peru and provide understanding of disease risks for government decision-makers.

Partners: National Animal Health Service (SENASA, central and regional offices); US Naval Medical Research Unit Six (NAMRU-6); National Institute of Health (INS, Lima and Iquitos); National Ministry of Health (General Office of Epidemiology); Regional Executive Units of Environmental Health (DESAs); School of Veterinary Medicine (University of San Marcos, UNMSM); General Directorate of Forestry and Wildlife (DGFFS); National Service of Natural Protected Areas (SERNANP); Regional offices of Technical Administrations of Forestry and Wildlife (ATFFS Piura, Tumbes, Lambayeque, Iquitos); Regional Directorate of Trade, Tourism and Traditional Crafts (DIRCETURA Loreto); Regional Management Program of Forestry Resources and Wildlife (PRMRFFS Loreto); National University of Tumbes; Peruvian University Cayetano Heredia (UPCH); Veterinary Institute of Tropical and Highland Research (IVITA-UNMSM); Parque Natural Zoo (Pucallpa); "El Buen Pastor" Zoo Park and "Parque Las Leyendas" Zoo (Lima); "Ikama Peru" Rescue and Rehabilitation Center (Loreto); vendors at wetmarkets; Autonomous University of Barcelona (UAB, Spain) and community hunters (Yavari District, Loreto Region)

Expected results: Develop a network for wildlife surveillance in-country based on strategic interactions among partners and government agencies and the efficient coordination of efforts at a national scale; improve notification of animal die-offs and disease events to public agencies; routinely monitor priority species (bats, rodents, primates) in new target areas; establish basic capacity for molecular family-level viral screening at public laboratories, following protocols and technical assistance from Diagnostic Lead; on-the-job training provided to community hunters (Loreto), government personnel (SENASA, AFTTS, DESA) and partners; changes in capacity for wildlife disease surveillance evaluated by comparing YR1 Rapid Survey Tool results with current status and needs. Health map finalized for Peru by the Capacity Assessment Team.

- **Activity 1.2: Surveillance**

  - Sub-activity 1.2.1: **Coordination of surveillance activities across Peru:** Continue to establish coordination with ministries, universities and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats and rodents
    - **Interfaces:** traded wildlife, wildlife at rescue centers, syndromic, wild caught free-ranging; to a lesser degree, hunted animals (subsistence bushmeat)
    - **Proposed Locations:** Northern Amazonia (wetmarkets and rescue centers in Iquitos, Yurimaguas and Tarapoto): wildlife and bushmeat

trade, wildlife at rescue centers; Yavari-Mirim Private Conservation Area & surrounding communities: subsistence hunting and wildlife trade; peri-urban areas in Iquitos and surroundings: free-ranging bats; Pacaya – Samiria National Reserve: free-ranging small mammals. Central Amazonia (Pucallpa wetmarkets and zoos): wildlife trade and wildlife at rescue centers; peri-urban areas in Pucallpa: free-ranging rodents; north and central marine coasts (wetmarkets and rescue centers in Tumbes, Piura, Chiclayo and Lima): wildlife trade and wildlife at rescue centers

Partners: National Animal Health Service (SENASA, central and regional offices); US Naval Medical Research Unit Six (NAMRU-6); National Institute of Health (INS, Lima and Iquitos); National Ministry of Health (General Office of Epidemiology); Regional Executive Units of Environmental Health (DESAs); School of Veterinary Medicine (University of San Marcos-UNMSM); General Directorate of Forestry and Wildlife (DGFFS); National Service of Natural Protected Areas (SERNANP); Regional offices of Technical Administrations of Forestry and Wildlife (ATFFS Piura, Tumbes, Lambayeque, Iquitos); National University of Tumbes; Veterinary Institute of Tropical and Highland Research (IVITA-UNMSM); Parque Natural Zoo (Pucallpa); "El Buen Pastor" Zoo Park and "Parque Las Leyendas" Zoo (Lima); "Ikama Peru" Rescue and Rehabilitation Center (Loreto); vendors at wetmarkets; Autonomous University of Barcelona (Spain) and community hunters (Yavari District, Loreto Region)

Expected result(s): Establish collaboration with additional public and private institutions for accomplishing surveillance and data sharing after PREDICT activities come to an end; surveillance activities at targeted interfaces; lab testing for zoonotic pathogens as scheduled; pathogen detection and discovery on acquired wildlife samples; study on practices and habits at markets to characterize wildlife trade and associated risks of zoonotic diseases; update field data in GAINS database on monthly basis; notification of animal disease outbreaks to governmental agencies by local collaborators (animal vendors; community hunters); surveillance strategy to increase pathogen detection in wildlife at hotspot sites, prioritized through eco-epidemiological analysis by PREDICT epidemiology leads.

- **Activity 1.3: Technology Development and Pathogen Discovery**
  - Sub-activity 1.3.1: **Introduction of new technologies:** Implement new technologies capable of supporting EPT activities in- country and addressing identified gaps in existing technological infrastructure, including Lysis buffer (RNA Later and Nuclisens), FTA Cards and Blood Spot/Protein Binding Cards; continue to cooperate with partners on the introduction of other new technologies relevant to field application in Peru.

- Sub-activity 1.3.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: NAMRU-6; SENASA; DESAs; INS Lima and Iquitos; School of Veterinary Medicine (UNMSM); IVITA-UNMSM; Parque Natural Zoo (Pucallpa); "El Buen Pastor" Zoo Park and "Parque Las Leyendas" Zoo (Lima); "Ikama Peru" Rescue and Rehabilitation Center (Loreto); vendors at wetmarkets; community hunters (Yavari District, Loreto Region)

  Expected result(s): New field sampling collection technologies adopted by public agencies and partners (e.g., for vampire bat sampling by the National Rabies Control Program; for rodent sampling by DESA's Leptospirosis Control Program); further technology needs of partner laboratories accurately assessed and communicated to Diagnostic Lead; increased diagnostic infrastructure at the National Institute of Health (INS Iquitos and Lima) and University of San Marcos, for molecular family-level viral screening; identified export mechanisms for samples destined for complex pathogen discovery techniques to PREDICT state-of-the-art laboratory (Center for Infection & Immunity, Columbia University), through coordination and guidance from Pathogen Discovery Coordinator.

- **Activity 1.4: Sample Tracking and Information Management**

  - Sub-activity 1.4.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

    Partners: NAMRU-6; SENASA; DESAs; INS Lima and Iquitos; School of Veterinary Medicine (UNMSM); Parque Natural Zoo (Pucallpa); "El Buen Pastor" Zoo Park and "Parque Las Leyendas" Zoo (Lima); "Ikama Peru" Rescue and Rehabilitation Center (Loreto); vendors at wetmarkets; community hunters (Yavari District, Loreto Region)

    Expected result(s): Complete data sheets accurately in the field and at partner laboratories (packing list and test results templates; implement barcode labeling and unique identification of samples to allow for sample tracking and data management; upload data monthly to GAINS database; timely and efficient response to all requests for surveillance data.

- **Activity 1.5 Program Management**

  - Sub-activity 1.5.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

- Sub-activity 1.5.2: **Fiscal Management:** Track all expenditures across the country to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.5.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications and reports.

- Sub-activity 1.5.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental and travel reports; enter field and surveillance data into the GAINS database.

Partners: N/A

Expected result(s): Effective day-to-day management of in-country activities and administrative procedures, supervised by regional coordinator and supervisor, and the director of WCS Peru and Amazonia office; appropriate management of budget; USAID Mission updated on project progress; accurate reports on technical, environmental and financial activities, and additional write-ups to be prepared as requested; field data regularly reported to GAINS; frequent communication with in-country partners and stakeholders.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Modeling Team

  Expected result(s): Sample data in GAINS; gap analysis of surveillance plan with optimization as needed; study practices and habits at markets, and health risks associated with the wildlife trade; provide data to Modeling Team; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – PERU

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
	Wildlife Pathogen Detection						
1.1	Capacity Building	Patricia Mendoza (Country Coordinator), WCS in-country staff, and Alberto Perez (Regional Coordinator)	Developed a network for wildlife surveillance in-country, based on strategic interactions and formalizations among partners and government agencies; efficient coordination of efforts at a national scale; increased prompt notifications of animal die-offs and disease events to public agencies; priority species (bats, rodents, primates) routinely monitored in target areas; established basic capacity for molecular family-level viral screening at public laboratories, following protocols and technical assistance from Diagnostic Lead Tracey Goldstein (UC Davis); on-the-job training provided to community hunters (Loreto), government personnel (SENASA, AFTTS, DESA), and partners; changes in capacity for wildlife disease surveillance evaluated by comparing year one Rapid Survey Tool data with current status and needs; Health map finalized for Peru	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
1.2	Surveillance	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, Surveillance Team	Established collaboration with additional public and private institutions for accomplishing surveillance and data sharing; surveillance activities performed at targeted interfaces; lab testing for zoonotic pathogens as scheduled; pathogen detection and discovery run on acquired wildlife samples; study on practices and habits completed at markets to characterize wildlife trade and associated risks of zoonotic diseases; field data entered monthly into GAINS database; notification of animal disease outbreaks to governmental agencies by local collaborators (vendors, community hunters); surveillance strategy adapted to increase pathogen detection in wildlife at hotspot sites, prioritized through eco-epidemiological analysis by epidemiology leads (Christine Kreuder-Johnson, UC Davis, and Pablo Beldomenico-WCS).	**X**	**X**		
1.3	Technology Development and Pathogen Discovery	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, Technology	New field sampling collection technologies adopted by public agencies and partners ; further technology needs of partner laboratories accurately assessed and communicated to	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Development Team	Diagnostic Lead Tracey Goldstein (UC Davis); increased diagnostic infrastructure at the National Institute of Health (INS Iquitos and Lima) and University of San Marcos, for molecular family-level viral screening; identified export mechanisms for samples destined for complex pathogen discovery techniques to state-of-the-art laboratory (Center for Infection & Immunity, Columbia University.				
1.4	Sample Tracking and Information Management	Country Coordinator Patricia Mendoza, Information Management Team	Data sheets accurately completed in the field and at partner laboratories (packing list and test results templates; implementation of barcode labeling and unique identification of samples to allow for sample tracking and data management; data uploaded monthly to GAINS database; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**
1.5	Program Management	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Peru and Amazonia	Effective day-to-day management of in-country activities and administrative procedures, supervised by regional coordinator and supervisor, and the director of WCS Peru and Amazonia	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12
		Director Mariana Varese, Regional Supervisor Marcela Uhart	office; appropriate management of budget; USAID Mission updated on project progress; accurate reports on technical, environmental and financial activities, and additional write-ups prepared as requested;field data regularly reported to GAINS;frequent communication with in-country partners and stakeholders.				
	Risk Determination						
2.2	Optimize models for diversity of disease emergence	Country coordinator Patricia Mendoza	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; study on practices and habits completed at markets, and health risks associated with the wildlife trade identified and documented; data provided to modeling team through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - PERU

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 Surveillance System Improvement	Network for wildlife surveillance in country; notifications of animal die-offs and disease events to public agencies; priority species monitored in target areas	Quarterly report	Quarterly	Patricia Mendoza (country coordinator), PREDICT in-country staff, A. Perez (regional coordinator), PREDICT Surveillance Team
1.1.2 Laboratory System	Molecular family-level viral screening implemented at public laboratories (INS Lima and Iquitos; UNMSM; US NAMRU-6)	Quarterly report	Quarterly	Patricia Mendoza (country coordinator), A. Perez (regional coordinator), Diagnostic Lead Tracey Goldstein
1.1.3 Operationalizing One Health	Cooperative agreements signed with partners and stakeholders; on-the-job training provided to public and private collaborators	Quarterly report	Quarterly	Patricia Mendoza (country coordinator), A. Perez (regional coordinator), PREDICT in-country partners and stakeholders
1.1.4 Capacity Assessment and Tracking of Development	Changes in capacity for wildlife disease surveillance evaluated through Rapid Survey Tool; Health map finalized for Peru	Quarterly report	Quarterly	Patricia Mendoza (country coordinator), A. Perez (regional coordinator), Capacity Assessment team (Kate Thomas, California State University Monterey Bay)

1.2.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces and proposed locations; study on practices and habits completed at wetmarkets	Email, Basecamp & GAINS database	Monthly	Country Coordinator Patricia Mendoza, PREDICT epidemiology leads Christine Kreuder-Johnson UC Davis, Pablo Beldomenico WCS
1.3.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Patricia Mendoza
1.3.2 Pathogen Discovery	Improved infrastructure at INS (Lima, Iquitos) and UNMSM for diagnostic capacity and long-term storage	Quarterly Reports	Quarterly Reports	Country Coordinator Patricia Mendoza
1.4.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Patricia Mendoza
1.5.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Peru director Mariana Varese, regional supervisor Marcela Uhart

1.5.2 Fiscal Management	Near real-time expense tracking	Email and Basecamp and financial reports	Monthly	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Peru director Mariana Varese, regional supervisor Marcela Uhart
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp.	Quarterly	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Peru director Mariana Varese, regional supervisor Marcela Uhart
1.5.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator Patricia Mendoza and Regional Coordinator Alberto Perez
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces and proposed locations; health risks (practices, habits) associated with the wildlife trade identified and documented Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Patricia Mendoza and Assistant veterinarian Nancy Cavero, with instructions from PREDICT Modeling Team Country Coordinator Patricia Mendoza

COUNTRY PROJECT MANAGEMENT - PERU

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The managing and implementing organization for Peru is Wildlife Conservation Society. Oversight of activities in Peru will be managed by Country Coordinator Patricia Mendoza with support from Technical Team Leaders in Epidemiology, Diagnostics, Information Management, Surveillance and Modeling, as well as Regional Coordinator Alberto Perez, Supervisor Marcela Uhart and WCS Country Director Mariana Varese. In addition, the support team includes: Nancy Cavero, Yovana Murillo Vega, Cinthya Rynaby and Daniel Montes.

Overview

Peru represents excellent opportunities for further developing a zoonotic disease surveillance system through sampling wildlife in the animal trade and hunted in remote riverside communities within natural reserves. Market surveillance activities have been built on previous activities conducted since 2007 to detect Avian Influenza and other pathogens in wet markets and from wildlife confiscated by the Peruvian authorities. Monitoring of bushmeat sales at these markets is also being implemented. Additional programs established by WCS to monitor hunter-harvested wildlife (subsistence hunting) and communal management of natural resources at Loreto's riverside communities, train hunters to collect samples, allowing for the opportunistic sampling of wildlife recently extracted from the forest. Comparing results obtained from hunted wildlife in local communities with animals sampled at wet markets and at rescue centers will enable PREDICT to gain baseline information on disease transmission in Peru and characterize high-risk behaviors across wildlife, livestock and human interfaces where zoonotic pathogens are most likely to emerge.

Peru is currently undergoing major land use changes, as three major transoceanic highways are being built to traverse Brazilian and Peruvian Amazon territories. A large extent of natural forest and rural settlements are currently being disturbed and modified, and so it is expected that in the near future normal disease transmission patterns will also be altered. The Southern Inter-oceanic Highway will cross through the Madre de Dios region at its final stage, where US NAMRU-6 lab is quantifying ecological disturbance and changes in vectors and reservoir populations. Strengthening partnership with NAMRU is a strategic way to reinforce and extend surveillance of small mammal hosts and other target species.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities and laboratories to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database before the year-end. We also aim to identify zoonotic pathogens circulating at targeted interfaces,

detect and identify possible outbreaks among them and recognize wildlife pathogens of potential pandemic risk focusing on:

- **Taxa:** primates, bats and rodents
- **Interfaces:** traded wildlife, syndromic, wild caught free-ranging; to a lesser degree, hunted animals (subsistence bushmeat)k
- **Proposed Locations:** Northern Amazonia (wetmarkets and rescue centers in Iquitos, Yurimaguas and Tarapoto): wildlife and bushmeat trade; Yavari-Mirim Private Conservation Area & surrounding communities: subsistence hunting and wildlife trade; peri-urban areas in Iquitos and surroundings: free-ranging bats; Pacaya – Samiria National Reserve: free-ranging small mammals. Central Amazonia (Pucallpa wetmarkets and zoos): wildlife trade; peri-urban areas in Pucallpa: free-ranging rodents; north and central marine coasts (wetmarkets and rescue centers in Tumbes, Piura, Chiclayo and Lima): wildlife trade

Partnerships

In Peru, formal partnerships have been established with the National Animal Health Service (SENASA), School of Veterinary Medicine (University of San Marcos), and the US NAMRU-6. Additional partnerships are expected to be formalized with the following institutions in year 3: National Institute of Health (INS, Lima and Iquitos), National Ministry of Health (General Office of Epidemiology), and General Directorate of Forestry and Wildlife (DGFFS). PREDICT will continue building on these partnerships to plan for enhanced collaboration in wildlife surveillance, expanding existing surveillance activities to the national level, so that surveillance will continue when PREDICT activities are completed.

Reporting

During year 3, in-country team will refine (in cooperation with the USAID Mission) a practical communication and reporting mechanism approved by USAID to keep the local USAID Mission regularly updated on activities and progress.

UC Davis PREDICT 2nd Quarterly Report: Year 1 (January 01, 2010 – March 31, 2010)

Although the timing of program rollouts caused some delays in planned in-country work this quarter, PREDICT's cross-organizational team continued to further refine its objectives and in-country plans, while meeting and exceeding planned US Central activity goals. Through biweekly Senior Management and Executive Committee conference calls, supplemented by in person meetings, the PREDICT team maintained communication and facilitated resolutions to administrative and programmatic issues. PREDICT also continued coordination and collaboration with all other EPT projects, including organizing an April meeting in Davis with CDC representatives. The Technical Advisory Committee officially formed and began plans for a year 1 meeting. The Capacity Building team developed a Rapid Survey Tool for use by country coordinators, and sent the draft to USAID and the Technical Advisory Committee for review. They also developed a number of training modules (in pilot testing phase), and began testing online systems for use in training. The Modeling and Hotspot ID team began refining the "hotspot" models and developing a next generation hotspot model based on higher resolution geographic data. They also worked on modeling risk of EID geographic spread from various locations, based on risk of emergence and transport connectivity. Facilitated by the Surveillance team, PREDICT designed data and sampling strategies, including the development of Standard Operating Procedures (SOPs) and draft standardized surveillance protocols. For pathogen discovery and technology transfer, PREDICT established formal partnerships with leaders in pathogen discovery, began developing a regional technology development plan, piloted technology in select countries, and discussed the purchase and distribution of reagents and supplies to laboratories in the field through DELIVER and other means. In the third quarter, PREDICT will build upon these accomplishments, working with USAID headquarters and in-country missions to expand or commence planned project activities in all year 1 countries.

US Central			
OBJECTIVE **Activity Description**	**Planned progress for 01/01/10-03/31/10**	**Summary of achievements by activity 01/01/10-03/31/10**	**Planned progress for 04/01/10-06/30/10**
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management***	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management***	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management***	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management***
• **Activity Management** Provide day-to-day management and oversight of the program and facilitate the efficient accomplishment of all objectives (includes logistics); seek and utilize executive board and technical advisory committee guidance; and ensure integration and coordination of all partners. • **Fiscal Management** Track all expenditures across countries and partners to ensure fiscal responsibility; develop, review, and approve budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for	**During the second quarter, the PREDICT management team will** • Provide day-to-day management and oversight of the program, facilitating completion and approval of the year 1 work plan. • Engage in continuous program planning. • Incorporate guidance from executive board bi-weekly conference calls, facilitating communication and enabling programmatic decision to be made efficiently and to the benefit of the program. • Ensure integration with PREDICT partners, initiating targeted conference calls, strategic meetings, and utilizing	**During the second quarter, the PREDICT management team continued to** • Provide day-to-day management and oversight of the program, facilitating completion and approval of the year 1 work plan. • Engage in continuous program planning. • Track all expenditures across countries and partners to ensure fiscal responsibility. • Develop, review, and approve budgets, ensuring charges are consistent with applicable regulations and guidelines. • Incorporate guidance from executive board bi-weekly conference calls, facilitating communication and enabling	**During the third quarter the PREDICT Management team will** • Provide day-to-day management and oversight of the program. • Engage in continuous program planning. • Track all expenditures across countries and partners to ensure fiscal responsibility. • Develop, review, and approve budgets, ensuring charges are consistent with applicable regulations and guidelines. • Incorporate guidance from executive board bi-weekly conference calls, facilitating communication and enabling programmatic decisions to be made efficiently and to the benefit of the program.

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
reporting; process and monitor subcontracts. • **Communication** Facilitate communication with USAID and among EPT programs, One Health team members, advisory board members, external partners, country coordinators; and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.	SmartSite to allow tiered access to program documents, building upon the strong project foundation developed during the first quarter. • Monitor subrecipients, ensuring compliance with federal and USAID regulations and procedures. **Upon approval of the year 1 work plan, the PREDICT team will** • Meet with key PREDICT stakeholders/ partners and USAID missions to launch PREDICT formally and seek their feedback. • Jointly coordinate the implementation of in-country work and make progress toward the completion of all year 1 activities, including working efficiently with EPT partners. • Commence operations in tier 1 and tier 2 countries. • Complete the hiring of country coordinators and other essential in-country personnel. • Continue to finalize financial management procedures and systems to conform to USAID. **Additional 2nd quarteractivities:** • Meet with IDENTIFY partners at WHO Headquarters to discuss and coordinate predictive modeling, information sharing, and surveillance efforts. • Meet with OIE staff to provide overview of EPT and PREDICT programs and determine areas of collaboration. • Participate in Congo Basin EPT regional meeting in Brazzaville, Republic of Congo. • Participate in Congo Basin EPT rollouts in Kampala Uganda and Kinshasa, DRC.	programmatic decisions to be made efficiently and to the benefit of the EPT Program. • Ensure integration with PREDICT partners, initiating targeted conference calls, strategic meetings, and utilizing SmartSite to allow tiered access to program documents, building upon the strong project foundation developed during the first quarter. • Monitor subrecipients to ensure compliance with federal and USAID regulations and procedures. **During the second quarter, the PREDICT team** • Continued to finalize financial management procedures and systems to conform to USAID information requirements. • Participated in objective specific working groups, attending meetings and conference calls and co-developing protocols and documents. • Actively participated in PREDICT Executive Board meetings and decisions. • Began to develop country-specific plans for program implementation. • Actively engaged members of the RESPOND, PREVENT and DELIVER groups in program discussions on coordination. • Held weekly conference calls with in-country teams and planned for initial stakeholder meetings to take place as appropriate. • Began training country coordinators in monthly and quarterly accounting procedures. • Evaluated budgets for year 1 activities in all project countries. • Coordinated with country coordinators on planned surveillance activities.	• Ensure integration with PREDICT partners, initiating targeted conference calls and strategic meetings. Migrate project management from SmartSite software to Base Camp to more easily enable USAID and partner participation and allow tiered access to program documents. • Monitor subrecipients to ensure compliance with federal and USAID regulations and procedures. • Actively participate in PREDICT Executive Board meetings and decisions. • Conduct Latin America coordination meetings with Country Coordinators and partners in conjunction with the Wildlife Disease Association meeting Argentina in May/June 2010. • Meet with key PREDICT stakeholders/ partners and USAID missions to launch PREDICT formally and seek their feedback. • Actively engage members of the RESPOND, PREVENT, IDENTIFY, CDC and DELIVER groups in program discussions on coordination. • Complete the hiring of country coordinators and other essential in-country personnel. • Finalize financial management procedures and systems to conform to USAID information and reporting requirements. • Monitor subrecipients ensuring compliance with federal and USAID regulations and procedures. • Finalize country-specific plans for program implementation. • Continue coordinating the implementation of in-country work and make progress toward the completion of year 1 activities. • • Continue monitoring country coordinators for monthly and quarterly reporting and

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		• Planned April meeting between PREDICT and CDC partners at UC Davis to enhance collaboration efforts. • Met with OIE staff to provide overview of EPT and PREDICT programs and determine areas of collaboration. • Participated in Congo Basin EPT regional meeting in Brazzaville, Republic of Congo. • Along with other PREDICT leads and personnel, met with IDENTIFY partners at WHO Headquarters to discuss and coordinate predictive modeling, information sharing, and surveillance efforts. • Provided coordination with PREDICT partners regarding public health partnerships in countries to facilitate paired human-wildlife sampling strategy. • Participated in regular conference calls with LoW leads. • Held bi-weekly calls with Regional leads, to give PREDICT updates. • Participated in EPT rollouts in Kampala, Uganda and Kinshasa, DRC, as well as conducting subsequent PREDICT-only rollouts in Rwanda and Tanzania.	accounting. • Participate in the EPT regional planning meetings Southeast Asia. • Participate in technical meetings organized by WHO, FAO and OIE on emerging diseases in Italy. • Continue to participate in objective specific working groups, attending meetings and conference calls and co-developing objective specific protocols and documents. • Convene the Technical Advisors and get input on project goals, operations, and detection of emerging pathogens. • Provide coordination with PREDICT partners regarding public health partnerships in countries to facilitate paired human-wildlife sampling strategy. • Hold bi-weekly calls with Regional leads to acquire updates.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; collect and incorporate partner data into USAID reports; and utilize electronic reporting tools, such as the GAINS database and the USAID AIMEBA system as appropriate.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, the PREDICT management team will continue to** • Ensure compliance with all USAID reporting requirements, including all financial, technical, environmental, and travel reports. • Collect and incorporate partner data into USAID reports. • Utilize electronic reporting tools to ensure accuracy and efficiency. • Work with USAID to gain approval for the	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, the PREDICT management team continued to** • Ensure compliance with all USAID reporting requirements, including all financial, technical, environmental, and travel reports. • Collect and incorporate partner data into USAID reports. • Utilize electronic reporting tools to ensure accuracy and efficiency. • Reviewed USAID reporting requirements,	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, the PREDICT management team will continue to** • Ensure compliance with all USAID reporting requirements, including all financial, technical, environmental and relevant travel reports. • Collect and incorporate partner data into USAID reports. • Utilize electronic reporting tools to ensure accuracy and efficiency. • Continue training partners and in-

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	year 1 work plan, including by country activity plans. • Train partners and in-country personnel on reporting and financial tracking tools. • Follow EMMP and update as required and necessary. • Train PREDICT personnel on SmartSite use to enable efficient reporting and flow of information. • Provide periodic updates of activities to enable second quarterly report.	including financial, technical, environmental, and travel. • Worked with USAID to gain approval for the year 1 work plan, including by country activity plans. • Began to train administrative and in-country personnel on reporting and financial tracking tools. • Trained PREDICT personnel on SmartSite use to enable efficient reporting and flow of information. • Provided periodic updates of activities to enable second quarterly report. • Conducted conference calls with administrative leads of partner organizations to coordinate administrative activities and provide feedback on processes.	country personnel on reporting and financial tracking tools. • Train PREDICT personnel on Base Camp, replacing SmartSite, to enable efficient reporting and flow of information. • Seek input from USAID on country-specific plans. • Provide periodic updates of activities and prepare third quarterly report. • Hold regular conference calls with administrative leads from all partners. • Update budget projections for years 2-5.
CAPACITY BUILDING ***1.1 Capacity assessment*** • **Develop standardized EPT-CAP** (Capacity Assessment Protocol) to evaluate the quantity and quality of existing wildlife surveillance components and systems in target countries and regions; identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing. • **Assess capacity in target countries** using EPT-CAP through country and regional assessment teams composed of local experts, stakeholders, and external experts (where necessary). • **Planning for capacity building:** Synthesize findings by country and region; identify critical gaps; highlight	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the second quarter, the Capacity Assessment Tool Subcommittee, with its PREDICT partner cross-organizational membership will** • Continue weekly EPT-CAP team meetings. • Finalize the Rapid assessment tool and associated training materials and provide to country coordinators. • Share CAP Rapid Assessment Tool as needed with USAID, Technical Advisors and regional leads and solicit feedback for improvement. • Begin to pilot and/or implement CAP Tool as determined by CBT members in consultation with regional leads and country coordinators. • Begin to perform assessments across all PREDICT countries. • Synthesize quarter 2 findings by country	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the second quarter, the Capacity Assessment Team, with its PREDICT partner cross-organizational membership** • Continued weekly EPT-CAP team meetings to receive input and discuss revisions and concerns related to the development of Capacity Building Rapid Survey Tool. • Developed a Capacity Building subteam, consisting of representatives from all PREDICT key partners, to review and revise the Rapid tool. • Compiled assessment templates from the CDC, WHO, US-DoD, and other sources to determine the most effective format of the document. • Finalized the PREDICT Capacity Building Rapid Survey Tool and associated training materials (see attachment) following input from all partners, regional leads and the Executive Board.	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the third quarter, the Capacity Assessment Team, with its PREDICT partner cross-organizational membership will** • Distribute the PREDICT Capacity Building Rapid Survey Tool and training materials to all PREDICT partner country/regional leads and Country Coordinators to conduct assessments across all PREDICT countries (as countries are approved for work activities according to regional timing constraints on rollouts). • Continue weekly EPT-CAP team meetings to discuss and review questions and feedback as the Rapid tool surveys are being performed by Country Coordinators. • Synthesize PREDICT Capacity Building Rapid Survey Tool findings by country and region. • Identify any critical gaps in information identified through the Rapid tool survey.

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practical opportunities for enhancing or implementing wildlife disease surveillance; identify lab diagnostic capabilities, gaps, and necessary equipment and training. Develop capacity building action plan by convening stakeholder meetings to review and finalize assessments with input from key partners and experts; develop a common shared vision and an action plan for capacity building and implementing wildlife disease surveillance activities and strengthening animal lab diagnostic capabilities.	and region. • Identify any critical gaps from quarter 2 information. • Highlight practical opportunities, for enhancing or implementing wildlife disease surveillance. • Begin to identify lab diagnostic capabilities, gaps, and necessary equipment and training. • Begin to develop capacity building action plan by convening stakeholder meetings to review and finalize assessments with input from key partners and experts; develop a common shared vision and an action plan for capacity building and implementing wildlife disease surveillance activities and strengthening animal lab diagnostic capabilities.	• Submitted the Rapid tool to USAID and to the PREDICT Technical Advisory Board for review. • Developed, with input from all partners and regional leads, a capacity building needed supplies list with estimated costs for Year 1, which including supplies for field, surveillance and diagnostic testing activities, animal capture and sampling, sample storage and transport and disease diagnostics. • Narrowed the needed supplies list with input from PREDICT partners and regional/country staff in order to provide to DELIVER for purchase of reagents and consumables to be distributed to identified Diagnostic Laboratories across PREDICT countries in Year 1. **In the second quarter, some planned activities were delayed due to the timing of rollouts and mission notification, including** • Beginning to pilot and/or implement Capacity Building Rapid Survey Tool. • Beginning to perform assessments across all PREDICT countries. • Synthesizing quarter 2 findings by country and region. • Identifying any critical gaps from quarter 2 information. • Highlighting practical opportunities for enhancing or implementing wildlife disease surveillance. • Convening stakeholder meetings to review and finalize assessments with input from key partners and experts. • Identifying lab diagnostic capabilities in-country, gaps, and necessary equipment and training.	• Highlight practical opportunities, for enhancing or implementing wildlife disease surveillance. • Begin to Identify lab diagnostic capabilities, gaps, and necessary equipment and training. • Begin to develop capacity building action plan by convening stakeholder meetings to review and finalize assessments with input from key partners and experts. • Ddevelop a common shared vision and an action plan for capacity building and implementing wildlife disease surveillance activities and strengthening animal lab diagnostic capabilities. • Work with DELIVER or partners to procure and distribute diagnostic testing reagents and consumables to all identified Diagnostic Laboratories across PREDICT countries.

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CAPACITY BUILDING
1.2 Training
 	
• **Develop Country Coordinator training** in USAID and PREDICT policies; project management and reporting; sample tracking; communication systems. Most training web-based and at annual meeting.
• **Create PREDICT staff and partner training materials** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel.
• **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.
• **Coordinate with RESPOND, IDENTIFY, and PREVENT** on training topics and individuals and communities (including laboratories) to receive training and outreach.
	CAPACITY BUILDING
	1.2 Training
	
	In the second quarter, the training subcommittee of the Capacity Building Team (CBT), consisting of representatives from PREDICT partners, will
	• Finalize training materials for safe animal capture, restraint, and sample collection.
	• With GoLearn or through Smartsite, develop and go live with PREDICT online training site.
	• Enable- through development or conversion- online interactive training modules on topics from ethics to laboratory and field sampling safety, with testing and tracking capabilities to certify completion and mastery of materials.
	• Initiate training with country coordinators and field staff in-country.
	• Complete standard sampling protocols.
	• Meet with in-country partners and potential partners.
	• Train country coordinators as needed in monthly and quarterly reporting procedures, including financial and travel reporting procedures.
	• Field test training materials and provide feedback to CBT.
	• Coordinate with other PREDICT and EPT partners in the roll-out of training materials.
	• Create a surveillance training module for CBT review and make modules available on schedule determined by the CBT.
	• Pilot the data collection protocols with surveillance personnel being trained, and obtain their feedback for ongoing improvement of the protocols in collaboration with other partners.
		CAPACITY BUILDING
		1.2 Training
		
		In the second quarter, Capacity Building Team (CBT),
		• Continued developing training materials and completed drafts of the following for Executive Board review:
		  ○ Animal Capture Safety Training PPT
		  ○ Field Laboratory Training PPT
		  ○ Sample Packing and Shipping Guide
		  ○ Environmental Compliance PPT
		  ○ Ethics PPT
		  ○ Field Surveillance Safety and Procedures Training Module
		• Established SmartSite as the online training testing certification site for field training on ethics, laboratory safety, animal capture safety, surveillance sampling safety and procedures, and biosafety and PPE use.
		• Began process of enabling online interactive training modules on topics above with testing and tracking capabilities to certify completion and mastery of materials.
		• Compiled and adapted existing partner training materials and safety protocols to create the learning library.
		• Created year 1 training plans by partner and country to ensure training for each country coordinator and all field staff.
		• Composed the PREDICT humane treatment of animals & sampling policy (subsequently approved and enacted by the Executive Committee).
		• Began training country coordinators as needed in monthly and quarterly reporting procedures, as able depending on authorization to work in country and ability to hire.
			CAPACITY BUILDING
			1.2 Training
			
			In the third quarter, Capacity Building Team (CBT) will
			• Complete training materials on Surveillance, Sampling, Safety Procedures, and Biosafety and PPE use.
			• Field test and evaluate training guides and protocols.
			• Produce new versions of training materials and protocols based on feedback from the first field trainings.
			• Begin developing and customizing additional training materials and protocols for specialized tasks such as bat and rodent handling, anesthesia and necropsy.
			• Initiate training with Country Coordinators and field staff in-country.
			• Translate training materials and protocols into appropriate languages.
			• Meet with in-country partners and potential partners to discuss training and surveillance/Sampling protocols, making adjustments to protocols as needed based on those meetings.
			• Plan additional in-country trainings with general protocols and training guides and new specialized training materials.
			• Coordinate with EPT partners on in-country rollout of training materials.
			• Expand and enhance PREDICT online learning library.
			• Pilot the data collection protocols with surveillance personnel being trained, and obtain their feedback for ongoing improvement of the protocols in collaboration with other partners.
			• Update standard sampling protocols to reflect feedback from field staff and country coordinators.

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		In the second quarter, some planned activities were delayed due to the timing of work plan approval, in-country rollouts and mission notification, including • Testing training materials in the field. • Coordinating with EPT partners on in country rollout of training materials. • Meeting with in-country partners and potential partners to discuss training and surveillance/Sampling protocols, and making adjustments to protocols based on those meetings. • Piloting data collections protocols with surveillance personnel. • Initiating training with all country coordinators and field staff.	• Continue training country coordinators as needed in monthly and quarterly reporting procedures, including financial and travel reporting procedures.Migrate materials from SmartSite to Base Camp for online training testing certification.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • **Refine and test geographical and temporal 'hotspot' models:** refine databases for all known environmental, biological (host and parasite/ pathogen), socioeconomic, agricultural, cultural, social, and other drivers of zoonotic disease emergence to be used in hotspot modeling; update hotspot models using best available current and future data on drivers, and better measures of bias; develop and test sub-regional hotspot models for each EPT site. • **Determine 'ecological hotspots' for disease emergence:** Review existing models and develop plan for improving by new datasets; start to identify data sets and data sources within each country on wildlife population abundance and distribution, human demography, relevant GIS layers (forest cover, roads, and land use change); start to identify	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, the Modeling and Hotspot ID team, will** • Continue to hold monthly modeling meetings. • Inform surveillance teams of key wildlife reservoirs. • Liaise with surveillance teams to refine approach for selecting target wildlife and pathogens • Develop and refine modeling strategy. • Hire Modeling Scientist and Modeling Research Assistant. • Provide ongoing support in efforts to finalize signed agreements with the modeling subawardees and facilitate their work for PREDICT. Participate in a modeling and hotspot meeting at the WHO.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, the Modeling and Hotspot ID team** • Held monthly modeling meetings. • Informed surveillance teams of key wildlife reservoirs. • Liaised with surveillance teams to refine approach for selecting target wildlife and pathogens. • Developed and refined modeling strategy. • Hired both Modeling Scientist and Modeling Research Assistant. • Hired Modeling Scientist at the Institute of Zoology London to work on database development and network modeling. • Outlined major drivers of EID & updated EID database. • Revised global hotspots analysis at a finer resolution using updated human population density and mammal diversity data. • Held planning meeting with some country	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, the Modeling and Hotspot ID team will** • Continue to hold monthly modeling meetings. • Continue to liaise with surveillance teams to refine approach for selecting target wildlife and pathogens. • Refine country-level hotspots maps and map country-level drivers to determine optimal surveillance areas. • Meet with country coordinators to ground truth surveillance plans. • Refine potential spread maps and country level risk of spread. • Develop host-pathogen association database to help inform the further selection of species to target for surveillance. • Meet with developers to create Integrated Biodiversity Web Portal to house both wildlife and human EID event data.

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gaps in knowledge and missing data sets to be filled in with field surveys during PREDICT; develop a strategy to organize data by collating geospatial, disease, ecology, and population data into centralized database and assess existing databases to use as a sustainable model (e.g. CIESIN, NWHS, GAINS). • **Begin to design a 'Global Vulnerability' modeling strategy to test 'what if?' scenarios for future unknown EIDs, based on key emerging zoonotic pathogen 'types/templates' for all EPT regions:** identify a group of the most important 'types' of zoonotic pathogens or 'templates' of emergence patterns based on data for all EIDs over the past few decades; build spatially-explicit matrix models. • **Develop and test predictive models of disease spread via trade and travel out of primary emergence site:** acquire data on travel and trade within and between countries. • **Specifically model the risk of the wildlife trade as an important factor driving zoonotic disease emergence:** build a basic model for the dynamics of pathogens within and among wildlife, domestic animals and humans at each node of the wildlife trade from hunting to global trade.		coordinators to begin discussing country-level surveillance plans and standardizing sampling methods. • Calculated the potential risk of spread of an EID from each country based on the within country risk of an EID occurring and transportation data for that country. • Updated Environmental databases (temperature, precipitation) using the WorldClim (www.worldclim.org) dataset with a spatial resolution of a square kilometer and a time period of 1950-2000. • Updated mammalian diversity based on the 2008 IUCN mammals dataset. • Included Global accessibility as a new driver of disease emergence. This driver was produced by the European Commission on Global Environment Monitoring. • Re-sampled all drivers and EIDs to a scale of 0.25 degrees (~ 25km at the equator.) This is a finer scale, compared to the 1 degree used by Jones et al. • Performed a new GLM model using the updated drivers and EIDs to determine ecological hotspots for disease emergence. • Began work on modeling the wildlife trade as a factor driving disease emergence from wildlife populations, beginning a literature review and starting creation of a conceptual model that will form the basis for quantitative modeling. • Participated in a modeling and hotspot (and general stakeholder) meeting at the WHO. • Participated in an information technology and modeling meeting at in Boston.	• Incorporate laboratory and ecological data points obtained by partners to identify hotspots.

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MODELING & HOTSPOT ID ***2.2 Use improved models to inform all EPT activities*** • **Develop a strategy to incorporate new data** from PREDICT surveillance activities into new models. • **Provide information to better target wildlife for SMART Surveillance:** design an analytical approach to identify taxonomic classes of animals most likely to harbor diversity of unknown zoonoses in each region. • **Provide information to better target high-risk people for SMART surveillance:** design a modeling approach to identify human populations most at risk from new zoonoses in each region, based on geography, behavior, socioeconomic factors, likely contact with reservoirs, and other key factors. • **Translate science and contribute to outreach activities** aimed at communicating findings to stakeholders in the regions and helping local leaders and policy makers understand importance of surveillance and outcomes associated with high risk behaviors.	**MODELING & HOTSPOT ID** ***2.2 Use improved models to inform all EPT activities*** • No second quarter work on activity 2.2 is planned.	**MODELING & HOTSPOT ID** ***2.2 Use improved models to inform all EPT activities*** **In the second quarter, the Modeling and Hotspot ID team** • Zoomed in on smaller-scale global hotspots to country level to ID regional hotspots.	**MODELING & HOTSPOT ID** ***2.2 Use improved models to inform all EPT activities*** **In the third quarter, the Modeling and Hotspot ID team will** • Provide information from initial modeling results to rest of EPT program. • Disseminate results on SMART surveillance targets based on host phylogeny GAP analysis.
SURVEILLANCE ***3.1 Coordination of surveillance activities across all EPT countries*** • **Coordinate Wildlife Pathogen Detection Line of Work** across all EPT programs. • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance; establish coordination with governments to facilitate sharing of surveillance data. • **Manage regional leads** of all PREDICT partners to ensure that surveillance	**SURVEILLANCE** ***3.1 Coordination of surveillance activities across all EPT countries*** **In the second quarter, the Surveillance team will** • Work together to develop standardized surveillance protocols. • Create pilot test data sheets for market surveillance/ confiscation contexts and revise protocols for next iteration in collaboration with Data Tracking and	**SURVEILLANCE** ***3.1 Coordination of surveillance activities across all EPT countries*** **In the second quarter, the Surveillance team** • Created the Surveillance team vehicle to ensure coordination among partners and clear communication about policies for surveillance. • Participated in biweekly meetings and other essential communications to	**SURVEILLANCE** ***3.1 Coordination of surveillance activities across all EPT countries*** **In the third quarter, the PREDICT Surveillance team will** • Continue its ongoing coordination during biweekly conference calls and other essential communications. • Work with UCD IACUC to address any needed revisions to protocols. • Work with UCD IRB committee to address

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activities are being implemented effectively and according to PREDICT policy. • **Evaluate effectiveness of Country Coordinators** in all target countries. • **Establish quality control** methods to effectively monitor in-country activities. • **Establish standardized sampling protocols** for surveillance, including collection, processing, storage, and transport of samples from humans and wildlife. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	Information Management team and partners, to ensure adaptive development of the sampling tool. • Implement surveillance activities in Level 1 countries, as well as limited activities in Level 2 countries. • Upon work plan approval, begin process to implement monitoring of the human-animal interfaces in year 1 targeted countries. • Continue to facilitate communication among partners. • Facilitate April meeting between CDC partners and PREDICT team at UC Davis to enhance collaboration efforts. • Finalize all IACUC applications and gain approval or exception through UC Davis IACUC. • Create a system for information flow between surveillance partners (to be used in conjunction with a proposed Surveillance team and/or regular conference calls). • Identify partners in agencies/ministries, universities, and NGOs for surveillance; establish coordination with governments to facilitate sharing of surveillance data. • Establish quality control methods to effectively monitor in-country activities. • Apply for permits • Initiate sampling where permits are in place. • Meet with initial surveillance partners to formally introduce the EPT program and PREDICT activities in each country. • Work with country coordinators to identify field personnel and develop projects. • Establish protocols/process for sample submission and testing at partner labs.	facilitate communication among partners. • Created a system for information flow between surveillance partners (to be used in conjunction with Surveillance team through regular conference calls). • Helped revise Lines of Work and coordinate incorporation of feedback from USAID and partners. • Developed Standard Operating Procedures (SOPs) and distributed them among partners to aid creation of surveillance guidelines. • Developed draft of a standardized data collection protocol in concert with Surveillance Committee partners, for use in markets/wildlife trade and confiscation contexts. • Met with WHO, OIE and FAO partners regarding coordination of surveillance activities. • Developed a draft model that will be used to standardize data collection amongst partners. • Developed animal care and use protocols to apply for approval or exception by the UC Davis IACUC committee, including descriptions of sampling and handling free-ranging wild animals. • Inventoried proposed surveillance activities in 22 countries to obtain details on wildlife species to be sampled, pathogens to be tested, and proposed sample storage and laboratory testing procedures. **In the second quarter, some planned activities were delayed due to the timing of work plan approval, in-country rollouts and mission notification, including** • Identifying partners in agencies, ministries, universities, and NGOs for surveillance; establishing coordination	needed revisions to protocols for human studies. • Update inventory of proposed surveillance activities and obtain details on specific regional activities underway in each country. **In the third quarter , depending on the timing of mission concurrence and AOTR authorization to work in-country, the team will** • Identify partners in agencies/ministries, universities, and NGOs for surveillance; establish coordination with governments to facilitate sharing of surveillance data. • Establish quality control methods to effectively monitor in-country activities. • Apply for permits. • Initiate sampling where permits are in place. • Implement surveillance activities in Level 1 countries, as well as limited activities in Level 2 countries. • Meet with initial surveillance partners to formally introduce the EPT program and PREDICT activities in each country. • Work with country coordinator s to identify field personnel and develop projects. • Establish protocols/process for sample submission and testing at partner labs. • Hold initial stakeholder meetings to provide information and receive feedback about PREDICT and EPT. • Seek MOUs with surveillance partners, including public health partners who may facilitate human sampling components. • Ensure adherence to PREDICT policy and quality control. • Hire Assistant Veterinarians, Veterinarians, and field assistants to be directly involved in implementation of

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	• Hold initial stakeholder meetings to provide information and receive feedback about PREDICT and EPT. • Seek MOUs with surveillance partners including public health partners who may facilitate human sampling components. • Ensure adherence to PREDICT policy and quality control. • Hire Assistant Veterinarians, Veterinarians, and field assistants to be directly involved in implementation of surveillance. • Implement surveillance activities in Level 1 countries, as well as limited activities in Level 2 countries. • Create a Surveillance Committee as a vehicle to ensure coordination among partners and clear communication about policies for surveillance. • Help revise Lines of Work and coordinate incorporation of feedback from USAID and partners. • Meet with WHO, OIE and FAO partners regarding coordination of surveillance activities.	with these partners to facilitate sharing of surveillance data. • Establishing quality control methods to effectively monitor in-country activities. • Applying for permits. • Initiating sampling where permits are in place. • Meeting with initial surveillance partners to formally introduce the EPT program and PREDICT activities in each country. • Working with country coordinators to identify field personnel and developing projects. • Establishing protocols/process for sample submission and testing at partner labs. • Holding initial stakeholder meetings to provide information and receive feedback about PREDICT and EPT. • Seeking MOUs with surveillance partners, including public health partners who may facilitate human sampling components. • Ensuring adherence to PREDICT policy and quality control. • Hiring Assistant Veterinarians, Veterinarians, and field assistants to be directly involved in implementation of surveillance. • Implementing surveillance activities in Level 1 countries, as well as limited activities in Level 2 countries.	surveillance.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Develop SMART (strategic, measurable, adaptive, responsive, and targeted) surveillance methods** for each high risk interface in targeted countries. • **Establish standardized sampling protocols** for surveillance, including collection, processing, storage, and	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** • Inventory surveillance activities to obtain information on proposed high risk interfaces being targeted in country.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, the Surveillance team** • Developed initial SMART surveillance guidelines and options for sampling wildlife. • Identified key personnel for integrating the public source zoonotic disease	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, the Surveillance team will** • Create a Study Design subteam to provide epidemiologic support to field teams. • Develop protocols for investigating outbreaks of zoonotic disease and redirecting resources towards wildlife

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
transport of samples from humans and wildlife. • **Provide study design support** to ensure adequate data are collected in each hotspot region. • **Identify situations requiring enhanced surveillance** by evaluating surveillance efforts and data real-time.		information that will be produced by Information Management team activities. • Gathered data on high risk interfaces to be sampled in 22 countries.	sampling when needs arise. • Summarize proposed surveillance activities in each country to assess sampling strategies and high risk interfaces to be sampled. • Develop PREDICT surveillance plan and general strategy for sampling wildlife at critically high risk interfaces.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Conduct detailed assessment of existing technologies** capable of supporting EPT activities and identify gaps in existing technological infrastructure in collaboration with EPT-CAP. • **Identify institutions and key personnel** with technological expertise that may serve to support EPT activities and be targets of future technology transfer with the aim of building capacity. • **Introduce appropriate and sustainable technology** to support wildlife surveillance system, including piloting of new methods in specific areas.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, upon work plan approval, PREDICT will** • Begin detailed assessment of existing technologies capable of supporting EPT activities and identify gaps in existing technological infrastructure in collaboration with EPT-CAP. • Begin identifying institutions and key personnel with technological expertise that may serve to support EPT activities and be targets of future technology transfer with the aim of building capacity. • Hire needed research scientists. • Purchase and send sampling equipment/technology to partner institutions. • Meet with partners and solidify field teams and collaborations with labs. • Provide labeling devices and dry shippers to in country partners; provide sampling supplies where necessary. • Hire technician for genetic sequencing of wildlife trade samples. • Provide ongoing coordination among partners regarding public health partnerships in year 1 countries to	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT** • Postponed detailed assessment of existing technologies capable of supporting EPT activities and identifying gaps in existing technological infrastructure in collaboration with EPT-CAP due to country rollout timing. • Began identifying institutions and key personnel with technological expertise that may serve to support EPT activities and be targets of future technology transfer with the aim of building capacity, but waiting on official country rollouts to complete identification. • Introduced and deployed new technologies in select countries. • Deployed dried blood spot card technology in select countries. • Began hiring needed research scientists. • Provided ongoing coordination among partners regarding public health partnerships in year 1 countries to facilitate paired human-wildlife sampling strategy.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT will** • Begin detailed assessment of existing technologies capable of supporting EPT activities and identify gaps in existing technological infrastructure in collaboration with EPT-CAP. • Purchase and send sampling equipment/technology to partner institutions. • Meet with partners and solidify field teams and collaborations with labs. • Provide labeling devices and dry shippers to in country partners; provide sampling supplies where necessary. • Introduce real-time PCR detection of Monkeypox virus in Congo and will utilize novel dried blood spot technologies in Gabon and DRC, assessing the technologies for use in other year 1 countries. • Provide an ABI 7500 real-time PCR machine to the International Center for Medical Research in Gabon, which will possibly be available for regional use. • Continue to work with local and international partners to field appropriate and sustainable diagnostics and other

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	facilitate paired human-wildlife sampling strategy.		technologies to year 1 countries. • Provide a review of SMS-based reporting technologies in Cameroon for use in other year 1 countries. • Provide an initial report on the feasibility of using the Pathogen Asset Control System in the Congo Basin, based on our experiences in using the program in Cameroon. • Evaluate the initial progress on a pilot project for photo identification and tracking of increased wildlife morbidity and mortality in Uganda.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for each high risk interface in targeted countries. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training. • **Provide pathogen discovery support** through state-of-the-art pathogen discovery laboratories in the US and identify samples that can be exported for testing in US.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT will** • Develop and share initial draft pathogen discovery strategy among partners. • Ship subsets of human and animal specimens to network of laboratory partners for pathogen discovery. • Continue to evaluate and field both modern and classical molecular and serological diagnostics for surveillance in PREDICT countries. • Use expertise to validate sample transport and preservation technologies. • Develop of SMART pathogen detection plan for each high risk interface in targeted countries. • Begin identifying laboratories for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT** • Began to identify laboratory partners for transfer of pathogen technology and receipt of equipment and training. • Facilitated the hiring of a research scientist to coordinate pathogen discovery strategy among partners. • Met leaders in field-deployable technologies at the US Army Medical Research Institute of Infectious Diseases, the Centers for Disease Control and Prevention, the Rocky Mountain Laboratory at the National Institute of Allergy and Infectious Disease, as well as international partners at the Pasteur Institute and the World Health Organization. • Formalized participation in the WHO diagnostics working group for especially dangerous pathogens. • Began some shipping of animal specimens to network of laboratory partners for pathogen discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT, under direction of Joseph Fair, will** • Develop and share initial draft pathogen discovery strategy and SMART pathogen detection plans among partners. • Ship samples containing disease agents of unknown etiology to laboratory partners in the United States, following the appropriate regulations and protocols for shipment. • Report known select agent viruses to the relevant public health authorities. • Compile and provide an overview of laboratory surveillance results. • Develop the Pathogen Detection Capacity Building Plan.

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
		• Worked with an expert consultant in Cameroon to determine the feasibility of implementing 454 pyrosequencing technologies in Central Africa. • Placed a robotic viral RNA extraction system (Qiagen EZ1) in select countries and supplied new diagnostic reagents (recombinant Ebola virus and Lassa virus diagnostic ELISAs), viral RNA extraction kits, and other reagents to test for the presence of Ebola and Lassa virus antibodies in humans known to live in endemic areas, as well as PCR reagents to test for the presence of filoviruses, flaviviruses, arenaviruses, henipaviruses and others in bats. • Established formal partnerships with leaders in pathogen discovery, including Dr. Ian Lipkin, Dr. Forrest Rower, Dr. Eric Delwart, and Dr. Pardis Sabeti. • Began hiring needed research scientists.	
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Standardize data collection and management** in each target country. • **Provide standardized labeling and tracking system** to country leads.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **PREDICT will** • Seek detailed input from partners on data collection and tracking needs and preferences from partners. • Field test the data collection sheet being drafted and provide feedback. • Plan and convene a meeting with partners leading surveillance activities to get detailed input regarding needs and preferences for data collection and management. • Meet with HealthMap partners to advance data sharing initiative. • Purchase label printers and labels and install printers at in-country partner	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT** • Sought and incorporated information from partners into the data model & GAINS3.0 design (the expanded zoonotic disease database, based on the new data model). • Further development and improvements of the standardized data model. • Met with partners in February to exchange information on data management needs and coordinate plans for information flow from the GAINS3.0 data management system to the modeling team. • Met with WHO, OIE, and FAO staff in February to plan coordination of	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT will** • Coordinate through Sample Tracking and Management meetings. • Migrate from GAINS2.0 (the system handling avian influenza data) to GAINS3.0 (expanded zoonotic diseases), based on the new data model. • Finalize and implement data model in GAINS3.0 and distribute amongst PREDICT partners, providing material for input into the capacity building unit. • Summarize efficacy of the PACS system in Cameroon. • Continue to purchase label printers and labels and install printers at partner

OBJECTIVE Activity Description	Planned progress for 01/01/10-03/31/10	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	institutes conducting surveillance activities to enable standardized labeling and tracking system. • Meet with WHO, OIE, and FAO staff to plan coordination of information management. • Work with the Sample Tracking and Information Management Systems team to find the best value surveillance and sample tracking systems, and then work to install them in at least 2 PREDICT countries.	information management activities and data flow to these organizations from GAINS3.0. • Met with HealthMap partners to advance data sharing initiative. • Convened a meeting in March in Boston to develop and articulate scope of the PREDICT information management (IM) system, and discuss and coordinate IM activities within the team. • Began actively pursuing and evaluating electronic integrated disease surveillance technologies for PREDICT use. • Installed a state-of-the-art sample tracking system (PACS, or the Pathogen Asset Control System) in Cameroon for PREDICT use and evaluation for project-wide use. • Began to purchase label printers and labels and install printers at partner institutes in-country who will be conducting surveillance activities.	institutes in-country who will be conducting surveillance activities.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.2 Planning for global open access to database and dissemination of knowledge*** • Planning for global open access to database and dissemination of knowledge to enable an adaptive surveillance system and real-time detection of zoonotic pathogens of concern to public health.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.2 Planning for global open access to database and dissemination of knowledge*** **PREDICT will** • Finalize terms and sign contracts with cooperative agreement subawardees in knowledge sharing initiative.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.2 Planning for global open access to database and dissemination of knowledge*** • **In the second quarter, PREDICT**Developed subaward agreements with the IM subaward partners (Healthmap, ProMED, Yale, and Praecipio); signatures imminent.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.2 Planning for global open access to database and dissemination of knowledge*** **In the third quarter, PREDICT will** • Begin Public distribution of PREDICT digital and field surveillance data as the data become available.

Country Plans: for detailed information on species and locations to be sampled, please refer to Attachment A.

Africa

Despite limited field activities resulting from the delay in scheduling the EPT road show and program rollout, the PREDICT team made significant progress in establishing the foundation for the program in the Congo Basin during the second quarter. The Country Coordinators and Regional Leads were hired, enabling initial transfer of preliminary orientation and training materials to th country level, including a pilot training of the proposed financial tracking system and initiation of regulatory permit processes. With the valuable input of the newly appointed Country Coordinators, the team revised the Year 1 work plans and budgets to optimize program operations and, in most cases, established local program offices. As part of program efforts to integrate ongoing field activities into PREDICT's SMART surveillance, the country teams conducted reviews of ongoing wildlife sampling activities and assessments of biological sample banks and existing sample tracking systems. The country teams also conducted reviews of existing laboratory and surveillance capacity in-country, expanded on high-risk interfaces listed in the program workplan improved targeting of program operations, and began plans for meetings with key stakeholders within the countries. Results from these assessments and reviews are being communicated to th Management Entity and PREDICT objective teams (administration, capacity building, modeling, surveillance, technology/pathogen discovery, and information management) in the upcoming quarter.

Cameroon		
OBJECTIVE **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire country coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Cameroon** • Provided day-to-day management and oversight of the PREDICT Cameroon program and facilitated the efficient accomplishment of all objectives. • Participated in executive board meetings and decisions. • Held weekly conference calls with country teams in Cameroon. • Provided detailed budget information for the Cameroon-specific workplan. • Hired Ms. Erin Papworth, MPH as a Regional Project Coordinator for PREDICT. • Set-up a PREDICT office in Yaounde (GVFI facility). • Engaged members of the RESPOND, PREVENT and DELIVER in logistics and program coordination. • Posted documents and deliverables to the UC DAVIS SMARTSITE. • Implemented a cloud-based project management system for its primary partnerships in Cameroon. • Arranged a sub-contract with the Care and Health Program in Cameroon (CHP).	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Cameroon will** • Continue to provide day-to-day management and oversight of the PREDICT Cameroon program and facilitate the efficient accomplishment of all objectives. • Participate in executive board meetings and decisions. • Hold weekly conference calls with country teams in Cameroon. • Engage members of the RESPOND, PREVENT and DELIVER in logistics and program coordination. • Utilize and enhance its cloud-based project management system for its primary partnerships in Cameroon. • Manage its sub-contract with the Care and Health Program in Cameroon (CHP). • Begin planning for year 2 operations in Cameroon.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Cameroon** • Maintained both technical and financial data for PREDICT	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Cameroon will** • Continue to comply with all required reporting.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
reporting.	operations in Cameroon. • Established processes to provide data to headquarters to enable reporting.	
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement-** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Cameroon** • Participated in the development of a CAP rapid tool that will be used to assess zoonotic disease surveillance in PREDICT countries. • Distributed drafts of the CAP rapid tool and directed country coordinators to provide as much of the available information as possible, in anticipation of the official USAID rollout in Kinshasa in the third quarter. • Convened local stakeholder meetings with internal partners in Cameroon. • Developed a skeletal framework for capacity building action plans in Cameroon. • Developed initial plans for capacity building in Cameroon.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Cameroon will** • Deploy finalized CAP tool • Complete CAP Tool survey • Finalize capacity building plans for year 1 • Hold at least one additional stakeholder meeting in Cameroon, following rollout of the USAID program in Kinshasa.
CAPACITY BUILDING ***1.2 Training*** • **Country coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Cameroon** • Detailed program management responsibilities to the Cameroon Country Coordinator, Ubald Tamoufe and the Regional Project Manager, Erin Papworth. • Contributed to the development of project-wide training materials, providing input in relation to Cameroon. • Worked with country leads to develop standardized sampling protocols for rodents and bats in Cameroon.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Cameroon will** • Contribute to the finalization of project training modules. • Deliver training modules to project staff and participants. • Further refine standardized collection guides and sampling protocols for use in Cameroon.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID Team	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Cameroon** • Provided data and information from Cameroon, as requested to inform the Modeling and Hotspot ID Team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Cameroon will** • Provide laboratory and ecological data points as requested by the modeling and hotspot team. • Participate as requested in modeling and hotspot identification.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Cameroon** • Obtained all relevant animal and human permits for Cameroon. • Installed a state-of-the-art sample tracking system (PACS, or the Pathogen Asset Control System) in the project office. • Began surveillance activities in Cameroon. • Identified key partners in Cameroon for surveillance. • Identified positive humans cases of pandemic AH1N1 influenza virus in Cameroon. • Sampled bushmeat markets, and certain high-risk human populations. • Reported results to the National Influenza Surveillance Center at the Centre Pasteur du Cameroon.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Cameroon will** • Continue surveillance and sampling activities in Cameroon. • Liaise with Key partners in Cameroon to enhance and enable surveillance. • Continue to sample bushmeat markets, and certain high-risk human populations. • Continue to report results to the National influenza Surveillance Center at the Centre Pasteur du Cameroon.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Cameroon** • Contributed to the development of the SMART surveillance strategy. • Identified existing and promising surveillance programs in Cameroon that will allow for rapid implementation of PREDICT surveillance activities. • Explored surveillance strategies in Cameroon. • Developed bushmeat, non-invasive, non-human primate, and bat surveillance strategies for Cameroon. • Began process of determining a disease baseline using both historical data and data obtained in the second quarter. • Began to implement SMART surveillance in Cameroon.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Cameroon will** • Conduct surveillance of bushmeat markets and with hunters, with targeted species to include Microchiroptera, Megachiroptera, primates, rodents, birds, ungulates and carnivores. • Focus surveillance activities in Cameroon on retroviruses in non-human primates, influenza in humans, and possibly filoviruses in Megachiroptera bats. • Summarize preliminary reports of samples collected and analyzed in Cameroon into formalized reports and publish (if possible). • Distribute data from these tests to USAID EPT partners and other key stakeholders.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Cameroon** • Explored technology development and Pathogen Discovery needs. • Began a trial of SMS-based reporting technology. • Deployed dried blood spot card technology and began to assess the value of this low-maintenance technology	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Cameroon will** • Provide a review of SMS-based reporting technologies in Cameroon.

Cameroon

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	in difficult field conditions.	
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Cameroon** • Compiled a technology assessment of three main laboratories in Cameroon at the Centre Pasteur du Cameroon, the University of Beua. • Organized visit to the Yaoundé lab by an expert in full-genome 454 sequencing methods in the developing world to determine the feasibility of implementing the technology in Cameroon. Worked with the expert consultant to determine the feasibility of implementing 454 pyrosequencing technology in Central Africa. • Established formal partnerships with leaders in pathogen discovery, including Dr. Ian Lipkin, Dr. Forrest Rower, Dr. Eric Delwart, and Dr. Pardis Sabeti.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Cameroon will** • Make necessary minor infrastructure and equipment upgrades at each key partner site in Cameroon. • Work with local and international partners to field appropriate and sustainable diagnostics and other technologies to Cameroon. • Send samples containing disease agents of unknown etiology, with appropriate permits and approvals, to laboratory partners in the United States to test for pathogens- both known and novel. • Report known select agent viruses to the relevant public health authorities. • Provide an overview of laboratory confirmed surveillance results.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Cameroon** • Began actively pursuing and evaluating electronic integrated disease surveillance technologies in coordination with the Sample Tracking and Information Management team. • Began Implementation of the Pathogen Asset Control System (PACS) in Cameroon.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Cameroon will** • Provide a complete evaluation of the PACS system in Cameroon to the Sample Tracking and Management Team.

Democratic Republic of Congo (DRC)

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire country coordinator	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in DRC** • Provided day-to-day management and oversight of the DRC program and facilitated the efficient accomplishment of planned objectives. • Held weekly conference calls with country teams in DRC. • Provided detailed budget information for the DRC-specific workplan.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in DRC will** • Continue to provide day-to-day management and oversight of the PREDICT DRC program and facilitate the efficient accomplishment of all objectives. • Hold weekly conference calls with country teams in DRC. • Engage members of RESPOND, PREVENT, and DELIVER in logistics and program coordination.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	• Engaged members of RESPOND, PREVENT and DELIVER in logistics and program coordination. • Posted documents and deliverables to the UC DAVIS SMARTSITE. • Implemented a cloud-based project management system for its primary partnerships in DRC.	• Utilize and enhance its cloud-based project management system for its primary partnerships in DRC. • Begin planning for year 2 operations in DRC.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** **Collect data and maintain records** at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in DRC** • Maintained both technical and financial data for DRC PREDICT operations. • Established processes to provide data to GVFI headquarters to enable reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in DRC will** • Continue to comply with all required reporting.
CAPACITY BUILDING ***1.1 Capacity assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the second quarter, PREDICT in DRC** • Participated in the development of a CAP rapid tool that will be used to assess zoonotic disease surveillance in PREDICT countries. • Distributed drafts of the CAP rapid tool and directed country coordinators to provide as much of the available information as possible, in anticipation of the official USAID rollout in Kinshasa in the third quarter. • Convened local stakeholder meetings with internal partners in DRC. • Developed a skeletal framework for capacity building action plans in DRC. • Developed initial plans for capacity building in DRC.	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the third quarter, PREDICT in DRC will** • Deploy finalized CAP survey tool. • Complete CAP Tool survey in DRC. • Finalize capacity building plans for year 1. • Hold at least one additional stakeholder meeting in DRC, following rollout of the USAID program in Kinshasa.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in DRC** • Contributed to the development of project-wide training materials, providing input in relation to DRC.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in DRC will** • Contribute to the finalization of project training modules. • Deliver training modules to project staff and participants. • Further refine standardized collection guides and sampling protocols. .

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID Team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in DRC** • Provided data and information from DRC as requested to inform the Modeling and Hotspot ID Team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in DRC will** • Provide laboratory and ecological data points as requested by the modeling and hotspot team. • Participate in modeling and hotspot identification.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in DRC** • Obtained all relevant animal and human permits for DRC from US-based IACUC and IRB boards. • Obtained local permits from the DRC ministry of Health approving the collection of human samples. • Began sample collection at the Monkeypox study site in Kole. • Traveled to the Kole Monkeypox study site in Central DRC. • Initiated Surveillance activities in an effort to perform outreach for human monkeypox. • Implemented animal sampling strategies in Kole in order to attempt to identify the reservoir of human monkeypox. • Partnered with an international filovirus consortium, involving scientists from Gabon, South Africa, DRC, the World Health Organization and the US Army. • Held stakeholder meetings to determine a filovirus surveillance strategy for DRC. • Completed analysis of stored samples for the presence of human monkeypox.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in DRC will** • Conduct surveillance of bushmeat markets and with hunters, with targeted species to include Microchiroptera, Megachiroptera, primates, rodents, birds, ungulates and carnivores. • Focus surveillance activities in DRC on retroviruses in non-human primates, influenza in humans, and possibly filoviruses in Megachiroptera bats. • Summarize preliminary reports of samples collected and analyzed in DRC into formalized reports and publish (if possible).
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report on pilot surveillance of populations,** according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in DRC** • Contributed to the development of the SMART surveillance strategy. • Identified existing and promising surveillance programs in DRC that will allow for rapid implementation of PREDICT surveillance activities. • Explored surveillance strategies in DRC. • Developed bushmeat, non-invasive, non-human	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in DRC will** • Implement SMART surveillance activities in DRC, based on historical reports and the scientific opinion of local counterparts.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	primate, and bat surveillance strategies for DRC. • Began process of determining a disease baseline using both historical data and data obtained in the second quarter. • Developed, in collaboration with partners, human surveillance activities for monkeypox.	
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in DRC** • Explored technology development and pathogen discovery needs. • Compiled a technology assessment of two main laboratories in DRC at the National Institute of Biomedical Research and the National Veterinary Laboratory. • Deployed dried blood spot card technology and began to assess the value of this low-maintenance technology in difficult field conditions. • Established formal partnerships with leaders in pathogen discovery, including Dr. Ian Lipkin, Dr. Forrest Rower, Dr. Eric Delwart, and Dr. Pardis Sabeti. • Began a trial of SMS-based reporting technology.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in DRC will** • Introduce real-time PCR detection of Monkeypox virus in Kole. • Utilize novel dried blood spot technologies in DRC. • Continue to work with local and international partners to field appropriate and sustainable diagnostics and other technologies in DRC.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in DRC** • Developed a SMART pathogen detection plan for the detection of human monkeypox and viral hemorrhagic fevers of unknown origin in DRC. • Identified the Institut National de Recherche Biomedical (INRB) and the GVF/UCLA monkeypox/VHF study site for transfer of pathogen discovery technology.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in DRC will** • Send samples containing disease agents of unknown etiology, with appropriate permits and approvals, to laboratory partners in the United States to test for pathogens- both known and novel. • Report known select agent viruses to the relevant public health authorities • Provide an overview of laboratory confirmed surveillance results
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in DRC** • Shared currently available and utilized methods for	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in DRC will** • Participate as requested in the Sample Tracking and

Democratic Republic of Congo (DRC)		
OBJECTIVE **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
• Provide data for incorporation into central system.	sample tracking and information management with the Sample Tracking and Information Management team.	Management team.

Equatorial Guinea (EG)		
OBJECTIVE **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in EG** • Began planning for project implementation in EG. • Provided detailed budget information for EG. • Developed processes to ensure full compliance with the rules and regulations of USAID and UC Davis. • Delayed in-country work pending the regional rollout of PREDICT. • Engaged EPT partners to facilitate collaboration and coordination in country. • Posted documents and deliverables to the UC DAVIS SMARTSITE for use in EG operations • Implemented a cloud-based project management system for its primary partnerships in Central Africa. • Held weekly conference calls with our regional team in Cameroon, who will provide regional support for EG in years 1 and 2 of PREDICT.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, Ubald Tamoufe, Cameroon Country Coordinator will** • Provide day-to-day management of EG activities. • Develop the Year 2 work plan in collaboration with PREDICT staff and partners.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in EG** • Began developing processes to collect, maintain, and share technical and financial data for EG.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in EG will** • Continue to comply with all required reporting.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team-** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement-** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in EG** • Participated in the development of a CAP rapid tool that will be used to assess zoonotic disease surveillance in PREDICT countries, including EG. • Distributed drafts of the CAP rapid tool and directed regional coordinator to provide as much of the available information as possible, in anticipation of the official USAID rollout in Kinshasa in the third quarter.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in EG will** • Hold stakeholder meetings in EG to explain the PREDICT program. • Deploy finalized CAP tool. • Begin to complete, or complete CAP Tool survey in EG.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
CAPACITY BUILDING ***1.2 Training*** • No 1.2 activities are planned for year 1 in EG.	**CAPACITY BUILDING** ***1.2 Training*** • No 1.2 activities are planned for year 1 in EG.	**CAPACITY BUILDING** ***1.2 Training*** • No 1.2 activities are planned for year 1 in EG.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • No 2.1 activities are planned for year 1 in EG.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** • No 2.1 activities are planned for year 1 in EG.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** • No 2.1 activities are planned for year 1 in EG.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • No 3.1 activities are planned for year 1 in EG.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** • No 3.1 activities are planned for year 1 in EG.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** • No 3.1 activities are planned for year 1 in EG.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • No 3.2 activities are planned for year 1 in EG.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** • No 3.2 activities are planned for year 1 in EG.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** • No 3.2 activities are planned for year 1 in EG.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • No 4.1 activities are planned for year 1 in EG.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in EG** • Began to explore Technology development and Pathogen Discovery needs in EG. • Compiled a technology assessment and concluded, at present, that any samples from EG must be routed to either Cameroon or Gabon in year's 1 and 2.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** • No further 4.1 activities are planned for year 1 in EG.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • No 4.2 activities are planned for year 1 in EG.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** • No 4.2 activities are planned for year 1 in EG.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** • No 4.2 activities are planned for year 1 in EG.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • No 5.1 activities are planned for year 1 in EG.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** • No 5.1 activities are planned for year 1 in EG.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** • No 5.1 activities are planned for year 1 in EG.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire country coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Gabon** • Provided day-to-day management and oversight of the PREDICT Gabon program and facilitated the efficient accomplishment of all objectives. • Provided detailed budget information for the Gabon-specific workplan. • Hired Ms. Erin Papworth, MPH as a Regional Project Coordinator for PREDICT. • Engaged members of RESPOND, PREVENT and DELIVER in logistics and program coordination. • Posted documents and deliverables to the UC DAVIS SMARTSITE. • Implemented a cloud-based project management system for its primary partnerships in Gabon. • Arranged a sub-contract with the International Center for Medical Research in Gabon (CIRMF). • Held weekly conference calls with country teams in Gabon.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Gabon will** • Continue to provide day-to-day management and oversight of the PREDICT Gabon program and facilitate the efficient accomplishment of all objectives. • Hold weekly conference calls with country teams in Gabon. • Engage members of RESPOND, PREVENT and DELIVER in logistics and program coordination. • Utilize and enhance its cloud-based project management system for its primary partnerships in Gabon. • Begin planning for year 2 operations in Gabon.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Gabon** • Began developing processes to collect, maintain, and share technical and financial data for Gabon.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Gabon will** • Continue to comply with all required reporting.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the second quarter, PREDICT in Gabon** • Participated in the development of a CAP rapid tool that will be used to assess zoonotic disease surveillance in PREDICT countries, including Gabon. • Distributed drafts of the CAP rapid tool and directed country coordinator to provide as much of the available information as possible, in anticipation of the official USAID rollout in Kinshasa in the third quarter. • Convened local stakeholder meetings with internal partners in Gabon. • Developed a skeletal framework for capacity building	**CAPACITY BUILDING** ***1.1 Capacity assessment*** **In the third quarter, PREDICT in Gabon will** • Deploy finalized CAP tool • Complete CAP Tool survey in Gabon. • Finalize capacity building plans for year 1 • Hold at least one additional stakeholder meeting in Gabon, following rollout of the USAID program in Kinshasa.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	action plans in Gabon. • Developed plans for capacity building in Gabon.	
CAPACITY BUILDING ***1.2 Training*** • No 1.2 activities are planned for year 1 in Gabon.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Gabon** • Detailed program management responsibilities to the Gabon Country Coordinator, Eric Leroy. • Contributed to the development of project-wide training materials, providing input in relation to Gabon.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Gabon will** • Continue to contribute to the finalization of project training modules.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as available and requested by Modeling and Hotspot ID Team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** • 2.1 activities have not yet begun in Gabon	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease Emergence*** **In the third quarter, PREDICT in Gabon will** • Provide laboratory and ecological data points as requested by the modeling and hotspot team. • Participate in modeling and hotspot identification.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Gabon** • Obtained all relevant animal and human permits for PREDICT work in Gabon. • Began to implement surveillance activities in Gabon. • Identified key partners for surveillance in Gabon. • Sampled and analyzed over 3000 microchiroptera bats from Northern Gabon. • Facilitated the testing of 4000 sero-survey samples collected in rural Gabon using experimental and novel diagnostic platforms for Ebola and Lassa viruses. • Received sampling results, although preliminary, indicating the presence of several previously undiscovered viruses in wildlife in Gabon. • Planned the sharing of key information gained in quarter two with RESPOND and PREVENT.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Gabon will** • Continue sampling and surveillance activities begun in the second quarter. • Share key information gained in sampling and surveillance with RESPOND and PREVENT to help inform EPT-wide activities.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Gabon** • Identified existing and promising surveillance programs in Gabon that will allow for rapid implementation of	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Gabon will** • Begin surveillance and sampling in Gabon with hunters and at bushmeat markets to include Microchiroptera,

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	PREDICT surveillance activities. • Began determining disease baseline using both historical data and newly obtained data.	Megachiroptera, Primates, Rodents, Birds, ungulates and carnivores. • Focus surveillance activities in Gabon on retroviruses in non-human primates, influenza in humans, and possibly filoviruses in Megachiroptera bats. • Summarize preliminary reports of samples collected and analyzed in Cameroon in quarter three into formalized reports and publish (if possible). • Distribute data from these tests to USAID EPT partners and other key stakeholders.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • No 4.1 activities are planned in year 1.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Gabon** • Explored technology development and pathogen discovery needs in Gabon. • Introduced novel dried blood spot technologies in Gabon. • Provided Dr. Leroy's laboratory at the International Center for Medical Research in Gabon with an ABI 7500 real-time PCR machine and a Qiagen EZ1 RNA extraction machine,	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Gabon will** • Continue to explore technology development and pathogen discovery needs in Gabon. • Provide an evaluation of dried blood spot technologies in Gabon. • Provide additional new technologies in Gabon to enable pathogen discover, as needed and appropriate.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • No 4.2 activities are planned in year 1.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Gabon** • Compiled a technology assessment of the International Center for Medical Research. • Deployed dried blood spot card technology in Gabon and began to assess the value of this low-maintenance technology in difficult field conditions.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Gabon will** • Introduce real-time PCR detection of the Monkeypox virus in Gabon. • Utilize novel dried blood spot technologies in Gabon. • Continue to work with local and international partners to field appropriate and sustainable diagnostics and other technologies in Gabon.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • No 5.1 activities are planned in year 1.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Gabon** • Began actively pursuing and evaluating electronic integrated disease surveillance technologies applicable to the PREDICT program in Gabon in coordination with the Sample Tracking and Information Management	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Gabon will** • Send samples containing disease agents of unknown etiology, with appropriate approvals, to laboratory partners in the United States to test for novel pathogen in wildlife and possibly humans from Gabon.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	Team.	• Report known select agent viruses to the relevant public health authorities. • Provide an overview of any laboratory surveillance results obtained in the third quarter in Gabon.

Republic of Congo

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire country coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, the PREDICT team** • Established P. Reed as the (WCS) Africa Regional Manager and K. Cameron as the Congo Country Coordinator • Held meetings with in-country conservation-based project managers (Thomas Breuer- NNNP, Suzanne Mondoux, PROGEPP) to discuss how surveillance activities could be integrated into existing work plans and activities. • Established an in-country office for PREDICT activities • Developed terms of reference for veterinary positions and interviewed candidates • Identified a candidate for Field Assistant position	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in the Congo will** • Designate and hire needed personnel for in-country activities • Provide day-to-day management of the country program. • Initiate development for year 2 work plan for Congo
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, PREDICT in Congo** • Worked on budget adjustments and refined the financial reporting system.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in the Congo will** Continue to undertake budget adjustments and refine the financial reporting system. • Continue to comply with all required reporting.
CAPACITY BUILDING **1.1 Capacity Assessment** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement**	**CAPACITY BUILDING** **1.1 Capacity Assessment** **During the second quarter, PREDICT in Congo** • Provided input to the CAP and training materials being developed by the Capacity Building Team. • Evaluated possibilities for preliminary CAP tool implementation in Congo. • Held meeting with Dr. Jean-Vivean Mombouli of the National Public Health Laboratory (NPHL) of Brazzaville to	**CAPACITY BUILDING** **1.1 Capacity Assessment** **In the third quarter, PREDICT in the Congo will** • Review CAP tool and begin implementation with available information. • Arrange meetings with relevant national entities to collect data necessary for completion of the CAP tool. • Coordinate with Capacity Building Team to ensure continuity of product with other countries.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
Hold stakeholder meetings and conduct laboratory and field site visit as needed.	identify existing in-country capacity for surveillance diagnostics. • Held meeting with Dr. Ikolaloumou (Directeur de Santé Animale a la Direction d'Elévage) to identify veterinary counterparts for surveillance training. • Established an MOU with NPHL of Brazzaville to commence diagnostics at the Wildlife Conservation Society lab for the purpose of national disease surveillance and capacity building. Identified candidate to manage the diagnostic laboratory.	
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter, PREDICT in Congo** • Revised PREDICT training modules on Animal Capture & Safety, Field Sampling & Safety, and Packing and Shipping of Biological Samples	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in the Congo will** • Review training needs for PREDICT in-country staff and develop a plan for implementation. • Coordinate with Modeling and Hotspot ID team for training in priorities and data handling requirements.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as available and as requested by Modeling and Hotspot ID Team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter, PREDICT in Congo** • Considered methods for preparing a database for practical management of surveillance data.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in the Congo will** • Coordinate with Modeling and Hotspot ID team to determine priorities and data handling requirements.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5).	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter, PREDICT in Congo** • Identified partners in Congo and regionally for surveillance work including National Public Health Laboratory of Brazzaville and the Department de Elévage at the Ministry of Agriculture for surveillance work. • Discussed specific emerging infectious disease research which is of highest priority to NPHL and which will be integrated in upcoming surveillance work (*M. ulcerans*). • Identified a private organization (Danzer Group's subsidiary Industrie Forestière d'Ouesso (IFO)) as a	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in the Congo will** • Continue to obtain the required permits associated with various sample types and diagnostic laboratories. • Begin surveillance at ZANAGA, western Congo, in May, benefiting from a rapid bio-assessment mission. • Meet with authorities of regional diagnostic labs (Democratic Republic of Congo) to discuss sample diagnostic and tracking procedures and formalize collaborations. • Assess effectiveness of sampling protocols used in initial

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
• **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	potential partner for surveillance work. • Assessed project sites, such Nouabalé-Ndoki National Park and the Project for Ecosystem Management in the Nouabalé-Ndoki Periphery Area (PROGEPP) in Congo for PREDICT activities. • Determined permitting requirements for sample collection and shipment domestically and internationally. • Established permitting process for both CITES and non-CITES samples. • Established Protocols for the cold chain maintenance for field sampling or shipping (liquid nitrogen and dry ice acquisition). • Planned initial surveillance trip at ZANAGA to take place in May 2010. • Developed a sampling diagram for in-country surveillance that summarizes the main features of target species (primates, ungulates, rodents, birds and reptiles), type of samples, storage requirements, diagnostic tests and labs. • Prepared a list of necessary materials and protective equipment for field sampling activities • Developed an itemized list of equipment, reagents and supplies needed for surveillance and diagnostics in Brazzaville, and provided to DELIVER upon request.	ZANAGA surveillance and adapt protocols if needed. • Coordinate pilot surveillance in northern Congo in 4th quarter, using newly-adapted ZABAGA protocols. • Develop sample banking procedures.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Congo** • Identified both opportunistic and active surveillance options achievable in-country. • Conducted initial information gathering on potential pathogens of interest and collected background documentation. • Discussed collaboration on surveillance with potential partners.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in the Congo will** • Record data in a manner that is consistent with the needs of the Modeling and Hotspot team. • Coordinate opportunistic surveillance (rodents, bats) with NGO partners. • Begin collecting samples in wildlife trade and opportunistic scenarios.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the second quarter, PREDICT in Congo** • Identified novel sampling technologies (RNAlater, FTA cards, protein binding cards, liquid nitrogen) to	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in the Congo will** • Implement novel sampling technologies (RNAlater, FTA cards, liquid nitrogen) at ZANAGA bio-assessment

Republic of Congo

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	implement in the field for year 1 surveillance activities.	surveillance mission
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Congo** • Identified laboratories for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in the Congo will** • Continue discussions with in-country and regional laboratories for potential future partnership and development.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the second quarter, PREDICT in Congo** • Provided the Information Management team with information on equipment & material needs in Congo for sample tracking.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in the Congo will** • Coordinate with Sample Tracking and Information Management Team on sample tracking needs.

Rwanda

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for Rwanda.	**ADMINISTRATIVE MANAGEMENT** ***Admin 1. Management*** **In the second quarter, PREDICT in Rwanda** • Provide day-to-day management and oversight of the country program • Revised Year 1 work plan to meet objective requirements and as planning developed. • Revised subaward budget to optimize year 1 operations. • Reviewed applications and interviewed two candidates for Rwanda Country Coordinator position.	**ADMINISTRATIVE MANAGEMENT** ***Admin 1. Management*** **In the third quarter, PREDICT in Rwanda will** • Continue to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Hire a Rwanda Country Coordinator. • Establish an office in Kigali • Purchase essential equipment, and supplies. • Meet with the USAID mission in Kigali upon invitation to introduce PREDICT, and upon request thereafter. • Begin planning for year 2 operations.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Rwanda**	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Rwanda will continue to**

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
needed for timely and accurate technical and financial reporting.	• Collected and maintained records at a level of detail needed for accurate reporting. • Responded to all requests for information from objective teams (admin, surveillance, capacity building).	• Collect and maintain records at a level of detail needed for accurate reporting. • Continue to respond to all requests for plans, progress, and data from objective teams, USAID, and partners.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visits as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Rwanda** • Reviewed draft CAP survey tool and provided feedback to Capacity Assessment subcommittee.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Rwanda will** • Train country coordinator on use of CAP tool survey. • Implement CAP tool including, meeting and/or interviewing head veterinarians, wildlife managers, public health officers, faculty at the Office Rwandais du Tourisme et des Parcs Nationaux (ORTPN), Higher Institute of Agriculture and Animal Husbandry (ISAE), and ministries to gather data for completing capacity assessment. • Submit results from CAP tool survey- full or partial- to Capacity Assessment Team
CAPACITY BUILDING ***1.2 Training*** • **Country coordinator participation in training** on use of standardized EPT-CAP tool. • **PREDICT staff and partner training** initiated in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training** objectives and tracking for PREDICT staff and partners in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Rwanda** • Provided feedback and information as requested to Training team for development of training modules.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Rwanda will** • Review all program information and materials on PREDICT SMART Site. • Train country coordinator on use of standardized CAP tool, accounting, cultural/sexual diversity/sensitivity, health and safety, and wildlife sampling. • Train key partners on health and safety and wildlife sampling methods.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID Ttam.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Rwanda** • Responded to Modeling and Hotspot ID team requests for information.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Rwanda will** • Provide Modeling and Hotspot ID team with information as requested.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities,	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Rwanda**	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Rwanda will**

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
and NGOs for surveillance, establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	• Met with USFWS to discuss CITES permitting for sample importation. • Helped plan and launch population-wide census of wild mountain gorillas in Volcanoes National Park. • Participated in census, including providing supplies for sample collection • Processed mountain gorilla samples for storage and shipping. • Conducted diagnostic testing on tissue samples from select mountain gorillas to determine etiology of respiratory disease outbreak.	• Review, update and secure as needed all permits, licenses, and agreements essential for surveillance in-country. • Start testing mountain gorilla samples from census (feces) for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria. • Obtain samples from healthy and diseased or injured wild or captive great apes opportunistically (n<10), and test for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria. • Obtain samples from free-ranging bats in urban environments (n=100) proactively and test for exposure to filoviruses, flaviviruses, lyssaviruses, coronaviruses, and bunyaviruses. • Meet with Rwanda Development Board (key partner) to coordinate on-going sampling and surveillance of free-ranging and captive wildlife.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in Rwanda. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active)	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Rwanda** • Responded to all requests from Surveillance team for information on on-going, planned and proposed surveillance. • Queried biological sample bank in US for samples available for diagnostic analysis.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Rwanda will** • Provide Surveillance team with requested information on surveillance activities. • Test primate samples from biological archive (sera, frozen tissues) for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria. • Test bat samples from biological archive (sera, frozen tissues) for exposure to filoviruses, flaviviruses, lyssaviruses, coronaviruses, and bunyaviruses.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Rwanda** • Held preliminary discussions with PREDICT partners on plans to deploy novel technologies for outbreak surveillance.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Rwanda will** • Identify needs for technology development and pathogen discovery with Technology Development and Pathogen Discovery Team. • Prepare to apply novel technologies for sample collection starting in quarter four.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories for transfer of pathogen technology and receipt of equipment and training.**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Rwanda** • Identified high-risk interfaces in conjunction with the Technology Development and Pathogen Discovery team. • Listed laboratories for potential transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Rwanda will** • Further refine surveillance plan for high-risk interfaces. • Meet with ministries and universities to confirm laboratory for transfer of pathogen detection technology and receipt of equipment and training as needed.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Rwanda** • Explored options for updating current clinical data management system for mountain gorillas to optimize transferability to PREDICT database as it develops.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Rwanda will** • Hire programmer to update current clinical data management system for mountain gorillas in ways that optimize transferability to PREDICT database.

Tanzania

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT **Admin.1 Programmatic Management** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for Tanzania.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the second quarter, the PREDICT Tanzania team** Provided day-to-day management and oversight of the in-country program. • Revised the year 1 workplan and subaward budget to reflect in-country program activities • Hired the Country Coordinator (Dr. Harrison Sadiki) and program field assistant (Mr. Muhiddin Hatibu Salehe). • Incorporated initial field personnel into the program team. • Initiated the application/review process for an Assistant Country Coordinator and additional field personnel/laboratory technical personnel. • Began setting-up the new program office in Iringa, Tanzania.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **Admin.1 Programmatic Management** **During the third quarter, the Tanzania team will** • Implement the Year 1 workplan and participate in rollout of program to USAID Mission to Tanzania. • Continue the hiring process of field personnel and laboratory technical personnel as needed. • Purchase essential equipment and supplies for project operations in Tanzania. • Begin development of the year 2 work plan.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, the PREDICT team in Tanzania** • Delayed data collection activities due to timing of EPT rollout in Tanzania. • Established communication between the Country Coordinator and all PREDICT partners. • Initiated Country Coordinator training to facilitate timely and accurate completion of financial and technical reporting. • Addressed all requests for data, information, and feedback from Management Entity (ME) and objective teams (admin, surveillance, capacity, assessment, and training) in a timely manner.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, the PREDICT team in Tanzania will** • Initiate data collection activities. • Plan further data collection activities under direction of the Country Cbbbboordinator. • Complete necessary trainings on financial management and reporting through country coordinator. • Continue to respond to all requests for information and reporting by ME, and objective and administrative teams in a timely manner.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, the PREDICT team in Tanzania** • Reviewed the CAP tool and submitted feedback to the Capacity Building Team (CBT). • Developed map modules for the CAP Tool in collaboration with the CBT team. • Delayed formal meetings and discussions with potential stakeholders in anticipation of the EPT Road Show and program rollout.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, the PREDICT team in Tanzania will** • Complete CAP Tool, and report findings and results to CBT. • Initiate communication and plan/conduct field visits (where necessary) with stakeholders to areas identified through CAP tool.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized EPT-CAP tool. • **PREDICT staff and partner training** initiated in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training** objectives and tracking for PREDICT staff and partners in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, the PREDICT team in Tanzania** • Reviewed the CAP tool for viability of completion by country coordinator. • Delivered feedback on program training modules to CBT. • Provided assistance in training module development. • Completed the training plan and timetable template and submitted to CBT. • Organized and implemented a SmartSite to facilitate delivery and tracking of training modules for CBT. • Conducted an orientation for the new country coordinator on program materials, objectives, and activities.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, the PREDICT team in Tanzania will** • Initiate trainings with Country Coordinator on use of CAP tool, budget tracking, personal protection and safety, and other areas as training modules become available. • Initiate planning for staff and partner trainings through Country Coordinator in all areas where modules are available. • Develop and facilitate tracking tools for trainings and submit results to CBT.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, the PREDICT team in Tanzania** • Delayed data collection activities due to regional rollout timing of the PREDICT project and EPT program. • Addressed all requests for information and feedback from the Modeling and Hotspot ID team in a timely manner. • Provided assistance in the development of sample tracking sheets and sample database for modeling team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, the PREDICT team in Tanzania will continue to** • Provide data and information as requested by the Modeling team to support development of all necessary tools/resources.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance, including Sokoine University, Wildlife Division, Ministry of Livestock, TAWIRI. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, the PREDICT team in Tanzania** • Made initial progress in identifying potential partners in collaboration with the Country Coordinator. • Initiated planning for meetings with TAWIRI, the Tanzanian National Parks, the National Medical Research Institute, and Tanzania Bird Atlas. • Addressed all requests for information by te Surveillance team regarding on-going, planned, and proposed surveillance. • Initiated the permitting processes, including blanket sample import permits for program activities outside of Tanzania (e.g. CDC, USDA, and CITES). • Drafted blanket IACUC application incorporating all East Africa activities (Rwanda, Tanzania, Uganda) for program. • Obtained renewal permit, granted by Tanzanian authorities, for wildlife research in Tanzania, enabling wildlife activities in the Ruaha Landscape. • Initiated the procedure to formalize permitting and research in Tanzania under the program partner (SUA) through a Research Associateship for PREDICT program director Dr. Mazet. • Re-organized ongoing sample collection to integrate with surveillance plans/design by the Surveillance team. • Conducted a review of the biological sample bank and sample tracking system at collaborator SUA. • Completed a needs assessment on capacity and infrastructure challenges for laboratory and made associated recommendations to the surveillance team.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, the PREDICT team in Tanzania will** • Continue to identify and initiate communication with potential partners through the Country Coordinator. • Continue to work towards securing all relevant and necessary permits both in-country, and among US regulatory agencies on behalf of Tanzania activities and other program partners. • Submit IACUC application incorporating all East Africa activities. • Continue ongoing wildlife sampling activities through established partner channels (Ruaha Landscape and surrounding areas). • Initiate sampling for all targeted species at interfaces approved/available for disease surveillance (See PREDICT Surveillance spreadsheet for details on targeted interfaces, sample collection, and species information). • Begin planning for collaborative sample collection and pathogen detection in non-human primates from Western and Northwestern Tanzania (Gombe National Park and Minziro Forest), and expand non-human primate sampling and pathogen detection in South-central Tanzania (Ruaha National Park and surrounding areas, Eastern Arc Mountains, Udzungwa, Uluguru). • Begin planning to expand ungulate surveillance and pathogen detection activities from the Southern Highlands (Ruaha National Park and surrounding areas) to Western, Northern, and Central Tanzania (Katavi and Mikumi National Parks and Serengeti ecosystem) in collaboration with current PREDICT partners.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	• Delayed data collection and analysis activities due to timing of the EPT/PREDICT rollout in Tanzania.	• Initiate planning and identification of partnerships to incorporate surveillance and pathogen detection of bats into PREDICT operations in South-central (Southern Highlands and Ruaha Landscape), Central (Morogoro and the Uluguru Mountains), and the Eastern Coast (Dar es Salaam and surrounding areas) regions of Tanzania. • Begin necessary planning and collaborations to expand existing Rodentia sampling and pathogen detection activities in South-central Tanzania (Ruaha National Park and surrounding areas) to the Kilombero Valley and Udzungwa Mountains of the Eastern Arc, and to Northeastern Tanzania (Usambara Mountains of the Eastern Arc). • Continue carnivore disease surveillance and pathogen detection activities in South-central Tanzania (Ruaha National Park and surrounding areas). • Continue laboratory analysis at SUA on relevant pathogens for which protocols and capacity is already established. • Transfer banked/archived samples to appropriate diagnostic center for testing (viral pathogens). • Plan capacity enhancements to enable SUA laboratories to become a future viral diagnostic center for program activities. • Initiate pathogen testing and detection activities through SUA and partner/collaborating facilities, and communicate data and results to Surveillance and Modeling objective teams.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in Tanzania. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, the PREDICT team in Tanzania** • Conducted a literature review of surveillance options. • Completed briefing of the Country Coordinator. • Reviewed the archived wildlife sample database and prioritized samples/species for pathogen discovery and testing. • Delayed pathogen detection activities and establishment of disease baseline due to timing of EPT/PREDICT rollout in Tanzania.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, the PREDICT team in Tanzania will** • Continue exploration of surveillance options through the CAP tool and discussions with potential partners/collaborators. • Initiate analysis/testing of archived samples (where feasible) to establish baseline for select diseases in wildlife. • Continue to research and procure export/regulatory permits to transfer archived samples to established pathogen discovery laboratory until SUA is able to act as diagnostic center. • Initiate reporting on pilot surveillance efforts as data

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
		collection and analysis activities are expanded.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery** needs • **Identify and share needs** for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (e.g. SMS, blood spots, etc.).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, the PREDICT team in Tanzania** • Communicated, based on brief assessment by Tanzania Coordinator, preliminary technology, equipment, and pathogen discovery needs to surveillance team and program director. • Delayed introduction of novel sample technologies in Tanzania due to regional rollout timing. • Ordered blood spot cards for Country Coordinator and field personnel training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, the PREDICT team in Tanzania will** • Continue to identify and communicate technology development and pathogen discovery needs to objective teams (ME, surveillance and modeling teams, capacity building). • Initiate introduction of novel technology in Tanzania through trainings of the Country Coordinator and field personnel, targeting blood spot collection in the Ruaha Landscape.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, the PREDICT team in Tanzania** • Proposed high risk interfaces and circulated interfaces for discussions with SUA (See Attachment A). • Held meetings with in-country collaborators at SUA in conjunction with the country coordinator to discuss opportunities for expansion of wildlife surveillance activities into areas currently not covered by ongoing sample collection activities. • Conducted a preliminary assessment of potential laboratories for sample analysis and pathogen discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, the PREDICT team in Tanzania will** • Continue to meet with in-country collaborators (SUA, Ministries of Livestock and Health, Central Veterinary Lab, Tanzania National Parks, Tanzania Wildlife Research Institute, USAID Mission, etc.) to identify laboratories for transfer of pathogen detection technology and receipt of equipment and training as needed. • Begin or complete CAP survey tool. • Begin transfer of technology to SUA to strengthen in-country capacity for pathogen detection.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, the PREDICT team in Tanzania** • Reviewed sample tracking/database tools from ongoing activities to determine issues and changes needed for integration with program database design (as it develops). • Held meetings with collaborators at SUA in conjunction with Country Coordinator to discuss capacity enhancements needed to develop technical resources for	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, the PREDICT team in Tanzania will** • Conduct sample tracking and information management trainings for in-country personnel in collaboration with the objective team. • Update current data management systems for integration and transferability with program database. • Initiate provision of existing data to objective team. • Transfer new data from expanded surveillance activities

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	maintenance of proposed program tracking and database system. • Reviewed the existing wildlife surveillance data to facilitate incorporation into the central system.	as it becomes available.

Uganda

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for Uganda.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Uganda** • Provide day-to-day management and oversight of the country program. • Revised Year 1 work plan to meet objective requirements and as planning developed. • Revised subaward budget to optimize year 1 operations. • Reviewed applications/interviewed three candidates, and hired Country Coordinator.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Uganda will** • Establish an office in Kampala in coordination with Makerere University and EPT RESPOND arm. • Purchase essential equipment and supplies. • Participate in roll-out of EPT to USAID mission in Kampala.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Uganda** • Collected and maintained records at a level of detail needed for accurate reporting. • Responded to all requests for information from objective teams (admin, surveillance, capacity building).	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Uganda will** • Collect and maintain records at a level of detail needed for accurate reporting. • Continue to respond to all requests for plans, progress, and data from objective teams, USAID, and partners.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Uganda** • Reviewed draft CAP survey tool and provided feedback to the Capacity Assessment subcommittee.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Uganda will** • Train Country Coordinator on use of CAP survey tool. • Implement CAP tool, including meeting and/or interviewing head veterinarians, wildlife managers, public health officers, faculty at Makerere, and ministries to gather data for completing capacity assessment. • Submit CAP tool results- full or partial- to CBT.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
CAPACITY BUILDING ***1.2 Training*** • **Country coordinator participation in training** on use of standardized EPT-CAP tool. • **PREDICT staff and partner training** initiated in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training** objectives and tracking for PREDICT staff and partners in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Uganda** • Provided feedback as requested to Training team for development of training modules.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Uganda will** • Review all EPT program information and materials on SMART site. • Train Country Coordinator on use of standardized CAP tool, accounting, cultural/sexual diversity/sensitivity, health and safety, and wildlife sampling • Train key partners on health and safety and wildlife sampling methods.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Uganda** • Responded to Modeling and Hotspot ID team requests for information.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Uganda will** • Provide Modeling and Hotspot ID team with information as requested.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance, including Makerere University Walter Reed Influenza Research Laboratories (PI Denis Byarugaba). Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in obj 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Uganda** • Met with USFWS to discuss CITES permitting for sample importation.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Uganda will** • Review, update and secure all permits, licenses and agreements essential for surveillance in country. • Coordinate with key partner (CDC) to make plan to access samples collected from wild bats and rodents. • Obtain samples from healthy and diseased or injured wild or captive great apes opportunistically (n<10), and test for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria. • Obtain samples from free-ranging maribou storks in urban environments (n=50) proactively and test for exposure to orthomyxoviruses, flaviviruses, arenaviruses, bunyaviruses, and coronaviruses. • Make plan for proactively sampling non-human primates in highly urban environments (n=25) to test for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
		• Meet with Uganda Wildlife Authority (key partner) to coordinate on-going sampling and surveillance of free-ranging and captive wildlife.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in Uganda. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Uganda** • Responded to all requests from the Surveillance team for information on on-going, planned, and proposed surveillance. • Queried biological sample bank in US for samples available for diagnostic analysis.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Uganda will** • Provide Surveillance team with requested information on surveillance activities. • Test primate samples from biological archive (sera, frozen tissues) for exposure to retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses and bunyaviruses, and bacteria.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Uganda** • Held preliminary discussions with partners on plans to deploy novel technologies for outbreak surveillance.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Uganda will** • Identify needs for technology development and pathogen discovery with objective team. • Become apprised of novel technologies for sample collection to start utilizing in quarter four.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Uganda** • Identified high-risk interfaces in conjunction with Pathogen Discovery team. • Listed laboratories for potential transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Uganda will** • Further refine surveillance plan for high-risk interfaces. • Meet with ministries and universities to confirm laboratory for transfer of pathogen detection technology and receipt of equipment and training as needed.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Uganda** • Explored options for updating the current clinical data management system for mountain gorillas to optimize	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Uganda will** • Update current clinical data management system for mountain gorillas in ways that optimize transferability to PREDICT database.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	transferability to PREDICT database as it develops. • Met with Uganda Wildlife Authority and non-governmental organizations to discuss collective needs for computerized data management for wildlife health.	

Southeast Asia

As Southeast Asia seeks to balance conservation of its biological heritage with the immediate needs of its people, it is critical to prepare for and prevent the transmission of zoonotic diseases (s as avian influenza and SARS) which threaten the health of people, wildlife, and livestock. The PREDICT project offers rapid development and implementation of a wildlife zoonoses surveillance program. This system can inform decision making about land use, wildlife trade, and public health in the region. Although operations have been delayed due to the timing of the regional rollou PREDICT activities conducted under EPT will enable characterization of disease risks and improved understanding of zoonotic disease transmission and will lay the groundwork for systems that allow the region to prepare for those risks and respond to outbreaks appropriately, based on solid disease surveillance data.

Cambodia

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the second quarter, the PREDICT team** • Held bi-monthly conference calls to discuss project operations in Cambodia, budgets, and timelines led by Asia Associate Director (M. Gilbert) and Asia Regional Manager (A. Yang). • Worked on the detailed year 1 work plan draft for Cambodia. • Participated in training on USAID rules and regulations	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, the PREDICT team will** • Maintain regular communication with each other and all PREDICT partners through email updates and phone meetings. • Provide management and oversight of the Cambodia program. • Designate and hire needed personnel for in-country activities.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, Cambodia team will** • Met to discuss PREDICT reporting requirements and streamline reporting in Asia. • Worked on budget adjustments and refinement of the financial reporting system. • Established procedures for technical reports.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the third quarter, PREDICT in Cambodia will** • Continue to coordinate reporting requirements and streamline reporting in Asia. • Continue to make budget adjustments and refine the financial reporting system.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
CAPACITY BUILDING ***1.1 Capacity Assessment*** **Implement CAP Tool** Conduct a review of CAP tool; delegate among Country Coordinator and her designees the tasks related to application of the CAP tool; begin to use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team (CBT) with results of review and CAP findings as available at the time of reporting; updates and final results of the CAP will be given to the CBT promptly, as available. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visits as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the second quarter, PREDICT in Cambodia** • Provided input during the development of the preliminary CAP tool. • Evaluated possibilities for preliminary CAP tool implementation in Cambodia. • Held meetings with representatives of in-country partner laboratories, including Pasteur du Cambodge and National Veterinary Research Institute.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the third quarter, PREDICT in Cambodia will** • Review training needs for PREDICT staff in-country and develop a plan for implementation. • Coordinate with RESPOND personnel responsible for Cambodia to determine opportunities for cross-training. • Work on preliminary CAP tool with guidance from regional supervisor. • Submit completed preliminary CAP tool to Capacity Building team as requested. • Continue to interview representatives of diagnostic labs and public institutions that may join PREDICT efforts such as: Institut Pasteur du Cambodge, the National Veterinary Research Institute, and the University of Hong Kong.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter, PREDICT in Cambodia** • Revised and provided feedback for the PREDICT draft training modules on Animal Capture & Safety, Field Sampling and Safety, and Packing & Shipping Biological Samples.	**CAPACITY BUILDING** ***1.2 Training*** **During the third quarter, PREDICT in Cambodia will** • Coordinate with Modeling and Hotspot team to determine priorities and data handling requirements. • Adopt and adapt PREDICT Standardized Operating Procedures for field sites and specific activities.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter, PREDICT in Cambodia** • Evaluated methods for preparing a database for management of surveillance data.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the third quarter, PREDICT in Cambodia will** • Provide prompt data on surveillance activities to the Modeling and Hotspot ID team.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter, PREDICT in Cambodia** • Identified partners in Cambodia for post roll-out surveillance work. • Assessed project sites in Cambodia for potential PREDICT	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the third quarter, PREDICT in Cambodia will** • Coordinate with Hong Kong University to develop sampling strategy for Cambodian bat surveys for Coronaviruses and Astroviruses.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	activities as part of the year 1 workplan. • Continued discussion with local partners and laboratories on collaborative PREDICT projects in Cambodia (bats). • Continued discussions with regional partners on collaborative PREDICT projects and disease diagnostics.	• Identify study sites for Cambodian bat surveillance. • Begin implementing Cambodian bat surveillance and sample collection.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Cambodia** • Started an informal review process of existing data sets based on existing sample sets collected to identify key pathogens that may be an appropriate focus for PREDICT.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the third quarter, PREDICT in Cambodia will** • Consult with partners and potential partner agencies over existing surveillance programs and strategy to ensure that PREDICT activities are complimentary or fill gaps. • Record data in a manner coordinated with the needs of the Hotspot and Modeling team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the second quarter, PREDICT in Cambodia** • Met with representatives of diagnostic labs in Cambodia, verifying the availability of diagnostic tests and technology resources for pathogen analysis and discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the third quarter, PREDICT in Cambodia will** • Assess the technology needs of laboratories and provide support to the PREDICT Information Management team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Cambodia** • Began exploring the possibilities and permit requirements for sample export.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the third quarter, PREDICT in Cambodia will** • Continue to explore opportunities to enhance the diagnostic capacity of partners such as Institut Pasteur du Cambodge, or regional labs such as Duke-NUS in Singapore in order to receive and process PREDICT samples in country.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system***	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system***	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system***

Cambodia **OBJECTIVE** **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
• Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**During the second quarter, PREDICT in Cambodia** • Agreed on the relevance of keeping updated records for sample tracking.	**During the third quarter, PREDICT in Cambodia will** • Coordinate with Core Team over sample tracking and data management system needs.

Lao PDR **OBJECTIVE** **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the second quarter, the PREDICT team** • Held bi-monthly conference calls to discuss PREDICT operations, budgets and timelines led by Asia Associate Director (M. Gilbert) and Asia Regional Manager (A. Yang). • Worked on the detailed year 1 work plan draft for Laos. • Participated in training on USAID rules and regulations.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, PREDICT in Lao PDR will** • Maintain regular communication through email updates and phone meetings. • Provide management and oversight of the country program. • Meet to undertake planning and preparation sessions in readiness for the EPT regional rollout of PREDICT (currently projected in May). Specific objectives include: ○ Prepare Memorandum of Understanding documentation in readiness for submission to the Ministry of Agriculture and Forestry (MAF) to secure support from the government of Lao PDR and work visas to cover PREDICT activities. ○ Refine surveillance plans and schedule sampling plans for PREDICT year 1. ○ Prepare terms of reference for recruitment of new local staff positions (national veterinarian, project assistants). • Begin recruitment of national veterinarian and project assistants.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, PREDICT regional and country coordinators** • Met to discuss PREDICT reporting requirements and streamline reporting in Asia. • Worked on budget adjustments and refined the financial reporting system. • Established procedures for technical reports. •	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the third quarter, PREDICT in Lao PDR will** • Continue to coordinate meet PREDICT reporting requirements and streamline reporting in Asia. • Continue to undertake budget adjustments and refine the financial reporting system.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
CAPACITY BUILDING **1.1 Capacity Assessment** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** **1.1 Capacity Assessment** **During the second quarter, PREDICT in Lao PDR** • Provided input during the development of preliminary CAP tool. • Evaluated possibilities for preliminary CAP tool implementation in Lao PDR. • Held meetings with representatives of in-country partner laboratories including Mahasot Hospital-Oxford University and National Animal Health Centre.	**CAPACITY BUILDING** **1.1 Capacity Assessment** **During the third quarter, PREDICT in Lao PDR will** • Review CAP tool and begin to implement with information already available • Arrange to meet relevant national agencies and health facilities to collect data required for the CAP tool. • Coordinate with the Capacity Building Team to ensure continuity of product with other countries. • Begin planning for Introductory PREDICT workshop intended for August.
CAPACITY BUILDING ***1.2 Training*** • **Country coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter, PREDICT in Lao PDR** • Revised the PREDICT training module drafts on Animal Capture & Safety, Field Sampling & Safety, Field Sampling & Safety and Packing & Shipment of Biological Samples.	**CAPACITY BUILDING** ***1.2 Training*** **During the third quarter, PREDICT in Lao PDR will** • Review training needs for PREDICT staff in-country and develop a plan for implementation. • Coordinate with RESPOND personnel to determine opportunities for cross-training.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter, PREDICT in Lao PDR** • Reviewed methods for preparing a database for practical management of surveillance data.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the third quarter, PREDICT in Lao PDR will** • Coordinate with Modeling and Hotspot team to determine priorities and data handling requirements.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter, PREDICT in Lao PDR** • Identified partners in Laos for post roll-out surveillance work. • Assessed project sites in Laos for potential PREDICT activities. • Continued discussion with local partners on collaborative PREDICT projects in Laos. • Continued development of MOU with government	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the third quarter, PREDICT in Lao PDR will** • Meet with collaborators on the PREDICT program to ensure readiness and continuity of planning in the lead-up to PREDICT rollout in May. • Meet with staff at the National Animal Health Centre who work within the Ministry of Agriculture and Forestry (listed as partners within the original PREDICT proposal), to keep them informed and engaged in preparation of the MOU to cover PREDICT work.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	partners/laboratories in Laos for preparation for post roll-out PREDICT activities.	• Meet with potential collaborators at Institut Pasteur du Laos and Wellcome Trust-Mahosot Hospital-Oxford Tropical Medicine Research Collaboration to build on ideas for collaborative PREDICT projects and diagnostics.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. **Establish baseline for known diseases of wildlife through** information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Lao PDR** • Started an informal review process of existing data sets based on existing sample sets to identify key pathogens that may be an appropriate focus for PREDICT.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the third quarter, PREDICT in Lao PDR will** • Consult with partners and potential partner agencies over existing surveillance programs and a strategy to ensure that PREDICT activities are complimentary or fill gaps. • Begin collection of samples from wildlife trade scenarios (e.g. markets in the vicinity of Vientiane). • Record data in a manner that is continuous with the needs of the Hotspot and Modeling team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel technology** such as novel sample collection technology (.e.g., blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the second quarter, PREDICT in Lao PDR** • Met with representatives of diagnostic labs in Laos, verifying the availability of diagnostic tests and technology resources for pathogen analysis and discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the third quarter, PREDICT in Lao PDR will** • Assess the technology needs of laboratories and provide support to the PREDICT Information Management team. • Review opportunities to implement collection of blood spots from hunted animals killed by subsistence hunters in the Nam Et Phou Loey protected area.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Lao PDR** • Began exploring the possibilities and permit requirements for sample export.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the third quarter, PREDICT in Lao PDR will** • Continue to assess technology needs in partner laboratories and provide support and liaison with PREDICT Technology Development and Pathogen Discovery team for equipment purchase and lab staff training, as well as with other EPT programs such as DELIVER and IDENTIFY.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with the Sample Tracking and Information Management team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the second quarter, PREDICT in Lao PDR** • Agreed on the relevance of keeping updated records for sample tracking.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the third quarter, PREDICT in Lao PDR will** • Coordinate with the Sample Tracking and Information Management team over sample tracking needs.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country.**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Malaysia** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Developed the Year 1 work plan. • Designated Thomas Hughes as an Country Coordinator with the support of his team in Malaysia. • Hosted Director General and senior staff members of the Department of Wildlife and National Parks (PERHILITAN) and Ministry of Environment in New York. • Developed agreement for collaboration and sampling strategies for Year 1.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Malaysia will** • Start developing Year 2 work plan. • Hire Malaysian laboratory staff to, along with Veterinary Research Institute and Wildlife Department, conduct lab training and to oversee sample testing in-country. • Establish collaboration between Wildlife Department and Putra Malaysia University (UPM), which has wildlife veterinarians on faculty. • Form wildlife sampling team and collect samples from National Park.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Malaysia** • Set up data collection and records maintenance protocols including communication chains.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Malaysia will** • Establish a data management system for reporting results to the government and the PREDICT Team.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team (CBT)** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed. • **Initial Environmental Examination to** ensure that lab partners and field personnel comply with environmental safety standards.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Malaysia** • Gathered input on CAP tool from Country Coordinator. • Finalized training and workshop schedule. • Met with Wildlife Department, Ministry of Health, and Ministry of Agriculture (Dept. of Veterinary Services). • Presented overview of EPT program and PREDICT and established partnerships.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Malaysia will** • Conduct CAP Tool Survey. • Discuss environmental assessment evaluation plans with in-country coordinators and partner institutes.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Malaysia** • Reviewed CAP survey tool and thoroughly discussed the content and its applications with PREDICT CAP Team.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Malaysia will** • Work with the Wildlife Department to identify lab personnel for training at the Veterinary Research

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • **Establish regular conference calls** with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response	• Scheduled In-country training sessions with field teams and partner institutes.	Institute, Malaysia or The Center for Infection and Immunity at Columbia University (CII), New York. • Train Malaysia wildlife team on PPE, animal capture handling, sample collection, and storage. • Introduce and implement new field and lab techniques.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease Emergence*** • **Provide data and information** as requested by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Malaysia** • Met with PREDICT Modeling team to collaboratively design surveillance strategy. • Shared/researched Malaysian wildlife disease and fauna data jointly with PREDICT Modeling team and in-country scientists. • Established locations for surveillance	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Malaysia will** • Organize visit to Malaysia by members of the Modeling and Hotspot ID team • Supply demographic and geographic data to the Modeling and Hotspot ID team.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance. • **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking** and data collection system in country**.** • **Identify zoonotic pathogen outbreaks** and new wildlife pathogens of pandemic risk.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Malaysia** • Began discussions about PREDICT with the Department of Veterinary Services (Ministry of Agriculture); Department of Wildlife and National Parks; Ministry of Health; and National Public Health Laboratory Malaysia. • Began taking serum/oral swab/rectal swab/urine samples from bats, primates, suids, and cervids around Kuala Lumpur under existing permits and in collaboration with Wildlife Department. • Began placing samples in lysis buffer for molecular diagnostics and stored at -80C (filter paper stored dry) at the Department of Wildlife and National Parks (PERHILITAN) headquarters for minor laboratory analyses.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Malaysia will** • Apply for necessary permits for expanded wildlife sampling according to PREDICT strategy. • Take serum/oral swab/rectal swab/urine samples from bats, birds, primates, rodents, suids, cervids in Gombak Forest (Kuala Lumpur), Bukit Cherakah (Shah Alam), Ayer Hitam Forest (Puchong), and Taman Negara State Park. • Place samples in lysis buffer for molecular diagnostics and store at -80C (filter paper stored dry) at the Veterinary Research Institute (VRI), in Ipoh and at PERHILITAN Laboratory for minor laboratory analyses for Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Set up permits to ship a subset of these samples to the Center for Infection and Immunity at Columbia University (CII), which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and other

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
		pathogen discovery analyses.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Malaysia** • Began exploring surveillance options (opportunistic, syndromic, and active) achievable in country. • Began establishing baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Malaysia will** • Establish monitoring for wildlife die-offs with the PERHILITAN park rangers in Selangor and Perak states. • Establish data flow and communication between PERHILITAN and the Modeling team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** • Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel sample collection technology** (i.e. gas anesthesia in the field; dry shippers for cold chain, etc…).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Malaysia** • Began to identify and share needs for technology development and pathogen discovery with Core Team. • Held meetings with Technology Development and Pathogen Discovery team to discuss strategy for pathogen technology transfer as well as training and scientist exchange.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Malaysia will** • Have Lab personnel from PERHLITAN travel to The Center for Infection and Immunity at Columbia University (CII), New York or to VRI to train in diagnostic techniques. • Train Wildlife Department Lab personnel on RNA extraction and disease diagnostic for PCR and ELISA assays.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training. • **Identify location for video conferencing capability.**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Malaysia** • Obtained agreement from Wildlife Department to send subset of samples already collected to CII New York for Pathogen Discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Malaysia will** • Transfer diagnostic reagents and primers to PERHLITAN and VRI for diagnosis of known zoonotic agents. • Identify, in consultation with VRI, lab personnel to come to New York for training on advanced techniques e.g. MassTag PCR and 454 pysrosequencing.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Share currently available and utilized methods** for sample tracking and information management with Core Team and Country Coordinator. • **Identify in-country partners** (i.e. ministry) to manage	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Malaysia** • Implemented a sample tracking system in Malaysia. • Placed bar-coding system into use and shared technique with the Wildlife Department.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Malaysia will** • Establish data flow and communication channels among in-country government partners and PREDICT team.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
surveillance database and create data flow channels to other in-country partners. **Enter surveillance data into EPT database system** and local in-country database.	• Met with Director General and discussed use of data/information gained through PREDICT surveillance activities.	

Thailand

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country.**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Thailand** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • Developed Year 1 work plan. • Met with team at Chulalongkorn University, presented overview of EPT program, and toured lab. • Designated Dr. Thiravat Hemachudha as a key in-country collaborator with his team at Chulalongkorn University.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Thailand will** • Establish a contract with Chulalongkorn University for PREDICT work. • Identify a Country Coordinator. • Develop a surveillance strategy for Thailand. • Start developing a year 2 work plan.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Thailand** • Set up data collection and records maintenance protocols, including communication chains.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Thailand will** • Continue to oversee data collection and records maintenance protocols, including communication chains.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed in Thailand • **Initial Environmental Examination** to ensure that lab partners and field personnel comply with environmental safety standards.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Thailand** • Met with Chulalongkorn University and toured their state-of-the-art lab facilities. • Met with wildlife vets from zoological Society. • Discussed capacity for wildlife surveillance in the Ministry of Environment.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Thailand will** • Share CAP survey tool with Country Coordinator. • Finalize schedule of training and workshops. • Discuss environmental assessment evaluation plans with Country Coordinator and partner institutes. • Establish lab and field training needs.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator familiarized with training material** • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • Establish regular conference calls with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Thailand** • Discussed CAP tool and training needs. • Identified key personnel to receive training.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Thailand will** • Schedule in-country training sessions with field teams and partner institutes. • Review CAP tool survey and thoroughly discuss the content and its applications with PREDICT CAP Team.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • **Provide data and information** as requested by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Thailand** • Discussed modeling initiative and hotspots map.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Thailand will** • Provide key environmental and demographic data to the Modeling and Hotspot ID team to enable the mapping of surveillance locations.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance. • **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking and data collection system in country.Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Thailand** • Began discussions about PREDICT with Chulalongkorn University and Zoological Park Organization. • Began initial field site selection.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Thailand will** • Select field sites across a pristine, urbanized area gradient from East to West with Greater Bangkok areas representing the urbanized area and national parks in Petchaburi and Prachinburi Provinces (West and East of Bangkok respectively) representing the pristine environments. • Apply for field permits. • Begin taking, permits allowing, serum/oral swab/rectal swab/urine samples from bats, birds, rodents, primates, small carnivores, ungulates, and cervids in sites to be determined. • Place samples in lysis buffer for molecular diagnostics and store at -80C at the Mahidol University Laboratory, which will be doing the majority of testing for

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		Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Obtain permits to ship a subset of these samples to the Center for Infection and Immunity at Columbia University (CII), which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and other pathogen discovery analyses.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).**	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Thailand** • Began exploring surveillance options (opportunistic, syndromic, and active) achievable in country. • Began establishing a baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Thailand will** • Train Wildlife Veterinary team stationed at national parks in syndromic surveillance and sample collection. • Perform diagnostic tests at Chulalongkorn and communicate results to PREDICT Modeling and Surveillance teams.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Thailand** • Began to identify and share needs for technology development and pathogen discovery with the Technology Development and Pathogen Discovery team. • Met with the Technology Development and Pathogen Discovery team to discuss strategy for pathogen technology transfer as well as training and scientist exchange. • Ensured pathogen discovery technology exists at Chulalongkorn University.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Thailand will** • Establish a mechanism for sample testing and export to CII in New York.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection** plan for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Thailand** • Identified Chulalongkorn University as a primary lab partner.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Thailand will** • Assess technology needs in Thailand

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Share currently available and utilized methods for sample tracking** and information management with Core Team and Country Coordinator. • **Identify in-country partners (i.e. ministry)** to manage surveillance database and create data flow channels to other in-country partners. • **Enter surveillance data into EPT database system** and local in-country database.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Thailand** • Identified Chulalongkorn University to manage the surveillance database and create data flow channels to other in-country partners.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Thailand will** • Meet with Dr. Thiravat Hemachudha to discuss sample tracking and data management.

Vietnam

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country.**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** • **During the second quarter, the Vietnam team**Recruited Country Coordinator • Established PREDICT in-country office with concurrence from Asia Associate Director, Asia Regional Manager, and the Vietnam Country Coordinator. • Finalized TORs and posted PREDICT positions in Vietnam, tentatively identifying potential candidates. • Planned post roll- out period with tentative timelines for project implementation. • Held bi-monthly conference calls between Asia Associate Director and Regional Manager to discuss PREDICT operations, budgets, and timelines. • Participated in training on USAID rules and regulations.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, PREDICT in Vietnam will** • Maintain regular communication between Asia Associate Director, Regional Manager, and Country Coordinator. • Undertake planning and preparation sessions in readiness for the rollout of PREDICT in May. Specific objectives include: ○ Preparing documents in readiness for submission to the Ministry of Agriculture and Rural Development (MARD) to secure a "Project document" (local equivalent of a Memorandum of Understanding) to cover PREDICT activities. ○ Planning for an Introductory PREDICT workshop, intended for August. ○ Refining surveillance plans and scheduling sampling plans for PREDICT year 1. ○ Preparing terms of reference for recruitment of new local staff positions (national veterinarian, regional finance assistant). • Meet with collaborators to ensure readiness and continuity of planning in the lead-up to PREDICT rollout. Specific objectives include: ○ Meeting with Department of Animal Health staff

OBJECTIVE **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
		(key partner) to keep them informed and engaged in preparation for rollout. ○ Coordinating with Oxford Wellcome Clinical Research Unit (OUCRU) to build on emerging ideas for collaborative PREDICT projects involving hunted fruit bats in south Vietnam
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, the PREDICT in Vietnam** • Held a meeting of Regional and Program Managers to discuss PREDICT reporting requirements and streamline reporting in Asia. • Adjusted budget/refined financial reporting systems.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the third quarter, PREDICT in Vietnam will** • Continue to coordinate with Regional and Program Managers to discuss PREDICT reporting requirements and streamline reporting in Asia. • Continue to adjust budgets as needed and refine financial reporting systems.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the second quarter, PREDICT in Vietnam** • Provided input during the development of preliminary CAP tool. • Evaluated possibilities for preliminary CAP tool implementation in Vietnam.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the third quarter, PREDICT in Vietnam will** • Review training needs for PREDICT staff in-country and develop a plan for implementation. • Coordinate with RESPOND personnel responsible for country to determine opportunities for cross-training. • Work on the preliminary CAP tool with guidance from Asia Regional Manager.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter, PREDICT in Vietnam** • Revised and provided feedback for the PREDICT draft training modules on Animal Capture & Safety, Field Sampling and Safety, and Packing & Shipping Biological Samples.	**CAPACITY BUILDING** ***1.2 Training*** **During the third quarter, PREDICT in Vietnam will** • Adopt and adapt PREDICT Standardized Operating Procedures for field sites and specific activities.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter, PREDICT in Vietnam** • Revised and provided feedback for the PREDICT draft	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the third quarter, PREDICT in Vietnam will** • Coordinate with Modeling and Hotspot team to

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	training modules on Animal Capture & Safety, Field Sampling and Safety, and Packing & Shipping Biological Samples.	determine priorities and data handling requirements.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter, PREDICT in Vietnam** • Identified partners in Vietnam for surveillance work post-roll out. • Continued discussion with local government partners on agreements for surveillance.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the third quarter, PREDICT in Vietnam will** • Coordinate with Ministry of Agriculture and Rural Development (MARD) and Department of Animal Health (DAH) on the drafting of MoU that will permit the collection, processing and handling of surveillance samples. • Review sampling opportunities with other WCS programs in Vietnam and with collaborators to identify priorities for future sampling.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Vietnam** • Began to embark on an informal review of existing data sets based on existing sample sets collected to identify key pathogens that may be an appropriate for focus for PREDICT.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the third quarter, PREDICT in Vietnam will** • Consult with partners and potential partner agencies on existing surveillance programs and on a strategy to ensure that PREDICT activities are complimentary. • Begin collection of samples from wildlife trade scenarios • Record data in a manner that is continuous with the needs of the Hotspot and Modeling team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel technology** such as novel sample collection technology (i.e. blood spots).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the second quarter, PREDICT in Vietnam** • Met with representatives of diagnostic labs, verifying the availability of diagnostic tests and technology resources for pathogen analysis and discovery.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the third quarter, PREDICT in Vietnam will** • Assess the technology needs of laboratories and provide support to the PREDICT Information Management team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Vietnam**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the third quarter, PREDICT in Vietnam will**

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	• Began exploring the possibilities and permit requirements for sample export.	• Continue to explore opportunities to enhance the diagnostic capacity of regional labs such as Duke NUS in Singapore in order to receive and process samples.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the second quarter, PREDICT in Vietnam** • Agreed on the relevance of keeping updated records for sample tracking.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the third quarter, PREDICT in Vietnam will** • Coordinate with Core Team over sample tracking and data management needs.

Asia

Bangladesh

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management Provide day-to-day management and** oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country.**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Bangladesh** • Continued to provide day-to-day management and oversight of the Bangladesh program and facilitate the efficient accomplishment of all objectives. • Developed Year 1 work plan and discussed with key partners at ICDDR,B and CVASU. • Began process of hiring new Country Coordinator (to take over from Dr. Salah Uddin Khan) through ICDDR,B. •	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Bangladesh will** • Start developing Year 2 work plan. • Hire and start new Country Coordinator.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Bangladesh** • Set up data collection and records maintenance protocols, including communication chains.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Bangladesh will** • Continue to oversee data collection and records maintenance protocols, including communication.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team (CBT)** Provide CBT with	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Bangladesh** • Shared CAP survey tool information Country Coordinator. • Finalized training and workshop schedule.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Bangladesh will** • Continue to complete the CAP survey tool.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed. • **Initial Environmental Examination** to ensure that lab partners and field personnel comply with environmental safety standards	• Planned necessary partner visits. • Met with USAID Bangladesh Mission representative Dr. Zandra Andre and briefed her on PREDICT current and planned activities. • Discussed environmental assessment evaluation plans with regional staff.	
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • Establish regular conference calls with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Bangladesh** • Identified training needs of field personnel with input from partners at ICDDR,B, the Forestry Office (Ministry of Environment), and CVASU. • Discussed CAP survey tool – both content and purpose-with Bangladesh collaborators. • Scheduled In-country training sessions with field teams and partner institutes.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Bangladesh will** • Train coordinator and in-country staff on PPE, safety, and lab and field techniques • Implement sample tracking system and train on bar-coding. • Share CAP survey tool with Country Coordinator. • Finalize training and workshop schedule.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • **Provide data and information** as requested by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Bangladesh** • Held monthly meetings to discuss sampling locations and design surveillance strategy. • Shared/researched Bangladesh wildlife disease and fauna data jointly with the PREDICT Modeling team and in-country scientists. • Provided data for use in predictive models of EID hotspots.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Bangladesh will** • Plan local meetings to identify sampling sites. • Continue modeling activities. • Refine in-country hotspots maps.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Bangladesh** • Identified and began discussions about PREDICT with the International Center for Diarrheal Disease Research (ICDDR, B); Department of Forestry, Ministry of Environment; The Institute for Epidemiology, Disease Control and Research	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Bangladesh will** • Take serum/oral swab/rectal swab/urine samples from bats, birds, rodents, primates, small carnivores, ungulates, and cervids, as permits allow, in Ramnagar (Rajbari), Faridpur, Chittagong, Sylhet, and the Sundarbans

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
• **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking and data collection system in country.** • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	(IEDCR), (Ministry of Health & Family Welfare); and Chittagong Veterinary and Animal Sciences University. • Began work under existing permits for bat, rodent, and bird sampling. • Identified field personnel at ICDDR,B and CVASU. • Began developing protocols for sampling other animal taxa and planning for associated permits. • Started working with ICDDR,B to develop a strategic sampling plan for Year 1 to augment ongoing surveillance activities. • Began taking serum/oral swab/rectal swab/urine samples from bats, birds, and rodents in Ramnagar (Rajbari), Faridpur, Chittagong, and Sylhet which are being placed in lysis buffer for molecular diagnostics and stored at -80C at the International Centre for Disease and Diarrheal Research (ICDDR,B) Animal Laboratory.	• Place samples in lysis buffer for molecular diagnostics and stored at -80C at the International Centre for Disease and Diarrheal Research (ICDDR,B) Animal Laboratory, which will be doing the majority of testing for Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Obtain permits to ship a subset of these samples to the Center for Infection and Immunity at Columbia University (CII), which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and conduct other pathogen discovery analyses. • Begin acquiring primers and reagents for diagnostic assays of known zoonotic agents and begin testing samples.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Bangladesh** • Explored surveillance options (opportunistic, syndromic, and active) achievable in country. • Established a baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Bangladesh will** • Coordinate with Forestry Office to report sick or dying wildlife to PREDICT Team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel sample collection technology** (i.e. gas anesthesia in the field; dry shippers for cold chain, etc…).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Bangladesh** • Began to identify and share needs for technology development and pathogen discovery with the Technology Development and Pathogen Discovery team**.** • Met with objective leads to discuss strategy for pathogen technology transfer as well as training and scientist-exchange.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Bangladesh will** • Supply new wildlife chemical restraint technologies (i.e. portable gas anesthesia; dart guns) in country. • Equip laboratory with multiplex assays such as MassTag PCR through collaboration with Center for Infection and Immunity • Train staff on new technology.

Bangladesh

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Bangladesh** • Tested previously collected bat samples from Bangladesh using 454 High throughput sequencing and discovered a novel virus that is related to Hepatitis C virus.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Bangladesh will** • Continue to send a subset of samples from Bangladesh to New York where they will be screened for novel pathogens.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Share currently available and utilized methods for sample tracking** and information management with Core Team and Country Coordinator. • **Identify in-country partner**s (i.e. ministry) to manage surveillance database and create data flow channels to other in-country partners. • **Enter surveillance data into EPT database system** and local in-country database.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Bangladesh** • Put a bar-coding system into place and began plans for implementation of a unique identifier system for samples collected under PREDICT surveillance.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Bangladesh will** • Identify an in-country partner to manage the surveillance database and create data flow channels to other in-country partners. • Provide scanners to ICDDR,B lab for sample tracking • Establish communication channels with CII in New York

India

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan work** plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in India** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Developed Year 1 work plan. • Designated Thomas Mathew as Country Coordinator with the support of his team at the Asian Nature Conservation Foundation (ANCF). • Executed contract with ANCF. • Met with ANCF and Indian Institute of Science as well as other potential partners to discuss overview of EPT and PREDICT programs.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in India will** • Meet with USAID mission representative in Delhi. • Begin permit application. • Start developing Year 2 work plan.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in India** • Began to plan data collection and records maintenance processes, including communication.	**ADMINISTRATIVE MANAGEMENT** **Admin. 2 Reporting** **In the third quarter, PREDICT in India will** • Set up data collection and records maintenance protocols, including communication chains.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team (CBT)** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in India** • Met with ANCF, Indian Institute of Science (IISc), and other in-country partners to introduce PREDICT. • Assessed training needs for field personnel. • Discussed environmental assessment evaluation plans with regional staff.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in India will** • Share CAP survey tool with Country Coordinator. • Finalize training and workshop schedule. • Begin CAP Tool reporting.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish regular conference calls** with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in India** • Identified partners and evaluated training needs. • Scheduled in-country training sessions with field teams and partner institutes.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in India will** • Review finalized CAP survey tool and thoroughly discuss the content and its applications with PREDICT CAP Team. • Conduct training on PPE, safety, animal handling and restraint, sample collection. • Provide testing reagents and training to laboratory partner for PCR and ELISA assays.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • **Provide data and information as requested** by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in India** • Met monthly with PREDICT Modeling team to collaboratively design surveillance strategy. • Shared surveillance locations with Modeling team. • Provided data for use in predictive models of EID hotspots.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in India will** • Demographic data shared with Modeling team. • Organize visit by members of Modeling Team to ANCF to establish data needs and flow of information to field teams.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in India** • Began discussions about PREDICT with the Asian Nature Conservation Foundation; the Indian Institute of Science; and Wildlife Institute of India. • Began taking adults/eggs, serum/oral swab/rectal swab/urine samples from mosquitoes, bats, primates, elephants/ ungulates in Bangalore, Yellapura, Sirsi, and the Kali River Basin, and Assam/West Benga. • Placed samples in lysis buffer for molecular diagnostics and stored at -80C at the Indian Institute of Science's Animal Laboratory.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in India will** • Take adults/eggs, serum/oral swab/rectal swab/urine samples from bats, birds, rodents, primates, small carnivores, ungulates, and cervids in Bangalore, Yellapura, Sirsi, the Kali River Basin, Chalsa (Northwest Bengal), Kaziranga National Park (Assam), Thirunalveli and Madurai (Tamil Nadu), Bannerghatta National Park (Karnataka) once permits are obtained. • Store samples in lysis buffer for molecular diagnostics at -80C at Indian Institue of Science's Animal Laboratory, which will be doing the majority of testing for Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Set up permits to ship a subset of samples to the Center for Infection and Immunity at Columbia University, which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and other pathogen discovery analyses.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active)	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in India** • Explored surveillance options (opportunistic, syndromic, and active) achievable in country.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in India will** • Establish wildlife die-off monitoring with relevant government and NGO partners in study locations. • Establish baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (i.e. gas anesthesia in the field; dry shippers for cold chain, etc…).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in India** • Began to identify and share needs for technology development and pathogen discovery with the Technology Development and Path Discovery team. • Communicated with the Technology Development and Pathogen Discovery team to discuss strategy for	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in India will** • Provide new anesthesia techniques for field capture, such as darting guns and portable gas anesthesia, and provide training for these techniques. • Provide reagents and primers for disease diagnostic testing with lab partners at the Center for Infection and

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	pathogen technology transfer as well as training and scientist-exchange.	Immunity at Columbia University (CII) in New York. • Send a subset of samples to CII for pathogen discovery.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories for transfer of pathogen technology and receipt of equipment and training.**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in India** • Identified the Indian Institute of Science labs as a key diagnostic facility.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in India will** • Screen samples for known pathogens at IISc. • Send a subset of samples to CII in New York for pathogen discovery.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in India** • Identified Asian Nature Conservation Foundation to manage the surveillance database and create data flow channels to other in-country partners.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in India will** • Transfer sample bar-coding technology and implement bar-coding system.

Latin America

During the second quarter, the PREDICT project was initiated in Latin America with the recruitment of experienced scientists in the field of wildlife diseases. Positions for the Regional Coordinat and Country Coordinators were filled. Work was undertaken at the recently-established PREDICT country offices, complemented with on-line communications and conference calls when region and US-based staff. Detailed year 1 work plans were designed, considering priority areas and strategic interventions at wildlife/people interfaces. Field surveillance activities will be focused on wildlife markets and in the field. Opportunistic surveillance of target species will be carried out mainly at wet markets, and less frequently on animals hunted for food in indigenous communitie well as on live animals provided by government confiscations and at rescue centers. After informal meetings held with representatives of diagnostic laboratories, it was possible to estimate in-country technical capacities and needs, with special regards to the zoonotic diseases that are PREDICT's matter of study. The implementation of the year 1 workplans in Bolivia and Peru will all us to test field methodologies and sample collection and storage methods, as well as establish general logistical mechanisms for field work, submission of samples to diagnostic labs, and record keeping.

Bolivia

OBJECTIVE/Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** • **During the second quarter in Bolivia, PREDICT** Worked on the selection of in-country staff for the PREDICT project, interviewing candidates and designing terms of reference (TOR) for the regional coordinator and country coordinator (Regional Supervisor, M. Uhart).Developed the functional Bolivia team: Regional Supervisor (M. Uhart), Regional	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, the country coordinator, regional coordinator and regional supervisor will** • Designate and hire needed personnel for in-country activities. • Provide day to day management and oversight of the country program. • Test administrative procedures, and refine as

OBJECTIVE/Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	Coordinator (A. Perez), Bolivia Country Coordinator (E. Alandia), and the PREDICT Bolivia country office • Reviewed and discussed USAID regulations and the Bolivian budget for year 1, having agreed on budget management procedures. • Completed a detailed year 1 work plan. • Interviewed candidates for field assistants, consultants and masters students.	necessary. • Initiate the development of year 2 work plan for Bolivia.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, PREDICT** • Established procedures and frequency for internal technical reports, formal reports, and financial reports.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the third quarter, PREDICT in Bolivia will continue to** • Provide accurate and timely reports of activities and associated financials
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the second quarter, PREDICT in Bolivia** • Provided input during the development of preliminary CAP tool. • Evaluated possibilities for preliminary CAP Tool implementation in Bolivia. • Held meetings (in person and by phone) with representatives of in-country partner laboratories: Virology Unit, National Institute of Health Laboratories, INLASA (Dr. Aleida Nina); Institute of Molecular Biology and Biotechnology, Major University of San Andres (Dr. Volga Iñiguez); National Center of Tropical Diseases (CENETROP); Bacteriology Lab, Public University of El Alto (UPEA).	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the third quarter, PREDICT in Bolivia will** • Work on preliminary CAP Tool. • Submit a completed preliminary CAP Tool to the Capacity Building Team as requested. • Continue to interview representatives of diagnostic labs and public institutions that may join PREDICT efforts, such as Veterinary Research and Diagnostic Laboratory (LIDIVET); Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO); General Branch of Biodiversity (DGB); National Animal Health Department of SENASAG; National Service of Protected Areas (SERNAP), Public Health Ministry.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives** and tracking for PREDICT staff and partners in sampling, sample tracking,	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter in Bolivia, PREDICT** • Revised draft training modules on Animal Capture & Safety, Field Sampling and Safety, and Packing & Shipping of Biological Samples. • Identified target trainees (hunters, health promoters, students) in local communities, based on past experience. • Proposed strategic training of local counterparts (including veterinarians, biologists, students and other	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Bolivia will** • Adopt and adapt PREDICT Standardized Operating Procedures to field sites and specific activities. • Identify target trainees in partner institutions (CIPTA, SENASAG, OPS, Ministry of Health, INLASA). • Organize on-the-job training for PREDICT field staff and local counterparts at the Takana TCO (Takana indigenous territories) and main wildlife rescue centers.

OBJECTIVE/Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
budget tracking, reporting, and response.	professionals) at study sites. • Began development of workplans for local graduate and undergraduate students involved in surveillance, whose research activities will match PREDICT goals and objectives.	• Design follow-up surveys (supervision visits by PREDICT staff) for trainees, to verify that standard procedures are properly implemented. •
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter in Bolivia, PREDICT** • Considered methods for preparing an Excel based database for management of surveillance data.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Bolivia will** • Provide prompt data on surveillance activities to the PREDICT Modeling and Hotspot ID team
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for collaboration in surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Establish, document or improve sample banking systems locally and regionally** using findings from the CAP. • **Collection and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in obj 5). • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter in Bolivia, PREDICT** • Held an informal meeting with the USAID Bolivia mission to provide general information on PREDICT project and activities to be carried out in Bolivia. • Identified governmental organizations as potential partners/stakeholders (DGB, SENASAG, Ministry of Health), but delayed formal contacts pending official project introduction to the Bolivia Mission. • Identified permit needs for in-country surveillance activities. • Discussed appropriate procedures for sample banking along with representatives of INLASA lab. • Developed a sampling diagram for in-country surveillance which summarizes the main features of target species (primates, ungulates, rodents, birds and reptiles), type of samples, storage requirements, diagnostic tests and labs. • Prepared a list of necessary materials and protective equipment for field sampling activities. • Met with representatives of in-country diagnostic labs to confirm interest in PREDICT project (INLASA; Institute of Molecular Biology and Biotechnology, UMSA; National Center of Tropical Diseases, CENETROP; Bacteriology Lab, UPEA). • Worked with labs to develop an itemized list of equipment, reagents and supplies needed for surveillance and diagnostics (to be provided to	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, the PREDICT team in Bolivia will** • Obtain the following permits/agreements prior to initiating surveillance activities: IACUC (from UC Davis), permit for wildlife research including specimen collection inside protected natural areas (from DGB), Letters of authorization (from Ministry of Health, SENASAG, local communities leaders). • Promote the implementation of memorandums of understanding (MOUs) for brief human surveys at Takana communities, with prior approval from ethics committees (CIPTA and UC Davis). • Discuss sample banking procedures with partner laboratories involved (INLASA, Institute of Molecular Biology, CENETROP, UPEA). • Meet authorities of diagnostic labs to formalize collaborations on sample diagnosis, sample tracking procedures and storage. • Initiate work on the development of standard notification procedures for disease outbreaks/mortality events, in conjunction with governmental institutions (SENASAG, Ministry of Health, DGB), indigenous community leaders and hunters. • Coordinate a preliminary surveillance field trip in mid-April 2010, profiting from increased hunting during local festivities at the Takana TCO. • Develop a definitive surveillance schedule for year 1, based on opportunistic sampling at festivities,

OBJECTIVE/Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	DELIVER upon request).	subsistence hunting, markets, rescue centers and confiscations.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic, or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Bolivia** • Discussed the advantages of opportunistic surveillance on hunted/confiscated/rescued animals, and designed a draft sampling schedule to be implemented in Takana communities from April to September 2010. • Began review of archives, publications and databases from public sources and the scientific community to establish baseline knowledge on organisms and wildlife diseases.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter PREDICT in Bolivia will** • Start analysis of stored samples at WCS from target sites and species (e.g., Caiman yacare, peccaries) to provide more information for baseline. • Coordinate a pilot surveillance effort in Tumupasa and San Silvestre Takana communities from mid-April to the end of June 2010. • Search for alternative target populations and risk areas, in order to maximize in-country activities during Year 2.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (e.g. SMS, blood spots, etc.).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **During the second quarter in Bolivia, PREDICT** • Held interviews with representatives of diagnostic labs in Bolivia (public and private), • Verified the availability or absence of diagnostic tests and technology resources for pathogen discovery. • Identified novel sampling technologies to implement in the field for year 1 surveillance activities (RNA Later, FTA Cards, Protein Binding Cards, liquid nitrogen).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Bolivia will** • Continue to assess technology needs of partner laboratories in Bolivia and provide support and liaison with PREDICT Technology Development and Pathogen Discovery team for equipment purchase and lab staff training, as well as with other EPT programs such as DELIVER and IDENTIFY.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Bolivia** • Began exploring the possibilities and permit requirements for sample export to better equipped diagnostic labs (e.g., NMRCD). • Began identification of diagnostic labs possibly interested in receiving technology (e.g., Inst. Molecular Biology, INLASA).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, Bolivia team will** • Continue to assess technology needs in partner laboratories in Bolivia and provide support and liaison with PREDICT Technology Development and Pathogen Discovery team for equipment purchase and lab staff training, as well as with other EPT programs such as DELIVER and IDENTIFY.

Bolivia		
OBJECTIVE/Activity Description	**Summary of achievements by activity 01/01/10-03/31/10**	**Planned progress for 04/01/10-06/30/10**
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the second quarter in Bolivia, PREDICT** • Agreed on the relevance of keeping updated records for sample tracking.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter PREDICT in Bolivia will** • Await PREDICT Core Team instructions on the sample tracking and data management system.

Brazil		
OBJECTIVE **Activity Description**	**Summary of achievements by activity 01/01/10-03/31/10**	**Planned progress for 04/01/10-06/30/10**
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Brazil** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Developed Year 1 work plan. • Designated Dr. Alessandra Nava as an Country Coordinator with the support of her team at the University of São Paulo.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Brazil will** • Start developing the Year 2 work plan.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Brazil** • Set up data collection and records maintenance protocols, including communication chains.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Brazil will** • Continue to oversee data collection and records maintenance protocols, including communication chains.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Report to Capacity Building Team (CBT)** Provide CBT with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed. • **Initial Environmental Examination** to ensure that lab partners and field personnel comply with environmental safety	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Brazil** • Discussed environmental assessment evaluation plans with regional staff.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Brazil will** • Share the CAP survey tool with Country Coordinator. • Finalize training and workshop schedule. • Plan visits with in country partners. • Began completing CAP tool.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
standards		
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • **Establish regular conference calls** with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job** Training objectives and tracking for PREDICT staff and partners in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Brazil** • Identified training needs of field personnel. • Discussed CAP survey tool and content and its applications with Brazilian collaborators. • Scheduled In-country training sessions with field teams and partner institutes.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Brazil will** • Share specific CAP tool with Country Coordinator. • Finalized training and workshop schedule.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease Emergence*** • **Provide data and information as requested** by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Brazil** • Met monthly with the PREDICT Modeling team to collaboratively design a surveillance strategy. • Shared/researched Brazilian wildlife disease and fauna data jointly with PREDICT Modeling team and in-country scientists. • Provided data for use in predictive models of EID hotspots.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Brazil will** • Plan local meetings to identify sampling sites. • Continue modeling activities. • Refine in-country hotspots maps.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance. • **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking and data collection system in country.** • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Brazil** • Identified and began discussions about PREDICT with the University of São Paulo; Institute of Ecological Research (IPE); Biotropics Institute; Mammals of Cerrado; Pro Carnivores Institute; Insitituto Brasilairo da Medicina da Conservacao (TRIADE); Ministry of Environment (IBAMA); Instituto Oswaldo Cruz (FIOCRUZ); Ministry of Environment – IBAMA; Ministry of Agriculture; and RENCTAS. • Began obtaining sampling permits. • Took Serum/Oral swab/Rectal swab/Tissues/Blood on Filter paper/archived tissue samples of	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Brazil will** • Take Serum/Oral swab/Rectal swab/Tissues/Blood on Filter paper/ archived tissue samples of hunted/depredation/traded/ confiscated/wild caught-free ranging Rodents, carnivores, artiodactyla, primates, avian, bats from Marajó Island, Rio Preto State Park, Morro do Diablo State Park, Birbiri State Park, Sempre Vivas National Park, Monte Negro (Rondonia), Marajo Island (Para), Cetas (São Paulo, Santos, & Minas Gerais), Petropolis (Rio de Janeiro), Pantanal (Mato Grosso do Sul) and Amazonia, which will be stored at Testing at Institute of Biomedical Sciences – University of São

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	hunted/depredation/ traded/ confiscated/ wild caught-free ranging Rodents, carnivores, artiodactyla, primates, avian, bats from Marajó Island, Rio Preto State Park, Morro do Diablo State Park, Birbiri State Park, Sempre Vivas National Park, Monte Negro (Rondonia), Marajo Island (Para), Cetas (São Paulo, Santos, & Minas Gerais), Petropolis (Rio de Janeiro), Pantanal (Mato Grosso do Sul) and Amazonia, which are being stored for Testing at the Institute of Biomedical Sciences – University of São Paulo. • Began process of obtaining permits for a subset of samples that will be shipped to the Center for Infection and Immunity at Columbia University. • Screened for (at both laboratories) Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses; bacteria; pathogen discovery.	Paulo. • Ship a subset of samples to the Center for Infection and Immunity at Columbia University. • Screen all samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses; bacteria; pathogen discovery.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Brazil** • Explored surveillance options (opportunistic, syndromic, and active) achievable in country. • Began establishing baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Brazil will** • Begin coordination with IBAMA to report sick or dying wildlife to PREDICT team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel sample collection technology** (i.e. gas anesthesia in the field; dry shippers for cold chain, etc…).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Brazil** • Began to identify and share needs for technology development and pathogen discovery with the Technology Development and Pathogen Discovery team. • Met with the Technology Development and Pathogen Discovery team to discuss strategy for pathogen technology transfer as well as training and scientist-exchange.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Brazil will** • Supply new wildlife chemical restraint technologies (i.e. portable gas anesthesia; dart guns) in country. • Equip laboratory with PCR primers and re-agents through collaboration with the University of Sao Paulo and FIOCRUZ. • Train staff on new technologies. • Provide and implement sample bar coding system.

Brazil

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories for transfer of pathogen technology** and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Brazil** • Stored previously collected wildlife samples from Brazil in local facilities.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Brazil will** • Send a subset of samples from Brazil to New York where they will be screened for novel pathogens.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team and CountryCcoordinator. • Identify in-country partner (i.e. ministry) to manage surveillance database and create data flow channels to other in-country partners. • Enter surveillance data into EPT database system and local in-country database.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Brazil** • Identified University of São Paulo to manage the surveillance database and create data flow channels to other in-country partners.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Brazil will** • Put in place a bar-coding system in Brazil. • Implement a unique identifier system for samples collected under PREDICT surveillance. • Provide scanners to local lab for sample tracking. • Establish communication with Center for Infection and Immunity at Columbia University (CII) in New York.

Colombia

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Colombia** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Develop a Year 1 work plan. • Designated Dr. Victoria Pereira as an Country Coordinator with the support of her team at the Universidad San Martin.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Colombia will** • Start developing Year 2 work plan.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Colombia** • Set up data collection and records maintenance	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Colombia will** • Continue to oversee data collection and records

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
	protocols, including communication chains.	maintenance protocols, including communication chains.
CAPACITY BUILDING **1.1 Capacity Assessment** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.in Colombia. • **Initial Environmental Examination** to ensure that lab partners and field personnel comply with environmental safety standards.	**CAPACITY BUILDING** **1.1 Capacity Assessment** **In the second quarter, PREDICT in Colombia** • Planned visits with in-country partners. • Discussed environmental assessment evaluation plans with Country Coordinator and partner-institutes.	**CAPACITY BUILDING** **1.1 Capacity Assessment** **In the third quarter, PREDICT in Colombia will** • Share specific CAP tool with Country Coordinator. • Finalize training and workshop schedule. • Begin year-end Cap Tool reporting.
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator familiarized with training material.** • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • **Establish regular conference calls** with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives** and tracking for PREDICT staff and partners in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Colombia** • Identified training needs of field personnel. • Discussed CAP tool and content and its applications with Colombian collaborators. • Scheduled In-country training sessions with field teams and partner institutes.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Colombia will** • Review finalized CAP Tool and discuss content and applications. • Conduct in-country training sessions with field teams and partner institutes.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease Emergence*** • Provide data and information as requested by Modeling and Hotspot ID team. • Identify and access existing wildlife disease data sets that can be used by Modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Colombia** • Met with PREDICT Modeling team monthly to collaboratively design surveillance strategy. • Shared/researched Colombian wildlife disease and fauna data jointly with PREDICT Modeling team and in-country scientists. • Provided data for use in predictive models of EID hotspots.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Colombia will** • Plan local meetings to identify sampling sites. • Continue modeling activities. • Refine in-country hotspots maps.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance. • **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking and data collection system in country.** • **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk.**	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Colombia** • Identified and began discussions about PREDICT with Fundación Universitaria San Martín; Araguatos Primatological Center; the Colombian Institute of Animal Health; the Ministry of the Environment (National Wildlife Authority); Veterinary Faculty of the University of Cordoba, Monteria; and the National Institute of Health. • Applied for appropriate permits. • Began initial field site selection.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Colombia will** • Select field sites for surveillance and sampling. • Take serum/oral swab/rectal swab/urine samples from bats, birds, rodents, primates, small carnivores, ungulates, and cervids in the Colombian Andes, the Western Plains, and along the Atlantic Coast, upon approval by the Mission, and as permits are obtained. • Place samples in lysis buffer for molecular diagnostics and store at -80C at the Colombian Institute of Animal Health (Instituto Colombiano Agropecuario ICA) and the National Institute of Health Laboratories, which will be doing the majority of testing for Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Set up permits to ship a subset of these samples to the Center for Infection and Immunity at Columbia University (CII), which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and other pathogen discovery analyses.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Colombia** • Explored surveillance options (opportunistic, syndromic, and active) achievable in country. • Began establishing a baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Colombia will** • Begin coordination with ICA (Colombian Institute of Animal Health) and National Wildlife Authority to report sick or dying wildlife to PREDICT team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** Identify and share needs for technology development and pathogen discovery with Core Team**.** • **Introduce novel sample collection technology** (i.e. gas	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Colombia** • Began to identify and share needs for technology development and pathogen discovery with Technology Development and Pathogen Discovery	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Colombia will** • Supply new wildlife chemical restraint technologies (i.e. portable gas anesthesia; dart guns) in-country. • Equip laboratory with PCR primers and re-agents through collaboration with the Veterinary faculty of the

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
anesthesia in the field; dry shippers for cold chain, etc…).	team. • Communicated with Technology Development and Pathogen Discover team to discuss strategy for pathogen technology transfer and training.	University of Cordoba, Monteria, ICA, INS (National Institute of Health). • Train laboratory staff on new technologies. • Provide and implement sample bar-coding system.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Colombia** • Stored previously collected wildlife samples in local facilities.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Colombia will** • Send a subset of samples from Colombia to New York where they will be screened for novel pathogens.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Share currently available and utilized methods for sample tracking** and information management with Core Team and Country Coordinator (Victoria Pereira). • **Identify in-country partners** (i.e. ministry) to manage surveillance database and create data flow channels to other in-country partners. • **Enter surveillance data into EPT database system** and local in-country database.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Colombia** • Identified Universidad San Martin to manage the surveillance database and create data flow channels to other in-country partners.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Colombia will** • Put a bar-coding system in place in Colombia. • Implement a unique identifier system for samples collected under PREDICT surveillance. • Provide scanners to local lab for sample tracking. • Establish communication channels with CII in New York.

Ecuador

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the second quarter in Ecuador, the PREDICT team** • Worked on the selection of a Regional Coordinator for the PREDICT project, interviewing candidates and designing terms of reference. • Began no further in-country work because activities within the Amazon basin have been strategically planned to begin only in Bolivia and Peru during PREDICT year 1, quarter 2.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, the Regional Coordinator (A. Perez) and the Regional Supervisor (M. Uhart) will** • Meet with staff and in-country partners at the Wildlife Disease Association Annual Conference in Iguazú, Argentina (May 30-June 04 2010) to provide an overview of the PREDICT program and discuss strategies for implementation in Ecuador.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, PREDICT in Ecuador** • Began no further in-country work because activities within the Amazon basin have been strategically planned to begin only in Bolivia and Peru during PREDICT year 1, quarter 2.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** • No activities planned for next quarter.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • No activities for year one	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** • No activities for year one	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** • No activities for year one
CAPACITY BUILDING ***1.2 Training*** • No activities for year one	**CAPACITY BUILDING** ***1.2 Training*** • No activities for year one	**CAPACITY BUILDING** ***1.2 Training*** • No activities for year one
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • No activities for year one	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** • No activities for year one	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** • No activities for year one
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • Reconnaissance and planning visit to sites and country office. • **Permitting** Identify and secure permits, licenses and agreements essential for site visits.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter, PREDICT in Ecuador** • Began no further in-country work because activities within the Amazon basin have been strategically planned to begin only in Bolivia and Peru during PREDICT year 1, quarter 2.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the third quarter, the Regional Coordinator (A. Perez) and the Regional Supervisor (M. Uhart) will** • Meet with staff and in-country partners at the WDA Annual Conference in Iguazu, Argentina (May 30-June 4) to provide an overview of the PREDICT program and discuss strategies for implementation in Ecuador.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • No activities for year one	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** • No activities for year one	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** • No activities for year one
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • No activities for year one.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** • No activities for year one.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** • No activities for year one.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • No activities for year one.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** • No activities for year one.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** • No activities for year one.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • No activities for year one.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** • No activities for year one.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** • No activities for year one.

Mexico

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan for country.**	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the second quarter, PREDICT in Mexico** • Continued to provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives. • Developed Year 1 work plan. • Designated Dr. Rodrigo Medellin as an Country Coordinator with the support of his team at the National Autonomous University of Mexico (UNAM) and BIOCONCIENCIA.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **In the third quarter, PREDICT in Mexico will** • Start developing Year 2 work plan.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the second quarter, PREDICT in Mexico** • Set up data collection and records maintenance protocols including communication chains.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **In the third quarter, PREDICT in Mexico will** • Continue to oversee data collection and records maintenance protocols including communication chains.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance, including laboratory diagnostics. • **Stakeholder Involvement** • Hold stakeholder meetings and conduct laboratory and field	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the second quarter, PREDICT in Mexico** • Planned partner visits. • Discussed environmental assessment evaluation plans with regional staff.	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **In the third quarter, PREDICT in Mexico will** • Share specific CAP tool with Country Coordinator. • Finalize training and workshop schedule. • Begin CAP Tool survey

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
site visit as needed in Mexico.**Initial Environmental Examination** to ensure that lab partners and field personnel comply with environmental safety standards.		
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator familiarized with training material.** • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics/welfare; biohazard, PPE/safety, and diversity sensitivity. Delivered via Country Coordinators, and PREDICT personnel. • **Establish regular conference calls** with RESPOND partners as CAP is developed and implemented. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **In the second quarter, PREDICT in Mexico** • Identified training needs of field personnel. • Discussed CAP survey tool and content and its applications with collaborators. • Scheduled in-country training sessions with field teams and partner institutes.	**CAPACITY BUILDING** ***1.2 Training*** **In the third quarter, PREDICT in Mexico will** • Review CAP survey tool and thoroughly discuss the content and its applications with PREDICT CAP Team. • Conduct in-country training sessions with field teams and partner institutes.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • **Provide data and information as requested** by Modeling and Hotspot ID team. • **Identify and access existing wildlife disease data sets** that can be used by modeling team for preliminary analysis.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the second quarter, PREDICT in Mexico** • Met monthly with PREDICT Modeling team to collaboratively design surveillance strategy • Shared/researched Mexico wildlife disease and fauna data jointly with PREDICT Modeling team and in-country scientists. • Provided data for use in predictive models of EID hotspots.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **In the third quarter, PREDICT in Mexico will** • Plan local meetings to identify sampling sites. • Continue modeling activities. • Assist in refining in-country hotspots maps.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** Identify agencies/ministries, universities, and NGOs for surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Submit permit applications, licenses and agreements essential for surveillance. • **Collections and lab analysis of samples** from priority species at targeted interfaces for priority pathogens. • **Develop/modify existing sample tracking and data collection system** in country.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the second quarter, PREDICT in Mexico** • Began discussions about PREDICT with BIOCONCIENCIA; National Autonomous University of Mexico (UNAM); SALUD (Department of Health); SAGARPA (Department of Agriculture); SEMARNAT(General Direction of Wildlife); and USDA APHIS. • Continued to collect samples under existing permits and applied for necessary permits for expanded	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **In the third quarter, PREDICT in Mexico will** • Collect serum/oral swab/rectal swab/urine samples from bats, birds, rodents, primates, small carnivores, ungulates, and cervids in Montes Azules Biosphere Reserve, Marques de Comillas, and Calakmul Biosphere Reserve, as mission approval and permits are obtained. • Place samples in lysis buffer for molecular diagnostics and store at -80C at the University of Mexico's Veterinary Science Laboratory, which will be doing the

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
• **Identify zoonotic pathogen outbreaks** and new wildlife pathogens of pandemic risk.	sample collection. • Began taking serum/oral swab/rectal swab/urine samples from bats in Montes Azules Biosphere Reserve, Marques de Comillas, and Calakmul Biosphere Reserve, • Placed samples in lysis buffer for molecular diagnostics and stored at -80C at the UNAM Veterinary Faculty Laboratory.	majority of testing for Paramyxoviruses (henipaviruses); Flaviviruses; Filoviruses; AI, and salmonella Spp. • Set-up permits to ship a subset of these samples to the Center for Infection and Immunity at Columbia University (CII), which will examine the samples for Retroviruses, orthomyxoviruses, coronaviruses, paramyxoviruses, filoviruses, flaviviruses, bunyaviruses, bacteria, and other pathogen discovery analyses.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the second quarter, PREDICT in Mexico** • Began exploring surveillance options (opportunistic, syndromic, and active) achievable in country. • Began establishing a baseline for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, carnivore, ungulate, and bird samples).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **In the third quarter, PREDICT in Mexico will** • Begin coordination with country coordinator and government officials including SEMARNAT, SALUD, and SAGARPA to report sick or dying wildlife to the PREDICT Team.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries*** • **Indentify Technology Development and Pathogen Discovery needs** • **Identify and share needs for technology development and pathogen discovery with Core Team.** • **Introduce novel sample collection technology (i.e. gas anesthesia in the field; dry shippers for cold chain, etc…).**	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the second quarter, PREDICT in Mexico** • Began to identify and share needs for technology development and pathogen discovery with Technology Development and Pathogen Discovery team. • Met with Technology Development and Pathogen Discovery team to discuss strategy for pathogen technology transfer as well as training and scientist-exchange	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries*** **In the third quarter, PREDICT in Mexico will** • Supply new wildlife chemical restraint technologies (i.e. portable gas anesthesia; dart guns). • Equip laboratory with PCR primers and re-agents through collaboration with the Veterinary Faculty of the University of UNAM, in collaboration with SEMARNAT, SALUD, and SAGARPA. • Train staff on new technologies. • Provide and implement sample bar-coding system.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the second quarter, PREDICT in Mexico** • Stored previously collected wildlife samples from Mexico in local facilities.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **In the third quarter, PREDICT in Mexico will** • Send a subset of samples from Mexico to New York where they will be screened for novel pathogens.

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • **Share currently available and utilized methods for sample tracking** and information management with Core Team and Country Coordinator (Rodrigo Medellin). • **Identify in-country partners** (i.e. ministry) to manage surveillance database and create data flow channels to other in-country partners. • **Enter surveillance data into EPT database system** and local in-country database.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the second quarter, PREDICT in Mexico** • Identified National Autonomous University of Mexico (UNAM) and BIOCONCIENCIA to manage a surveillance database and create data flow channels to other in-country partners.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **In the third quarter, PREDICT in Mexico will** • Put in place a bar-coding system Mexico and implement a unique identifier system for samples collected under PREDICT surveillance. • Provide scanners to local lab for sample tracking • Establish communication with CII in New York

Peru

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
ADMINISTRATIVE MANAGEMENT ***Admin.1 Programmatic Management*** • **General Management** Provide day-to-day management and oversight of the country program and facilitate the efficient accomplishment of all objectives (includes logistics). • **Develop Year 1 work plan** Develop and finalize the year 1 work plan for country. • **Hiring and start-up** Designate/hire Country Coordinator and other needed personnel; establish offices and other necessary infrastructure to enable the project. • **Develop Year 2 work plan** Develop the year 2 work plan for country.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the second quarter, the Predict team** • Worked on the selection of in-country staff for the PREDICT project, interviewing candidates and designing terms of reference for the regional coordinator and Country Coordinator. • Hired Peru country Coordinator (P. Mendoza). • Reviewed and discussed USAID regulations and the Peruvian budget for PREDICT year 1, having agreed on budget management procedures. • Completed a detailed year 1 work plan draft for Peru.	**ADMINISTRATIVE MANAGEMENT** ***Admin.1 Programmatic Management*** **During the third quarter, the Peru team will** • Designate and hire needed personnel for in-country activities. • Provide day-to-day management and oversight of the country program. • Test administrative procedures. • Initiate the development of the year 2 work plan for Peru.
ADMINISTRATIVE MANAGEMENT ***Admin. 2 Reporting*** • Collect data and maintain records at a level of detail needed for timely and accurate technical and financial reporting.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the second quarter, PREDICT in Peru:** • Established procedures and frequency for technical and financial reports.	**ADMINISTRATIVE MANAGEMENT** ***Admin. 2 Reporting*** **During the third quarter, PREDICT in Peru will** • Provide accurate and timely reports of activities and associated financials as requested and required.
CAPACITY BUILDING ***1.1 Capacity Assessment*** • **Implement CAP Tool** Conduct a review of CAP tool and use CAP to evaluate capacity in all aspects of wildlife surveillance,	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the second quarter, the Peru team** • Provided input during the development of preliminary	**CAPACITY BUILDING** ***1.1 Capacity Assessment*** **During the third quarter, PREDICT in Peru will** • Work on preliminary CAP Tool with guidance from the

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
including laboratory diagnostics. • **Report to Capacity Assessment Team** Provide Capacity Building Team (CBT) with results of review and CAP findings. • **Stakeholder Involvement** Hold stakeholder meetings and conduct laboratory and field site visit as needed.	CAP tool. • Evaluated possibilities for preliminary CAP Tool implementation in Peru. • Held meetings (in person and by phone) with representatives of in-country partner laboratories: US Naval Medical Research Center Detachment (NMRCD, Dr. Joel Montgomery); National Major University of San Marcos (UNMSM, Dr. Armando Gonzalez); and Institute of Tropical Medicine, Peruvian University Cayetano Heredia (UPCH).	supervision of regional supervisor. • Submit completed preliminary CAP Tool to Capacity Building Team as requested. • Continue to interview representatives of diagnostic labs and public institutions that may join PREDICT efforts, such as: Subdivision of Risk Analysis and Epidemiologic Surveillance, SENASA (Dr. William Valderrama); Department of Animal Health, SENASA (Dr. Glen Halze Hodson); DGFFS, SERNANP, INS (National Institute of Health).
CAPACITY BUILDING ***1.2 Training*** • **Country Coordinator participation in training** on use of standardized CAP tool. • **PREDICT staff and partner training initiated** in health and safety; overview of zoonotic disease and surveillance methods; wildlife capture and sampling skills; ethics; and diversity sensitivity. Delivered via web, Country Coordinators, and RESPOND personnel. • **Establish On-the-job Training objectives and tracking for PREDICT staff and partners** in sampling, sample tracking, budget tracking, reporting, and response.	**CAPACITY BUILDING** ***1.2 Training*** **During the second quarter, PREDICT in Peru** • Revised PREDICT draft training modules on Animal Capture & Safety, Field Sampling and Safety, and Packing & Shipping of Biological Samples. • Began identification of target trainees in local communities. • Proposed and developed plan for strategic training of local counterparts (SENASA epidemiologists, SERNANP park rangers and others) in Iquitos and Lima.	**CAPACITY BUILDING** ***1.2 Training*** **During the third quarter, PREDICT in Peru will** • Adopt and adapt PREDICT Standardized Operative Procedures to field sites and specific activities. • Identify target trainees in partner institutions (SENASA, SERNANP, UAB, UNMSM, UPCH, and others). • Organize on-the-job training for PREDICT field staff and local partners in Iquitos, Pucallpa and possibly Lima. • Design follow up surveys (supervision visits by PREDICT staff) for trainees, to verify that standard procedures are properly implemented.
MODELING & HOTSPOT ID ***2.1 Optimize models for diversity of disease emergence*** • Provide data and information (as available) as requested by Modeling and Hotspot ID team.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the second quarter, PREDICT in Peru** • Considered methods for preparing an Excel based database for management of surveillance data.	**MODELING & HOTSPOT ID** ***2.1 Optimize models for diversity of disease emergence*** **During the third quarter, PREDICT in Peru will** • Provide prompt data on surveillance activities to PREDICT Modeling and Hotspot ID team.
SURVEILLANCE ***3.1 Coordination of surveillance activities*** • **Identify Partners** in agencies/ministries, universities, and NGOs for collaboration in surveillance. Establish coordination with governments to facilitate sharing of surveillance data. • **Permitting** Identify and secure permits, licenses and agreements essential for surveillance. • **Collections and analysis of samples** from priority species at targeted interfaces. • **Ensure timely diagnostic testing of samples** collected with proper tracking of samples and results in databases (using system developed in objective 5).	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the second quarter in Peru, the PREDICT team** • Identified governmental organizations as potential partners/stakeholders for PREDICT (SENASA, INS, SERNANP), but postponed formal contacts until the project is introduced to country missions by USAID. • Identified permit needs requested for in-country surveillance activities. • Discussed appropriate procedures for sample banking along with representatives of US NMRCD and University of San Marcos.	**SURVEILLANCE** ***3.1 Coordination of surveillance activities*** **During the third quarter, PREDICT in Peru will** • Obtain the following permits/agreements prior to initiating surveillance activities: IACUC and equivalents (from UC Davis), permit for wildlife research and specimen collection inside protected natural areas (from SERNANP), permit for wildlife research and specimen collection outside protected natural areas (from DGFFS), Letters of authorization (from Ministry of Health, SENASA, local communities leaders). • Promote the implementation of memorandums of

OBJECTIVE Activity Description	Summary of achievements by activity 01/01/10-03/31/10	Planned progress for 04/01/10-06/30/10
• **Identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk**.	• Developed a sampling diagram for in-country surveillance that summarizes the main features of target species (primates, ungulates, rodents, birds, reptiles and amphibians), type of samples, storage requirements, diagnostic tests and labs. • Prepared a list of necessary materials and protective equipment for field sampling activities. • Met with representatives of in-country diagnostic labs to confirm interest in PREDICT project (US NMRCD, National Major University of San Marcos, Institute of Tropical Medicine-UPCH). • Worked with labs to develop an itemized list of equipment, reagents, and supplies needed for surveillance and diagnostics and provided to DELIVER upon request.	understanding (MOUs) for brief human surveys at Loreto communities, with prior approval from ethics committee (indigenous community councils and UC Davis). • Develop KAP (knowledge, attitude and practices) survey about diseases directed to animal vendors and hunters. • Discuss sample banking procedures with partner laboratories (NMRCD, University of San Marcos, INS, SENASA). • Meet authorities of diagnostic labs to formalize collaborations on sample diagnosis, sample tracking procedures, and storage. • Initiate work on the development of standard notification procedures for disease outbreaks/mortality events, in conjunction with governmental institutions (SENASA, Ministry of Health, SERNANP), indigenous community leaders and hunters. • Coordinate a preliminary surveillance field trip in April-May 2010 to wet markets of Iquitos (Loreto Department, northern Peru) and Pucallpa (central-eastern Peruvian Amazonia). • Develop a definitive surveillance schedule for year 1 in conjunction with local partners, mainly focused on opportunistic sampling at wet markets, complemented with activities on hunted animals and confiscations.
SURVEILLANCE ***3.2 Optimization of SMART surveillance system*** • **Explore surveillance options** (opportunistic, syndromic, and active) achievable in country. • **Establish baseline** for known diseases of wildlife through information gathering and analyses of select archived wildlife samples (emphasizing primate, bat, rodent, and bird samples). • **Report** on pilot surveillance of populations, according to prioritized option (opportunistic, syndromic or active).	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the second quarter, PREDICT in Peru** • Discussed on the advantages of opportunistic surveillance on marketed/hunted/confiscated animals, and designed a draft sampling schedule to be implemented at wet markets of Iquitos, Pucallpa and possibly Maldonado from April to September 2010. • Began review of archives, publications, and databases from public organisms and the scientific community to establish baseline knowledge on wildlife diseases.	**SURVEILLANCE** ***3.2 Optimization of SMART surveillance system*** **During the third quarter, PREDICT in Peru will** • Start analysis of stored samples from target sites and species (e.g., samples stored by Pedro Mayor (Autonomous University of Barcelona), Patricia Mendoza (GAINS), Pablo Puertas (WCS) and others to provide more information for baseline. • Coordinate a pilot surveillance effort from mid-April to the end of May 2010 at wet markets of Iquitos and Pucallpa. • Search for alternative target populations and risk areas, in order to maximize in-country activities during Year 2.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.1 Introduction of new technologies in high priority countries***	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries***	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.1 Introduction of new technologies in high priority countries***

OBJECTIVE **Activity Description**	**Summary of achievements by activity** **01/01/10-03/31/10**	**Planned progress for** **04/01/10-06/30/10**
• **Indentify Technology Development and Pathogen Discoveryneeds** Identify and share needs for technology development and pathogen discovery with Core Team. • **Introduce novel technology** such as novel sample collection technology (e.g., blood spots).	**During the second quarter in Peru, the PREDICT team** • Held interviews with representatives of diagnostic labs in Peru, verified the availability or absence of diagnostic tests and technology resources for pathogen discovery. • Identified novel sampling technologies to implement in the field for year 1 surveillance activities (RNA Later, FTA Cards, Protein Binding Cards, liquid nitrogen).	**During the third quarter, PREDICT in Peru will** • Continue to assess technology needs of partner laboratories in Peru and provide support and liaison with PREDICT, Technology Development and Pathogen Discovery team for equipment purchase and lab staff training, as well as with other EPT programs, such as DELIVER and IDENTIFY.
TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY ***4.2 Pathogen Discovery*** • **Develop SMART pathogen detection plan** for high risk interfaces in country in conjunction with Core Team. • **Identify laboratories** for transfer of pathogen technology and receipt of equipment and training.	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the second quarter, PREDICT in Peru** • Began exploring the possibilities and permit requirements for sample export to better equipped diagnostic labs (e.g., CDC) or museums. • Began identification of diagnostic labs possibly interested in receiving technology (e.g., Inst. Tropical Medicine-UPCH, SENASA).	**TECHNOLOGY DEVELOPMENT & PATHOGEN DISCOVERY** ***4.2 Pathogen Discovery*** **During the third quarter, PREDICT in Peru will** • Continue to assess technology needs in partner laboratories in Peru and provide support and liaison with the PREDICT Technology Development and Pathogen Discovery team for equipment purchase and lab staff training.
SAMPLE TRACKING & INFORMATION MANAGEMENT ***5.1 Develop wildlife disease surveillance data management system*** • Share currently available and utilized methods for sample tracking and information management with Core Team. • Provide data for incorporation into central system.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the second quarter, PREDICT in Peru** • Agreed on the relevance of keeping updated records for sample tracking.	**SAMPLE TRACKING & INFORMATION MANAGEMENT** ***5.1 Develop wildlife disease surveillance data management system*** **During the third quarter, PREDICT in Peru will** • Await PREDICT Core Team instructions on sample tracking and data management system.

USAID
FROM THE AMERICAN PEOPLE

PREDICT Region/Country/Global Level Implementation Plan

1 July 2010 – 30 September 2011

Submitted to:
United States Agency for International Development
under Cooperative Agreement # GHN-A-00-09-00010-00

Submitted by:
University of California, Davis

BACKGROUND

In order to predict, respond to, and prevent the emergence of novel infectious diseases in humans, pathogens must be identified at their source. Explosive human population growth and environmental changes have resulted in increased numbers of people living in close contact with animals. Unfortunately the resulting increase in contact, together with changes in land use, has altered the inherent ecological balance between pathogens and their human and animal hosts. PREDICT, a project of USAID's Emerging Pandemic Threats Program, is building a global early warning system to detect and reduce the impacts of emerging diseases that move between wildlife and people. PREDICT has developed a SMART surveillance method (Strategic, Measurable, Adaptive, Responsive, and Targeted) that accounts for the fact that zoonotic pathogens, such as influenza and SARS, are responsible for the majority of emerging infectious diseases in people, and that more than three quarters of these emerging zoonoses are of wildlife origin. The SMART surveillance approach is designed to detect novel diseases with pandemic potential early, giving health professionals the best opportunity to prevent emergence and spread. It also targets sentinel animal species at active human interfaces in hotspot regions to improve surveillance efficiency.

The PREDICT team builds on a broad coalition of partners to develop the global capacity to monitor diseases at the animal-human interface and develop a risk-based approach to concentrate these efforts in surveillance, prevention, and response at the most critical points for disease emergence from wildlife.

PREDICT project objectives:

- Assess local surveillance capacity;
- Increase the value of infectious disease modeling;
- Implement targeted and adaptive wildlife disease surveillance systems;
- Develop and deliver new technologies to improve efforts close to the source;
- Use cutting-edge information management and communication tools to bring the world closer to realizing an integrated, global approach to emerging zoonotic diseases.

ACTIVITIES BY LINE OF WORK

GLOBAL - US, Africa, Southeast Asia, Asia & Latin America

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the program and facilitate the efficient accomplishment of all activities (includes logistics); seek and utilize executive board and technical advisory committee guidance; and ensure integration and coordination of all partners.
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries and partners to ensure fiscal responsibility; develop, review, and approve budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting; process and monitor subcontracts.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with USAID and EPT Program, PREDICT team members, advisory board members, external partners, and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; collect and incorporate partner data into USAID reports; and utilize electronic reporting tools, such as the GAINS database and the USAID AIMEBA system as appropriate.
        - Partners: UCD, WCS, WT, GVFI, SI, USAID, EPT Projects.
        - Expected results: Effective management of the project, successful flow of information among PREDICT participants and partners, and timely compliance with all reporting requirements.
- **Activity 1.2 Capacity Building**
    - Sub-activity 1.2.1: **Capacity Assessment:** Synthesize findings from the Capacity Building Rapid Surveys by country and region; identify critical gaps based on survey findings; highlight practical opportunities for enhancing or implementing wildlife disease surveillance; identify lab diagnostic capabilities, gaps, and necessary equipment and training; follow up on initial Capacity Building Rapid Survey findings with targeted

site visits to continue evaluating the quantity and quality of existing wildlife surveillance components and systems in target countries and regions; continue to identify stakeholder institutions and key country partners to assist in surveillance activities; convene stakeholder meetings to review and finalize assessments with input from key partners and experts; develop a common shared vision along with an action plan for capacity building, implementing wildlife disease surveillance activities and strengthening animal lab diagnostic capabilities.

- Sub-activity 1.2.2: **Training:** Implement Country Coordinator training using materials and protocols developed in Year 1; create PREDICT staff and partner training materials; implement on-the-job training for PREDICT staff and partners, and track associated trainings; coordinate with RESPOND, IDENTIFY, and PREVENT on training topics, and individuals/communities (including laboratories) to receive training or outreach. If financially feasible, identify and support nationals (public health, agriculture, and wildlife) from PREDICT countries to participate in OIE One World – One Health conference to educate and engage them in global reporting mechanisms.

  - **Training materials to be implemented:**
    - Training Coordination and Reporting;
    - Safety Guides: Animal Capture and Handling, Field Laboratory Operations, Biosafety and PPE Use;
    - Operational Guides: Packing and Shipping Biological Samples, Surveillance Data Collection and Reporting;
    - Protocols: Bat and Rodent Sampling, Bushmeat Sampling.

  - **Training materials under development:** Biological sample tracking; Ethics and Work Responsibilities; Care for task-related field injuries; Environmental Compliance; Field Surveillance Sampling and Safety; Maintaining Cold Chain; Necropsy Methods; Non-Human Primate Sampling; and additional protocols and guides to address information gaps.

  - Partners: UCD, WCS, WT, GVFI, SI.

  - Expected results: Follow up on Capacity Building Rapid Survey findings with targeted site visits; protocols and procedures to implement viral diagnostic testing to increase capacity of collaborating labs in-country; completion of safety, surveillance, and field sampling training for Country Coordinators and field staff; completion and distribution of new training guides and protocols; adaptive revision of guides and protocols; productive discussions and partnerships with stakeholders to build capacity in-country, regionally, and globally.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across all EPT countries**: Continue to build coordination among national ministries, government entities, NGOs, and universities to facilitate sharing of wildlife zoonotic disease data and increase awareness regarding zoonotic disease threats; implement sampling protocols for surveillance, including collection, processing, storage, and transport of samples from humans and wildlife; ensure timely diagnostic testing of samples with proper tracking of samples and results in the GAINS database; investigate zoonotic pathogen-associated outbreaks from wildlife and novel pathogens of pandemic potential; manage regional leads of all PREDICT partners to ensure that surveillance activities are continuing to develop cohesively; facilitate and support IUCN Wildlife Health Specialist Group to serve as knowledge network for WHO, OIE, and FAO for country level situational analysis and investigations.

  - Sub-activity 1.3.2: **Optimization of SMART surveillance system**: Develop SMART (strategic, measurable, adaptive, responsive, and targeted) surveillance methods for high-risk transmission interfaces in priority countries; evaluate surveillance strategies using gap analysis and integration of findings from ongoing data collection and modeling and produce feedback to improve surveillance; provide study design support to ensure adequate data collection at human, domestic animal, and wild animal high risk transmission interfaces in each hotspot region to facilitate risk factor analyses and modeling efforts; identify situations requiring enhanced surveillance by analyzing data and digital surveillance information.

    - Partners: UCD, WCS, WT, GVFI, SI, national ministries, national and regional diagnostic laboratories, IUCN Wildlife Health Specialist Group, WHO, OIE, FAO, PREVENT, IDENTIFY, RESPOND.

    - Expected results: Effective, coordinated, and responsive wildlife zoonotic disease surveillance activities across all EPT countries with strengthened capacity for wildlife sampling and sample handling and integration of surveillance data into the GAINS database.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Establish new technologies capable of supporting EPT activities in PREDICT countries, addressing identified gaps in existing

technological infrastructure; target institutions and key personnel for technology transfer with the aim of building capacity; introduce appropriate and sustainable technology to support wildlife surveillance system, including piloting of new methods in specific areas for citizen surveillance, animal capture and restraint, sampling technologies, and sample management; implement new diagnostic protocols and capabilities in collaborating laboratories in-country; complete and evaluate pilot study to test mobile phone technology for animal mortality monitoring in Uganda (see Uganda Country work plan).

- Sub-activity 1.4.2: **Pathogen discovery:** Continue to refine SMART pathogen detection plan for each high-risk interface in targeted countries; begin to transfer pathogen detection and discovery technology to regional laboratories by providing equipment, supplies, and on-the-job training; provide pathogen discovery support through state-of-the-art pathogen discovery laboratories in the US and regionally; and identify samples that can be exported for testing regionally and in US.

    - Partners: UCD, WCS, WT, GVFI, SI, Center for Immunity and Infection (New York), regional diagnostic laboratories Care and Health Program (CHP) Cameroon, Centre International de Recherches Medicales de Franceville (CIRMF).

    - Expected results: Export and testing of samples for pathogen discovery; installation of equipment into collaborating diagnostic labs to increase diagnostic capability including pathogen discovery and training of personnel to utilize new technologies; implement and test mobile phone technology in three conservation areas to evaluate expanding the SMS text messaging system.

- **Activity 1.5: Sample Tracking and Information Tracking**

    - Sub-activity 1.5.1: **Optimize surveillance data management system:** Implement standardized data collection and management in each target country; optimize standardized sample labeling and tracking system.

    - Sub-activity 1.5.2: **Establish global open access to database and procedure for dissemination of knowledge:** Maintain a global open access database and distribute real-time data and modeling results on zoonotic pathogens of concern to public health as appropriate.

        - Partners: UCD, WCS, WT, GVFI, SI, Healthmap, ProMED, Yale, Praecipio.

        - Expected results: Standardized field surveillance data collection across all countries; effective tracking of samples and diagnostics

from wildlife species; global distribution of field and digital surveillance data through an open access zoonotic disease database.

LOW 2: Risk Determination

- **Activity 2.1: Develop risk filter strategy**
    - Sub-activity 2.1.1: **Develop a conceptual and structural framework** to guide overall EPT program and prioritize activities, including site and species selection and molecular characterization of potential pathogens; use developed strategy to assist in the site selection for activities of other arms of EPT and other interested partner agencies and organizations; use an adaptive modeling approach by incorporating data from surveillance activities into models of transmission between animals and between animals and humans.
    - Sub-activity 2.1.2: **Inform and integrate other relevant agencies:** use conceptual framework to inform potential partners of USAID EPT strategy, such as the White House EPT working group, National Institutes of Health, USDA, CDC, DoD, WHO, FAO, OIE, and World Bank; garner support and interest in this strategy to leverage and expand EPT activities to the broader public health and academic communities.
        - Partners: UCD, WCS, WT, GVFI, SI, PREDICT Advisory Board, USAID.
        - Expected results: Improved understanding among USG agencies and key partners of the strategies and expected outcomes of the EPT program; increased external partners engaged in EPT-related activities globally.
- **Activity 2.2 Optimize models for diversity of disease emergence**
    - Sub-activity 2.2.1: **Refine and test geographical and temporal 'hotspot' models:** Improve the global emerging infectious disease hotspots models through a multi-step, iterative process in which the underlying databases will be updated first, then country level hotspots maps will be constructed using global model parameters and finer-scaled driver data; construct new driver datasets to be used in the model, including a global index of land use/land cover change, climate change, and biodiversity change; test hotspot models through an adaptive process of ground truthing with field data collected throughout the project and through an open dialogue between the modeling and surveillance teams and country coordinators;

revise measures of bias reporting and develop a proxy database for accounting for reporting bias.

- Sub-activity 2.2.2: **Iteratively improve datasets:** Use an adaptive modeling approach by incorporating data from surveillance activities into models of transmission between animals and between animals and humans; update hotspots models as new global level spatial datasets on wildlife diversity and abundance, human population density, roads and other travel networks, land cover and land use change, and environmental variables of interest become available.

- Sub-activity 2.2.3: **Design a 'Global Vulnerability' modeling strategy**: Test 'what if?' scenarios for future unknown disease emergence based on key emerging zoonotic pathogen 'types/templates' for all EPT regions; identify a group of the most important 'types' of zoonotic pathogens or 'templates' of emergence patterns based on data for all emerging infectious diseases (EIDs) over the past few decades; build spatially-explicit matrix models; test predictive models of disease spread via trade and travel out of primary emergence site: acquire data on travel and trade within and between countries; specifically model the risk of the wildlife trade and other important factors driving zoonotic disease emergence; build a basic model for the dynamics of pathogens within and among wildlife, domestic animals, and humans.

    - Partners: UCD, WCS, WT, GVFI.

    - Expected results: New and improved global hotspots model and finer-scale country and regional scale hotspots maps where finer-scale driver data can be obtained; new global scale driver and bias indices; and predictive model of vulnerability constructed and risk maps derived using the new model.

LOW 3: Outbreak Response Capacity Building
No Planned Activities other than supporting other EPT partners.

LOW 4: Risk Reduction
No Planned Activities other than supporting other EPT partners

IMPLEMENTATION PLAN - GLOBAL

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11	
	Wildlife Pathogen Detection								
1.1	Program Management	UCD, WT, WCS, GVFI, SI; J. Mazet, S. Morse, L. Stevenson	Effective management of the project, successful flow of information among PREDICT partners, and timely compliance with all reporting requirements.	**X**	**X**	**X**	**X**	**X**	
1.2	Capacity Building	UCD, WT, WCS, GVFI, SI; W. Miller, T. Goldstein, W. Karesh	Finalized Capacity Building Rapid Survey findings; plan for follow up Capacity Building targeted site visits; protocols and procedures to implement viral diagnostic testing to increase capacity of collaborating labs in-country; completion of safety, surveillance, and field training for staff and distribution of training guides.	**X**	**X**	**X**	**X**	**X**	
1.3	Surveillance	UCD, WT, WCS, GVFI, SI, W. Karesh, C. Johnson	Effective, coordinated, and responsive wildlife zoonotic disease surveillance activities across all EPT countries with strengthened capacity for wildlife sampling and sample handling and integration of surveillance data into the GAINS database.	**X**	**X**	**X**	**X**	**X**	
1.4	Technology Development and Pathogen Discovery	UCD, WT, WCS, GVFI, SI; J. Fair, S. Anthony	Export and testing of samples for pathogen discovery; discovery and characterization of new pathogens of pandemic potential; installation of equipment into collaborating diagnostic labs to increase diagnostic capability including pathogen discovery and training of personnel to utilize new technologies; implement and test mobile	**X**	**X**	**X**	**X**	**X**	

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11	
			phone technology.						
1.5	Sample Tracking and Information Management	UCD, WT, WCS, GVFI, SI; D. Joly	Standardized field surveillance data collection across all countries; effective tracking of samples and diagnostics from wildlife species; global distribution of field and digital surveillance data through an open access zoonotic disease database.	**X**	**X**	**X**	**X**	**X**	
	Risk Determination								
2.1	Develop Risk Filter Strategy	UCD, WT, WCS, GVFI, SI; J. Mazet, W. Karesh, P. Daszak	Improved understanding among USG agencies and key partners of the strategies and expected outcomes of the EPT program; increased external partners engaged in EPT-related activities globally.	**X**	**X**	**X**	**X**	**X**	
2.2	Optimize models for diversity of disease emergence	UCD, WT, WCS, GVFI, SI; P. Daszak	Improved global hotspots model; finer-scale country level hotspots maps where country level driver data exists; new global scale driver and bias indices; global vulnerability risk maps.	**X**	**X**	**X**	**X**	**X**	

PERFORMANCE MONITORING PLAN - GLOBAL

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Satisfactory progress on all objectives	Base-camp, committee guidance, integration and coordination of all partners	Daily, Monthly, Quarterly, Annually	UCD (J. Mazet, S. Morse, L. Stevenson, A. Mahler) and supporting partners WCS, WT, GVFI, SI
1.1.2 Fiscal Management	Near-real time expense tracking, adaptive fiscal management	Invoicing, expense tracking, budget projection spreadsheets	Monthly	UCD (L. Stevenson) and supporting partners WCS, WT, GVFI, SI
1.1.3 Communication	Functional utility of all communication systems	In-person meetings, advisories, web-based applications, reports, Base-camp	Daily (All), Weekly (Senior Mgmt, Executive Board), Quarterly (EPT), Annually (PREDICT)	UCD (J. Mazet, S. Morse, L. Stevenson, A. Mahler) and supporting partners WCS, WT, GVFI, SI
1.1.4 Reporting	Complete, accurate, and timely technical and fiscal reporting	Administrative – financial, technical, and travel; operational – GAINS, Base-camp, HealthMap	Monthly, Quarterly, Annually	UCD (J. Mazet, L. Stevenson) and supporting partners WCS (D. Joly), WT, GVFI, SI
1.2.1 Capacity Assessment	Timely analysis of data from Capacity Building Rapid Survey Tool; percent of countries showing improvement in capacity	Capacity Building Rapid Survey Tool, site visits, meetings, reports	Quarterly, Annually: Focused follow-up activities and data collections; Full surveys completed in Yrs 1, 3, and 5	UCD (W. Miller, T. Goldstein) and WT (W. Karesh); and supporting partners WCS, GVFI, SI
1.2.2 Training	Completed Training Materials; records of trainees and	Training Documents; completed training records submitted by Country	Quarterly	UCD (D. Bunn), Training Leads from partner groups, supporting partners WCS, WT, GVFI, SI

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	training events	Coordinators		
1.3.1 Coordination of Surveillance	Effective and coordinated wildlife zoonotic disease surveillance in hotspot regions	GAINS database; biweekly surveillance team meetings	Monthly status review and quarterly reporting	WT (W. Karesh) and supporting partners UCD, WCS, GVFI
1.3.2 Optimization of SMART surveillance system	Surveillance activities guided by epidemiologic intelligence and risk modeling	GAINS database; web-based applications, biweekly surveillance team meetings, monthly epidemiology and modeling meetings	Monthly status review and quarterly reporting	UCD (C. Johnson) and WCS (D. Joly) and supporting partners WT, GVFI, SI
1.4.1 Introduction of New Technologies	Introduction of new and sustainable technologies to support wildlife surveillance and pathogen detection	Pilot data to compare results of the “standard, field standard, and ideal” to review the effectiveness of each piece of new technology introduced and evaluate its overall userability	Daily, Monthly, Quarterly and annual reporting and review of all results	GVFI (J. Fair) and supporting partners WCS, WT, SI, UCD
1.4.2 Pathogen Discovery	Diagnostic testing of priority Predict partner samples collected from wildlife and detection of new pathogens	Results entered into GAINS database as available, results reported to Predict partners as available	Daily, Monthly, Quarterly and annual reporting and review of all results	GVFI (J. Fair) and WT (S. Anthony) and supporting partners UCD, WCS, Center for Immunity and Infection, Care and Health Program (CHP) Cameroon, Centre International de Recherches Medicales de Franceville (CIRMF)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.1 Sample Tracking and Information Management	Sample data received; Implemented standardized labeling and tracking system	GAINS database	Monthly, Quarterly, Annually	WCS (D. Joly), HealthMap and supporting partners UCD WT, GVFI,ProMED, Praecipio, Yale
1.5.2 Establish Open Access Database	Global distribution of digital and field surveillance data (specifically, field and digital surveillance data are accessible by the general public)	GAINS database, Healthmap.org	Monthly, Quarterly, Annually	WCS (D. Joly) and supporting partners UCD WT, GVFI, HealthMap, ProMED, Praecipio, Yale
2.1.1 Develop Risk Filter Framework	Framework to guide overall EPT program and prioritize activities	In-person meetings, GAINS database, input from government partners and external experts	Monthly during Risk Filter framework development Quarterly review and revision as needed, Annually	UCD (J. Mazet), WT (P. Daszak, W. Karesh) and supporting partners, WCS, GVFI, SI
2.1.2 Integrate Risk Strategy with Other Agencies	Improved understanding among USG agencies and key partners of the strategies and expected outcomes of the EPT program	In-person meetings with Predict partners, input from government partners and Advisory Board	Quarterly, Annual compilation of results across agencies	UCD (J. Mazet), WT (P. Daszak, W. Karesh) and supporting partners WCS, GVFI, SI
2.2.1 Refine and Test Hotspot Models	Release of new global hotspots map and country level hotspots maps; refined driver databases; refined bias reporting index	Global databases available online and from CIESIN; country-level data available online, communication with country coordinators	Weekly and on ad hoc basis as needed, Quarterly reporting and review	WT (P. Daszak, T. Bogich) and supporting partners UCD, WCS, GVFI

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2.2 Improve Modeling Datasets	Release of hotspots maps; Correction of new maps by country coordinators and surveillance data; revision of hotspots maps per findings	Global and country-level databases available online and from CIESIN; communication with country coordinators	Weekly meetings at CIESIN; country coordinators on an ad hoc basis as needed, Quarterly reporting and review	WT (P. Daszak, T. Bogich) and supporting partners UCD, WCS, GVFI
2.2.3 Design Global Vulnerability Modeling Strategy	Release of global vulnerability map resulting from risk modeling activities	IATA travel data; risk map taken from global hotspots models (above); communication network data from CIESIN and online sources	Monthly, Annually (for IATA data), Quarterly reporting and review	WT (P. Daszak) and supporting partners UCD, WCS, GVFI

OVERALL PROJECT MANAGEMENT

Organizational Relationships

PREDICT assigns responsibility for specific objectives and individual country management to one of its institutional partners, based on the technical thrust of the project, institutional experience, and other factors. The PREDICT managing organizations are led by UC Davis with subawards to the Wildlife Conservation Society (WCS), Wildlife Trust (WT), Global Viral Forecasting, Inc. (GVFI), and the Smithsonian Institution. Oversight of project activities is performed by the PREDICT Co-Directors J. Mazet and S. Morse; Senior Management Team M. Trostle, A. Pereira, J. Mazet, S. Morse, and W. Karesh; and Executive Board Members J. Mazet, S. Morse, P. Daszak, K. Smith, D. Joly, and N. Wolfe. The project objectives are lead by team members responsible for implementing each objective: Program Management (J. Mazet, S. Morse, L. Stevenson), Capacity Building (W. Miller, T. Goldstein, W. Karesh), Surveillance (W. Karesh, C. Johnson), Technology Development and Pathogen Discovery (J. Fair, S. Anthony), Sample Tracking and Information Management (D. Joly), Development of a Risk Filter Framework (J. Mazet, P. Daszak, W. Karesh) and Optimization of Models for Disease Emergence (P. Daszak).

Overview

The PREDICT team is a functionally collaborative and fully integrated working group that benefits from the experience of world leaders in wildlife surveillance and epidemiology. The Co-Directors accomplish the PREDICT objectives through the organizational structure described above. The team functions by holding task and deliverables-oriented conference calls daily or weekly as needed, as well as multiple in-person meetings

The Co-Directors benefit from the guidance of the Executive Board, which consists of the most senior representative of UC Davis, WCS, WT, and GVFI to ensure integration and coordination of activities. The Executive Board holds bi-weekly conference calls to review activities, identify programmatic gaps, determine progress toward objectives, and coordinate capacity-building and training plans.

External guidance is provided by a Technical Advisory Committee composed of experts in the fields of Infectious Diseases, Zoonotic Diseases, and Public Health which reviews progress and plans, and advises on priorities and strategic focus.

Day-to-day management of the project and progress toward objectives is the overall responsibility of the Co-Directors, with assistance from the administrative staff. In addition to the management and coordination of program vision, direction, and

functional successes, the Co-Directors are responsible for the administration and integration of the entire program and review and approve budgets, assess ongoing budgetary needs, and lead meetings with the Senior Management Team, Objective Leads, Executive Board, and the Technical Advisory Committee to assess the program's productivity and accomplishments with respect to its goals. The Co-Directors are the point of contact for communications with USAID and coordination with the other EPT arms, RESPOND, IDENTIFY and PREVENT.

Activities and Locations

All project objectives are managed and coordinated centrally in California (UC Davis, Global Viral Forecasting Inc.) and New York (Wildlife Conservation Society, Wildlife Trust),as described in the sections above. The project objectives are performed regionally and in each country as described in the detailed country descriptions below.

Partnerships

Besides the core partners (UCD, GVFI, WCS, WT) who manage all of the project objectives, additional partners contribute to one or more of the objectives centrally. These partners include the Smithsonian Institute, USAID Global Health Bureau, Colombia University, the Center for Immunity and Infection, HealthMap, ProMED, Praecipio, Yale University, RESPOND, IDENTIFY, PREVENT, DELIVER, CDC, OIE, FAO, WHO,USDA, DOD, Center for International Earth Science Information Network, IUCN Wildlife Health Specialist Group, White House EPT working group, National Institutes of Health, and World Bank.

Numerous in-country partnerships have also been established in all PREDICT countries and include national ministries, national and regional diagnostic laboratories, universities, USAID Missions, and US Embassies; these are described in detail for each country in the sections below.

Reporting

Reporting occurs daily to the Co-Diresctors (All), weekly (Senior Mgmt, Executive Board, Objective Subteams), monthly (GAINS Database, Financial, Technical, Travel), quarterly (Training, Surveillance Activity, USAID, EPT), and annually (PREDICT annual coordination meeting with management, all objective leads, country coordinators, and regional leads).

AFRICA REGION

Cameroon

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: GVFI

    Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continue ongoing multi-faceted communication with in-country partners including the USAID Mission to Cameroon through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Cameroon Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis; surveillance data entered into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Care and Health Program of Cameroon, Centre Pasteur du Cameroon

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Cameroon:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats, rodents, insectivores, birds, carnivores, ungulates
    - **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic

- **Proposed Locations:** east province (Ngoila, Lomie, Moloundou, Djoum), south province (Mvangan, Maan), south west province (Euyomojock)

Partners: Care and Health Program of Cameroon (CHP-GVF), Centre Pasteur du Cameroon, Limbe Wildlife Center, other relevant NGOs and local stakeholders.

Expected result(s): Developed framework for surveillance data coordination with partners; pathogen detection and discovery initiated for acquired wildlife samples; existing GVF zoonotic surveillance sample management system integrated with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Dried blood spot cards and real-time PCR were introduced in year 1 and PCR will continue to be the mainstay of diagnosis in year 2; we will also introduce a portable field laboratory that will include mobile real-time PCR and needed accessories.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Care and Health Program of Cameroon (CHP-GVF)

  Expected result(s): New technologies introduced and utilized; identified capacity gaps in CRESAR (CHP-GVF) laboratory and appropriate training and material resources introduced where possible; expanded infrastructure of CRESAR laboratory to improve viral diagnostics capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: CHP-GVF

Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: PREDICT Modeling team, National Aeronautics & Space Agency (NASA)

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS on a monthly basis; data provided to the Modeling team as requested

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – CAMEROON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Ubald Tamoufe, Regional Coordinator for GVFI	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reported into GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Matthew Lebreton, Ecology Director for GVFI	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through the Capacity Building Rapid Survey Tool; strengthened partnerships with agencies and ministries active in wildlife surveillance, public health and pathogen detection; implementation of training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Ubald Tamoufe, GVFI Country Coordinator	Developed framework for surveillance data coordination with partners; pathogen detection and	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			discovery initiated for acquired wildlife samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.					
1.4	Technology Development and Pathogen Discovery	Brad Schneider Field Science Officer for GVFI	New technologies introduced and utilized; identified capacity gaps in CRESAR laboratory diagnostic center and training and material resources introduced; expanded infrastructure of CRESAR to improve virology diagnostics and cold storage for sample archival.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Matthew Lebreton, MPH, Ecology Director for GVFI	All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize	Ubald Tamoufe,	Sample data uploaded into GAINS;	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	models for diversity of disease emergence	GVFI Country Coordinator	gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS on a monthly basis; data provided to Modeling team as requested.					

PERFORMANCE MONITORING PLAN – CAMEROON

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Ubald Tamoufe, GVFI Country Coordinator
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Ubald Tamoufe, GVFI Country Coordinator
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Ubald Tamoufe, GVFI Country Coordinator
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Ubald Tamoufe, GVFI Country Coordinator
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Matt Lebreton, GVFI Ecology Director
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Ubald Tamoufe, GVFI Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Matt Lebreton, GVFI Ecology Director
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Cyrille Djoko CRESAR Lab Coordinator, Brad Scheider GVFI Field Science Officer
1.4.2 Pathogen Discovery	Improved infrastructure at CRESAR for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly Reports	Cyrille Djoko CRESAR Lab Coordinator, Brad Scheider GVFI Field Science Officer
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Matt Lebreton, GVFI Ecology Director
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Ubald Tamoufe, GVFI Country Coordinator

COUNTRY PROJECT MANAGEMENT – CAMEROON

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for Cameroon are GVFI and the Care and Health Program of Cameroon (CHP-GVF). Oversight of PREDICT activities in Cameroon will be managed by Country Coordinator Ubald Tamoufe with support from Technical Team Leaders Cyrille Djoko and Matthew Lebreton.

Overview

Cameroon provides an opportunity for wildlife zoonotic disease surveillance at active wildlife-livestock-human interface areas in central, Sub Saharan Africa. Africa has been shown to be a major crossroads of zoonotic disease transmission, and active zoonotic transmission of simian retroviruses and other microbial agents in Cameroon has been reported by GVFI and other groups. Most notably, recent studies have indicated that intensive hunting of non-human primates in Cameroon may have led to the introduction of pandemic HIV (HIV-1, Group M) into the human population. The country is also home to a number of wildlife conservation groups, animal sanctuaries, and National Parks. In the densely forested regions of Southern Cameroon, consumption of wild animals or "bush meat" is extensive and places extreme pressure on animal populations and forests. Through partnering with Care and Health Program of Cameroon, PREDICT activities will be able to expand the wildlife surveillance program at these important interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, insectivores, birds, carnivores, ungulates
- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Potential Locations:** east province (Ngoila, Lomie, Moloundou, Djoum), south province (Mvangan, Maan), south west province (Euyomojock)

Partnerships

In Cameroon partnerships have been established with the Care and Health Program of Cameroon, Cameroon military, Pasteur Center of Cameroon (Centre Pasteur du Cameroun), Limbe Wildlife Center, Ministry of Health and Ministry of Agriculture.

Reporting
The PREDICT Cameroon team has monthly meetings with the US Embassy in Cameroon. The PREDICT Country Coordinator, Ubald Tamoufe, and Regional Project Manager, Erin Papworth, will lead oral updates on PREDICT activities to the Embassy and the local USAID representative. These monthly updates will be used as a forum to summarize monthly achievements and progress. The USAID representative arrived in June 2010 and will be included monthly updates starting in September 2010.

In addition, the Country Coordinator and the GVFI team communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive "To-Do-Lists" through the Basecamp project site.

Democratic Republic of Congo

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: Kinshasa School of Public Health, National Institute of Biomedical Research

    Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continued ongoing multi-faceted communication with in-country partners including the USAID Mission to DRC

through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT DRC Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis; entry of surveillance data into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Kinshasa School of Public Health, National Institute of Biomedical Research

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; Implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Democratic Republic of Congo:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

- **Taxa:** primates, bats, rodents, birds, carnivores, ungulates
- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Proposed Locations:** Kole, Lodja,Tshuapa, Lomami, Lualaba, Lomela

Partners: Kinshasa School of Public Health, National Institute of Biomedical Research, Tshuapa-Lomami-Lualaba (TL2) Project, Lola de Bonobo Sanctuary

Expected result(s): Developed framework for surveillance data coordination with partners; pathogen detection and discovery initiated for acquired wildlife samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Dried blood spot cards and real-time PCR were introduced in year 1 and PCR will continue to be the mainstay of diagnosis in year 2; we will also install a liquid nitrogen generator and introduce a portable field laboratory that will include mobile real-time PCR and needed accessories.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: National Institute for Biomedical Research

  Expected result(s): New technologies introduced and utilized; identified capacity gaps in National Institute of Biomedical Research laboratory diagnostic center and introduction of appropriate training and material resources where possible; expanded infrastructure of National Veterinary Laboratory diagnostic center to improve viral diagnostics capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

    - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

    Partners: National Institute of Biomedical Research (INRB), Kinshasa School of Public Health, National Veterinary Laboratory of Kinshasa

    Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

    Partners: GVFI

    Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to data requests from the Modeling team.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – DEMOCRATIC REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Prime Mulembakani, Country Coordinator	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting through the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Matt Lebreton, Ecology Director for GVFI	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through the Capacity Building Rapid Survey Tool; strengthened partnerships with agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all training materials.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
1.3	Surveillance	Prime Mulembakani, Country Coordinator	Developed framework for surveillance data coordination with partners; pathogen detection and discovery initiated for wildlife samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Brad Schneider, Field Science Officer for GVFI	Liquid Nitrogen generator installed and other new technologies introduced and utilized; identified capacity gaps in National Institute of Biomedical Research laboratory and appropriate training and material resources introduced; expanded infrastructure of in National Institute of Biomedical Research laboratory to improve viral diagnostics capacity and cold storage for sample archival.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and	Maria Makuwa, DRC Laboratory	All sample data entered into GAINS; completed trainings	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Information Management	Coordinator for GVFI	on sample tracking and data management; standardized labeling and tracking system implemented; data to UCD through GAINS on a monthly basis; timely and efficient response to requests for surveillance data.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Prime Mulembakani, Country Coordinator	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UCD through GAINS on a monthly basis; Timely response to Modeling team requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – DEMOCRATIC REPUBLIC OF CONGO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Prime Mulembakani, Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Prime Mulembakani, Country Coordinator
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Prime Mulembakani, Country Coordinator
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Prime Mulembakani, Country Coordinator
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Maria Makuwa, DRC Laboratory Coordinator
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Maria Makuwa, DRC Laboratory Coordinator
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and	Basecamp & GAINS database	Monthly	Prime Mulembakani, Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	analyzed for targeted species, interfaces, and proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Maria Makuwa, DRC Laboratory Coordinator for GVFI, Brad Schneider, GVF Field Science Officer
1.4.2 Pathogen Discovery	Improved infrastructure at National Institute of Biomedical Research for viral diagnostics and cold storage	Quarterly Reports	Quarterly Reports	Maria Makuwa, DRC Laboratory Coordinator for GVFI, Brad Schneider, GVF Field Science Officer
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Maria Makuwa, DRC Laboratory Coordinator for GVFI
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Prime Mulembakani, Country Coordinator

COUNTRY PROJECT MANAGEMENT – DEMOCRATIC REPUBLIC OF CONGO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for the Democratic Republic of Congo are GVFI and the University of Kinshasa School of Public Health and the National Institute of Biomedical Research. Oversight of PREDICT activities in DRC will be managed by Country Coordinator Prime Mulembekani with support from Technical Team Leader Maria Makuwa. In addition, PREDICT has five staff members in country, including a field team in Kole.

Overview

DRC provides an opportunity for wildlife zoonotic disease surveillance at active wildlife-livestock-human interface areas in central Africa and presents several unique and promising opportunities for surveillance for wildlife zoonoses with pandemic potential. The DRC has experienced outbreaks of Ebola and Marburg hemorrhagic fevers, as well as endemic monkeypox transmission and a high prevalence of HIV. The high biodiversity of the Congo Basin and intensive hunting of wildlife in the region contribute to the high disease burden in DRC. Additionally, the DRC possesses extensive rainforest habitat known for the high degree of endemism and small mammal diversity, providing an exceptional opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the wealth of biodiversity and intimate interaction of populations in these interfaces, DRC's current capacity to conduct wildlife disease surveillance at a regional and national level is developing. Through the implementing partners, the National Institute of Biomedical Research and the Kinshasa School of Public Health, existing collaborations with government veterinary and livestock ministries, wildlife authorities, and human health professionals enable PREDICT to help fill the wildlife surveillance gap and expand surveillance to high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, birds, carnivores, ungulates
- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Potential Locations:** Kole, Lodja,Tshuapa, Lomami, Lualaba, Lomela

Partnerships
In DRC, partnerships have been established through Kinshasa School of Public Health, the National Institute of Biomedical Research, Tshuapa-Lomami-Lualaba (TL2) Project, Lola de Bonobo Sanctuary.

Reporting
The PREDICT DRC Country Coordinator will provide monthly oral updates to the USAID Mission in Kinshasa, DRC. The PREDICT Country Coordinator, Prime Mulembekani will lead oral updates on PREDICT activities to the USAID Mission. These monthly updates will be used as a forum to summarize monthly achievements and progress.

In addition, the Country Coordinator and the GVFI team communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive "To-Do-Lists" through the Basecamp project site.

Equatorial Guinea

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**

  Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

  - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

  - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

  Partners: Care and Health Program of Cameroon (CHP-GVF)

  Expected result(s): Country Coordinator in place with a base of operations for PREDICT established; management and coordination of all capacity building and surveillance activities under responsible organizational lead and

executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; multi-faceted communication with in-country partners including the USAID Mission to Equatorial Guinea through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Cameroon Basecamp site; compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and entering surveillance data through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Care and Health Program of Cameroon (CHP-GVF)

  Expected result(s): Evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; Implementation of all official training materials: training modules accessible to the Country Coordinator and PREDICT staff and partners; outcomes established for On-the-job Training program; locally coordinated training program.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Equatorial Guinea:** Continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats, rodents, birds, carnivores, ungulates
    - **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
    - **Proposed Locations:** Malabo and Moke

  Partners: Care and Health Program, Bioko Biodiversity Protection Program, Ministry of Health, Ministry of Agriculture

  Expected result(s): All essential permits, licenses and agreements in place for surveillance work; 50 wildlife samples collected and tested for zoonotic pathogens analyzed by PCR and unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis or other appropriate technology; feasible surveillance options determined for country; initial knowledge of pre-existing wildlife disease conditions in country obtained; surveillance data entered into GAINS database

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Care and Health Program

  Expected result(s): Needs identified for technology development and pathogen discovery in-country; novel sample collection technology introduced; pathogen detection technology transfer plan; samples delivered for pathogen discovery to regional and US labs if possible; identification of laboratories for capacity building.

- **Activity 1.5: Sample Tracking and Information Management**

  Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: Care and Health Program

  Expected result(s): Knowledge about systems currently in place and used in-country; surveillance data uploaded to GAINS monthly; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Care and Health Program, Bioko Biodiversity Protection Program

  Expected result(s): Sample data uploaded into GAINS monthly; timely response to Modeling team requests for data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – EQUATORIAL GUINEA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator (TBD), Ubald Tamoufe, GVF Regional Coordinator	Country Coordinator in place with a base of operations for established; management and coordination of all capacity building and surveillance activities; full fiscal disclosure and near-real time expense tracking, communication with in-country partners including the USAID Mission to Equatorial Guinea through regular updates and with the PREDICT team; compliance of all reporting requests from USAID through UCD; surveillance data into GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Ubald Tamoufe, GVF Regional Coordinator, Matt Lebreton, GVFI Ecology Director	Evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; partnerships with agencies	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all training materials.					
1.3	Surveillance	Ubald Tamoufe, GVF Regional Coordinator, Matt Lebreton, GVFI Ecology Director	All essential permits, licenses and agreements in place for surveillance work; 50 wildlife samples collected and tested for zoonotic pathogens analyzed by PCR and unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis; feasible surveillance options determined for country; initial knowledge of pre-existing wildlife disease conditions in country obtained; surveillance data entered into GAINS database	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Cyrille Djoko, CRESAR Laboratory Coordinator, Brad Scheider GVFI Field Science Officer	Needs identified for technology development and pathogen discovery in-country; novel sample collection technology introduced; pathogen detection technology transfer plan; samples	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			delivered for pathogen discovery to regional and US labs if possible; identification of laboratories for capacity building.					
1.5	Sample Tracking and Information Management	Matt Lebreton, GVFI Ecology Director	Knowledge of systems currently in place and used in-country; surveillance data uploaded to GAINS monthly; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; timely response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Ubald Tamoufe, GVF Regional Coordinator	Sample data uploaded into GAINS monthly; timely response to Modeling team requests for data.	**X**	**X**	**X**	**X**	**X**

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator (TBD), Ubald Tamoufe GVFI Regional Coordinator
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator (TBD), Ubald Tamoufe GVFI Regional Coordinator
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator (TBD), Ubald Tamoufe GVFI Regional Coordinator
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator (TBD), Ubald Tamoufe GVFI Regional Coordinator
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Ubald Tamoufe GVFI Regional Coordinator, Matt Lebreton GVFI Ecology Director
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Ubald Tamoufe GVFI Regional Coordinator
1.3.1 Surveillance	Framework for surveillance data coordination; samples	Basecamp & GAINS database	Monthly	Ubald Tamoufe GVFI Regional Coordinator, Matt Lebreton GVFI Ecology Director

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	collected or received and analyzed for targeted species, interfaces, and proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Cyrille Djoko CRESAR Lab Coordinator, Brad Scheider GVFI Field Science Officer
1.4.2 Pathogen Discovery	Improved infrastructure for viral diagnostics and cold storage	Quarterly Reports	Quarterly Reports	Cyrille Djoko CRESAR Lab Coordinator, Brad Scheider GVFI Field Science Officer
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Matt Lebroton GVFI Ecology Director
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Ubald Tamoufe GVFI Regional Coordinator

COUNTRY PROJECT MANAGEMENT – EQUATORIAL GUINEA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for Equatorial Guinea are GVFI and the Care and Health Program. Oversight of PREDICT activities in Equatorial Guinea will be managed by GVFI Regional Coordinator Ubald Tamoufe with help from Cyrille Djoko CRESAR Laboratory Coordinator, Brad Scheider GVFI Field Science Officer ,and Matt Lebreton GVFI Ecology Director. A Country Coordinator has yet to be identified.

Overview

Equatorial Guinea provides a unique opportunity for wildlife zoonotic disease surveillance at what is one of Africa's active wildlife-livestock-human interface areas. Equatorial Guinea presents several unique and promising opportunities for surveillance for wildlife zoonoses with pandemic potential, as extensive rainforest habitat exists known for the high degree of endemism and small mammal diversity. This environment provides an exceptional opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the wealth of biodiversity and intimate interaction of populations at these interfaces, Equatorial Guinea current capacity to conduct wildlife disease surveillance at a regional and national level is still developing.

Activities and Locations

PREDICT will establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to begin to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, birds, carnivores, ungulates
- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Potential Locations:** Moke, Malabo

Partnerships

In EG, partnerships have been established Care and Health Program, Bioko Biodiversity Protection Program, Ministry of Health, Ministry of Agriculture

Reporting

The PREDICT West Central African team is based in Cameroon and headed by Regional Coordinator Ubald Tamoufe. The Cameroon-based team traveled to Equatorial Guinea in June 2010 and met with Embassy representatives. At this meeting, the Team agreed to update the Embassy and the Ambassador on an as-needed basis, verbally. Any written communications will be routed through UC Davis and USAID Washington prior to sending.

Gabon

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**

  Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

  - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

  - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

  - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

  Partners: International Center for Medical Research (CIMRF)

  Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; communication with in-country partners including the USAID Mission to Gabon through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Cameroon Basecamp site; compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis; surveillance data entered into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: International Center for Medical Research (CIMRF)

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials: training modules accessible to PREDICT staff and partners, locally coordinated On-the-job Training program.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Gabon:** Continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats, rodents, birds, carnivores, and ungulates
    - **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
    - **Proposed Locations:** Northwestern, Central, and Central Western Gabon

Partners: International Center for Medical Research (CIMRF), National Parks System, Wildlife Conservation Society, NASA, Ministry of Health for Gabon

Expected result(s): Develop framework for surveillance data coordination with partners; 150 human samples collected and tested for zoonotic pathogens; 350 wildlife samples collected and tested for zoonotic pathogens; human and animal samples analyzed by serology, PCR and unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis, surveillance data and diagnostic results entered in GAINS database monthly.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
  Continue to deploy and utilize dried blood spot card technology introduced in year 1, and deploy novel sample collection technologies and rapid response diagnostic kit in year 2.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: International Center for Medical Research (CIMRF), Care and Health Program

  Expected result(s): New technologies introduced and utilized; identified capacity gaps in CIMRF laboratory and appropriate training and material resources introduced where possible; expanded infrastructure of CIRMRF diagnostic center to improve viral diagnostics capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country

  Partners: International Center for Medical Research (CIMRF)

Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: International Center for Medical Research (CIMRF), National Parks System, Wildlife Conservation Society, NASA, Ministry of Health for Gabon

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to Modeling team requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – GABON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Jean-Paul Gonzalez GVF Senior Scientist and Predict Gabon Admin PoC	Management and coordination of all capacity building and surveillance activities; communication with in-country partners including the USAID Mission to Gabon through regular updates and with the PREDICT team; compliance of all reporting requests from USAID through UCD; surveillance data entered into GAINS database	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Eric Leroy Country Coordinator	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health and pathogen detection in-country; implementation of all training	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			materials.					
1.3	Surveillance	Eric Leroy Country Coordinator, Karen Saylors GVF Behavioral Scientist	Develop framework for surveillance data coordination with partners; 150 human samples collected and tested for zoonotic pathogens; 350 wildlife samples collected and tested for zoonotic pathogens; human and animal samples analyzed by serology, PCR and unknown samples analyzed by Mass-tag PCR, viral microarray, pyro-sequencing analysis; surveillance data and diagnostic results entered into GAINS monthly.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Eric Leroy Country Coordinator, Brad Scheider GVFI Field Science Officer	New technologies introduced and utilized; identified capacity gaps in CIMRF laboratory and training and material resources; expanded infrastructure of CIRMRF diagnostic center to improve viral diagnostics capacity and cold storage for sample archival.	**X**	**X**	**X**	**X**	**X**
1.5	Sample	Eric Leroy	All sample data entered into	**X**	**X**	**X**	**X**	

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Tracking and Information Management	Country Coordinator, Matthew Lebreton PREDICT ecologist	GAINS; completed trainings on sample tracking and data management; standardized labeling and tracking system implemented; data provided to UCD through GAINS monthly; timely and efficient response to requests for surveillance data.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Eric Leroy Country Coordinator, Matthew Lebreton PREDICT ecologist	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UCD through GAINS monthly; timely response to Modeling team requests for surveillance data.					

PERFORMANCE MONITORING PLAN - GABON

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Eric Leroy Country Coordinator

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Eric Leroy Country Coordinator
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Eric Leroy Country Coordinator
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Eric Leroy Country Coordinator
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Eric Leroy Country Coordinator, Matthew Lebreton PREDICT Ecologist
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Eric Leroy Country Coordinator, Matthew Lebreton PREDICT Ecologist
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and	Basecamp & GAINS database	Monthly	Eric Leroy Country Coordinator, Matthew Lebreton PREDICT Ecologist

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Eric Leroy Country Coordinator, Brad Scheider GVFI Field Science Officer
1.4.2 Pathogen Discovery	Improved infrastructure at CIMRF for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Eric Leroy Country Coordinator, Brad Scheider GVFI Field Science Officer
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Eric Leroy Country Coordinator
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Eric Leroy Country Coordinator, Matt Lebreton PREDICT Ecologist

COUNTRY PROJECT MANAGEMENT – GABON

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organizations for Gabon are GVFI and the International Center for Medical Research (French acronym CIMRF). Oversight of PREDICT activities in Country will be managed by Country Coordinator Dr. Eric Leroy with support from Technical Team Leaders Jean-Paul Gonzalez (CIMRF-Administrative), Joseph Fair (GVFI Predict PoC), Karen Saylors (GVFI Predict Surveillance PoC) and Brad Schneider (Predict Laboratory PoC).

Overview

The central African lowland rainforests in Gabon have a high diversity of wild animal species and have recently been the site of emergence or reemergence of a number of key pathogens. The rural communities within this African forest block are key sites for the surveillance of emerging infectious diseases.

Ebola (EBOV) and Marburg (MBGV) hemorrhagic fevers (HF) cause severe, often-fatal disease in humans and nonhuman primates (monkeys, gorillas, and chimpanzees). Disease is caused by infection with either EBOV or MBVG and both viruses are members of a family of RNA viruses called the Filoviridae. Filovirus HF typically causes sporadic outbreaks, usually spread within a health-care setting but it is likely that sporadic, isolated cases occur and go unrecognized. Infections with filoviruses are acute and because the natural reservoir of the virus is unknown, the manner in which the virus first appears in a human at the start of an outbreak has not been determined. It is thought that the first patient becomes infected through contact with an infected animal and individuals in rural central Africa acutely infected with various pathogens may not seek treatment or may receive inaccurate diagnoses. Also, people who develop acute illness as the result of infection with zoonotic agents may not have access to clinical facilities.

EBOV and MBGV are known to be endemic to the Republic of Gabon. Numerous human and animal outbreaks of EBOV Zaire have occurred in Gabon over the past 15 years and MBGV was recently isolated from fruit bats collected in Gabon. Through partnering with CIMRF in Gabon PREDICT activities will increase surveillance for these hemorrhagic fevers and expand opportunities to detect other zoonotic pathogens.

Activities and Locations

PREDICT will establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, birds, carnivores, and ungulates

- **Interfaces:** hunted, traded, confiscated, free-ranging, syndromic
- **Potential Locations:** Northwestern, Central, and Central Western Gabon

Partnerships
In Gabon, partnerships will be established through the National Parks System, Wildlife Conservation Society, NASA, Ministry of Health for Gabon.

Reporting
PREDICT-GVF project manager Joseph Fair met with the USAID representative in Libreville in June 2010. At this meeting, the PREDICT country coordinator, Dr Eric Leroy and Dr. Fair agreed to update the Embassy and the Ambassador on an as-needed basis, verbally. Any written communications will be routed through UC Davis and USAID Washington prior to sending.

In addition, the Country Coordinator and the GVFI team communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive "To-Do-Lists" through the Basecamp project site.

Republic of Congo

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

      Partners: WCS

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continue ongoing multi-faceted communication with in-country partners including the National Public Health Laboratory through in-person meetings and with the PREDICT team through weekly conference calls and interaction on PREDICT Congo Basecamp site; continued compliance in all reporting requirements (financial, technical, environmental, travel, training) from USAID through UC Davis; surveillance data entered into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies; PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

    Partners: WCS, Ministry of Health, National Public Health Laboratory, Ministry of Animal Agriculture, Ministry of Sustainable Development of Forest Economy and the Environment, National Institutes of Health/NIAID Rocky Mountain Laboratories, Public Health Agency Canada, AED/PREVENT

    Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through follow-up on the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; Implementation of all official PREDICT training materials; planning discussions held together with partners in

PREVENT regarding ways to increase the capacity of existing local village wildlife surveillance networks.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Republic of Congo:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** primates, bats, rodents, shrews, porcines, other ungulates, carnivores and livestock, as appropriate
    - **Interfaces:** hunting, bushmeat markets, depredation, free-ranging (human-wildlife, livestock-wildlife)/extractive industry (mining site), syndromic
    - **Proposed Locations:** North (Nouabalé-Ndoki National Park); North-central (Odzala-Kokoua National Park, Ngombé Forestry Management Unit and peripheral communities); South-central (Zanaga mining region)

    Partners: WCS, Ministry of Health, National Public Health Laboratory, Ministry of Health Endemic Diseases, Ministry of Animal Agriculture, Ministry of Sustainable Development of Forest Economy and the Environment, National Institutes of Health/NIAID Rocky Mountain Laboratories, Public Health Agency Canada, WHO-Congo Office, WHO-Afro Office, Centre International de Recherches Médicales de Franceville (CIRMF)/Institut de recherché pour le développement (IRD), AED/PREVENT

    Expected result(s): Developed framework for surveillance data coordination with partners; continued sampling and testing of samples for pathogens of concern; initiated pathogen discovery for wildlife and other animal samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional and trans-organizational surveillance network; strengthened partnerships with PREVENT for coordination of activities involving community-based reporting networks.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    The use of novel sample preservation technologies, including blood spot filter paper, RNA*later*® and liquid nitrogen, piloted in Y1, will be continued. A liquid nitrogen plant installed in partnership with the Congolese National Public Health Laboratory and NIH/NIAID in Y1 will be used in Y2 to develop effective and reliable cold chain capacity throughout the Republic of Congo.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

    Partners: WCS, Columbia University, National Public Health Laboratory (NPHL), National Institutes of Health/NIAID Rocky Mountain Laboratories, Public Health Agency Canada, Centre International de Recherches Médicales de Franceville (CIRMF)/ Institut de recherché pour le développement (IRD), PREDICT DRC Laboratory

    Expected result(s): New technologies introduced and utilized; identified capacity gaps in the PREDICT Congo Laboratory and introduction of appropriate training and material resources where possible; expanded infrastructure of the PREDICT Congo Laboratory to improve pathogen detection capacity and cold storage for sample archiving; appropriate samples sent to CIRMF, Columbia University laboratory and/or other appropriate laboratories for pathogen discovery.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

    Partners: WCS, PREDICT Information Management Team

    Expected result(s): Added Administrative Assistant/Data Manager to the Congo team; all sample data entered into GAINS; completed training on sample tracking and data management; implemented standardized labeling and tracking system; data provided to UC Davis through GAINS

on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: WCS, PREDICT Modeling and Hotspot ID Team

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREDICT and PREVENT partners for "ground truthing" the model examining the rate and nature of contact at the human-wildlife interface in Congo.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with national ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed	Management and coordination of all capacity building and surveillance activities; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continue ongoing multi-faceted communication with in-country partners and with the PREDICT team through weekly conference calls and interaction on PREDICT Congo Basecamp site; continued compliance of all reporting requests from USAID through UCD; surveillance data into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed; Capacity Building Team	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of training materials;	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			planning discussions with partners in PREVENT to increase the capacity of existing local village wildlife surveillance networks.					
1.3	Surveillance	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed Surveillance Team	Developed framework for surveillance data coordination with partners; continued sampling and testing of samples for pathogens of concern; pathogen discovery initiated for wildlife and other animal samples; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional and trans-organizational surveillance network; strengthened partnerships with PREVENT for coordination of community-based reporting networks.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed Technology Development Team	New technologies introduced and utilized; identified capacity gaps in the PREDICT Congo Laboratory and introduction of training and material resources; expanded infrastructure of the PREDICT Congo Laboratory to improve pathogen detection capacity and cold storage for sample archiving; samples sent to CIRMF, Columbia University laboratory and/or other	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			laboratories for pathogen discovery.					
1.5	Sample Tracking and Information Management	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed; Information Management Team	Added Administrative Assistant/Data Manager to the Congo team; all sample data entered into GAINS; completed training on sample tracking and data management; Implemented standardized labeling and tracking system; data to UC Davis through GAINS monthly; Timely and efficient response to requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed Modeling Team	Sample data uploaded into GAINS; dap analysis conducted on surveillance plan and optimized as needed; data to UCD through GAINS monthly; efficient response to Modeling team requests for surveillance data; cooperation with PREDICT and PREVENT partners for "ground truthing" the rate and nature of contact at the human-wildlife interface in Congo.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – REPUBLIC OF CONGO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Kenneth Cameron
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator Kenneth Cameron
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.1.4 Reporting	Timely compliance of all reporting requirements; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.2.1 Capacity Assessment	Follow-up on PREDICT rapid CAP tool Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Kenneth Cameron

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Technology Development lead Joseph Fair and Diagnostic lead Tracey Goldstein
1.4.2 Pathogen Discovery	Improved laboratory infrastructure for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Technology Development lead Joseph Fair and Diagnostic lead Tracey Goldstein
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed	GAINS	Monthly	Country Coordinator Kenneth Cameron, Regional Coordinator Patricia Reed, Surveillance lead Christine Johnson

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	locations Revise surveillance plan	Quarterly Report	Quarterly	

COUNTRY PROJECT MANAGEMENT – REPUBLIC OF CONGO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Republic of Congo is the Wildlife Conservation Society (WCS). Oversight of PREDICT activities in Country will be managed by Country Coordinator, Kenneth Cameron and Regional Coordinator Patricia Reed, with support from Technical Team Leaders (Capacity Building, Surveillance, Monitoring, Technology and Diagnostics). In addition, PREDICT has 5 staff members in country, including Veterinarian Alain Ondzie, Biologist Zorine N'Kouantsi, and Field Assistants Marc-Joël Akongo, Serge Kaba, and Gerard Bounga. An Assistant Veterinarian, Administrator/Data Manager, and Driver will be added to the Republic of Congo operations during year 2.

Overview

The Republic of Congo's tropical forests contain an astonishing level of biodiversity, including large numbers of primates, bats, rodents, shrews, and ungulates. The region provides an optimal opportunity for wildlife disease surveillance at one of Africa's most active human-wildlife interfaces and in an Ebola virus-endemic region. As recently as 2005, Ebola Hemorrhagic Fever outbreaks have affected both human and wildlife populations, including large populations of gorillas and chimpanzees. High consumption of wildlife meat ("bushmeat") from these and other species in the country carries with it a very active human-wildlife interface. The significant presence of existing and prospecting extractive industries increase the risk for disease emergence by altering habitats, changing ranging patterns of key wildlife species, and increasing human-wildlife interaction in remote areas; this adds to the potential for pathogen emergence and transmission. Despite the wealth of biodiversity and intimate interaction of populations at these interfaces, the Republic of Congo's current capacity to conduct wildlife disease surveillance at a regional and national level is still developing. Through existing and future collaborations with wildlife authorities, animal agriculture, human health ministries, and other wildlife and health professionals, PREDICT will work to help improve and expand current surveillance in high-risk regions and build in-country capacity to continue these surveillance activities in the future. During this first year of the EPT program, WCS teams in Republic of Congo catalyzed the response to an outbreak of what was believed to be Ebola hemorrhagic fever, including mobilizing teams to investigate the potential involvement of wildlife and supporting Congolese public health authorities and international response teams.

Activities and Locations

PREDICT will continue to establish coordination and partnerships with ministries and governmental and non-governmental organizations to facilitate the acquisition and sharing of surveillance samples and data. Our goal for the coming year it to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and entering of results in the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife pathogens of pandemic risk, focusing on:

- **Taxa:** primates, bats, rodents, shrews, porcines, other ungulates, carnivores, and livestock, as appropriate
- **Interfaces:** hunting, bushmeat markets, depredation, free-ranging (human-wildlife, livestock-wildlife), syndromic
- **Proposed Locations:** North (Nouabalé-Ndoki National Park); North-central (Odzala-Kokoua National Park, Ngombé Forestry Management Unit and peripheral communities); South-central (Zanaga mining region)

Partnerships
In Republic of Congo partnerships have been established with the Ministry of Health, National Public Health Laboratory, Ministry of Health Endemic Diseases, Ministry of Animal Production, Ministry of Forest Economy, National Institutes of Health/NIAID Rocky Mountain Labs, Public Health Agency Canada, WHO-Congo Office, WHO-Afro Office, Centre International de Recherches Médicales de Franceville (CIRMF)/ Institut de recherché pour le développement (IRD) Gabon, The Jane Goodall Institute, Aspinall Foundation, **Habitat Ecologique et Liberté des Primates (HELP)**.

Reporting: There is no USAID mission within the Republic of Congo. Preliminary PREDICT discussions were held with the US Embassy Ambassador, Alan Eastham, who has left his post and has yet to be replaced. In the interim, quarterly updates will be provided to the Embassy Deputy Chief of Mission, Jonathan Pratt, as requested by him.

In addition, the country and regional coordinators communicate with each other and the WCS headquarters weekly or more often as needed

Rwanda

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person

meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: UC Davis, MGVP

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense-tracking, including monthly financial reporting to UCD; continue ongoing multifaceted communication with in-country partners including the USAID Mission to Rwanda through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Rwanda Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and transmitting surveillance data as generated to PREDICT team.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: UC Davis, MGVP

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity

Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across RWANDA:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** Primates, bats, and rodents; birds, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** Syndromic, free-ranging (ecotourism, shared water sources, urbanized wildlife), depredation, hunted, traded.
    - **Proposed Locations:** Northwest (Volcanoes National Park, Ruhengeri/Kinigi area, Gisenyi/Lake Kivu), Southwest (Nyungwe National Park, Butare area, Burundi border), West/Central (Kigali area, Kibuye area), Northeast (Akagera National Park), and South (Burundi border).

  Partners: UC Davis, MGVP, Rwanda Development Board-Tourism and Conservation, Rwanda Animal Resource Development Authority (RARDA), Ministry of Health, Trak-PLUS, Kigali Health Institute, Centers for Disease Control-Rwanda Offic.

  Expected result(s): Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s).

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Cooperate with PREDICT on the introduction of novel technologies with relevant field application in Rwanda.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface described above under sub-activity 1.3.1 Surveillance;

identify laboratory needs and to increase capacities to conduct pathogen detection in-country.

Partners: UC Davis, MGVP

Expected result(s): New technologies introduced and utilized; diagnostic capacity gaps identified at RARDA and appropriate training and requisite equipment and supplies acquired so that RARDA can serve as primary wildlife diagnostic laboratory for virology and improved sample storage in Rwanda.

- **Activity 1.5: Sample Tracking and Information Management**
  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: UC Davis, MGVP

Expected result(s): All sample data entered into GAINS database and provided to UC Davis on a monthly basis; trainings conducted for appropriate personnel on sample tracking and data management; Technical Assistant hired to help with data input; MGVP's labeling and sample tracking protocols/systems modified to align with PREDICT system(s); all requests for surveillance data met in a timely manner.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

Partners: UC Davis, MGVP

Expected result(s): Sample data uploaded into GAINS database; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on monthly basis; all requests for surveillance data met in a timely manner.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as appropriate; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – RWANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data entered into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Julius Nziza, Technical Assistant, Rwanda Country	Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Leads Michael Cranfield and Kirsten Gilardi	systems with GAINS.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Julius Nziza, Technical Assistant, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	New technologies introduced and utilized; diagnostic capacity gaps identified at RARDA and appropriate training and requisite equipment and supplies acquired so that RARDA serves as laboratory diagnostic center with improved viral diagnostics capacity and cold storage for wildlife samples.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Julius Nziza, Technical Assistant, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	All sample data entered into GAINS and provided to UCD monthly; trainings conducted for appropriate personnel on sample tracking and data management; Technical Assistant hired to help with data input; MGVP's labeling and sample tracking protocols/systems modified to align with GAINS; all requests for surveillance data met in a timely manner.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of	Country Coordinator Julius Nziza,	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	disease emergence	Technical Assistant, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi	provided to UCD through GAINS monthly basis; all requests for surveillance data met in a timely manner.					

PERFORMANCE MONITORING PLAN - RWANDA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Julius Nziza
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator Julius Nziza
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Julius Nziza with review and approval by Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Julius Nziza.
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Julius Nziza and Rwanda Country Leads Michael Cranfield and Kirsten Gilardi.
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at RARDA for viral diagnostics and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein.
1.5.1 Sample Tracking and Information Management	Sample data received; Implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Julius Nziza, Technical Assistant (TBN)
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Julius Nziza, Rwanda Country Leads Michael Cranfield and Kirsten Gilardi, Surveillance lead Christine Johnson.

COUNTRY PROJECT MANAGEMENT – RWANDA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Rwanda is University of California, Davis and the implementing organization within Rwanda is the Mountain Gorilla Veterinary Project (MGVP). Oversight of PREDICT activities in Rwanda will be managed by Country Coordinator Julius Nziza, with support from Operational Leads M. Cranfield and K. Gilardi (MGVP and UC Davis). In addition, PREDICT Rwanda will add one new full-time staff member in Rwanda, a Technical Assistant (to be named); and already employs a part-time field veterinarian J. Ramer.

Overview

Rwanda provides an optimal opportunity for wildlife zoonotic disease surveillance in continental Africa's most densely populated country (population of 10 million people live in a country the size of Massachusetts, at a density of 379.6 people per sq. km). Almost the entire country is cultivated for subsistence farming, and intensive human land use abuts the boundaries of all three national parks (Volcanoes, Nyungwe Forest, and Akagera National Parks), forcing some wildlife species (particularly birds and including primates) to utilize highly urbanized or agriculturalized habitats. As well, developed tourism industry exists – 1 million visitors last year, and the country's largest source of foreign revenue – and is largely centered around opportunities to view wild mountain gorillas in Volcanoes NP, bringing people into daily direct and indirect contact with mountain gorillas, and by extension, other wildlife species, including primates. Like other Rift Valley countries, Rwanda is promoting cave tourism, which also brings people into close contact with bats. UC Davis' implementing partner, MGVP, has operated in Rwanda since 1986 in close cooperation with the Rwanda Development Board/Tourism and Conservation, the jurisdictional authority for wildlife and protected areas, on mountain gorilla health and disease issues affecting other wildlife species. MGVP has also monitored multiple wildlife and domestic species for disease exposure, including bats. These highly productive working relationships in addition to newly established relationships with the Rwanda Animal Resource Development Authority (RARDA), TRAC-Plus, and Umutara Polytechnic will allow for unique surveillance opportunities at the interface between wildlife, domestic animals, and people in the context of intense animal and plant agriculture and wildlife tourism in Rwanda.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk, focusing on:

- **Taxa:** Primates, bats, and rodents; birds, carnivores, ungulates, and livestock as appropriate
- **Interfaces:** Syndromic, free-ranging (ecotourism, shared water sources, urbanized wildlife), depredation, hunted, traded
- **Proposed Locations:** Northwest (Volcanoes National Park, Ruhengeri/Kinigi area, Gisenyi/Lake Kivu), Southwest (Nyungwe National Park, Butare area, Burundi border), West/Central (Kigali area, Kibuye area), Northeast (Akagera National Park), and South (Burundi border).

Partnerships
In Rwanda, partnerships have been established through MGVP with the Rwanda Development Board/Tourism and Conservation, the Rwanda Animal Resource Development Authority (RARDA), the Ministry of Health, Trac-PLUS, Kigali Health Institute, Centers for Disease Control-Rwanda Office, National University of Rwanda, Umutara Polytechnic, and ISAI-Busogo. PREDICT will build on these partnerships to plan for enhanced collaboration in wildlife surveillance, expanding existing surveillance activities in Volcanoes National Park to the national level.

Reporting
In discussion with the USAID Mission in Rwanda, the PREDICT team has agreed to quarterly in-person meetings led by the Country Coordinator. These meetings have been occurring more frequently than quarterly, as requested by the Mission, during the start-up phase of PREDICT in Rwanda.

In addition, the Country Coordinator and University of California teams communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive “To Do” lists through the Basecamp project site.

Tanzania

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project

Expected result(s): Coordinated management of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continued ongoing multi-faceted communication with in-country partners including the USAID Mission to Tanzania through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Tanzania Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and integrated surveillance reporting through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Tanzania:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** primates, bats, rodents, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** hunting, depredation, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
    - **Proposed Locations:** South-central (Eastern Arc Mountains - Uduzungwa, Uluguru; Kilombero Valley; Ruaha National Park & surrounding protected areas & communities), Western (Katavi National Park & surrounding areas, Mahale National Park, Gombe National Park), South-east (Selous National Park & surrounding areas), North (Serengeti Ecosystem), North-east (Eastern Arc - Usambara Mtns), Eastern (Coastal, Dar es Salaam & surrounding areas), Central (Morogoro & Uluguru Mtns, Mikumi National Park & surrounding areas)

Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project, National Institute of Medical Research, Muhimbili University Health and Allied Sciences, Ministry of Health, Ministry of Natural Resources and Tourism, Ministry of Livestock and Fisheries Development (MoLFD), MoLFD Central Veterinary Laboratory, Center for Disease Control and Prevention - Tanzania Country Office, Tanzania National Parks, Tanzania Wildlife Research Institute

Expected result(s): Developed framework for surveillance data coordination with partners; pathogen detection and discovery on collected samples; integrated existing HALI project surveillance sample tracking system with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    A new micro-liquid nitrogen plant will be installed in Iringa to effectively develop cold chain capacity throughout the central, western, and southern regions of Tanzania. Continue to cooperate with PREDICT on the introduction of other novel technologies with relevant field application in Tanzania.

  Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen detection in-country.

  Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project

  Expected result(s): New technologies introduced and utilized; identified capacity gaps in SUA's laboratory diagnostic center and introduction of appropriate training and material resources; expanded infrastructure of SUA's Veterinary Medicine diagnostic center to improve virology capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database. Implement and utilize standardized labeling and tracking system in-country.

  Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project

  Expected result(s): All sample data entered into GAINS database; completed trainings on sample tracking and data management; appointment of an Assistant Country Coordinator and office/data manager to the Iringa field office headquarters to manage data; implemented standardized labeling and tracking system; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

Partners: UCD, Sokoine University of Agriculture (SUA), HALI Project, Modeling Team

Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building

No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction

No Planned Activities

IMPLEMENTATION PLAN – TANZANIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa Operations Officer David Wolking	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data entered into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa Operations Officer David Wolking; Capacity Building Team	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country	Developed framework for surveillance data	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa Operations Officer David Wolking; Surveillance Team	coordination with partners; pathogen detection and discovery on collected samples; integrated existing HALI project surveillance sample tracking system with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa Operations Officer David Wolking	New technologies introduced and utilized; identified capacity gaps in SUA's laboratory diagnostic center and introduction of training and material resources; expanded infrastructure of SUA's Veterinary Medicine diagnostic center to improve viral diagnostics capacity and cold storage for sample archival.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa	All sample data entered into GAINS; completed trainings on sample tracking and data management; appointment of an Assistant Country Coordinator and office/data manager to the Iringa field office headquarters to manage data; implemented standardized labeling and	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Operations Officer David Wolking, Information Management Team	tracking system; data provided to UC Davis through GAINS monthly timely and efficient response to all requests for surveillance data.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Harrison Sadiki, Assistant Coordinator (TBD), East Africa Operations Officer David Wolking	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS monthly; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - TANZANIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Harrison Sadiki

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator Harrison Sadiki
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Harrison Sadiki with review and approval by East Africa Operations Officer David Wolking, SUA PI Rudovick Kazwala.
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Harrison Sadiki
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted	Basecamp & GAINS database	Monthly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	species, interfaces, and proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Technology Development lead Joseph Fair and Diagnostic lead Tracey Goldstein
1.4.2 Pathogen Discovery	Improved infrastructure at SUA for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Technology Development lead Joseph Fair and Diagnostic lead Tracey Goldstein
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Harrison Sadiki, Assistant Country Coordinator (TBN)
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Harrison Sadiki, East Africa Operations Officer David Wolking, Surveillance lead Christine Johnson

COUNTRY PROJECT MANAGEMENT – TANZANIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Tanzania is the University of California, Davis (UCD) and the implementing organization within Tanzania is Sokoine University of Agriculture (SUA). Oversight of PREDICT activities in Tanzania will be managed by Country Coordinator, Harrison Sadiki (SUA), with support from Technical Team Leaders D. Wolking (UCD) and R. Kazwala (SUA PI). In addition, PREDICT has 4 staff members in-country, including Field Assistant Muhiddin Salehe, Field Assistant and Driver Erasto Paul Katowo, Driver Amani Zacharia, and Office Administrative Assistant Zenna Babu. An additional four Game Scouts assist this core team in field surveillance through animal capture, handling, and sampling support. Both an Assistant Country Coordinator and Office/data Manager will be added to the Iringa field office headquarters.

Overview

Tanzania provides an optimal opportunity for wildlife zoonotic disease surveillance at what is one of Africa's most active wildlife-livestock-human interface areas. In the more arid areas of the Rift Valley, water diversion and land conversion for agriculture coupled with continued population growth are restricting once vast livestock grazing areas for traditional livestock keepers. The result is an increase of livestock populations on remaining grazing land, often bordering villages and wildlife protected areas. The increasing density of livestock near protected areas coupled with water scarcity (with resultant flood/drought cycles due to watershed degradation) may change the dynamics of current zoonotic threats, and may facilitate transmission of diseases of pandemic potential across this interface. Additionally, Tanzania possesses many islands of rainforest habitat, most notably the Eastern Arc mountains, which are biodiversity hotspot due to the high degree of endemism and small mammal diversity, providing an exceptional opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the wealth of biodiversity and intimate interaction of populations in these interfaces, Tanzania's current capacity to conduct wildlife disease surveillance at a regional and national level is still developing. Through the implementing partner, SUA in Morogoro, existing collaborations with government veterinary and livestock ministries, wildlife authorities, and human health professionals enable PREDICT to increase and expand wildlife surveillance activities from the Southern Highlands region to other high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, carnivores, ungulates and livestock as appropriate
- **Interfaces:** hunting, depredation, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
- **Potential Locations:** South-central (Eastern Arc Mountains - Uduzungwa, Uluguru; Kilombero Valley; Ruaha National Park & surrounding protected areas & communities), Western (Katavi National Park & surrounding areas; Mahale National Park; Gombe National Park), South-east (Selous National Park & surrounding areas), North (Serengeti Ecosystem), North-east (Eastern Arc - Usambara Mtns), Eastern (Coastal, Dar es Salaam & surrounding areas), Central (Morogoro & Uluguru Mtns; Mikumi National Park & surrounding areas)

Partnerships

In Tanzania, partnerships have been established through Sokoine University of Agriculture with the National Institute of Medical Research, Muhimbili University Health and Allied Sciences, Ministry of Health, Ministry of Natural Resources and Tourism, Ministry of Livestock and Fisheries Development (MoLFD), MoLFD Central Veterinary Laboratory, Center for Disease Control and Prevention - Tanzania Country Office, Tanzania National Parks, and Tanzania Wildlife Research Institute. PREDICT will build on these partnerships to plan for enhanced collaboration in wildlife surveillance, expanding existing surveillance activities in the Southern Highlands to the national level.

Reporting

In discussions with the USAID Mission to Tanzania, the PREDICT Tanzania team has developed a monthly reporting structure led by the Country Coordinator. These “Monthly Partner Updates” summarize monthly achievements and progress and are submitted to the managing partner UC Davis and USAID for review, and then distributed to the USAID Mission contact. Following Mission review and comment, the Partner Updates are then shared with all key in-country partners facilitating an interactive communication structure encouraging feedback and partner participation.

In addition, the Country Coordinator and University of California teams communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive “To-Do-Lists” through the Basecamp project site.

Uganda

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures in Uganda to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: UC Davis, MGVP

    Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense-tracking, including monthly financial reporting to UCD; continue ongoing multifaceted communication with in-country partners including the USAID Mission to Uganda through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT Uganda Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and transmitting surveillance data as generated to PREDICT team.

- **Activity 1.2 Capacity Building**
    - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess

country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

- Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: UC Davis, MGVP

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Uganda:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** Primates, bats, and rodents; birds, carnivores, ungulates and livestock as appropriate.
    - **Interfaces:** Syndromic, free-ranging (ecotourism, shared water sources, urbanized wildlife), depredation, hunted, traded
    - **Proposed Locations:** North (Uganda/Sudan border); Central (Kibangya/Kafu River area, and Central Uganda districts); Central (Kampala/Entebbe, Ngamba Island); East (Mt. Elgon National Park area); West (Budongo Forest Reserve); and Southwest (Bwindi Impenetrable Forest National Park, Mgahinga National Park, Queen Elizabeth National Park, Semliki and Rwennzori National Park areas).

Partners: UC Davis, MGVP, Uganda Wildlife Authority, Makerere University Faculty of Veterinary Medicine and School of Public Health, Ministry of

Health, Centers for Disease Control - Uganda Office, Institute of Tropical Forest Conservation (ITFC), Jane Goodall Institute (JGI), Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Nature Uganda

Expected result(s): Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with PREDICT system(s).

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure; cooperate with PREDICT on the introduction of additional novel technologies with relevant field application in Uganda. Mobile phone surveillance technology was implemented by the Smithsonian Conservation Biology Institute in Queen Elizabeth National Park to launch the Animal Mortality Monitoring Program (AMMP) in year 1; in year 2 SI, the Uganda country coordinator, Uganda Wildlife Authority (UWA) and four partner organizations (Ministry of Agriculture – Animal Industry and Fisheries, MGVP, Conservation Through Public Health) will test and implement AMMP in at least two other conservation areas.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: UC Davis, MGVP

  Expected result(s): New technologies introduced and utilized; diagnostic capacity gaps identified at Makerere University and appropriate training and requisite equipment and supplies acquired so that Makerere University is serving as primary wildlife diagnostic laboratory in Uganda; mobile phone surveillance technology implemented in Queen Elizabeth National Park and outcomes evaluated (a) how and if cell phone technology improves existing (largely paper-based) animal mortality reporting methods, (b) data-form designs that are easiest to use and most efficient for both government- and community-based reporting, (c) accessibility of the data being reported, (d) the reliability of data using mobile phone technology, and (e) a two-tiered system for animal mortality reporting.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: UC Davis, MGVP

  Expected result(s): All sample data entered into GAINS and provided to UC Davis on a monthly basis; trainings conducted for appropriate personnel on sample tracking and data management; Technical Assistant hired to help with data input; MGVP's labeling and sample tracking protocols/systems modified to align with PREDICT system(s); link the AMMP and GAINS databases; all requests for surveillance data met in a timely manner.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: UC Davis, MGVP

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on monthly basis; all requests for surveillance data met in a timely manner.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – UGANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Full fiscal disclosure and near real-time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data entered through the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Benard Ssebide, Technical Assistant (TBN), Uganda Country	Coordinated surveillance data collection at high risk interfaces with partners; pathogen detection and discovery on collected samples; integration of the MGVP's sample tracking and diagnostic data collection systems with GAINS.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Leads Michael Cranfield and Kirsten Gilardi						
1.4	Technology Development and Pathogen Discovery	Country Coordinator Benard Ssebide, Technical Assistant (TBN), Uganda Country Leads Michael Cranfield and Kirsten Gilardi	New technologies introduced and utilized; diagnostic capacity gaps identified at Makerere University and appropriate training and requisite equipment and supplies acquired so that Makerere University is serving as primary wildlife diagnostic laboratory in Uganda; mobile phone surveillance technology implemented in Queen Elizabeth National Park.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Benard Ssebide, Technical Assistant (TBN), Uganda Country Leads Michael Cranfield and Kirsten Gilardi	All sample data entered into GAINS and provided to UCD monthly; trainings conducted for personnel on sample tracking and data management; Technical Assistant hired to help with data input; MGVP's labeling and sample tracking protocols/systems modified to align with PREDICT system(s); link the AMMP and GAINS databases; all requests for surveillance data met.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of	Country Coordinator Benard Ssebide,	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	disease emergence	Technical Assistant, Uganda Country Leads Michael Cranfield and Kirsten Gilardi	to UC Davis through GAINS on monthly basis; all requests for surveillance data met in a timely manner.					

PERFORMANCE MONITORING PLAN - UGANDA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Benard Ssebide
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator Benard Ssebide
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Benard Ssebide with review and approval by Uganda Country Leads Michael Cranfield and Kirsten Gilardi.
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi.
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Benard Ssebide.
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi.
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein.

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at Makerere University for viral diagnostics and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein.
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Benard Ssebide, Technical Assistant (TBN).
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Benard Ssebide, Uganda Country Leads Michael Cranfield and Kirsten Gilardi, Surveillance lead Christine Johnson.

COUNTRY PROJECT MANAGEMENT – UGANDA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Uganda is UC Davis and the implementing organization within Uganda is the Mountain Gorilla Veterinary Project (MGVP). Oversight of PREDICT activities in Uganda are managed by Country Coordinator Benard Ssebide with support from Operational Leads Michael Cranfield and Kirsten Gilardi. In addition, PREDICT will add one new additional full-time staff member in Uganda, a Technical / Field/ Laboratory/ Assistant (to be named).

Overview

Uganda presents several unique and promising opportunities for surveillance of zoonoses in wildlife with pandemic potential: the country has a long-standing and well-established network of national parks, all of which provide protection for several primate species, and all of which are surrounded by intensive animal agriculture and dense human communities, resulting in significant wildlife/livestock/human interactions and conflict. Uganda is home to half the world's population of mountain gorillas, for which there is a thriving ecotourism industry that brings people (local and foreign) into daily contact with gorillas. Mountain gorillas also exit protected areas to forage in cultivated fields at park margins, thereby coming into direct and indirect contact with people and domestic animals. Additionally, there is a burgeoning cave tourism industry developing in Uganda, which brings people (both Ugandans and tourists) into close contact with bat species. These factors, coupled with the significant infrastructure in place for monitoring and surveillance (e.g. Uganda Wildlife Authority and Makerere University, the latter of which already houses a state-of-the-art US Dept. of Defense-funded influenza diagnostic laboratory) and the close working ties that already exist between the MGVP and these entities, facilitate a comprehensive wildlife zoonoses surveillance program in Uganda.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk, focusing on:

- **Taxa:** Primates, bats, and rodents; birds, carnivores, ungulates and livestock as appropriate
- **Interfaces:** Syndromic, free-ranging (ecotourism, shared water sources, urbanized wildlife), depredation, hunted, traded
- **Proposed Locations:** North (Uganda/Sudan border); Central (Kibangya/Kafu River area, and Central Uganda districts); Central (Kampala/Entebbe, Ngamba Island); East (Mt. Elgon National Park area); West (Budongo Forest Reserve); and Southwest (Bwindi Impenetrable

Forest National Park, Mgahinga National Park, Queen Elizabeth National Park, Semliki and Rwennzori National Park areas).

Partnerships
In Uganda, partnerships have been established through MGVP with the Uganda Wildlife Authority, Makerere University Faculty of Veterinary Medicine and School of Public Health, Ministry of Health, Uganda Virus Research Institute, Centers for Disease Control-Uganda Office, Institute of Tropical Forest Conservation, Jane Goodall Institute. PREDICT will build on these partnerships to plan for enhanced collaboration for wildlife surveillance and expanding existing surveillance activities in Bwindi Impenetrable Forest National Park to the national level.

Reporting
Discussions with the USAID Mission to Uganda have occurred in formal, multi-project meetings only, as no Mission Point of Contact for EPT, including PREDICT, has been identified. Once that PoC is identified, PREDICT will discuss and comply with the Mission's preferred communication format.

The Country Coordinator and University of California teams communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive "To Do" lists through the Basecamp project site.

SOUTHEAST ASIA REGION

Cambodia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

  Partners: WCS, Hong Kong University (HKU), Institut Pasteur de Cambodge (IPC), National Veterinary Research Institute (NaVRI), Ministry of Agriculture, Forestry and Fisheries (MAFF)

  Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continue on-going multi-faceted communication between Country Coordinators, Regional Coordinators and WCS headquarters in New York through electronic media (including interaction on the Cambodia Basecamp site), scheduled conference calls and face-to-face meetings; continue regular communications with in-country partners including the USAID Mission to Cambodia; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis; surveillance data entered through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Bat/rodent capture and sampling, and Bushmeat sampling.

    Partners: WCS, Hong Kong University, Institut Pasteur de Cambodge, National Veterinary Research Institute, Ministry of Agriculture, Forestry and Fisheries; AED/PREVENT

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; planning discussions with PREVENT partners to investigate possible collaborative opportunities; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Cambodia:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk.

    - **Taxa:** bats, rodents, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** hunters, market confiscations, free-ranging
    - **Proposed Locations:** North-west Kulem Promptep Wildlife Sanctuary (KPWS, Siem Reap, Odar Meanchey and Preah Vihear Provinces), Preah Vihear Protected Forest (PVPF, Preah Vihear Province), Battambang and Pursat Provinces; North-east Kratie, Stung Treng and Rattanakiri Provinces, Mondulkiri Province (including Seima Protected Forest, Sen Monorom and Busra waterfall); Central Southern Tonle Sap area including Kampong Cham, Kampong Chhnang, Kampong Speu and Kampong Thom Provinces; South-west Kandal Province (including Phnom Penh City); South-east Vietnam border areas including Prey Veng and Svey Rieang Provinces

  Partners: WCS, Hong Kong University, Institut Pasteur de Cambodge, National Veterinary Research Institute, Ministry of Agriculture, Forestry and Fisheries, AED/PREVENT

  Expected result(s): Developed a framework for surveillance data coordination with partners; pathogen detection and discovery on newly acquired wildlife samples; integrated existing WCS Cambodia sample tracking system with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network; coordination opportunities investigated with PREVENT.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    Continue to cooperate with Institut Pasteur du Cambodge to introduce pyrosequencing technology in Cambodia; continue to utilize filter card sample collection as a means of obtaining diagnostically viable samples in remote areas, by personnel trained in their use.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

    Partners: WCS, Institut Pasteur de Cambodge, National Veterinary Research Institute, Ministry of Agriculture, Forestry and Fisheries

    Expected result(s): New relevant technologies and laboratory technical knowledge introduced and utilized; identified capacity gaps in Cambodia and introduced appropriate training and material resources where possible; cooperate with IDENTIFY to help expand Cambodian infrastructure to improve capacity to handle, process and store samples; identified regional or international laboratories with additional diagnostic capacity where appropriate.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

    Partners: WCS, Hong Kong University, Institut Pasteur de Cambodge, National Veterinary Research Institute, Ministry of Agriculture, Forestry and Fisheries

    Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; implemented standardized labeling and tracking system; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: WCS, Hong Kong University, Institut Pasteur de Cambodge, National Veterinary Research Institute, Ministry of Agriculture, Forestry and Fisheries, Modeling Team, AED/PREVENT

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREDICT and PREVENT partners on potential projects that contribute to risk determination.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – CAMBODIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Priscilla Joyner, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; Weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting through the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Priscilla Joyner, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang, Capacity Building Team	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; planning discussions with PREVENT partners to investigate collaborative opportunities; implementation of training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Priscilla Joyner,	Developed framework for surveillance data coordination with partners; pathogen detection and discovery on	**X**	**X**	**X**		**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang Surveillance Team	newly acquired wildlife samples; integrated existing WCS Cambodia sample tracking system with GAINS; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network; coordination opportunities investigated with PREVENT.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Priscilla Joyner, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang, Development Team	New relevant technologies and laboratory technical knowledge introduced and utilized; identified capacity gaps in Cambodia and introduced training and material resources; cooperate with IDENTIFY to expand Cambodian infrastructure to improve capacity to handle, process and store samples; identified regional or international laboratories with additional diagnostic capacity.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Priscilla Joyner, Associate Director – Asia Martin Gilbert, Regional Manager Angela	All sample data entered into GAINS; trainings completed on sample tracking and data management; implemented standardized labeling and tracking system; data to UC Davis through GAINS monthly; Timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Yang, Information Management Team						
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Priscilla Joyner, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang, Modeling Team	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS monthly; response to Modeling team requests for surveillance data; cooperation with PREVENT partners on potential projects that contribute to risk determination.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - CAMBODIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and Basecamp	Weekly	Country Coordinator Priscilla Joyner

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country Coordinator Priscilla Joyner
1.1.3 Communication	Mission and Partner Updates	Basecamp	Monthly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert Regional Manager Angela Yang
1.1.4 Reporting	Compliance of all reporting requests; Surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert Regional Manager Angela Yang
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted	Basecamp & GAINS database	Monthly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	species, interfaces, and proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert
1.4.2 Pathogen Discovery	Improved infrastructure in local laboratories for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Priscilla Joyner Associate Director – Asia Martin Gilbert
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator: Priscilla Joyner Associate Director – Asia: Martin Gilbert

COUNTRY PROJECT MANAGEMENT – CAMBODIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organization for Cambodia is Wildlife Conservation Society (WCS). Oversight of PREDICT activities in-country will be managed by Cambodia Country Coordinator, Priscilla Joyner with support from Regional Director-Asia, Martin Gilbert (WCS) and PREDICT Technical Team Leaders (Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein, Surveillance lead Christine Johnson). In addition, PREDICT has four staff members in-country, including Regional Manager Angel Yang, Project Officer Chea Sokha, Financial Assistant Sar Soknan and Driver Kep Niramon.

Overview

The trade in wildlife is increasingly recognized as a potential avenue for zoonotic pathogens to spread to from wildlife populations into humans. The regional trade of wild mammals may have played a role in the movement of SARS through Southeast Asia, and there is compelling evidence that SARS was first transmitted to humans in wild animal markets in Guangdong Province, China. Cambodia is a key source, conduit, and consumer of wildlife and presents opportunities for advancing understanding of the risk drivers in pathogen emergence in a variety of interface settings.

Nearly 60% of Cambodia is still forested and provides a wealth of opportunities for wild game hunting. Wild animals are hunted then butchered before being sold in city and provincial markets. Markets also act as a central meeting point for live domestic animals and humans, including immuno-compromised individuals. As a result, markets provide an ideal situation for disease transmission. The high demand for wild animal meat and products, forest concessions being sold for industry development and a growing middle class wealth in Cambodia combined with porous international borders results in an increased risk of contact with wildlife for humans and domestic animals. Thus, Cambodia provides the opportunity to conduct zoonotic disease surveillance at the wildlife-livestock-human interface within the wildlife trade arena.

WCS has developed positive relationships with wild animal trappers, wild game traders, middlemen and restaurant owners selling wild meat in several provinces throughout Cambodia. These relationships provide an excellent opportunity to examine relative risk among different trade species and settings and sample wild animals involved in events of high-risk human activities.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify

zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk focusing on:

- **Taxa:** bats, rodents, carnivores, ungulates and livestock as appropriate
- **Interfaces:** hunters, market confiscations
- **Proposed Locations:** North-west Kulem Promptep Wildlife Sanctuary (KPWS, Siem Reap, Odar Meanchey and Preah Vihear Provinces), Preah Vihear Protected Forest (PVPF, Preah Vihear Province), Battambang and Pursat Provinces, North-east Kratie, Stung Treng and Rattanakiri Provinces, Mondulkiri Province (including Seima Protected Forest, Sen Monorom and Bushra waterfall), Central Southern Tonle Sap area including Kampong Cham, Kampong Chhnang, Kampong Speu and Kampong Thom Provinces, South-west Kandal Province (including Phnom Penh City), South-east Vietnam border areas including Prey Veng and Svey Rieang Provinces

Partnerships
In Cambodia, partnerships have been established with the Institut Pasteur de Cambodge, Ministry of Food, Fisheries and Forest, National Veterinary Research Institute, and Hong Kong University.

Reporting
Country Coordinator Priscilla Joyner met with RDMA staff from Thailand during the Southeast Asia Planning Meeting on June 4, 2010. PREDICT staff also met with John Rogosch, Acting Director, Office of Public Health and Education, USAID (Cambodia) and Andrew Clements on August 13, 2010. The post has recently been filled, and the new Director will begin at the end of August. There will also be a new Deputy Director. Reporting structure will be established by the Director in collaboration with PREDICT Country Coordinator, Priscilla Joyner, at that time.

In addition, the Country Coordinator, Associate Director – Asia and Regional Manager communicate with each other and the WCS headquarters weekly or more often as needed.

Lao PDR

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).

- Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: WCS, National Animal Health Centre, Mahosot Hospital-Oxford Tropical Medicine Research Collaboration, AED/ PREVENT

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continued on-going multi-faceted communication between Country Coordinators, Regional Coordinators and WCS headquarters in New York through electronic media (including interaction on the Laos Basecamp site), scheduled conference calls and face-to-face meetings; continued regular communications with in-country partners including the USAID Mission to Lao PDR; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis and entering surveillance data through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain

implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: WCS, National Animal Health Centre, National University of Laos, Mahosot Hospital-Oxford Tropical Medicine Research Collaboration, AED/ PREVENT

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; planning discussions with PREVENT partners to investigate possible collaborative activities; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  Sub-activity 1.3.1: **Coordination of surveillance activities across Lao PDR:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

  - **Taxa:** bats will be the main initial target taxa but focus will also be given to sampling of rodents, carnivores, ungulates and livestock as appropriate
  - **Interfaces:** hunting, village consumption, trade confiscations, markets, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
  - **Proposed Locations:** Vientiane Capital City Prefecture and Vientiane Province, Houapanh Province, Luang Prabang Province, Khammouane and Bolikhamxay provinces.

  Partners: WCS, National Animal Health Centre, Department of Agriculture and Forestry, National University of Laos, Mahosot Hospital-Oxford Tropical Medicine Research Collaboration, AED/ PREVENT

  Expected result(s): Review and approval of all projects to comply with animal welfare and human ethical criteria by appropriate committees; strategically implemented surveillance in key wildlife human interfaces in collaboration with in-country partners as contribution to a diverse national

surveillance network; possible partnering and coordination opportunities investigated with PREVENT; pathogen detection and discovery on newly acquired wildlife samples; entry of sampling and epidemiological data into GAINS system to ensure sharing of data and enhance cooperation with partners.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Introduce new technologies for adequate cold chain maintenance to more isolated rural sampling sites; continue to utilize filter card sample collection as a means of obtaining diagnostically viable samples in remote areas, by personnel trained in their use.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: National Animal Health Centre, Mahosot Hospital-Oxford Tropical Medicine Research Collaboration

  Expected result(s): New relevant technologies and laboratory technical knowledge introduced and utilized; identified capacity gaps in National Animal Health Centre laboratory diagnostic center and appropriate training and material resources introduced where possible; collaboration with IDENTIFY to expand infrastructure of National Animal Health Centre laboratory diagnostic center to improve capacity to handle, process and store samples; regional or international laboratories with additional diagnostic capacity identified.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: WCS, National Animal Health Centre

  Expected result(s): Standardized field surveillance data collection across all projects in-country; all sample data entered into GAINS database; effective tracking of wildlife samples and diagnostics collected by PREDICT projects in Lao PDR.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: WCS, National Animal Health Centre, Modeling Team, AED/PREVENT

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREDICT and PREVENT partners on potential projects that contribute to risk determination.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – LAO PDR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Lucy Ogg Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Lucy Ogg Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang, Capacity Building Team	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries in-country; implementation of all official training materials; planning discussions with PREVENT to investigate collaborative activities.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator	Developed framework for surveillance data coordination with	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Lucy Ogg Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang, Surveillance Team	partners; review and approval of activities to comply with animal welfare and human ethical criteria by appropriate committees; pathogen detection and discovery on wildlife samples; entry of sampling and epidemiological data into GAINS database; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a diverse national surveillance network; coordination opportunities with PREVENT.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Lucy Ogg Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang	New relevant technologies and laboratory knowledge introduced and utilized; identified capacity gaps in National Animal Health Centre laboratory diagnostic center and training and material resources introduced; collaboration with IDENTIFY to expand infrastructure of NAHC veterinary diagnostic center to improve viral diagnostic capacity; regional or international laboratories identified for diagnostics.	**X**		**X**		**X**
1.5	Sample Tracking and Information	Country Coordinator Lucy Ogg	Standardized field surveillance data collection across all activities in-country; all sample data entered into		**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Management	Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang	GAINS; effective tracking of wildlife samples and diagnostics collected.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Lucy Ogg Keatts, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UCD through GAINS monthly; response to all requests for surveillance data; cooperation with PREVENT on potential projects that contribute to risk determination.		**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN – LAO PDR

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype, email and Basecamp	Weekly	Country coordinator Lucy Ogg Keatts
1.1.2 Fiscal Management	Near-real time expense tracking	Basecamp	Monthly	Country coordinator Lucy Ogg Keatts Regional Manager Angela Yang
1.1.3 Communication	Mission and Partner Updates	Verbal reporting in country	Monthly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert Regional Manager Angela Yang
1.1.4 Reporting	Compliance in all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert Regional Manager Angela Yang
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Lucy Ogg Keatts Associate Director – Asia Martin Gilbert

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Surveillance	Framework for surveillance data coordination; Samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Lucy Ogg Keatts Associate Director – Asia Martin Gilbert
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert
1.4.2 Pathogen Discovery	Improved infrastructure at NAHC for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert
1.5.1 Sample Tracking and Information Management	Sample data entered; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Lucy Ogg Keatts Associate Director - Asia Martin Gilbert

COUNTRY PROJECT MANAGEMENT – LAO PDR

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organization for Lao PDR is Wildlife Conservation Society. Oversight of PREDICT activities in Lao PDR will be managed by Country Coordinator, Lucy Ogg Keatts with support from Associate Director – Asia, Martin Gilbert and PREDICT Technical Team Leaders Technology Development lead Joseph Fair (GVFI), Diagnostic lead Tracey Goldstein (UCD), Surveillance lead Christine Johnson (UCD). In addition, PREDICT has two staff members in country, including Project National Coordinator Soubanh Silithammavong and Project Assistant Kongsy Khammavong. Additional staff will be hired to assist the team in field surveillance for animal capture, handling, sampling, and data management support as activities expand in year 2.

Overview

Lao PDR presents an ideal platform for trans-boundary and emerging zoonotic pathogens through a complex web of wildlife, livestock, and human interfaces, extending from remote protected areas to the centre of the capital city. Wildlife is still widely hunted across the country, eaten by villagers for subsistence, traded locally in wet and medicinal markets, and transported widely for illegal domestic and international trade. The extensive and often geographically rugged borders of land-locked Lao PDR are extremely porous and movement of wildlife products, livestock, and other items are pervasive both into and out of the country, representing a potentially significant conduit for the movement of novel pathogens. Large areas of Lao PDR remain forested with high levels of biodiversity and low levels of development, and a large proportion of the Lao population still resides in rural areas. Lao PDR has seen high levels of economic growth in the last decade and along with this growth has come building of new roads, many extractive and hydroelectric industries, and an increase in intensive farming, seeing large swathes of deforestation and dramatic land-use changes. All of these activities have the potential to alter disease ecology and have led to increased contact between people, livestock, and wildlife and the diseases they carry.

Current capacity for wildlife disease surveillance in Lao PDR is developing. Despite the economic development of the last decade, the government remains reliant on foreign sponsors for surveillance support, and infrastructure in many isolated parts of the country, particularly the rugged mountainous areas, is minimal. The existing animal health professionals are very enthusiastic to cooperate to improve the understanding of zoonoses within Lao PDR. Thus, despite the many challenges the country faces, with the coordination of the EPT partners there is great potential for improvement of wildlife surveillance activities.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs in Lao PDR to facilitate sharing of surveillance samples and data and support the development of ethical review committees for surveillance. We hope to help build

capacity to perform viral diagnostics in appropriate laboratories as well as track media sources for relevant symptomatic disease reports in humans and wildlife. We aim to identify zoonotic pathogen outbreaks and new wildlife pathogens of potential pandemic risk focusing on:

- **Taxa:** bats will be the main initial target taxa but focus will also be given to sampling of rodents, carnivores, ungulates, and livestock as appropriate
- **Interfaces** hunting, village consumption, trade confiscations, markets, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
- **Proposed Locations:** Vientiane Capital City Prefecture and Vientiane Province, Houapanh Province, Luang Prabang Province, Khammouane and Bolikhamxay provinces.

Partnerships
National Animal Health Centre, Mahosot Hospital-Oxford Tropical Medicine Research Collaboration, National University of Laos, Ministry of Agriculture and Forestry

Reporting
There is no USAID mission currently in Laos. Formal reporting mechanisms to Andrew Corwin of CDC Laos are still being finalized, though at present, in-person monthly meetings have been proposed as the preferred method of reporting. Partner updates are then shared with all key in-country partners facilitating an interactive communication structure encouraging feedback and partner participation.

In addition, the Country Coordinator and Associate Director - Asia communicate on a continual basis through Skype meetings and email and with other PREDICT members in sharing of monthly progress reports. Compliance with quarterly reporting requirements for USAID is ongoing.

Malaysia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.

- Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; reporting and communication with US Embassy and USAID representatives (Thailand regional mission); communication/coordination with other components of EPT program.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials, workshop, and on-the-job, in-field and lab training.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Malaysia:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

  Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

  Expected result(s): Develop framework for surveillance data coordination with partners; collect and receive samples; initiate pathogen detection and discovery for newly acquired wildlife samples; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network. Field Surveillance locations will include:

    - **Taxa:** primates, bats, rodents, carnivores and ungulates
    - **Interfaces:** hunting, deforestation, free-ranging, bush meat, conflict species
    - **Potential Locations:** Additional sites in the states of Perak and Selangor, Expand sampling to other states in Peninsular Malaysia – Pahang (including Taman Negara), Terengganu and Perlis

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.

Request (through DELIVER) to install an automated extraction robot for VRI in year 1 to significantly improve throughput for molecular diagnostics.

- Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

Expected result(s): Enhancement of laboratory capacity for wildlife disease surveillance at both PERHILITAN and the Veterinary Research Institute; development of PCR protocols for pathogens of interest; installation of the automated extraction robot for VRI to significantly improve throughput for molecular diagnostics.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

Expected result(s): New technologies introduced and utilized; identified capacity gaps in Vet school laboratory and appropriate training and material resources introduced.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

Partners: Wildlife Trust (WT), Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), University Putra Malaysia.

Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – MALAYSIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Tom Hughes, Asia Coordinator Jonathan Epstein, Country Liaison Elizabeth Loh	Weekly project updates with the PREDICT team via phone conferences; continued compliance of all reporting requests; surveillance data reporting through the GAINS database; management and coordination of all activities in Malaysia; full fiscal disclosure and near-real time expense tracking	X	X	X	X	X
1.2	Capacity Building	Country Coordinator Tom Hughes, Asia Coordinator Jonathan Epstein, Country Liaison Elizabeth Loh Technical Advisors Kevin Olival, Mei-Ho Lee	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with PERHILITAN, VRI and Ministry of Health; implementation of all training materials; new veterinarian and lab technician identified to join team; trained PERHILITAN officers in each new state; trained wildlife officers in multiple states to collect samples; continued capacity building at PERHILITAN- improved RNA	X	X	X	X	X

			extraction skills, techniques for screening pathogens.					
1.3	Surveillance	Country Coordinator Tom Hughes, Mei-Ho Lee, PERHILITAN Staff	Strategically implemented surveillance in proposed locations in collaboration with in-country partners; continued testing samples at PERHILITAN and UPM; sample testing at VRI; samples to Center for Infection and Immunity for testing; developed framework for surveillance data coordination with partners; identified new sites in the states of Selangor and Perak for sampling.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Country Coordinator Tom Hughes, Asia Coordinator Jonathan Epstein, Country Liaison Elizabethe Loh, Pathogen Discovery Post-Doctoral Fellow, Simon Anthony	Laboratory enhancement at PERHILTAN; installation of Biomerieux automated extraction robot at VRI; implementation of sampling protocols for pathogen discovery and export of samples to Center for Infection and Immunity.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Tom Hughes	Data entered into GAINS database; capacity building at VRI; barcode scanner installed at VRI and PERHLITAN for sample tracking; barcoding of samples during field surveillance activities.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							

2.2	Optimize models for diversity of disease emergence	Country Coordinator Tom Hughes	All sample data entered into GAINS; completed trainings on sample tracking and data management; timely response to requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - MALAYSIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator Tom Hughes
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country Coordinator Tom Hughes
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Monthly	Country Coordinator Tom Hughes
1.1.4 Reporting	Compliance in all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator Tom Hughes
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Tom Hughes

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	ministries active in wildlife surveillance, public health, and pathogen detection			
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Tom Hughes
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator Tom Hughes
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Tom Hughes
1.4.2 Pathogen Discovery	Improved infrastructure at PERHILITAN and VRI for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Tom Hughes

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Tom Hughes
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Tom Hughes

COUNTRY PROJECT MANAGEMENT- MALAYSIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Malaysia is Wildlife Trust and the implementing organizations within Malaysia are the Department of Wildlife and National Parks (PERHILITAN), Veterinary Research Institute (Department of Veterinary Services), and University Putra Malaysia. Oversight of PREDICT activities in Malaysia is managed by Country Coordinator Mr. Tom Hughes with support from Asia Regional Coordinator Dr. Jonathan Epstein, Country Liaison Ms. Elizabeth Loh, and Modeling/surveillance Technical Advisors Drs. Kevin Olival and Tiffany Bogich. In addition, PREDICT has one staff member in-country, Ms. Mei-Ho Lee, a microbiologist who will assist with sample testing and capacity building at PERHILITAN and VRI. A veterinarian will be identified to join the team early in Year 2 to assist with field surveillance activities. Jeffrine Rovie Ryan Japning and Frankie Thomas are officers from PERHILITAN who have worked closely with WT during Year 1 and will be important team members moving into Year 2.

Overview

South East Asia has some of the greatest wildlife biodiversity on Earth and has experienced some of the most rapid deforestation. This results in bringing human settlements and commercial agriculture into close proximity with wildlife. In addition, the illegal and legal wildlife trade is pervasive in Southeast Asia, including Malaysia. Bush-meat hunting for sport and food, as well as for trade to other countries brings people into close contact with a large variety of wildlife and creates a high level of risk to exposure of zoonotic pathogens, especially while handling wounded animals and during the butchering and skinning of carcasses. Malaysia is where Nipah virus was first discovered, a lethal paramyxovirus carried by *Pteropus vampyrus*, a fruit bat that is widely hunted for food, sport, and the belief that they have medicinal benefits. The high degree of contact between people and wildlife makes Malaysia highly vulnerable to zoonotic disease emergence and thus a priority area for initiating wildlife disease surveillance on a national scale.

The emergence of Nipah virus illustrated that when large-scale agricultural operations are situated in wildlife habitat, zoonotic pathogens can be transmitted to livestock and people. Malaysia has a high degree of animal biodiversity located throughout the country, and in its villages, there are little or no barriers between people, their domestic animals, and wildlife. Continued surveillance activities are critical because the diversity of potentially zoonotic pathogens hosted by wildlife is likely to be commensurate with the diversity of wildlife, thus putting Malaysia at higher risk for the next outbreak of a zoonotic disease.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples across the range of disturbance gradients and ensure

timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We will continue with our capacity building efforts at PERHILITAN and VRI laboratories and with PERHILITAN wildlife officers. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, carnivores, and ungulates
- **Interfaces:** hunting, deforestation, free-ranging, bush meat, conflict species
- **Potential Locations:** Sites in the states of Perak and Selangor; Expand sampling to other states in Peninsular Malaysia - Pahang (including Taman Negara), Terengganu and Perlis

Partnerships
Department of Veterinary Services (Ministry of Agriculture – (DVS), Veterinary Research Institute (VRI), PERHILITAN, University Putra Malaysia, Ministry of Health Malaysia, National Public Health Laboratory in Malaysia.

Reporting
The Country Coordinator has met with and provided updates to the Mission RDMA/OPH Mr. Dan Schar in Thailand and is in communication with the US Embassy in Kuala Lumpur.
The Country Coordinator and WT team communicate on a weekly basis through Skype meetings or phone conferences.

Thailand

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: Wildlife Trust (WT), Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases, WHO Collaborating Center for Research and Training on Viral Zoonoses

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; identify permanent PREDICT in-country coordinator for Thailand; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to WT; continue ongoing communication with in-country partners including the USAID Mission to Thailand; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through WT to UC Davis; surveillance and diagnostic results data into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: Wildlife Trust (WT), Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases, WHO Collaborating Center for Research and Training on Viral Zoonoses

Expected result(s): Completed 3-5 day training session in Thailand for personnel involved in PREDICT to implement all official training materials and

cover basic safety issues and methodology involved in the capture and sampling of wildlife species for disease surveillance; continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing and completion of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Thailand:** Continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats, rodents; additionally carnivores, ungulates and livestock as appropriate.
    - **Interfaces:** free-ranging wildlife across a pristine to highly disturbed habitat gradient, bushmeat hunting, syndromic
      Proposed Locations: Exact locations will be determined in Year 2 with a more detailed surveillance plan, proposed sites include: Kao Yai National Park (covering 4 provinces) and the forest region/conservation park that encompasses 5 provinces, Chachoengsao, Rayong, Chonburi, Sa Kaeo, Chantaburi. Bat and rodent samples will also be tested from sites at Tham Rad Mountain, Cha-Choeng Sao Povince (Central), Chakan Mountain, Srakaew Province (East), Similan Island, Pang-Nga Province (South).

  Partners: Wildlife Trust (WT), Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases, WHO Collaborating Center for Research and Training on Viral Zoonoses, Department of National Park, Wildlife and Plant Conservation, Ministry of National resources and Environment, Ministry of Science

  Expected result(s): Develop framework for surveillance data coordination with partners; identify two sites from proposed site list with appropriate pristine-urban gradient and assessed logistics and surveillance capacity in each; expand collected and received samples; initiate pathogen detection and discovery for newly acquired wildlife samples; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a transregional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Development of diagnostic protocols to implement next-generation sequencing technology for pathogen discovery using bat and rodent samples at the new Chulalongkorn University facility.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country;

  Partners: Wildlife Trust (WT), Chulalongkorn University

  Expected result(s): New technologies introduced and utilized; next-generation sequencing technologies optimized for detection of novel pathogens from free-ranging wildlife samples (e.g. urine, sera, saliva); testing of archived wildlife samples of high quality for known pathogens of interest (Coronaviruses, Filoviruses, and Henipaviruses); identified capacity gaps in Chulalongkorn University's laboratory diagnostic center and appropriate training and material resources introduced.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: Wildlife Trust (WT), Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases, WHO Collaborating Center for Research and Training on Viral Zoonoses.

  Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management during training workshop; Country Coordinator appointed to manage data and coordinate data collection; implemented standardized labeling and tracking system; data provided to WT and UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Wildlife Trust (WT), Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases, WHO Collaborating Center for Research and Training on Viral Zoonoses

  Expected result(s): Monthly communication initiated between in-country partners and Modeling and Hotspot ID team at WT headquarters; sample data uploaded into GAINS and provided to WT on monthly basis; gap analysis conducted on surveillance plan and optimized as needed; country-level disease hotspot map refined; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – THAILAND

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator TBD, Asia Coordinator Jonathan Epstein, Country Liaison Kevin Olival	Management and coordination of all capacity building and surveillance activities; identified permanent PREDICT in-country coordinator for Thailand; full fiscal disclosure and near-real time expense tracking; ongoing communication with in-country partners including the USAID Mission to Thailand; continued compliance of all reporting requests from USAID through UCD via WT, surveillance and diagnostic results data into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator TBD, Asia Coordinator Jonathan Epstein, Country Liaison and Technical Advisor Kevin Olival	Completed 3-5 day training session in Thailand for personnel involved in PREDICT to implement all training materials; continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing using Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			pathogen detection in-country.					
1.3	Surveillance	Country Coordinator TBD	Framework developed for surveillance data collection; two sites identified from proposed site list with appropriate pristine-urban gradient and assessed logistics and surveillance capacity in each; samples collected and received samples and pathogen detection and discovery initiated; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.		**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Country Coordinator TBD, Asia Coordinator Jonathan Epstein, Country Liaison Kevin Olival	New technologies introduced and utilized; next-generation sequencing technologies optimized for detection of novel pathogens from free-ranging wildlife samples; testing of archived wildlife samples of high quality for known pathogens of interest; identified capacity gaps in Chulalongkorn University's laboratory and introduction of training and material resources.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator TBD	All sample data entered into GAINS; completed trainings on sample tracking and data management during training workshop; Country Coordinator appointed to manage data and	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			coordinate data collection; implemented standardized labeling and tracking system; data provided to WT and UC Davis through GAINS monthly; timely and efficient response to all requests for surveillance data.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator TBD	Monthly communication between in-country partners and Modeling and Hotspot ID team at WT headquarters; sample data uploaded into GAINS on monthly basis; gap analysis conducted on surveillance plan and optimized as needed; data provided to refined country-level disease hotspot map.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - THAILAND

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-	Weekly	Country Coordinator, Chulalongkorn Partners Supaporn Wacharapluesadee and Thiravat Hemachudha

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
		conferencing		
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country Coordinator, Chulalongkorn Partners Supaporn Wacharapluesadee and Thiravat Hemachudha
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Monthly	Country Coordinator, Chulalongkorn Partners Supaporn Wacharapluesadee and Thiravat Hemachudha with review and approval by WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival.
1.1.4 Reporting	Compliance in all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator, Chulalongkorn Partners, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator, Chulalongkorn Partners, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival
1.2.2	Individuals trained	Training Matrix, Quiz	Quarterly	Country Coordinator, Chulalongkorn

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
Training	with official PREDICT materials and through on-the-job training	Results & Individual Assessments		Partners, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival, Modeling Team Lead Tiffany Bogich
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator, Chulalongkorn Partners, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator, Chulalongkorn Partner Supaporn Wacharapluesadee, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival
1.4.2 Pathogen Discovery	Improved infrastructure at Chulalongkorn University Laboratory for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator, Chulalongkorn Partners, Pathogen Discovery Simon Anthony
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator, Chulalongkorn Partners

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations	GAINS	Monthly	Country Coordinator, Chulalongkorn Partners, WT Asia Director Jonathan Epstein, WT Country Liaison Kevin Olival
	Revised surveillance plan	Quarterly Report	Quarterly	

COUNTRY PROJECT MANAGEMENT - THAILAND

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Thailand is Wildlife Trust, and the implementing organization within Thailand is Chulalongkorn University. Oversight of PREDICT activities in-Country will be managed by a Country Coordinator who will be identified in Year 2 in conjunction with our partners at Chulalongkorn University's Department of Medicine and Molecular Biology Center for Neurological Diseases and the WHO Collaborating Center for Research and Training on Viral Zoonoses. Our Technical Team Leaders at Chulalongkorn University are Drs. Thiravat Hemachudha and Supaporn Wacharapluesadee and Dr. Thongchai from the Faculty of Science at Chulalongkorn. In addition, through our PREDICT partners we have initiated organizational relationships with key personnel within the Department of National Park, Wildlife and Plant Conservation and Ministry of National Resources and Environment.

Overview

As one of the more developed countries in Southeast Asia, Thailand is an optimal place to expand and build a robust wildlife disease surveillance system. Thailand is ahead of other countries in the region with a well-established wildlife and national park system and some linkages between environment, wildlife, and health ministries already established. Through PREDICT activities we can further increase capacity for wildlife surveillance and expand linkages. Thailand is an ecologically diverse nation with a central geographic position among neighboring SE Asian states. It covers a range of ecosystem types, from mangroves to rainforests, spread across southern boundaries with Malaysia, northern boundaries with Myanmar and Laos, and to the eastern border with Cambodia. Southeast Asia in general, and Thailand in particular, has some of the greatest wildlife biodiversity on Earth, the highest rate of tropical deforestation in the past decade, and a rapidly growing human population - bringing human settlements and commercial agriculture into close proximity with a range of wildlife species. In addition, the illegal wildlife trade is pervasive in Southeast Asia, including Thailand. All these factors create a high level of risk to exposure with zoonotic pathogens and make Thailand an important site for PREDICT activities. We also have recognized a high level of enthusiasm from our in-country partners to improve linkages between government ministries and integrate wildlife surveillance into the public health structure, and view this as a positive sign that PREDICT activities will be successful in Thailand.

Activities and Locations

We have identified Chulalongkorn University as our primary PREDICT partner in Thailand to perform viral diagnostics in their state-of-the-art molecular virology lab and new facility for next-generation sequencing and pathogen discovery. Through the linkages formed by our faculty partners at Chulalongkorn with wildlife, environment, and health ministries in Thailand during the first year, we were able to begin our targeted wildlife surveillance on bats and rodents in Year 1 and are moving ahead in Year 2 with optimizing and running diagnostic tests on high-quality archived samples. PREDICT will

continue to establish coordination with ministries, universities, and NGOs to develop a detailed surveillance plan of free-ranging and sick wildlife and to facilitate sharing of surveillance samples and data. We will expand our acquisition of samples and implement training programs to increase local capacity for sampling free-ranging wildlife at important habitat interfaces across the country. Further, we anticipate working with RESPOND partners in Thailand to further build capacity and expand training necessary for a robust wildlife disease surveillance system and also anticipate creating linkages with IDENTIFY's FAO and WHO, which each have regional headquarters in Bangkok.

Our specific efforts in wildlife disease surveillance will focus on:

- **Taxa:** primates, bats, and rodents; additionally carnivores, ungulates, and livestock as appropriate.
- **Interfaces:** free-ranging wildlife across a pristine to highly disturbed habitat gradient, bushmeat hunting, syndromic and outbreak surveillance in wildlife.
- **Proposed Locations:** Kao Yai National Park (covering 4 provinces) and the forest region/conservation park that encompasses 5 provinces Chachoengsao, Rayong, Chonburi, Sa Kaeo, Chantaburi. Bat and rodent samples will also be tested from sites at Tham Rad Mountain, Cha-Choeng Sao Province (Central), Chakan Mountain, Srakaew Province (East), Similan Island, Pang-Nga Province (South).

Partnerships
Chulalongkorn University, FAO regional office in Bangkok, Ministry of Science, Ministry of Environment

Reporting
After meeting with the USAID RDMA, on August 6th, 2010, the PREDICT team established that the Country Coordinator, Thiravat Hemachudha at Chulalongkorn University will provide regular updates on PREDICT activities. If writtenupdates are provided, the Country Coordinator will provide a copy to Wildlife Trust Asia Region Director, Jon Epstein, who will provide it to UC Davis and then USAID for approval prior to submission.
In addition, the Country Coordinator and Wildlife Trust teams will communicate on a weekly basis through email and Skype meetings, sharing of weekly progress reports, and generation of interactive "To-Do-Lists" through the Basecamp project site.

Vietnam

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: Ministry of Agriculture and Rural Development (MARD including DAH National Center for Veterinary Diagnosis), Forest Protection Department (FPD), Hanoi Agriculture University (HAU) - Faculty of Veterinary Science, Ministry for Natural Resources Management (MONRE) Biodiversity Conservation Agency, Ministry of Industry and Trade (MoIT) Market Control, Ministry of Finance (MOF) Customs, Ministry of Public Security Environmental Police, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR).

    Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD; continue on-going multi-faceted communication between Country Coordinators, Regional Coordinators and WCS headquarters in New York through electronic media (including interaction on the Vietnam Basecamp site), scheduled conference calls and face-to-face meetings; continue regular communications with in-country partners including the USAID Mission to Vietnam; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and entering surveillance data through the GAINS database; regular updates

and coordination between WT and WCS via PREDICT Country Coordinator, Leanne Clark.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: MARD -DAH, FPD, HAU Faculty of Veterinary Science, MONRE Biodiversity Conservation Agency, MoIT Market Control, MOF Customs, Ministry of Public Security Environmental Police, AED/PREVENT, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR)

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; use of the completed capacity assessments to guide focus of capacity building plans; in-country laboratory agreements coordinated by PREDICT Country Coordinator; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; planning discussions with PREVENT partners to investigate possible collaborative activities; implementation of all official training materials; completed training workshop for bat sampling team on animal capture, sample collection and preservation of biological samples.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Vietnam:** Continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, birds, bats, rodents, carnivores, ungulates and livestock as appropriate
    - **Interfaces:** Wildlife trade (trade route, markets, restaurants), wildlife farms, private wildlife collections, wildlife rescue centres, ranger stations/point of confiscation from illegal trade, free-ranging.
    - **Proposed Locations:** Quang Ninh Province (Mong Cai Town), Dong Nai Province, Lam Dong Province, Ho Chi Minh City and greater metropolitan area, Hanoi, expansion into additional provinces Ha Nam, Huu Yen, Quang Tri, Can Tho and Kien Giang where appropriate.

  Partners: MARD-DAH, FPD, HAU Faculty of Veterinary Science, Ministry of Industry and Trade (MoIT) Market Control, MONRE Biodiversity Conservation Agency, MOF Customs, MOS Environmental Police, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR), AED/PREVENT

  Expected result(s): Completed analysis of all previous wildlife pathogen detection within Vietnam; developed framework for surveillance of pathogens in wildlife in collaboration with partners; standard protocols applied to collection of samples from wildlife; activities reviewed and approved for animal welfare and human ethical grounds criteria by appropriate committees; strategically implemented surveillance in key wildlife human interfaces in collaboration with in-country partners; samples collected and pathogen detection and discovery initiated; coordinated entry of sampling and epidemiological data into GAINS system to ensure sharing of data and enhance cooperation with partners; possible partnering and coordination opportunities investigated with PREVENT.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.

Continue to utilize filter card sample collection as a means of obtaining diagnostically viable samples in remote areas, by personnel trained in their use.

- Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: MARD-DAH, FPD and other wildlife management departments within this ministry, HAU Faculty of Veterinary Science, Ministry of Industry and Trade (MoIT) – Market Control, MONRE Biodiversity Conservation Agency, MOF Customs, MOS Environmental Police, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR)

Expected result(s): New technologies introduced and utilized; identified capacity gaps in DAH and HAU Veterinary Faculty laboratory diagnostic centers and appropriate training and material resources introduced; expanded infrastructure with IDENTIFY of National Animal Health Centre laboratory to improve capacity to handle, process and store samples; identified regional or international laboratories with additional diagnostic capacity where appropriate.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: Ministry of Agriculture and Rural Development, Hanoi Agriculture University (HAU) Faculty of Veterinary Science, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR), AED/PREVENT

Expected result(s): Standardized field surveillance data collection across all projects in-country; effective tracking of wildlife samples and diagnostics collected by PREDICT projects in Vietnam.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: MARD-DAH, FPD, HAU Faculty of Veterinary Science, Ministry of Industry and Trade (MoIT) Market Control, MONRE Biodiversity Conservation Agency; MOF Customs, MOS Environmental Police, Oxford University Clinical Research Unit (OUCRU), Insititute of Ecology and Biological Resources (IEBR).

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data; cooperation with PREVENT partners on potential projects that contribute to risk determination.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – VIETNAM

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Manage-ment	Country Coordinator Leanne Clark, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; Weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting through the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang Capacity Building Team WT Country Representative TBD	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all training materials; WT-led training workshop on bat sampling techniques and biosecurity; discussions with PREVENT partners to investigate collaborative activities.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator	Completed a analysis of all previous wildlife pathogen detection within	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Leanne Clark, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang, WT Country Representative TBD, Surveillance Team	Vietnam; protocols for collection of samples from wildlife; review and approval on animal welfare and human ethical criteria by appropriate committee; strategically implemented surveillance in key wildlife human interfaces in collaboration with in-country partners; samples collected and pathogen detection and discovery initiated; coordinated entry of sampling and epidemiological data into GAINS.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Leanne Clark, Associate Director – Asia Martin Gilbert, Regional Manager Angela Yang	New technologies introduced and utilized; identified capacity gaps in DAH and HAU Veterinary Faculty laboratories and training and material resources introduced; expanded infrastructure of National Animal Health Centre laboratory to improve capacity; identified regional or international laboratories with additional diagnostic capacity.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Manage-ment	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang, WT Country	All sample data entered into GAINS; completed trainings on sample tracking and data management; national veterinarian and additional office manager appointed for the Vietnam Program WCS office to assist in data management; implemented standardized labeling and tracking system; timely	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Representative TBD	response to all requests for surveillance data.					
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - VIETNAM

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype, email and Basecamp	Weekly	Country coordinator Leanne Clark, WT Country Representative TBD
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country coordinator Leanne Clark, Regional Manager Angela Yang, WT Country Representative TBD

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Communication	Mission and Partner Updates	Basecamp, verbal face-to-face meetings with partners and Mission	Monthly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, Regional Manager Angela Yang
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country Coordinator: Leanne Clark; Associate Director - Asia: Martin Gilbert, Regional Manager: Angela Yang , WT Country Representative
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training (WCS); Training session on bat surveillance (WT)	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, WT Country Representative TBD
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species,	Basecamp & GAINS database	Monthly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, WT Country Representative TBD

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	interfaces, and proposed locations			
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert
1.4.2 Pathogen Discovery	Improved infrastructure at DAH/HAU for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert
1.5.1 Sample Tracking and Information Management	Sample data received; Implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, WT Country Representative TBD
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Data provided to improved country and regional level driver data and important contact activities and interfaces where disease risk may be highest	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Leanne Clark, Associate Director - Asia Martin Gilbert, WT Country Representative TBD

COUNTRY PROJECT MANAGEMENT - VIETNAM

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Vietnam is Wildlife Conservation Society, and the implementing organizations will be Wildlife Conservation Society, Wildlife Trust, and the Department of Animal Health (MARD-DAH). Oversight of PREDICT activities in Vietnam will be managed by Country Coordinator Leanne Clark (WCS) in coordination with WT country representative, Associate Director – Asia, Martin Gilbert (WCS), and with support from PREDICT Technical Team Leaders Technology Development lead Joseph Fair (GVFI), Diagnostic lead Tracey Goldstein (UCD), Surveillance lead Christine Johnson (UCD), and modeling support Kevin Olival (WT). In addition, PREDICT has 2 staff members including a national veterinarian and an administrative support officer. Additional staff will be hired to assist this core team in field surveillance through animal capture, handling, sampling, and data management support as activities expand in Year 2.

Overview

Vietnam represents an important country for the potential of emergence and spillover of infectious zoonotic pathogens from wildlife to humans. Vietnam is widely recognized as a significant source, transit, and consumer country of both the legal and illegal trade in wildlife and wildlife products. While Vietnam's biodiversity has been significantly threatened by a history of deforestation and illegal hunting, poaching of all species of wildlife continues. Regional wildlife trade dynamics have also highlighted the country's important position along the major land, sea, and air transport routes for wildlife *en route* to the wildlife markets of China. The crowded, often unhygenic nature of the wildlife trade creates ideal conditions for the transmission of infectious pathogens between stressed, often injured, and potentially immunologically naïve animals.

Consumption of wildlife within Vietnam - both consumption of wild meat in specialized restaurants and the use of wildlife products as remedies in traditional medicine - is also increasing. Practices associated with slaughter and preparation meat for consumption provide opportunity for exposure of people and other animals to potential pathogens. Legal farming of a wide range of wild species, in an attempt to provide a sustainable source of animals to supply the wildlife trade, is also developing rapidly. Surveys of wildlife farms in Vietnam by WCS identified these as significant risks to public health due to the number of species in close contact. Farming of livestock also remains very important across the country. Continued clearing of forest for human settlement and encroachment of displaced wildlife into areas of human settlement creates increasing opportunities for contact between people, livestock and wildlife and the potential for pathogen transmission.

Wildlife disease investigation in Vietnam falls under the Department of Animal Health within the Ministry of Agriculture and Rural Development. Diagnostic facilities include the National Centre for Veterinary Diagnostics in Hanoi, as well as a regional system of

Animal Health Offices spread throughout the country. A nationwide system of Provincial, District, and Community level animal health workers also exists. While this system facilitates the rapid identification and response to disease outbreaks in livestock, resources limit activities at the district and community levels. Significant advances have been made recently in the development of surveillance networks for diseases in livestock as a result of the response to avian influenza infection within the country. Thus, existing networks provide an ideal platform from which to develop a national surveillance system for wildlife diseases in Vietnam.

Activities and Locations
PREDICT will continue to establish coordination with ministries, universities, multi-laterals, and NGOs in Vietnam to facilitate sharing of surveillance samples and data; build collaborative relationships to increase capacity for viral diagnostics at appropriate laboratories and identify zoonotic pathogen from wildlife with potential pandemic risk. Additionally, as little information exists on bats and their pathogens in Vietnam, efforts to sample bats, coordinated by MARD-DAH, in two regions will provide additional important information on wildlife disease.

- **Taxa:** primates, birds, bats, rodents, carnivores, ungulates, and livestock as appropriate
- **Interfaces:** Wildlife trade (trade route, markets, restaurants), wildlife farms, private wildlife collections, wildlife rescue centres, ranger stations/point of confiscation from illegal trade, free-ranging, syndromic
- **Proposed Locations:** Quang Ninh Province (Mong Cai Town), Dong Nai Province, Lam Dong Province, Ho Chi Minh City and greater metropolitan area, Hanoi, expansion into additional provinces Ha Nam, Huu Yen, Quang Tri, Can Tho and Kien Giang where appropriate

Partnerships
Ministry of Agriculture and Rural Development (MARD), Forest Protection Department (FPD),and other wildlife management departments within this ministry, Hanoi Agriculture University (HAU) Faculty of Veterinary Science, Ministry for Natural Resources Management (MONRE), Biodiversity Conservation Agency, Ministry of Industry and Trade (MoIT) Market Control, Ministry of Finance (MOF) Customs, Ministry of Public Security (MOS) Environmental Police, OUCRU, IEBR.

Reporting
Country Coordinator Leanne Clark will give brief weekly verbal updates to the Vietnam USAID mission representative, Tim Mienke. PREDICT staff will also be involved in the existing USAID Pandemic Influenza partners meetings (held on a semi-regular basis).

In addition, the Country Coordinator and Associate Director - Asia communicate on a continual basis through Skype meetings and email and further with other PREDICT members in sharing of monthly progress reports. Compliance with Quarterly reporting requirements for USAID will be continued.

ASIA REGION

Bangladesh

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Forestry Department (Government of Bangladesh).

    Expected result(s): Manage and coordinate all capacity building and surveillance activities; weekly communication of activities and quarterly financial reporting to Wildlife Trust; communication with in-country partners including the USAID Mission to Bangladesh through Quarterly Partner Updates and with the PREDICT team through monthly phone conferencing meetings; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis via Wildlife Trust; entering of surveillance data through the GAINS database.

- **Activity 1.2 Capacity Building**
    - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue

to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

- Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, financial management, animal capture and safety, PPE use, Laboratory safety, packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Forestry Department (Government of Bangladesh), Chittagong University Veterinary School, USAID Bangladesh.

Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; improve in-country pathogen detection and develop capacity for wildlife disease surveillance; strengthen partnerships between the Forestry Department, the Ministry of Health (IEDCR specifically), and ICDDR,B; implement PREDICT training programs.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Bangladesh:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** bats, rodents, carnivores, primates, artiodactylids, shrews, birds, mosquito pools, and ticks
    - **Interfaces:** free-ranging wildlife, captive and semi-captive wildlife, feral swine, urban-rural interface, rural-wildlife interface, urban-wildlife interface
    - **Proposed Locations:** Sundarbans National Park, Chunati Wildlife Sanctuary, Dhaka Zoo, Sangu Forest Reserve, Madhupur National Park, Hakaluki Haor, Bhawal National Park, West Bhanugach Reserve.

Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Forestry Department (Government of Bangladesh), Chittagong University Veterinary School, Dhaka Zoo, Chunati Wildlife Sanctuary.

Expected result(s): Implement wildlife surveillance and data coordination in-country; Initiate pathogen detection of collected wildlife samples; surveillance sample tracking system integrated with GAINS; implement wildlife surveillance in proposed locations in collaboration with partners in order to achieve a regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.
    Mass tag PCR technology transfer of multiple PCR array occurred in Year 1 and will be fully implemented during Year 2 to test aliquots of the samples in-country at ICDDR,B.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Center for Immmunity and Infection (Columbia University), Forestry Department (Government of Bangladesh), Chittagong University Veterinary School.

  Expected result(s): Testing of priority samples to identify new pathogens from wildlife-origin of potential public health significance; Mass tag PCR implemented in-country.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Forestry Department (Government of Bangladesh), Chittagong University Veterinary School, Dhaka Zoo, Chunati Wildlife Sanctuary.

Expected result(s): Sample data uploaded into GAINS; provide data to Wildlife Trust, UC Davis and other PREDICT partners through GAINS on a monthly basis; respond in a timely and efficient manner to requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Wildlife Trust (WT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), University of California.

  Expected result(s): Sample data uploaded into GAINS; Collect, and provide country-specific data as needed for country-scale Hotspot Modeling effort; data provided to Modeling Team to understand and quantify risks of spill-over.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – BANGLADESH

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein	Manage and coordinate all capacity building and surveillance activities. weekly communication of activities and quarterly financial reporting to UC Davis through Wildlife Trust; communication with in-country partners including the USAID Mission to Bangladesh through Quarterly partner updates and with the PREDICT team through monthly phone conferencing meetings; continued compliance in all reporting requests from USAID through UC Davis via Wildlife Trust; entering of surveillance data through the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md.	Continued evaluation and assessment of capacity through the Capacity Building Rapid Survey Tool; improve in-country pathogen detection and develop capacity for wildlife disease surveillance; strengthen partnerships between the Forestry Department, the Ministry of Health (IEDCR specifically),	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein	and ICDDR,B; implement PREDICT training programs.					
1.3	Surveillance	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan	Implement wildlife surveillance and data coordination with partners; pathogen detection of collected wildlife samples initiated; surveillance sample tracking system integrated with GAINS; wildlife surveillance in proposed locations in collaboration with partners in order to achieve a regional surveillance network.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Laboratory	Samples tested to identify new pathogens in wildlife of potential public health significance; Mass tag PCR implemented in-country.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Coordinator Dr. Mustafiz						
1.5	Sample Tracking and Information Management	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein	Sample data uploaded into GAINS; data provided to UC Davis through Wildlife Trust into GAINS on a monthly basis; respond in a timely and efficient manner to requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin	Sample data uploaded into GAINS; collect, and provide country-specific data as needed for country-scale Hotspot Modeling effort; provide data to Modeling Team to understand and quantify risks of spill-over.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Khan, Country Liaison Kevin Olival, Modeling Team						

PERFORMANCE MONITORING PLAN - BANGLADESH

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country Coordinator (TBD)
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Quarterly	Country Coordinator (TBD), Asia Coordinator Jonathan Epstein
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator (TBD), Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon,Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Laboratory Coordinator Dr. Mustafiz
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator (TBD), Laboratory Coordinator Dr. Mustafiz

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at ICDDR,B for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, Asia Coordinator Jonathan Epstein
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator (TBD), Senior Infectious Disease Advisor Andrea Mikolon, Technical Team Leader Md. Salah Uddin Khan, Country Liaison Kevin Olival, HotSpots Modeling Team Lead

COUNTRY PROJECT MANAGEMENT - BANGLADESH

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Bangladesh is Wildlife Trust (WT), and the implementing organization within Bangladesh is the Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B), in conjunction with the Chittagong Veterinary and Animal Sciences University (CVASU). Oversight of PREDICT activities will be managed by Country Coordinator Dr. Stephen Luby (Head, Programme on Infectious Disease and Vaccine Sciences, ICDDR,B), with support from Dr. Andrea Mikolon, Director of the Zoonotic Disease Cluster. Fieldwork and training will be supported by Wildlife Trust's Field Veterinarian Dr. Ariful Islam and a team of wildlife technicians. Dr. Islam coordinates the Nipah virus ecology bat investigation for Wildlife Trust and works alongside ICDDDR,B scientists ICDDR,B also has existing institutional partnerships with USAID, the Forestry Office (under the Ministry for Environment), the Division of Livestock Services (under Ministry of Agriculture), and the Institute for Epidemiology, Disease Control and Research (IEDCR) (Ministry of Health and Family Welfare). These relationships with government agencies will be instrumental to achieving surveillance goals, as well as provide scientific and logistical support. A planned PREDICT hire for Year 2 is a senior project manager who will take over as the Country Coordinator and whose responsibilities would include the coordination and implementation of field surveillance and collaborations with partner institutions.

Overview

Bangladesh provides an optimal opportunity for wildlife zoonotic disease surveillance at what is one of the world's most active wildlife-livestock-human interface areas. Dense human population co-occurs with rich biodiversity in a country that depends intensively on agriculture by both human and animal labor. This high density of people and livestock in a highly fragmented landscape that forces wildlife to live among villages coupled with strong seasonal variation in water availability increases the risk of zoonotic threats and may facilitate transmission of diseases of pandemic potential across this interface. Despite the resident biodiversity and intimate interaction of populations in these interfaces, Bangladesh's current capacity to conduct wildlife disease surveillance at a regional and national level is developing. Through the implementing partner, ICDDR,B, in conjunction with CVASU, existing collaborations with government veterinary and livestock ministries, wildlife authorities, and human health professionals enable PREDICT to fill the wildlife surveillance gap and expand surveillance to other high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify

zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, small carnivores, birds, and ungulates
- **Interfaces:** free-ranging, depredation, syndromic
- **Potential Locations:** Faridpur District (Ramnagar and Dumra Kandi) Village, Tangail, Dijnaspur, Chittagong

Partnerships
Partnerships have been established through ICDDR,B in conjunction with CVASU.

Reporting
The USAID Mission is in the process of replacing its RDMA/OPH - formerly, Dr. Zandra Andre, with whom Dr. Epstein has met. Upon the appointment of the new Mission Representative, a meeting will be scheduled to establish reporting requirements.

In addition, the Country Coordinator and Wildlife Trust teams, led by Asia Coordinator Jonathan Epstein and Country Liaison Kevin Olival will communicate with ICDDR,B personnel on a regular basis through regular email exchanges, sharing of weekly progress reports, and semi-monthly video or teleconferences.

China

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
  - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: Wildlife Trust (WT), Global Viral Forecasting Initiative (GVFI), East China Normal University, Guangdong CDC, Wuhan Institute for Virology

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UC Davis through WT; continue ongoing multi-faceted communication with in-country partners including the USAID Mission to China through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT China Basecamp site; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis, and entering surveillance data through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies, PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Wildlife Trust (WT), GVFI, East China Normal University, Guangdong CDC, Wuhan Institute for Virology

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across China:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa**: primates, bats, rodents, carnivores, ungulates and livestock as appropriate
    - **Interfaces**: hunting, depredation, free-ranging (horticulture-wildlife, shared water sources), syndromic
    - **Potential Locations**: Southern China (from Hainan to Yunnan) and Central China (from Beijing to Shanghai)

  Partners: Wildlife Trust (WT), GVFI, East China Normal University, Guangdong CDC, Wuhan Institute for Virology

  Expected result(s): Developed framework for surveillance data coordination in-country; pathogen detection and discovery initiated for collected wildlife samples; existing project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in- country, addressing identified gaps in existing technological infrastructure.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Wildlife Trust (WT), GVFI, East China Normal University, Guangdong CDC, Wuhan Institute for Virology

  Expected result(s): New technologies introduced and utilized; capacity gaps identified in laboratory diagnostic centers and appropriate training and material resources introduced where possible; expanded infrastructure to improve viral diagnostic capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

    - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

    Partners: Wildlife Trust (WT), GVFI, East China Normal University, Guangdong CDC, Wuhan Institute for Virology

    Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management; Assistant Country Coordinator and office/data manager appointed to the field office headquarters to manage data; standardized labeling and tracking system implemented; data provided to UCD via Wildlife Trust through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

    Partners: Wildlife Trust (WT), GVFI, East China Normal University, Guangdong CDC, Wuhan Institute for Virology

    Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis via Wildlife Trust through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – CHINA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Shuyi Zhang, GVFI Asia Regional Coordinator Corina Monagin	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data into GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Shuyi Zhang	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Shuyi Zhang	Developed framework for surveillance data coordination in-country; pathogen detection and discovery initiated for acquired wildlife samples; existing surveillance sample tracking system integrated with GAINS; strategically implemented surveillance in proposed	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
			locations in collaboration with in-country partners.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi	New technologies introduced and utilized; capacity gaps identified in ECNU and WIV labs and training and material resources introduced; expanded infrastructure of ECNU and WIV labs to improve viral diagnostic capacity and cold storage for sample archival.			**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Shuyi Zhang, Laboratory Coordinator Zhengli Shi	All sample data entered into GAINS; trainings completed on sample tracking and data management; Assistant Country Coordinator and office/data manager appointed to the field office headquarters; implemented standardized labeling and tracking system; data provided to UCD through GAINS monthly; response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	PREDICT Modeling Team	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UCD through GAINS monthly; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - CHINA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator Shuyi Zhang, GVFI Asia Regional Coordinator Corina Monagin
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country Coordinator Shuyi Zhang
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Monthly	Country Coordinator Shuyi Zhang, Asia Coordinator Jonathan Epstein
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator Shuyi Zhang,
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Shuyi Zhang

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Shuyi Zhang, Asia Coordinator Jonathan Epstein, GVFI Asia Regional Coordinator Corina Monagin
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator Shuyi Zhang, GVFI Asia Regional Coordinator Corina Monagin
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Shuyi Zhang, GVFI Science Officer Brad Schneider
1.4.2 Pathogen Discovery	Improved infrastructure at ECNU and Wuhan Institute for Virology for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Shuyi Zhang, GVFI Science officer Brad Schneider
1.5.1 Sample Tracking and Information Management	Sample data received; Implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Shuyi Zhang, GVFI Director of IT & Innovation Lucky Gundesekara

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations	GAINS	Monthly	Country Coordinator Shuyi Zhang, PREDICT Modeling Team
	Revised surveillance plan	Quarterly Report	Quarterly	

COUNTRY PROJECT MANAGEMENT - CHINA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for China is Wildlife Trust, and the implementing organization within China is East China Normal University. Oversight of PREDICT activities in China will be managed by Country Coordinator Dr. Shuyi Zhang with support from Technical Team Leader and Asia Coordinator Dr. Jonathan Epstein and GVFI Asia Regional Program Manager Corina Monagin.

Overview

South East Asia has some of the greatest wildlife biodiversity on earth, and has experienced some of the most rapid deforestation, bringing human settlements and commercial agriculture into close proximity with wildlife. In addition, the illegal wildlife trade is pervasive in Southeast Asia, including China, Malaysia, and Thailand. Bushmeat hunting for sport and food, as well as for trade to other countries brings people into close contact with a large variety of wildlife and creates a high level of risk to exposure of zoonotic pathogens. Guangdong Province is where the first cases of SARS were reported in November 2002. We have been working for over 5 years in China and particularly with the Guangdong CDC, the Institute of Zoology in Beijing, East China Normal University's Life Science Department, and GVFI. We are conducting our in-depth laboratory analysis at the Wuhan Institute of Virology, which is one of the premiere diagnostic labs in the world and is equipped with a BSL3 lab. Dr. Zhengli Shi at the Wuhan Institute of Virology has been a close collaborator for almost 10 years. Jointly with an international team, we discovered the natural host of SARS-like coronaviruses in 2005. We have existing projects throughout China that examine the risk of zoonotic disease emergence through hunting, livestock, and market animals. We will target our wildlife surveillance in areas of high human-wildlife contact in Guangdong and Guangxi provinces and will initiate linkages of labs in China with our lab partners outside China (including in the US and Australia) to facilitate technology transfer

Activities and Locations

PREDICT will work to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa**: primates, bats, rodents, carnivores, ungulates, and livestock as appropriate
- **Interfaces**: hunting, depredation, free-ranging, syndromic
- **Potential Locations**: Southern China (from Hainan to Yunnan) and Central China (from Beijing to Shanghai)

Partnerships
In China, partnerships have been established with GVFI, East China Normal University, Guangdong CDC, Wuhan Institute of Virology, the Institute of Endangered Animals, and Institute of Pathogen of Medical Academy of China. PREDICT will build on these partnerships to enhance collaboration for wildlife surveillance expanding existing surveillance activities in Southern and Central China to the national level.

Reporting
Once the Quarter 4/Year 2 work plan is approved, the PREDICT China team will develop a reporting structure in conjunction with the USAID Mission and led by the Country Coordinator. These updates will summarize achievements and progress, including activities of Global Viral Forecasting, Inc. and if provided in written form will be submitted to the managing partner Wildlife Trust, UC Davis, and USAID for review, and then distributed to the USAID Mission contact.

In addition, the Country Coordinator and Wildife Trust teams will communicate on a weekly basis through Skype meetings, sharing of weekly progress reports, and generation of interactive “To-Do-Lists” through the Basecamp project site.

India

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Once activities are approved to resume, facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF), Institute of Animal Health and Veterinary Biologicals

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; Full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to UCD via WT; continue ongoing multi-faceted communication with in-country partners including the USAID Mission to India through regular updates (once activities resume) and with the PREDICT team through monthly phone and video teleconferencing meetings; continued compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis via Wildlife Trust, and entering surveillance data through the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF), Wildlife Trust India, National Center for Disease Control, Institute of Animal Health and Veterinary Biologicals

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of PREDICT training programs.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across India:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, bats, rodents, birds, small carnivores and ungulates, including elephants.
    - **Interfaces:** free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), depredation, syndromic
    - **Proposed Locations:** Yellapura, Bannerghatta National Park, Bangalore, Western Ghats, Karnataka, Chalsa, Northern West Bengal, Kaziranga National Park, Assam, Thirunelveli, Tamil Nadu, Madurai, Tamil Nadu

  Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF), National Centre for Disease Control (NCDC), Wildlife Trust India (WTI), Consultant teams led by Dr. H. Raghuram, School of Life Sciences, Bharathidasan University Tamil Nadu, Mudumalai Tiger Reserve Tamil Nadu.

  Expected result(s): Developed framework for surveillance data coordination with partners; pathogen detection of collected wildlife samples; project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency; strategically implemented surveillance in proposed locations in collaboration with in-country partners to achieve a multi-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    New technologies introduced in Year 1 included dry shippers for enhanced cold chain from field to lab, isoflurane anesthesia for use with small mammals in the field, and bar coding for sample management.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF), National Institute of Mental Health and Neurosciences (NIMHANS), Institute of Animal Health and Veterinary Biologicals (IAHVB), Wildlife Trust, India, National Center for Disease Control.

Expected result(s): Continue to introduce and utilize new technologies; collaborations initiated with partners listed above for programs in new technology development and pathogen discovery.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database. Implement and utilize standardized labeling and tracking system in-country.

  Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF), Wildlife Trust India, National Center for Disease Control.

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to Wildlife Trust, UCD Davis and other PREDICT partners through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Wildlife Trust (WT), Indian Institute of Science (IISc), Asian Nature Conservation Foundation (ANCF).

  Expected result(s): Sample data uploaded into GAINS; country-specific data sources provided at high resolution for production of country-scale Hotspot map; data provided to Modeling Team to understand country specific spillover risk models.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – INDIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Manage-ment	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Country Liaison Parviez Hosseini, Asia Coordinator Jonathan Epstein	Once activities are approved to resume, full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; monthly project updates with the PREDICT team, phone and teleconferencing; continued compliance of all reporting requests; surveillance reporting through the GAINS database; regular meeting and communication with USAID mission in Delhi by Country Coordinator	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Thomas Mathew,	Framework for surveillance data coordination with partners; pathogen	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Senior Infectious Disease Consultant Gopal Thopsie	detection of wildlife samples initiated; surveillance sample tracking system integrated with GAINS; strategically implemented surveillance in proposed locations in collaboration with partners.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsies	New technologies developed in collaboration with partner institutions and introduced into the PREDICT program network; collaborations initiated for new technology development and pathogen discovery	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Manage-ment	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein; Data Management Coordinator Damien Joly	All sample data entered into GAINS; trainings completed on sample collection, tracking and data management; implemented standardized labeling and tracking system; data provided to UCD through GAINS monthly; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of	Country Coordinator Thomas Mathew, Country Liason	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UCD		**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	disease emergence	Parviez Hosseini, Modeling Team Tiffany Bogich	through GAINS monthly; country-specific data provided at high resolution for production of country-scale Hotspot map; data to Modeling Team to understand spillover risk models.					

PERFORMANCE MONITORING PLAN - INDIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly email updates and/or phone calls, semi-monthly video or teleconference meeting	Country Coordinator Thomas Mathew, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp.	Monthly	Country Coordinator Thomas Mathew
1.1.3 Communication	Mission and Partner Updates Once Activities Resume	Email, In-person Visits and Basecamp.	Monthly	Country Coordinator Thomas Mathew, and review by Asia Coordinator Jonathan Epstein
1.1.4 Reporting	Compliance of all reporting requests; surveillance data	Email, Basecamp and GAINS	Monthly	Country Coordinator Thomas Mathew, Project Officer Divya Srinivasan,

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	reports	database.		Country Liasion Parviez Hosseini
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Project Officer Divya Srinivasan, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Project Officer Divya Srinivasan, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp and GAINS database	Monthly	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Project Officer Divya Srinivasan
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Thomas Mathew, Asia Coordinator Jonathan Epstein

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at IISc for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Project Officer Divya Srinivasan, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Thomas Mathew, Senior Infectious Disease Consultant Gopal Thopsie, Project Officer Divya Srinivasan, Country Liasion Parviez Hosseini, Asia Coordinator Jonathan Epstein, Database Coordinator Damien Joly
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations	GAINS	Monthly	Country Coordinator Thomas Mathew, Country Liason Parviez Hosseini, Modeling Team lead Tiffany Bogich

COUNTRY PROJECT MANAGEMENT - INDIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for India is Wildlife Trust (WT), and the implementing organization within India is Asian Nature Conservation Foundation (ANCF) in conjunction with the Indian Institute of Science (IISc). Oversight of PREDICT activities in India will be managed by Country Coordinator Mr. Thomas Mathew (ANCF) with support from Scientific Adviser Prof. R. Sukumar and Senior Consultant (EID) Dr. Gopal Thopsie (ANCF) and Project Officer Divya Srinivasan. In addition, three staff members from ANCF support PREDICT on a part-time basis, including GIS Analyst K. Avinash, Administration Manager Sanjay Rattan, and Communications Officer Lalitha Murali. Other institutional partnerships include the National Center for Disease Control (NCDC) and the Institute of Animal Health and Veterinary Biologicals, Bangalore. These agencies provide scientific expertise in wildlife disease surveillance, laboratory diagnostic development and testing, and training. A planned PREDICT hire for Year 2 once the activities resume is a Program Director (veterinary specialist) whose responsibility will be to coordinate the implementation of technical collaborations with partner institutions.

Overview

India provides an exceptional opportunity for wildlife zoonotic disease surveillance at what is one of the world's most active wildlife-livestock-human interface areas. Dense human population co-occurs with rich biodiversity, in a country that depends intensively on agriculture by both human and animal labor. This high density of livestock near protected areas, coupled with strong seasonal variation in water availability, increases the risk of zoonotic threats, and may facilitate transmission of diseases of pandemic potential across this interface. Additionally, India possesses many islands of rainforest habitat, most notably the Western Ghats biodiversity hotspot known for the high degree of endemism and small mammal diversity, providing an opportunity to assess zoonotic pathogen potential in small rodent, bat, and primate species. Despite the intimate interaction of populations at these interfaces, India's current capacity to conduct wildlife disease surveillance at a regional and national level is developing. Through the implementing partner, the Asian Nature Conservation Foundation and Indian Institute of Science in Bangalore, existing collaborations with government veterinary and livestock ministries, wildlife authorities, and human health professionals enable PREDICT to fill the wildlife surveillance gap and expand surveillance to other high-risk wildlife-livestock-human interfaces.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for Year 2 is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, small carnivores, birds and ungulates
- **Interfaces:** free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), depredation, syndromic**.**
- **Potential Locations:** Yellapura, Sirsi, Bannerghatta National Park, Bangalore, Western Ghats, Karnataka, Chalsa, Northern West Bengal, Kaziranga National Park, Assam, Thirunelveli, Tamil Nadu, Madurai, Tamil Nadu

Partnerships
In India, partnerships have been established through Asian Nature Conservation Foundation in conjunction with the Indian Institute of Science.

Reporting
The USAID mission has requested regular communication with the Country Coordinator (Mathew) and Asia Coordinator (Epstein). Discussions with the Mission representatives are ongoing with respect to the nature and frequency of reporting.
In addition, the Country Coordinator and Wildlife Trust teams, led by Country Liason Parviez Hosseini and Asia Coordinator Jonathan Epstein communicate on a weekly basis through regular email exchanges, sharing of weekly progress reports, and semi-monthly video or teleconferences.

LATIN AMERICA REGION

Bolivia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: WCS, WT

Expected result(s):
Appointed an Assistant Country Coordinator and office/data manager to manage data (veterinarian Jorge Zapata); effective day-to-day management of in-country activities and administrative procedures, supervised by regional coordinator and supervisor, and the director of WCS Bolivia office; appropriate management of year 2 budget in accordance with USAID regulations; USAID Mission updated on project progress; accurate reports on technical, environmental and financial activities, and additional write-ups to be prepared as requested by USAID through UC Davis; field data regularly reported into GAINS; regular updates and coordination between WT and WCS via PREDICT Country Coordinator Erika Alandia, coordination with labs will be through WCS.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners:
WCS, WT, Bolivian Network to Combat Wildlife Traffic (REBOCTAS), General Directorate of Biodiversity (DGB), National Service of Protected Areas (SERNAP), Ministry of Environment, Institute of Ecology, Major University of San Andrés, Institute of Molecular Biology and Biotechnology, Major

University of San Andres; National Animal Health Department, (SENASAG), National Center for Tropical Diseases (CENETROP), National Institute of Health Laboratories (INLASA, Public University of El Alto (UPEA, Bacteriology Lab), Veterinary Research and Diagnostic Laboratory (LIDIVET),Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO), Pan-American Health Organization (PAHO), Tsimán-Mosetén Indigenous Council (CRTM), Takana Indigenous Council (CIPTA), Senda Verde wildlife rescue and rehabilitation center, Mahía wildlife rescue and rehabilitation center, Güembé wildlife rescue and rehabilitation center, Bolivian Bat Conservation Program (PCMB), Study Center of Theoretical and Applied Biology (BIOTA), Centro de Biodiversidad y Genética, Universidad Mayor de San Simon/Cochabamba (CBG).

Expected result(s):
Changes in capacity for wildlife disease surveillance in Bolivia evaluated through the use of the Capacity Building Rapid Survey tool; training on field sampling procedures, sample shipment and data management, developed and provided to team members and partners; training workshop with WT on sample collection and preservation of biological samples; involvement of governmental agencies (e.g., SENASAG, DGB, INLASA), indigenous councils (Tsimán-Mosetén, Takana), local universities, Pan-American Health Organization (PAHO) and others in capacity building process.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Bolivia:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** primates, ungulates, rodents, bats, birds, reptiles
    - **Interfaces:** hunted animals (subsistence bushmeat), rescue centers, confiscations, free ranging, livestock when appropriate
    - **Potential Locations:** Madidi National Park (indigenous territories within Northwest region), Chairo-Pacallo, Coroico District, Villa Tunari District,-Porongo District, Buena Vista, Santa Cruz City.

Partners:
WCS, WT, Bolivian Network to Combat Wildlife Traffic (REBOCTAS), General Directorate of Biodiversity (DGB), National Service of Protected Areas (SERNAP), Ministry of Environment, Institute of Ecology, Major University of

San Andrés, Institute of Molecular Biology and Biotechnology, Major University of San Andres, National Animal Health Department of SENASAG, National Center of Tropical Diseases (CENETROP), National Institute of Health Laboratories, (INLASA), Public University of El Alto (UPEA, Bacteriology Lab), Veterinary Research and Diagnostic Laboratory (LIDIVET), Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO), Tsimán-Mosetén Indigenous Council (CRTM), and local communities, Takana Indigenous Council (CIPTA), and local communities, Senda Verde wildlife rescue and rehabilitation center, Mahía wildlife rescue and rehabilitation center, Güembé wildlife rescue and rehabilitation center, Bolivian Bat Conservation Program (PCMB), Study Center of Theoretical and Applied Biology (BIOTA), Centro de Biodiversidad y Genética - Universidad Mayor de San Simon/Cochabamba (CBG).

Expected result(s):
Established collaboration with public and private institutions for accomplishing surveillance and data sharing; surveillance activities performed at targeted interfaces, and lab testing for zoonotic pathogens as scheduled; pathogen detection and discovery initiated of acquired wildlife samples; field data entered monthly into GAINS database; notification of animal disease outbreaks to governmental agencies, community leaders and hunters;sSurveillance strategy adapted to increase pathogen detection in wildlife at hotspot sites prioritized through analysis by PREDICT epidemiology leads Christine Kreuder Johnson UC Davis, Pablo Beldomenico WCS.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    The following innovative sample collection technologies were implemented during year 1 for surveillance activities: lysis buffer (RNA Later), FTA Cards, Blood Spot/Protein Binding Cards and liquid nitrogen storage for sample collection and storage; satellite phones for communications in remote areas.

  - Sub-activity 1.4.2: **Pathogen discovery: Implement protocols to collect samples** for pathogen detection according to the surveillance plan for each high-risk interface; Identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners:
WCS, WT, Bolivian Network to Combat Wildlife Traffic (REBOCTAS), General Directorate of Biodiversity, (DGB), National Service of Protected Areas (SERNAP), Ministry of Environment, National Animal Health Department of

SENASAG, National Institute of Health Laboratories, (INLASA), Tsimán-Mosetén Indigenous Council (CRTM), Takana Indigenous Council (CIPTA), Senda Verde wildlife rescue and rehabilitation center, Mahía wildlife rescue and rehabilitation center, Güembé wildlife rescue and rehabilitation center, Bolivian Bat Conservation Program (PCMB), BIOTA

Expected result(s):
Technology needs of partner laboratories accurately assessed and communicated to PREDICT Diagnostic lead (Tracey Goldstein UC Davis), increase capacity of Institute of Molecular Biology (Major University of San Andrés) and National Institute of Health Laboratories (INLASA) for viral diagnostics and cold storage and introduction of training and resources where possible; identification of export mechanisms for samples destined for pathogen discovery techniques to regional reference labs (eg. NMRCD Lima, Peru) and other partner labs (Center for Infection & Immunity, Columbia University), through coordination and guidance from PREDICT Pathogen Discovery Coordinator (Joseph Fair GVFI).

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners:
WCS, WT, Bolivian Network to Combat Wildlife Traffic (REBOCTAS), General Directorate of Biodiversity (DGB), National Service of Protected Areas (SERNAP), Ministry of Environment, Institute of Molecular Biology and Biotechnology Major University of San Andres, National Animal Health Department of SENASAG, National Center of Tropical Diseases (CENETROP),National Institute of Health Laboratories (INLASA), Public University of El Alto (UPEA, Bacteriology Lab),Veterinary Research and Diagnostic Laboratory (LIDIVET), Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO), Tsimán-Mosetén Indigenous Council (CRTM), Takana Indigenous Council (CIPTA), Senda Verde wildlife rescue and rehabilitation center, Mahía wildlife rescue and rehabilitation center, Güembé wildlife rescue and rehabilitation center, Bolivian Bat Conservation Program (PCMB), Study Center of Theoretical and Applied Biology (BIOTA)

Expected result(s):
PREDICT data sheets accurately completed in the field in accordance with PREDICT Information Management Team; implementation of barcode labeling and unique identification of samples to allow for sample tracking and data management; completed trainings on sample tracking and data

management; data upload monthly to GAINS database; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: WCS, WT, PREDICT Information Management Team, PREDICT Modeling Team.

  Expected result(s):
  Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to modeling team through GAINS on a monthly basis.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – BOLIVIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Erika Alandia (Country Coordinator), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Lilian Painter (WCS Bolivia director), Luis F. Aguirre (WT representative), M. Isabel Moya (WT Operative and Logistic Coordinator)	Appointed Assistant Country; effective day-to-day management of in-country activities and administrative procedures; appropriate management of year 2 budget; USAID Mission updated on project progress; accurate reports prepared as requested by USAID through UC Davis; field data entered monthly into GAINS; regular updates and coordination between WT and WCS.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Erika Alandia (Country Coordinator), WCS in-country staff, Alberto	Changes in capacity for wildlife disease surveillance evaluated through the Rapid Survey tool; training on field sampling procedures, sample shipment and data management,		**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Perez (regional coordinator); Luis F. Aguirre (WT country representative), M. Isabel Moya (WT Operative and Logistic Coordinator)	training materials and protocols available and implemented by PREDICT staff and partners.					
1.3	Surveillance	Erika Alandia (Country Coordinator), WCS in-country staff, Alberto Perez (regional coordinator), Luis F. Aguirre (WT country representative), M. Isabel Moya (WT Operative and Logistic Coordinator)	Surveillance activities performed at targeted interfaces; pathogen detection and discovery initiated of acquired wildlife samples; field data entered monthly into GAINS database; notification of animal disease outbreaks to governmental agencies, community leaders and hunters; surveillance strategy adapted to increase pathogen detection in wildlife at hotspot sites.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development and Pathogen Discovery	Erika Alandia (country coordinator), Alberto Perez (regional	Technology needs of partner laboratories; increased capacity of Institute of Molecular Biology (Major University of San Andrés) and National Institute of Health	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		coordinator)	Laboratories (INLASA) and introduction of training and resources; identification of export mechanisms for samples destined for pathogen discovery.					
1.5	Sample Tracking and Information Management	Erika Alandia (country coordinator), Luis F. Aguirre (WT country representative) M. Isabel Moya (WT Operative and Logistic Coordinator)	PREDICT data sheets accurately completed in the field; implementation of barcode labeling and unique identification; completed trainings on sample tracking and data management; monthly data upload of all data from WCS, WT, and in-country partners to GAINS database; timely response to requests for surveillance data	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Erika Alandia (country coordinator), Luis F. Aguirre (WT country representative) and M. Isabel Moya (WT Operative & Logistic Coordinator)	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized; data provided to modeling team through GAINS on a monthly basis		**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - BOLIVIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype, email and Basecamp	Weekly	Erika Alandia (country coordinator), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Lilian Painter (WCS Bolivia director), Luis F. Aguirre (WT country representative), M. Isabel Moya (WT Operative and Logistic Coordinator)
1.1.2 Fiscal Management	Near-real time expense tracking	Skype, email and Basecamp	Monthly	WCS Bolivia office administrative staff, Erika Alandia (country coordinator), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Lilian Painter (WCS Bolivia director), Luis F. Aguirre (WT country representative), M. Isabel Moya (WT Operative and Logistic Coordinator)
1.1.3 Communication	Mission and Partner Updates	Skype, email and Basecamp	Quarterly or as requested by Mission and partners	Erika Alandia (country coordinator), Lilian Painter (WCS Bolivia director), Alberto Perez (regional coordinator) and Marcela Uhart (regional supervisor)
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database Quarterly Reports	Quarterly or as requested	Erika Alandia (country coordinator), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), M. Isabel Moya (WT Operative and Logistic Coordinator)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool	Annually	Erika Alandia (country coordinator), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor)
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Erika Alandia (country coordinator), Alberto Perez (regional coordinator) , PREDICT in-country staff, Luis F. Aguirre, WT country representative, M. Isabel Moya WT Operative and Logistic Coordinator
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Erika Alandia (country coordinator), PREDICT in-country staff, A. Perez (regional coordinator), PREDICT Surveillance Team
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Erika Alandia (country coordinator), A. Perez (regional coordinator), WT Operative and Logistic Coordinator M. Isabel Moya

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at Institute of Molecular Biology (Major University of San Andrés) and National Institute of Health Laboratories (INLASA) for viral diagnostics capacity and cold storage	Quarterly Reports	Quarterly Reports	Erika Alandia (country coordinator), A. Perez (regional coordinator), Technology Development lead Joseph Fair, Diagnostic lead Tracey Goldstein.
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Erika Alandia (country coordinator), Jorge Zapata (assistant vet), A. Perez (regional coordinator), WT Operative and Logistic Coordinator M. Isabel Moya, Information Management Team.
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Updated data provided on country and regional level drivers, contact activities and interfaces	GAINS Quarterly Report	Monthly Quarterly	Erika Alandia (country coordinator), A. Perez (regional coordinator), WT Operative and Logistic Coordinator M. Isabel Moya, Predict Modeling Team.

COUNTRY PROJECT MANAGEMENT - BOLIVIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Bolivia is Wildlife Conservation Society, and the implementing organizations within Bolivia are Wildlife Conservation Society, Wildlife Trust, and Centro de Estudios en Biología Teórica y Aplicada (BIOTA). Oversight of PREDICT activities in Bolivia will be managed by Country Coordinator, Erika Alandia with support from WCS supervisors Marcela Uhart (regional supervisor), Alberto Perez (regional coordinator) and Robert Wallace (WCS Director of Great Madidi-Tambopata Landscape Conservation Program). In addition, PREDICT Bolivia support team includes José Luis Mollericona, Glenda Ayala, Rolando Limachi, Fabiola Suárez, Rosario Barradas, and Jorge Zapata. Oversight of Wildlife Trust PREDICT activities in Bolivia will be managed by Dr. Luis F. Aguirre and Operative and Logistics Coordinator Ms. M. Isabel Moya of WT, in close coordination with and reporting through the PREDICT Country Coordinator, Dr. Erika Alandia of the Wildlife Conservation Society.

Overview

Bolivia offers a unique location to identify and characterize zoonotic diseases of wildlife origin. Its high diversity of ecosystems is translated into a high diversity of flora and fauna. There are 1,415 known species of birds and 389 species of mammals of which a third of the species (125) correspond to bats. Many of the ecosystems have been utilized by humans for thousands of years, and at present, the increase in human population, coupled with land use change driven by agricultural practices and/or cattle grazing, has increased the pressures on wildlife which facilitate the transmission of diseases that have the potential to become zoonotic and epidemic.

The 42,500 sq. mile Madidi-Tambopata landscape in Bolivia presents unique opportunities for rapid development and implementation of a comprehensive wildlife zoonoses surveillance program. The landscape spans the borders of northern Bolivia and southern Peru, with five protected areas and vast indigenous peoples' territories. Madidi hosts over 300 species of mammals, including 11 primate species, 115 bats and about 100 rodents, with new species still being reported. The current human population in the Madidi-Tambopata area includes 100 rural communities ranging from 10-1,000 people, and an expanding agricultural frontier, increasing the risk of disease transmission between humans, domestic animals, and wildlife. Newcomers from urban areas, working for major infrastructure development projects such as highway construction; expansion of gas, oil, and hydropower projects; timber extraction; and mining bring people into closer contact with forest wildlife and pathogens. Wildlife trade is another route of disease exposure in humans as illegal wildlife markets (live, bushmeat and medicinal products) are common and increasing, in part due to hunting to feed workers moving to rural areas to work on development projects.

Activities and Locations
During year 2, PREDICT activities will include opportunistic sampling of hunted wildlife, and surveillance activities will be conducted at rescue centers and on confiscated wildlife. Priority samples will be submitted for pathogen detection and discovery to identify wildlife pathogens with potential pandemic potential:

- **Taxa:** primates, ungulates, rodents, bats, birds, reptiles
- **Interfaces:** hunted animals (subsistence bushmeat), rescue centers, confiscations, free ranging, livestock when appropriate
- **Potential Locations:** Madidi National Park (indigenous territories within Northwest region), Chairo-Pacallo, Coroico District, Villa Tunari District, Porongo District, Buena Vista, Santa Cruz City

Partnerships
Partnerships and collaborations established and to be solidified during year 2 include: Tsimán-Mosetén Indigenous Council (CRTM) and local communities Asunción del Quiquibey, San Luis chico; Takana Indigenous Council (CIPTA) and local communities Tumupasa, San Silvestre; Senda Verde wildlife rescue and rehabilitation center (Coroico District, La Paz), Mahía wildlife rescue and rehabilitation center (Villa Tunari District, Cochabamba), Güembé wildlife rescue and rehabilitation center (Porongo District, Santa Cruz), Bolivian Network to Combat Wildlife Traffic (REBOCTAS), General Directorate of Biodiversity (DGB), Institute of Molecular Biology and Biotechnology Major University of San Andres, National Animal Health Department of SENASAG, National Center of Tropical Diseases (CENETROP), National Institute of Health Laboratories (INLASA), Public University of El Alto (UPEA, Bacteriology Lab), Veterinary Research and Diagnostic Laboratory (LIDIVET), Veterinary Research and Diagnostic Laboratory Cochabamba (LIDIVECO), Panamerican Health Organization (PAHO), Bolivian Bat Conservation Program (PCMB), Study Center of Theoretical and Applied Biology (BIOTA).

Reporting
The PREDICT team has met with Dr. Alicia Dinerstein, Health Office Director, and Dr. Stanley Blanco to discuss the project and appropriate reporting mechanisms. We are now developing a practical communication and reporting mechanism to keep the Mission regularly updated on PREDICT activities and progress. Wildlife Trust will provide WCS with regular reports that will be also used to keep the Mission regularly updated on PREDICT activities and progress. The PREDICT Country Coordinator, Erika Alandia/WCS will be responsible for communicating with USAID Mission.

In addition, the Country Coordinator and Regional Coordinator communicate on a continual basis with the Regional director through Skype meetings and email and with the WCS and WT teams monthly through sharing of monthly progress reports.

Brazil

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: Wildlife Trust (WT), Wildlife Conservation Society (WCS), ICB II Virology Laboratory, VPS Preventive Medicine Department Veterinary Faculty from University of São Paulo, UCDavis, Biotrópicos Institute, Mammals of Cerrado, Brazilian Institute of Environment and Natural Resources (IBAMA), Instituto Brasileiro para Medicina da Conservacao (TRIADE).

    Expected result(s): Coordination of all surveillance activities; continued compliance in all reporting requests (financial, technical, environmental, travel) from USAID to UCD through Wildlife Trust; day-to-day communication through e-mail and video conferences with Wildlife Trust for planning and follow-up activities; alliances and permanent communication links with country institutions including the USAID Mission in Brazil; entering data through the GAINS database.

- **Activity 1.2 Capacity Building**
    - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in

specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

- Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: WT,WCS, ICB II Virology Laboratory, VPS Preventive Medicine Department Veterinary Faculty from University of São Paulo (Dr. Edison Durigon), UCDavis, Biotrópicos Institute, Mammals of Cerrado, Brazilian Institute of Environment and Natural Resources (IBAMA), Instituto Brasileiro para Medicina da Conservacao (TRIADE),Indigenous National Foundation, FUNAI, Institute “Chico Mendes” of Conservation and Biodiversity (ICMBIO), Ministry of Agriculture and Livestock (MAPA), Ministry of Health National Foundation of Health (FUNASA), Oswaldo Cruz Institute and Foundation (FIOCRUZ), Pasteur Institute, University of Brasilia (UNB), University of Londrina; Indigenous communities within Mamirauá and Piagassu-Purus Sustainable Reserves (State of Amazonas).

Expected result(s): Strengthened partnerships with strategic institutions, governmental agencies and other groups working with wildlife ecology and health assessment; continued evaluation and assessment of wildlife surveillance and diagnostic testing capability through use of the Capacity Building Rapid Survey Tool; implementation of all official training materials and training provided to partners and collaborators (MAPA, IBAMA, FUNAI) on field sampling procedures, sample shipment and data management.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Brazil:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** Carnivores primates, bats, rodents, ungulates and livestock, and birds where possible.

- **Interfaces:** free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources, captured and released; voucher specimens), hunting communities, syndromic
- **Proposed Locations:** São Paulo State: Parque Estadual Serra do Mar, Parque Estadual Morro do Diabo, Estação Ecológica Mico Leão Preto; Minas Gerais State: Parque Estadual Rio Preto, Parque Estadual Biribiri, Parque Nacional Grande Sertão Veredas, Parque Nacional Sempre Vivas;Pantanal - Serra da Bodoquena; Amazonia: Brazil-Peru border, Manaus, Marajó Island, Anavilhanas; Recife Fernando de Noronha; Goiás: Catalão, Caturaí; Mato Grosso do Sul: Parque Estadual de Invinhema, Anaurilândia; Pernambuco Coroa do Avião; Rio Grande do Sul Parque Nacional da Lagoa do Peixe; State of Mato Grosso (central-western Brazil): Ucs Aripuanã; State of Amazonas (north-western Brazil): Pico da Neblina, Mamirauá and Piagassu-Purus Sustainable Reserves.

Partners: WT, WCS, ICB II Virology Laboratory, VPS Preventive Medicine Department Veterinary Faculty from University of São Paulo; UC Davis, Biotrópicos Institute, Mammals of Cerrado, Brazilian Institute of Environment and Natural Resources (IBAMA), Instituto Brasileiro para Medicina da Conservacao (TRIADE), Universidade de Santo Amaro (UNISA), Indigenous National Foundation FUNAI, Institute “Chico Mendes” of Conservation and Biodiversity (ICMBIO), Ministry of Agriculture and Livestock (MAPA), Ministry of Health National Foundation of Health (FUNASA), Oswaldo Cruz Institute and Foundation (FIOCRUZ), Pasteur Institute; University of Brasilia (UNB), University of Londrina, Indigenous communities within Mamirauá and Piagassu-Purus Sustainable Reserves (State of Amazonas).

Expected result(s): Samples collected from different taxa and partners trained to collect and store samples; pathogen detection and discovery initiated for newly acquired wildlife samples; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network; potential for sample collection from hunter killed wildlife at Mamiraua Sustainable Reserves explored; field data entered monthly into GAINS database.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    New technology to perform coronavirus RT-PCR diagnostics was implemented in the ICB II Virology Laboratory in Year 1.

- Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: WT, WCS, ICB II, Virology Laboratory, UC Davis, Oswaldo Cruz Institute and Foundation (FIOCRUZ), Pasteur Institute, University of São Paulo (USP)

Expected result(s): Introduction of new technologies for DNA/RNA extraction for increased throughput with the Nuclysens easy mag IVD-labeled automated system in Year 2; appropriate training and material resources introduced to the team; diagnostic needs of partner laboratories accurately assessed and communicated to WT and PREDICT Diagnostic lead (Tracey Goldstein, UC Davis); use of novel sample collection technology during field surveillance activities for reliable screening of samples; aliquots stored for pathogen discovery at diagnostic labs.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: Wildlife Trust (WT), Wildlife Conservation Society (WCS), ICB II University of São Paulo, Virology Laboratory - NB3 facilities, UC Davis, Ministry of Agriculture and Livestock (MAPA), Ministry of Health, Oswaldo Cruz Institute and Foundation (FIOCRUZ), Pasteur Institute

Expected result(s): PREDICT data sheets accurately completed in the field, in accordance PREDICT Information Management Team; sample data entered into GAINS; completed trainings on sample tracking and data management; implement standardized labeling and tracking system; data provided to Wildlife Trust through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

Partners: WT, WCS, ICB II University of São Paulo, Virology Laboratory, PREDICT Modeling Team

Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to Wildlife Trust through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building

No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction

No Planned Activities

IMPLEMENTATION PLAN – BRAZIL

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Manage-ment	Country Coordinator Alessandra Nava, WCS Country Representative Flávia Miranda, Laboratory Coordinator Jansen de Araújo, Field Activities Coordinator Renata Hurtado, WT Brazil Director Alonso Aguirre, Regional Coordinator Alberto Perez, Regional Supervisor Marcela Uhart, WCS Brazil Director Jean Boubli	Weekly meetings with PREDICT field and laboratory staff, and partners; WT informed of activities monthly; PREDICT staff hired and established; effective day-to-day management of in-country activities and administrative procedures; USAID Mission updated; accurate monthly reports prepared as requested by USAID to UCD; field data entered into GAINS.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Alessandra Nava, WCS Country Representative	Strengthened partnerships with strategic institutions, governmental agencies and groups working with wildlife ecology and health	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Flávia Miranda, Laboratory Coordinator Jansen de Araújo, Field Coordinator Renata Hurtado, Laboratory Assistant Tatiana Ometto, Field/Laboratory Assistant Mariana Seixas, Regional Coordinator Alberto Perez	assessment; continued evaluation and assessment of wildlife surveillance and diagnostic testing capability through use of the Capacity Building Rapid Survey Tool; implementation of all official training materials and training provided to partners and collaborators (MAPA, IBAMA, FUNAI) on field sampling procedures, sample shipment and data management.					
1.3	Surveillance	Country Coordinator Alessandra Nava, WCS Country Representative Flávia Miranda, Laboratory Coordinator Jansen de Araújo, Regional Coordinator Alberto Perez	Samples collected from different taxa and partners trained to collect and store samples; pathogen detection and discovery initiated for newly acquired wildlife samples; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network; potential for sample collection from hunter killed wildlife at Mamiraua Sustainable Reserve explored; field data entered monthly into GAINS.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development	Country Coordinator Alessandra Nava,	Introduction of new technologies for DNA/RNA extraction for increased	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	and Pathogen Discovery	WCS Country Representative Flávia Miranda, Laboratory Coordinator Jansen de Araújo, Regional Coordinator Alberto Perez	throughput with the Nuclysens easy mag IVD-labeled automated system in Year 2; training and material resources introduced; diagnostic needs of partner laboratories assessed and communicated to WT and PREDICT Diagnostic lead (Tracey Goldstein); novel sample used during field surveillance activities for reliable screening of samples; aliquots stored for pathogen discovery.					
1.5	Sample Tracking and Information Management	Country Coordinator Alessandra Nava, WCS Country Representative Flávia Miranda, Laboratory Coordinator Jansen de Araújo	PREDICT data sheets accurately completed in the field; efficient barcode labeling and unique identification of samples to help sample tracking and data management; sample data entered into GAINS monthly; completed trainings on sample tracking and data management.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Alessandra Nava, WCS Country Representative Flávia Miranda,	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to PREDICT Modeling Team.	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Laboratory Coordinator Jansen de Araújo						

PERFORMANCE MONITORING PLAN - BRAZIL

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing, and Skype	Weekly	Alessandra Nava (Country Coordinator), Alonso Aguirre (WT Brazil Director), Melinda Rostal (WT Country Liaison), Flávia Miranda (WCS Country Representative), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), Jean Boubli (WCS Brazil Director)
1.1.2 Fiscal Management	Near-real time expense tracking	Email, Basecamp and Skype	Monthly	Alessandra Nava (Country Coordinator), Alonso Aguirre (WT Brazil Director), Melinda Rostal (WT Country Liaison), Flávia Miranda (WCS Country Representative), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), Jean Boubli (WCS Brazil Director)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Quarterly	Alessandra Nava (Country Coordinator), Alonso Aguirre (WT Brazil Director), Melinda Rostal (WT Country Liaison), Flávia Miranda (WCS Country Representative), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), Jean Boubli (WCS Brazil Director)
1.1.4 Reporting	Compliance in all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Alessandra Nava (Country Coordinator), Flávia Miranda (WCS Country Representative), Alberto Perez (Regional Coordinator)
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative), Alberto Perez (Regional Coordinator), Marcela Uhart (Regional Supervisor), Melinda Rostal (WT Country Liaison)
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Jansen de Araújo (Laboratory Coordinator), Renata Hurtado (Field Coordinator), Flávia Miranda (WCS Country Representative) PREDICT in-country staff, Alberto Perez (Regional Coordinator)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative), PREDICT in-country staff, Alberto Perez (Regional Coordinator), PREDICT Surveillance Team
1.4.1 Introduction of New Technologies	New technologies and protocols introduced to detect known and novel pathogens; identified capacity gaps in ICB II lab and appropriate training and material resources introduced	Quarterly Reports	Quarterly	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative)
1.4.2 Pathogen Discovery	Improved infrastructure at ICB II Virology Laboratory for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative), Tracey Goldstein (Diagnostic Lead), Simon Anthony (Pathogen Discovery)
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative), PREDICT Information Management Team

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations	GAINS	Monthly	Alessandra Nava (Country Coordinator), Jansen de Araújo (Laboratory Coordinator), Flávia Miranda (WCS Country Representative)
	Revised surveillance plan	Quarterly Report	Quarterly	

COUNTRY PROJECT MANAGEMENT - BRAZIL

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Brazil is Wildlife Trust, and the implementing organizations within Brazil are Wildlife Trust and Wildlife Conservation Society. Oversight of PREDICT activities in Brazil will be managed by Country Coordinator Alessandra Nava with support from Technical Team Leaders, Jansen de Araújo, Laboratory Coordinator and Field Coordinator Renata Hurtado, in coordination with WCS Country Representative Dr. Flavia Miranda. Support will be provided by WT supervisors Alonso Aguirre and Peter Daszak, and WCS supervisors Alberto Perez and Marcela Uhart. Additional support staff includes WCS Brazil team Jean Boubli, Fabio Rohe, and an assistant veterinarian to be hired. Activities implemented under the direction of WCS will be coordinated and reported through the PREDICT Country Coordinator.

Overview

Brazil's social and environmental conditions and its rich biodiversity support the conditions necessary for emergence and reemergence of infectious diseases. Thus, there is an increasing need to bolster surveillance activities to better control and prevent outbreaks. Brazil has a variety of arboviruses that are maintained in enzootic cycles in the Amazon region and can infect humans in close contact with wild habitats. Investigations in the Amazon region in the 1960s and 70s during the construction of the Transamazonian highway and in Altamira and Tucurí during and after the construction of the hydroelectricstation identified viruses of significant relevance to public health. As a result, new viral members of the *Buynyaviridae* and *Reoviridae* families were isolated, as well as others of unknown taxonomy. Deforestation for cattle production has also played an important role as a driver for the reemergence of diseases in recent years. Development in Brazil has resulted in the industrialization of the southwestern region while keeping the rural regions underdeveloped. One of the symptoms of this development strategy is that actions for containing outbreaks or investigations on emerging/reemerging diseases are typically carried out when diseases are directly threatening the great urban centers. As is often the case, the urbanization process has favored the emergence and dissemination of new diseases formerly confined to endemic niches, lending itself to the need for the development of an extended surveillance system.

Activities and Locations

PREDICT Brazil will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for Year 2 is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** Carnivores, primates, bats, rodents, ungulates, livestock,

and birds where possible.

- **Interfaces:** free-ranging, hunting communities, syndromic
- **Proposed Locations:** São Paulo State: Parque Estadual Serra do Mar, Parque Estadual Morro do Diabo, Estação Ecológica Mico Leão Preto; Minas Gerais State: Parque Estadual Rio Preto, Parque Estadual Biribiri, Parque Nacional Grande Sertão Veredas, Parque Nacional Sempre Vivas;Pantanal - Serra da Bodoquena; Amazonia: Brazil-Peru border, Manaus, Marajó Island, Anavilhanas; Recife Fernando de Noronha; Goiás: Catalão, Caturaí; Mato Grosso do Sul: Parque Estadual de Invinhema, Anaurilândia; Pernambuco Coroa do Avião; Rio Grande do Sul Parque Nacional da Lagoa do Peixe; State of Mato Grosso (central-western Brazil): Ucs Aripuanã; State of Amazonas (north-western Brazil): Pico da Neblina, Mamirauá and Piagassu-Purus Sustainable Reserves.

Partnerships

ICB II Virology Laboratory, VPS Preventive Medicine Department Veterinary Faculty from University of São Paulo (Dr. Edison Durigon), Biotrópicos Institute, Mammals of Cerrado, Brazilian Institute of Environment and Natural Resources (IBAMA), Instituto Brasileiro para Medicina da Conservacao (TRIADE), Universidade de Santo Amaro (UNISA), Indigenous National Foundation (FUNAI), Institute “Chico Mendes” of Conservation and Biodiversity (ICMBIO), Ministry of Agriculture and Livestock (MAPA), Ministry of Health National Foundation of Health (FUNASA), Oswaldo Cruz Institute and Foundation (FIOCRUZ), Pasteur Institute, University of Brasilia (UNB), University of Londrina, Indigenous communities within Mamirauá and Piagassu-Purus Sustainable Reserves (State of Amazonas).

Reporting

During Year 2, the in-country team will solidify (in cooperation with the USAID Mission) a practical communication and reporting mechanism approved by USAID to keep the local USAID Mission regularly updated on PREDICT activities and progress.
WCS will provide Wildlife Trust with regular reports that will also be used to keep the Mission regularly updated on PREDICT activities and progress.

The Country Coordinator and Wildlife Trust team communicate on a weekly basis through Skype meetings, phone conferences and/or through regular email exchanges, sharing progress reports.

Colombia

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: Wildlife Trust (WT), Faculty Veterinary Medicine of Fundación Universitaria San Martín (FVM-FUSM).

    Expected result(s): Management and coordination of all project activities including tracking and reporting of all expenditures; day-to-day communication through e-mail and video conferences with Wildlife Trust for planning and follow-up activities; alliances and permanent communication links with country institutions including the USAID Mission in Colombia; continued preparation of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis via Wildlife Trust, and entering data through the GAINS database.

- **Activity 1.2 Capacity Building**
    - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess

country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

- Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: Wildlife Trust (WT), FVM-FUSM, National Heath Institute (INS), Instituto Colombiano Agropecuario (ICA).

Expected result(s): Improving the capacity building tool during Year 2 by visiting and interviewing relevant institutions and people; continued evaluation and assessment of wildlife surveillance and diagnostic testing capability; training of personnel and partners on PPE use, laboratory safety and methods, and sampling and transporting protocols; training of pre-grade and/or post-grade students in field methods and One Health topics.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Colombia:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa**: primates, bats, rodents, birds, other mammals.
    - **Interfaces:** hunting, depredation, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
    - **Proposed Locations:** East Colombia: Puerto López, Llanos Orientales-Departamento Meta, North Coast: Embalse de Guájaro. Departamento del Atlántico, Bogotá: Departamento de Cundinamarca, Amazon: Departamento de Caquetá.

Partners: Wildlife Trust (WT), Fundación Universitaria San Martín, Environment Ministry (MAVDT), National Heath Institute (INS), Instituto Colombiano Agropecuario (ICA), National Parks of Colombia, Rehabilitation Centers.

Expected result(s): Develop framework for surveillance data coordination with partners; pathogen detection and discovery initiated for samples collected from wildlife samples; existing project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Wildlife Trust (WT), ICA, INS, other diagnostic laboratories in Colombia.

  Expected result(s): Evaluation of diagnostic capacity in Colombia and identification of needs for pathogen detection; develop a strategy to implement new technologies in partnership with capable laboratories through introduction of resources, personnel exchanges, training and development of protocols.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: Wildlife Trust (WT), Fundación Universitaria San Martín (FVM-FUSM)

  Expected result(s): Template for data captures completed onsite according to GAINS standards; data uploaded into GAINS and provide feedback to data managers; personnel trained on sampling tracking and data management; implement the standardized labeling and tracking systems; respond to requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Wildlife Trust (WT), Fundación Universitaria San Martín (FVM-FUSM)

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; provide data to Modeling team as requested and to UC Davis through GAINS on a monthly basis.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – COLOMBIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar	Management and coordination of all project activities including tracking and reporting all expenditures; day-to-day communication with WT for planning and follow-up activities; communication links established with country partners; all reports submitted to UCD via WT, data entered into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Victoria Pereira Bengoa	Updated and improved the capacity building tool; trained undergraduate and/or post-graduate students in field methods and One Health topics; implementation of all official training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar	Implemented sampling in proposed locations in collaboration with in-country partners; proposed new areas for sampling evaluated; initiated pathogen detection of wildlife samples collected.	**X**	**X**	**X**	**X**	**X**
1.4	Technology Development	Country Coordinator	Evaluated diagnostic capacity and identified capacity gaps for pathogen				**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	and Pathogen Discovery	Victoria Pereira Bengoa	detection at FVM-FUSM; strategy to implement new technologies through introduction of resources, training and development of protocols					
1.5	Sample Tracking and Information Management	Country Coordinator Victoria Pereira Bengoa, Information Management Team	All sample data entered into GAINS; completed trainings on sample tracking and data management; implementation of standardized labeling and tracking systems; responded to requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country Coordinator Victoria Pereira Bengoa	Sample data uploaded to GAINS; gap analysis conducted on surveillance plan; data provided to WT through GAINS on a monthly basis; timely and efficient response to all requests for surveillance.	**X**	**X**	**X**	**X**	**X**

PERFORMANCE MONITORING PLAN - COLOMBIA

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp.	Monthly	Country Coordinator Victoria Pereira Bengoa
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp.	Quarterly	Country Coordinator Victoria Pereira Bengoa
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator Victoria Pereira Bengoa
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Victoria Pereira Bengoa, in-country collaborators
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Victoria Pereira Bengoa, Field Supervisor

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar, Field Supervisor
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar, Laboratory Consultant
1.4.2 Pathogen Discovery	Improved infrastructure at FVM-FUSM for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country Coordinator Victoria Pereira Bengoa, Laboratory Consultant
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Victoria Pereira Bengoa, Field assisstants
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Victoria Pereira Bengoa, Co-Country Coordinator Fernando Nassar

COUNTRY PROJECT MANAGEMENT – COLOMBIA

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Colombia is Wildlife Trust, and the implementing organization within Colombia is Fundación Universitaria San Martín. Oversight of PREDICT activities in Colombia will be managed by Country Coordinator, Victoria Pereira Bengoa with support from Co-Coordinator Fernando Nassar. In addition, PREDICT has seven staff members in-country, including two biologists, one field veterinary, three field assistants, and one laboratory consultant.

Overview

Colombia is the fourth largest economy in South America, and despite its relatively small size is the second most biologically diverse country on Earth and home to about 10 percent of the world's species. Colombia is also in the area of two hotspots located in the Americas: the Tropical Andes and Tumbes-Choco-Magdalenaboth with only 25% and 24%, respectively, of the original forest cover remaining. The annual deforestation rate is 0.18% and results primarily from small-scale agricultural activities, logging, mining, energy development, infrastructure construction, and large-scale agriculture.

Currently, the environmental challenges faced by Colombia are caused by both natural events and anthropogenic change. Many natural disasters result from Colombia's location along the Pacific Ring of Fire and the consequent geological instability results in earthquakes. Heavy floods both in mountainous areas and in low-lying watersheds and coastal regions linked to El Niño-Southern Oscillation also occur regularly as human-induced deforestation has substantially changed the Andean landscape spanning into the rainforests of Amazonia and the Pacific coast. Deforestation is also linked to the conversion of lowland tropical forests to oil palm plantations. Demand from rapidly expanding cities has placed increasing stress on the water supply, as watersheds are affected and ground water tables fall.

Activities and Locations

We will continue establishing and solidifying coordination with MAVDT, INS, ICA, universities, and NGOs. Our goal for the coming year is to build capacity in the country by identifying needs and developing pertinent training. We will continue to obtain permits to collect wildlife samples both in the field and from rehabilitation centers for pathogen testing. We aim to identify zoonotic pathogens from wildlife of potential pandemic risk focusing on:

- **Taxa**: primates, bats, rodents, birds, other mammals.
- **Interfaces:** hunting, depredation, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
- **Proposed Locations:** East Colombia: Puerto López, Llanos Orientales-Departamento Meta, North Coast: Embalse de Guájaro. Departamento del

Atlántico, Bogotá: Departamento de Cundinamarca, Amazon: Departamento de Caquetá.

Partnerships
Partnerships have been establishing during Year 1 and will be solidified in Year 2 with Colombian Institute of Animal Health (Instituto Colombiano Agropecuario ICA), Ministry of the Environment (National Wildlife Authority), INS (National Institute of Health), Unidad de Parques Nacionales de Colombia, Secretaria Distrital de Ambiente (Bogotá), wildlife rehabilitation centers.

Reporting
During Year 2, the in-country team will solidify (in cooperation with the USAID Mission) a practical communication and reporting mechanism approved by USAID to keep the local USAID Mission regularly updated on PREDICT activities and progress.
WCS will provide Wildlife Trust with regular reports that will also be used to keep the Mission regularly updated on PREDICT activities and progress.

The Country Coordinator and Wildlife Trust team communicate on a weekly basis through Skype meetings, phone conferences and/or through regular email exchanges, sharing progress reports.

Ecuador

PREDICT will initiate activities in Ecuador in year 2

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.

- Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: WCS

Expected result(s):
PREDICT staff hired and established; effective day-to-day management of in-country activities and administrative procedures by country coordinator supervised by regional coordinator/supervisor and WCS Ecuador director; appropriate management of year 2 budget and travels in accordance with USAID regulations; USAID Mission updated about project progress by formal quarterly reports, and by informal communications when requested by local contacts; compliance of all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis via WCS; surveillance data entered into the GAINS database.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Ssample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners: WCS, Directorate of Laboratory Services of Ecuador (SESA), Faculty of Veterinary Medicine and Zootechny (Central University of Ecuador), University of San Francisco de Quito, Ecuadorian Service for Agricultural and Animal Health (SESA), Ecuadorian Agency for Agricultural Quality Assurance (AGROCALIDAD), Ministry of Environment of Ecuador; Zoological Foundation of Quito, Federation of Rural Organizations of Orellana (FOCAO), Federación de Comunas Unión de Nativos de la Amazonía

Ecuatoriana (FCUNAE) (Federation of Amazon indigenous communities), Waorani and Quichua indigenous communities.

Expected result(s): Capacity Rapid Survey tool accurately completed and used to assess local capacity, and Capacity Building team, partners and stakeholders apprised of real capacity for surveillance in Ecuador; involvement of governmental agencies (National Animal Health Service-SESA) and other partners in capacity building process as appropriate; implementation of official training materials and on-the-job training in targeted areas in collaboration with in-country partners; formalized partnerships with strategic institutions and governmental agencies.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across COUNTRY:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** bats, primates, rodents, ungulates and birds
    - **Interfaces:** hunting and bushmeat in communities; wet markets
    - **Proposed Locations:** Yasuní National Park (eastern Ecuador)

  Partners: Directorate of Laboratory Services of Ecuador (SESA), Faculty of Veterinary Medicine and Zootechny (Central University of Ecuador), University of San Francisco de Quito, Ecuadorian Service for Agricultural and Animal Health (SESA), Ecuadorian Agency for Agricultural Quality Assurance (AGROCALIDAD), Ministry of Environment of Ecuador; Zoological Foundation of Quito, Federation of Rural Organizations of Orellana (FOCAO), Waorani and Quichua indigenous communities, Federación de Comunas Unión de Nativos de la Amazonía Ecuatoriana (FCUNAE) (Federation of Amazon indigenous communities.

  Expected result(s): Surveillance activities performed at targeted interfaces, and lab testing of collected wildlife samples for zoonotic pathogens; field data entered monthly into GAINS database; plans for building and improving capacity for wildlife surveillance in country, based on strategic interactions between partners and governmental agencies.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting

EPT activities in-country, addressing identified gaps in existing technological infrastructure.

- Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners: Directorate of Laboratory Services of Ecuador (SESA), Faculty of Veterinary Medicine and Zootechny (Central University of Ecuador), University of San Francisco de Quito, Ecuadorian Service for Agricultural and Animal Health (SESA), Ecuadorian Agency for Agricultural Quality Assurance (AGROCALIDAD)

Expected result(s): Innovative sample collection technologies will be implemented for surveillance activities during Year 2 including the use of lysis buffers (RNA Later), FTA Cards, Protein Binding Cards for sample collection and liquid nitrogen containers to implement a cold chain for storage of collected samples; Technology needs of partner laboratories accurately assessed and communicated to PREDICT Diagnostic lead (Tracey Goldstein, UC Davis); Sample aliquots stored for pathogen discovery; identification of export mechanisms for samples to regional reference labs (NMRCD Lima, Peru) and other partner labs(Center for Infection & Immunity, Columbia University), through coordination and guidance from PREDICT Pathogen Discovery Coordinator (Joseph Fair, Global Forecasting Viral Initiative).

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

Partners: PREDICT Data Management team, Directorate of Laboratory Services of Ecuador (SESA), Faculty of Veterinary Medicine and Zootechny (Central University of Ecuador), University of San Francisco de Quito, Ecuadorian Service for Agricultural and Animal Health (SESA), Ecuadorian Agency for Agricultural Quality Assurance (AGROCALIDAD), Ministry of Environment of Ecuador, Zoological Foundation of Quito, Federation of Rural Organizations of Orellana (FOCAO), Waorani and Quichua indigenous communities, Federación de Comunas Unión de Nativos de la Amazonía Ecuatoriana (FCUNAE) (Federation of Amazon indigenous communities)

Expected result(s): PREDICT data sheets accurately completed in the field, in accordance with GAINS surveillance data collection guide, and updates from Data Management lead (Damien Joly, WCS); implementation of barcode

labeling and unique identification of samples for sample tracking and data management; data entered into GAINS database on a monthly basis.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: PREDICT modeling team.

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to the modeling team through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – ECUADOR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country coordinator (TBN), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Adriana Burbano (WCS Ecuador director)	PREDICT staff hired and to manage day-to-day in-country activities and administrative procedures by country; management of year 2 budget and travels in accordance with USAID regulations; USAID Mission updated on project progress quarterly; compliance of all reporting requests from USAID through UC Davis via WCS; surveillance data entered into the GAINS database		**X**	**X**	**X**	**X**
1.2	Capacity Building	Country coordinator (TBN), in-country staff, A. Perez (regional coordinator)	Capacity Rapid Survey tool accurately completed and used to assess local capacity; involvement of governmental agencies and other partners in capacity building process; implementation of official training materials and on-the-job training in targeted areas; formalized partnerships with strategic institutions and governmental agencies.		**X**	**X**	**X**	**X**
1.3	Surveillance	Country coordinator (TBN), in-country	Surveillance activities performed at targeted interfaces, and lab testing of collected wildlife samples for zoonotic			**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		staff, A. Perez (regional coordinator)	pathogens; field data entered monthly into GAINS database; plans for building and improving capacity for wildlife surveillance in country.					
1.4	Technology Development and Pathogen Discovery	Country coordinator (TBN)	Novel sample collection technologies implemented for surveillance activities during Year 2; technology needs of SESA laboratory accurately assessed; sample aliquots stored for pathogen discovery; identification of export mechanisms for samples to regional reference labs and other partner labs.			**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country coordinator (TBN)	PREDICT data sheets accurately completed in the field; implementation of barcode labeling and unique identification of samples for sample tracking and data management; data entered into GAINS database on a monthly basis			**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease emergence	Country coordinator (TBN)	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to the modeling team through GAINS on a monthly basis; timely and efficient response to requests for surveillance data				**X**	**X**

PERFORMANCE MONITORING PLAN - ECUADOR

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype and WCS Gmail	Weekly	Country coordinator (TBN), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Adriana Burbano (WCS Ecuador director)
1.1.2 Fiscal Management	Near-real time expense tracking	Skype and WCS Gmail	Monthly	Country coordinator (TBN), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor), Adriana Burbano (WCS Ecuador director)
1.1.3 Communication	Mission and Partner Updates	WCS Gmail	Quarterly	Country coordinator (TBN), A. Perez (regional coordinator), A. Burbano (WCS Ecuador director)
1.1.4 Reporting	Compliance of all reporting requests; surveillance data reports	Basecamp & GAINS database	Monthly	Country coordinator (TBN), Alberto Perez (regional coordinator)
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country coordinator (TBN), Alberto Perez (regional coordinator), Marcela Uhart (regional supervisor)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country coordinator (TBN), in-country staff, Alberto Perez (regional coordinator)
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country coordinator (TBN), PREDICT in-country staff, A. Perez (regional coordinator), PREDICT epidemiology leads (Christine Kreuder Johnson UC Davis, Pablo Beldomenico WCS)
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country coordinator (TBN)
1.4.2 Pathogen Discovery	Improved infrastructure at SESA lab for viral diagnostic capacity and cold storage	Quarterly Reports	Quarterly Reports	Country coordinator (TBN), Diagnostic lead Tracey Goldstein (UCD).
1.5.1 Sample Tracking and Information Management	Sample data received; standardized labeling and tracking system implemented	GAINS	Monthly	Country coordinator (TBN), assistant veterinarian (TBN), PREDICT Information Management Team.
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and	GAINS	Monthly	Country coordinator (TBN)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	proposed locations			

COUNTRY PROJECT MANAGEMENT - ECUADOR

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Ecuador is Wildlife Conservation Society. As Ecuador is just coming on-line in Year 2, oversight of PREDICT activities in Ecuador will be managed by Ecuador Coordinator (to be hired) with support from Marcela Uhart (regional supervisor), Alberto Perez (regional coordinator) and Adriana Burbano (WCS Ecuador director). In addition, PREDICT will hire an assistant veterinarian and other consultants/staff as needed.

Overview

Surveillance for zoonotic diseases is critical in Ecuador due to the introduction of domestic species, increasing rates of wildlife extraction for the illegal bushmeat market, human-driven disturbance in natural landscapes, and human population growth in and around protected areas such as Yasuní National Park (the largest protected area in Ecuador). The result is increased concern for human health and the significant threat to the conservation of endangered species. Zoonotic disease transmission events have not been well documented in Ecuador to date, nor is surveillance for diseases passed among wildlife, domestic animals, and humans performed routinely. WCS has established a series of monitoring programs of wildlife populations in and around Ecuador's Yasuní National Park along disturbance gradients, hunting activities in several local communities, and trade of wildlife species in bushmeat markets. The trade in wild meat from the park has tripled over the last two years. At least 56 species were documented in a single wildlife market producing approximately 13,000 to 14,000 kg of wild meat per year; much of that from peccaries, brocket deer, and a species of woolly monkey. The addition of zoonotic disease surveillance to these already established monitoring programs will add to the development of an early warning system for the detection of emerging zoonotic diseases from wildlife. Comparing results obtained from hunted wildlife in indigenous communities with animals sampled at wildlife trade markets will enable PREDICT to gain baseline information on disease transmission in Ecuador and characterize high-risk behaviors across wildlife, livestock, and human interfaces where zoonotic pathogens are most likely to emerge.

Activities and Locations

PREDICT will initiate contacts with ministries, universities, and NGOs to develop a network for wildlife surveillance in Ecuador. The goal is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. The main target area will be Yasuní National Park (eastern Ecuador):

- **Taxa:** bats, primates, rodents, ungulates, and birds
- **Interfaces:** hunting and bushmeat in communities, wet markets
- **Proposed Locations:** Yasuní National Park (eastern Ecuador)

Partnerships
Partnerships and collaborations in surveillance efforts will be formalized during Year 2 with government agencies, public and private institutions including Ecuadorian Service for Agricultural and Animal Health (SESA), Ecuadorian Agency for Agricultural Quality Assurance (AGROCALIDAD), Ministry of Environment of Ecuador, Directorate of Laboratory Services of Ecuador (SESA), Faculty of Veterinary Medicine and Zootechny (Central University of Ecuador), the University of San Francisco de Quito, Zoological Foundation of Quito Federation of Rural Organizations of Orellana (FOCAO), Federación de Comunas Unión de Nativos de la Amazonía Ecuatoriana (FCUNAE) (Federation of Amazon indigenous communities), and Waorani and Quichua indigenous communities.

Reporting
Upon program start-up during Year 2, the in-country team will develop a practical communication and reporting mechanism as specified by USAID to keep the Mission regularly updated on PREDICT activities and progress.

The Country Coordinator, Regional supervisor, Regional coordinator and WCS Ecuador director will communicate on a weekly basis through Skype meetings, phone conferences and/or through regular email exchanges and sharing of progress reports monthly with the WCS team.

Mexico

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
  - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
  - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
  - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
  - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, Comison Nacional de Areas Naturales Protegidas (CONANP), Universidad Autónoma del Estado de Mexico, Facultad de Veterinaria (UAEM).

Expected result(s): Management and coordination of all capacity building and surveillance activities under responsible organizational lead and executive board; full fiscal disclosure and near-real time expense tracking, including monthly financial reporting to Wildlife Trust (WT) and UCDavis; continue ongoing multi-faceted communication with in-country partners including the USAID Mission to México through regular updates and with the PREDICT team through weekly Skype meetings and interaction on PREDICT México Basecamp site; continued compliance ofn all reporting requests (financial, technical, environmental, travel) from USAID through UC Davis via WT.

- **Activity 1.2 Capacity Building**

  - Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

  - Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

  Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, Facultad de Veterinaria UAEM, CONANP.

  Expected result(s): Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and

ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.

- **Activity 1.3: Surveillance**

  - Sub-activity 1.3.1: **Coordination of surveillance activities across Mexico:** Continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

    - **Taxa:** principally bats, rodents and carnivores; where possible opportunistic sampling of ungulates such as bighorn sheep
    - **Interfaces:** hunting, depredation, free-ranging (horticulture-wildlife, livestock-wildlife, shared water sources), syndromic
    - **Proposed Locations:** Central (Throughout Mexico City and surrounding protected areas & communities), South (Lacandonia Rain Forest, Chiapas), Southern (Calakmul, Campeche)

  Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, UAEM, CONANP

  Expected result(s): Develop framework for surveillance data coordination with partners; pathogen detection and discovery initiated of acquired wildlife samples; existing Mexico project surveillance sample tracking system integrated with GAINS for enhanced diagnostic efficiency; strategically implement surveillance in proposed locations in collaboration with in-country partners to achieve a trans-regional surveillance network.

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting PREDICT activities in-country, addressing identified gaps in existing technological infrastructure.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

  Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, CONANP

Expected result(s): Evaluation of diagnostic capacity in Mexico and identification of needs for pathogen detection; identified capacity gaps in veterinary school laboratories and introduction of appropriate training and material resources to expand infrastructure, including improvements to viral diagnostic capabilities and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, UAEM, CONANP.

  Expected result(s): Standardized field datasheets used for field sample collection; all sample data and results entered into GAINS database; completed trainings on sample tracking and data management; timely response to requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: Wildlife Trust (WT), Instituto de Ecología, UNAM, Facultad de Veterinaria, UNAM, Facultad de Ciencias, UNAM, CONANP

  Expected result(s): Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data provided to UC Davis through GAINS on a monthly basis; data provided to Modeling team as requested.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – MEXICO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	Full fiscal disclosure and near-real time expense tracking; regular updates to all in-country partners; weekly project updates with the PREDICT team via Skype and Basecamp; continued compliance of all reporting requests; surveillance data reporting into the GAINS database.	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through the Capacity Building Rapid Survey Tool; strengthen partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection in-country; implementation of all official training materials.	**X**	**X**	**X**	**X**	**X**
1.3	Surveillance	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator	Develop a framework for surveillance data coordination with partners; pathogen detection and discovery initiated for acquired wildlife samples; existing MEXICO project surveillance			**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	sample tracking system integrated with GAINS; strategically implemented surveillance in proposed locations in collaboration with in-country partners.					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	New technologies and/or protocols introduced and utilized for the detection of known and novel pathogens; identifed capacity gaps in veterinary school laboratories and appropriate training and material resources introduced; improvements to viral diagnostics capabilities and cold storage for sample archival.				**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona	All sample data entered into GAINS; completed trainings on sample tracking and data management; standardize labeling and tracking system implemented; data provided to UC Davis through GAINS monthly; timely and efficient response to all requests for surveillance data.			**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of disease	Country Coordinator Rodrigo A. Medellín, Assistant	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan and optimized as needed; data to UC Davis through GAINS on a monthly			**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	emergence	Coordinator Gerardo Suzán, Officers Oscar Rico Osiris Gaona	basis; timely and efficient response to all requests for surveillance data.					

PERFORMANCE MONITORING PLAN - MEXICO

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Email Updates, Basecamp, Video and Tele-conferencing	Weekly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.1.2 Fiscal Management	Near-real time expense tracking	Email and Basecamp	Monthly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.1.3 Communication	Mission and Partner Updates	Email, In-person Visits and Basecamp	Quarterly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.1.4 Reporting	Compliance of all reporting requests; Surveillance data reports	Email, Basecamp & GAINS database	Monthly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
				and Osiris Gaona
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Email, Basecamp & GAINS database	Monthly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.2 Pathogen Discovery	Improved infrastructure at UNAM for viral diagnostics and cold storage; reporting of new discoveries into GAINS database	Quarterly Reports	Quarterly Reports;	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Rodrigo A. Medellín, Assistant Coordinator Gerardo Suzán, Officers Oscar Rico and Osiris Gaona

COUNTRY PROJECT MANAGEMENT - MEXICO

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing organization for Mexico is Wildlife Trust, and the implementing organization within Mexico is BIOCONCIENCIA. Oversight of PREDICT activities in Mexico will be managed by Country Coordinator Dr. Rodrigo Medellín (IE) with support from Latin America Coordinator Dr. Alonso Aguirre (WT). In addition, PREDICT has three staff members in Mexico, including Assistant Coordinator Dr. Gerardo Suzán, Administrative Assistant Ms. Osiris Gaona and Field Assistant Mr. Oscar Rico.

Overview

The expanding agricultural frontier in Mexico brings pristine areas in close contact with areas used by humans and livestock. Mexico is the only country in the world spanning the length of two greater biogeographic regions, the Nearctic and the Neotropics. In addition, Mexico is a megadiverse country that contains between 5 and 10% of the world's biodiversity in less than 1% of the earth's land surface and serves as a major migratory corridor for many species of mammals and birds. The complex and diverse landscape provides an opportunity for expanding wildlife surveillance at an active human-livestock-wildlife interface that could have important implications for public health in Mexico.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We also aim to identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk focusing on:

- **Taxa:** principally bats, rodents, and carnivores; where possible opportunistic sampling of ungulates such as bighorn sheep
- **Interfaces:** hunting, depredation, free-ranging, syndromic**.**
- **Potential Locations:** Central (Throughout Mexico City and surrounding protected areas and communities), South, Lacandonia Rain Forest, Chiapas, Southern, Calakmul, Campeche.

Partnerships

WT, BIOCONCIENCIA, National Autonomous University of Mexico (UNAM Comison Nacional de Areas Naturales Protegidas (CONANP), and Universidad Autónoma del Estado de Mexico Facultad de Veterinaria (UAEM)

Reporting
During Year 2, the in-country team will solidify (in cooperation with the USAID Mission) a practical communication and reporting mechanism approved by USAID to keep the local USAID Mission regularly updated on PREDICT activities and progress.

The Country Coordinator and Wildlife Trust team communicate on a weekly basis through Skype meetings, phone conferences and/or through regular email exchanges, sharing progress reports.

Peru

LOW 1: Wildlife Pathogen Detection—identification of novel wildlife pathogens that pose a significant public health threat

- **Activity 1.1 Program Management**
    - Sub-activity 1.1.1: **General Management:** Provide day-to-day management and oversight of the country project and facilitate the efficient accomplishment of all activities (includes logistics).
    - Sub-activity 1.1.2: **Fiscal Management:** Track all expenditures across countries to ensure fiscal responsibility; develop budgets; ensure charges are consistent with applicable regulations and guidelines; prepare financial data for reporting.
    - Sub-activity 1.1.3: **Communication:** Facilitate communication with regional lead, country partners and USAID missions through in-person meetings, conference calls, written advisories, web-based applications, and reports.
    - Sub-activity 1.1.4: **Reporting:** Ensure compliance with all reporting requirements, including all financial, technical, environmental, and travel reports; and enter field and surveillance data into the GAINS database.

    Partners: WCS

    Expected result(s): Management and coordination of all capacity building and surveillance activities; full fiscal disclosure and expense tracking; continued communication with in-country partners including the USAID Mission to Peru; continued compliance of all reporting requests (financial, technical, travel) from USAID through UC Davis; entered surveillance data into the GAINS database.

- **Activity 1.2 Capacity Building**

- Sub-activity 1.2.1: **Capacity Assessment:** Annual assessment and monitoring using the Capacity Building Rapid Survey Tool to evaluate changes that have been made through PREDICT regarding quantity and quality of existing wildlife surveillance components and systems; continue to identify stakeholder institutions and key country partners to assist in specific surveillance activities, including laboratories; continue to assess country capacities for wildlife capture and handling, sample transport, storage, shipping, and diagnostic testing.

- Sub-activity 1.2.2: **Training:** Implement training for all staff associated with PREDICT project using materials and protocols developed in Year 1 covering USAID and PREDICT policies. PREDICT training materials include: Environmental compliance and monitoring, Financial management, Animal capture and safety, PPE use, Laboratory safety, Packing and shipping biological samples, Sample transport, cold chain implementation and maintenance, Sample tracking and GAINS data entry, Animal care and use, Institutional Review Board (IRB) protocols, Bat/rodent capture and sampling, Non-human primate capture and sampling, and Bushmeat sampling.

Partners:
WCS, US Naval Medical Research Center Detachment (NMRCD), National Animal Health Service (SENASA) Ministry of Agriculture, National Health Institute (INS) Ministry of Health of Peru, Community of Nueva Esperanza at Yavari river, riverside communities from the Samiria River.

Expected result(s):
Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through use of the Capacity Building Rapid Survey Tool; Sstrengthened partnerships with key agencies and ministries active in wildlife surveillance and public health; implementation of all official training materials; on-the-job training program on field sampling procedures, sample shipment, data management and disease communication provided to partners and community members (subsistence hunters), health and environmental workers (SENASA, INS, SERNANP) and PREDICT partners to build long-term sustainability for wildlife surveillance.

- **Activity 1.3: Surveillance**

Sub-activity 1.3.1: **Coordination of surveillance activities across Peru:** continue to establish coordination with ministries, universities, and NGOs to facilitate sharing of surveillance samples and data; ensure timely diagnostic testing of samples collected with proper tracking of samples and results entered into GAINS database; identify zoonotic pathogen outbreaks and new wildlife potential pathogens of pandemic risk.

- **Taxa:** primates, bats, rodents, ungulates, birds, livestock, and poultry as appropriate
- **Interfaces:** wet markets, subsistence hunting, illegal trade, habitat use change
- **Proposed Locations:** Northern Amazonia: Iquitos and Yurimaguas; Yavari-Miri Private Conservation Area & surrounding communities; Pacaya Samiria National Reserve; Central Amazonia: Pucallpa, Central Transoceanic Highway ; Central Mountain forest: Tarapoto, Oxapampa; Southern Amazonia South Transoceanic Highway; Marine shores: North Coast Tumbes, Piura, Chiclayo ; Central Coast Lima e Ica.

Partners: WCS, NMRCD, SENASA, WT, Ministry of Health, INS, School of Veterinary Medicine-National Major University of San Marcos (UNMSM), Directorate of Forestry and Wildlife-Ministry of Agriculture (DGFFS), National Service of Protected Natural Areas-Ministry of Environment (SERNANP), Community of Nueva Esperanza at Yavari River, and riverside communities along the Samiria River

Expected result(s): Developed framework for surveillance data coordination with partners; real-time communication system with partners for surveillance of confiscated wildlife; baseline information from surveillance at different interfaces (hunted wildlife, wetmarkets, confiscations); pathogen detection and discovery initiated for archived and newly acquired wildlife samples; adapted surveillance strategy to increase pathogen detection in wildlife at hotspot sites prioritized through analysis by PREDICT epidemiology leads (Christine Kreuder Johnson UC Davis, Pablo Beldomenico WCS).

- **Activity 1.4: Technology Development and Pathogen Discovery**

  - Sub-activity 1.4.1: **Introduction of new technologies in high priority countries:** Implement new technologies identified capable of supporting EPT activities in-country, addressing identified gaps in existing technological infrastructure.
    The use of blood spot FTA and protein saver cards was implemented in Year 1 throughout the country for sample collection from wildlife in remote areas.

  - Sub-activity 1.4.2: **Pathogen discovery:** Implement protocols to collect samples for pathogen detection according to the surveillance plan for each high-risk interface; identify laboratory needs and capacities to conduct pathogen discovery in-country.

Partners:
WCS, NMRCD, SENASA, INS, UNMSM

Expected result(s): Technology needs of partner labs accurately assessed and communicated to PREDICT Diagnostic lead (Tracey Goldstein, UC Davis; implementation of sample collected into RNA Later and lysis buffer to store tissue samples and swabs for pathogen detection and discovery; new technologies introduced and utilized by PREDICT team, governmental agencies and trained hunters from riverside communities; identified capacity gaps in SENASA and INS laboratory diagnostic centers and UNMSM laboratories and introduction of appropriate training and material resources where possible; expanded infrastructure of UNMSM School of Veterinary Medicine laboratories to improve viral diagnostic capacity and cold storage for sample archival.

- **Activity 1.5: Sample Tracking and Information Management**

  - Sub-activity 1.5.1: **Optimize surveillance data management system:** Collect and enter all field and surveillance data using standardized templates into the GAINS database; implement and utilize standardized labeling and tracking system in-country.

  Partners: WCS, WT, SENASA, NMRCD, INS, University of San Marcos

  Expected result(s): All sample data entered into GAINS; completed trainings on sample tracking and data management for field assistants and associated partners; standardized labeling and tracking system implemented; timely and efficient response to all requests for surveillance data.

LOW 2: Risk Determination

- **Activity 2.2 Optimize models for diversity of disease emergence**
  Provide data and information as requested by Modeling and Hotspot ID Team.

  Partners: WCS, PREDICT Modeling Team

  Expected result(s):
  Sample data uploaded into GAINS; Gap analysis conducted on surveillance plan and optimized as needed; data provided to modeling team through GAINS on a monthly basis; timely and efficient response to all requests for surveillance data.

LOW 3: Outbreak Response Capacity Building
No Pre-planned Activities; respond to wildlife outbreaks as they occur; respond to livestock and human outbreaks in conjunction with appropriate ministries and RESPOND.

LOW 4: Risk Reduction
No Planned Activities

IMPLEMENTATION PLAN – PERU

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	Wildlife Pathogen Detection							
1.1	Program Management	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Peru director Mariana Varese, Regional coordinator Marcela Uhart	Management and coordination of all capacity building and surveillance activities; full fiscal disclosure and expense tracking; continued communication with in-country partners including the USAID Mission; continued compliance in all reporting requests from USAID to UCD; surveillance data entered into GAINS database	**X**	**X**	**X**	**X**	**X**
1.2	Capacity Building	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, PREDICT Capacity Building Team	Continued evaluation and assessment of wildlife surveillance capacity and diagnostic testing through the Capacity Building Rapid Survey Tool; strengthened partnerships with key agencies and ministries active in wildlife surveillance and public health; implementation of all training materials and on-the-job training program.	**X**	**X**		**X**	**X**
1.3	Surveillance	Country Coordinator Patricia Mendoza,	Developed framework for surveillance data coordination with partners; real-time communication system with partners for	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
		Regional Coordinator Alberto Perez, PREDICT Surveillance Team	surveillance in confiscated wildlife; baseline information from surveillance at different interfaces; pathogen detection and discovery initiated for archived and newly acquired wildlife samples; adapted surveillance strategy to increase pathogen detection at hotspot sites					
1.4	Technology Development and Pathogen Discovery	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, PREDICT Technology Development Team	Technology needs of partner labs accurately assessed; implementation of sample collected into RNA Later and lysis buffer to store tissue samples and swabs for pathogen detection and discovery; new technologies introduced and utilized; identified capacity gaps in SENASA, INS, UNMSM laboratories for testing samples from wildlife and training and material resources introduced.	**X**	**X**	**X**	**X**	**X**
1.5	Sample Tracking and Information Management	Country Coordinator Patricia Mendoza, Information Management Team	All sample data entered into GAINS; completed trainings on sample tracking and data management for field assistants and partners; standardized labeling and tracking system implemented; timely and efficient response to all requests for surveillance data.	**X**	**X**	**X**	**X**	**X**
	Risk Determination							
2.2	Optimize models for diversity of	Country coordinator	Sample data uploaded into GAINS; gap analysis conducted on surveillance plan	**X**	**X**	**X**	**X**	**X**

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 July 2010 – 30 September 2011	FY10 Q4 JUL-SEP 10	FY11 Q1 OCT-DEC 10	FY11 Q2 JAN-MAR 11	FY11 Q3 APR-JUN 11	FY11 Q4 JUL-SEP 11
	disease emergence	Patricia Mendoza	and optimized as needed; data provided to modeling team through GAINS on a monthly basis					

PERFORMANCE MONITORING PLAN - PERU

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.1.1 General Management	Project updates with the PREDICT team	Skype, Email, and Basecamp	Weekly	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez WCS Peru director Mariana Varese, regional supervisor Marcela Uhart
1.1.2 Fiscal Management	Near-real time expense tracking	Skype, Email, and Basecamp	Monthly	Country Coordinator Patricia Mendoza and Regional Coordinator Alberto Perez WCS Peru director Mariana Varese, regional supervisor Marcela Uhart
1.1.3 Communication	Mission and Partner Updates	WCS Gmail	Monthly	Country Coordinator Patricia Mendoza, Regional Coordinator Alberto Perez, WCS Country Director Mariana Varese, regional supervisor Marcela Uhart
1.1.4 Reporting	Compliance of all reporting requests; surveillance data	Basecamp & GAINS database	Monthly	Country Coordinator Patricia Mendoza and Regional Coordinator Alberto Perez

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
	reports			
1.2.1 Capacity Assessment	Wildlife surveillance and diagnostic testing capacity assessment Established partnerships with key agencies and ministries active in wildlife surveillance, public health, and pathogen detection	Capacity Building Rapid Survey Tool Quarterly Reports	Annually Quarterly	Country Coordinator Patricia Mendoza and Regional Coordinator Alberto Perez
1.2.2 Training	Individuals trained with official PREDICT materials and through on-the-job training, field courses and workshops	Training Matrix, Quiz Results & Individual Assessments	Quarterly	Country Coordinator Patricia Mendoza
1.3.1 Surveillance	Framework for surveillance data coordination; samples collected or received and analyzed for targeted species, interfaces, and proposed locations	Basecamp & GAINS database	Monthly	Country Coordinator Patricia Mendoza, PREDICT epidemiology leads Christine Johnson UC Davis, Pablo Beldomenico WCS

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1.4.1 Introduction of New Technologies	New technologies introduced and utilized for sampling and diagnostics	Quarterly Reports	Quarterly	Country Coordinator Patricia Mendoza
1.4.2 Pathogen Discovery	Improved infrastructure at UNMSM for viral diagnostic capacity and long-term storage.	Quarterly Reports	Quarterly	Country Coordinator Patricia Mendoza
1.5.1 Sample Tracking and Information Management	Sample data received; implemented standardized labeling and tracking system	GAINS	Monthly	Country Coordinator Patricia Mendoza, Assistant veterinarian Nancy Cavero (to be hired)
2.2 Optimize models for diversity of disease emergence	Samples collected or received and analyzed for targeted species, interfaces, and proposed locations Revised surveillance plan	GAINS Quarterly Report	Monthly Quarterly	Country Coordinator Patricia Mendoza Assistant veterinarian Nancy Cavero (to be hired), PREDICT Modeling Team.

COUNTRY PROJECT MANAGEMENT - PERU

Organizational Relationships

PREDICT assigns responsibility for program management to one of its institutional partners, based on the technical thrust of the program and other factors. The PREDICT managing and implementing organization for Peru is Wildlife Conservation Society. Oversight of PREDICT activities in Peru will be managed by Country Coordinator Patricia Mendoza with support from PREDICT Technical Team Leaders Christine Johnson (UC Davis) and Pablo Beldomenico (WCS) (Epidemiology leads), Tracey Goldstein UC Davis (Diagnostic lead) and the Information Management, Surveillance, and Modeling Teams, as well as Regional Coordinator Alberto Perez, supervisor Marcela Uhart and WCS Country Director Mariana Varese. PREDICT currently has no additional staff members in country, but two assistant veterinarians will be hired in Year 2, Nancy Cavero and Daniel Montes. Additional consultants and temporary personnel will be hired as necessary.

Overview

Peru represents excellent opportunities for further developing a zoonotic disease surveillance system through sampling wildlife in the animal trade and hunted by Peruvian indigenous communities. Market surveillance activities have been built on previous activities conducted since 2007 to detect Avian Influenza and other pathogens in wet markets and from wildlife confiscated by the Peruvian authorities. Monitoring of bushmeat sales at these markets is also being implemented. Additional programs established by WCS to monitor subsistence of wildlife and communal management of natural resources trains hunters to collect samples allowing for the opportunistic sampling of wildlife recently extracted from the forest.

Peru is currently undergoing major land use changes as three major transoceanic highways are being built to traverse Brazilian and Peruvian Amazon territories. A large extension of natural forest and rural settlements are currently being disturbed and modified, and so it is expected that in the near future normal disease patterns will also be altered. The Southern Inter-oceanic Highway will cross through the Madre de Dios region at its final stage, where US NMRCD lab is quantifying ecological disturbance and changes in vectors and reservoir populations. Strengthening partnership with NMRCD is a strategic way to reinforce and extended surveillance of small mammal hosts and other target species.

Activities and Locations

PREDICT will continue to establish coordination with ministries, universities, and laboratories to facilitate sharing of surveillance samples and data. Our goal for the coming year is to collect priority wildlife samples and ensure timely diagnostic testing with proper tracking of samples and results entered into the GAINS database. We aim to identify zoonotic pathogens circulating at targeted interfaces and recognize wildlife pathogens of potential pandemic risk focusing on:

- **Taxa:** primates, bats, rodents, ungulates, birds, livestock, and poultry as appropriate
- **Interfaces:** wet markets, subsistence hunting, illegal trade, habitat use change
- **Proposed Locations:** Northern Amazonia: Iquitos and Yurimaguas; Yavari Miri Private Conservation Area & surrounding communities; Pacaya Samiria National Reserve; Central Amazonia: Pucallpa, Central Transoceanic Highway; Central Mountain forest: Tarapoto, Oxapampa; Southern Amazonia South Transoceanic Highway; Marine shores: North Coast Tumbes, Piura, Chiclayo; Central Coast Lima e Ica.

Partnerships
In Peru, partnerships have been or are being established with Wildlife Trust, National Service of Animal Health (SENASA), US Medical Research Center Detachment Major University of San Marcos, Ministry of Health Office of Epidemiology, and National Institutes of Health.

Reporting
During Year 2, the in-country team will solidify (in cooperation with the USAID Mission) a practical communication and reporting mechanism approved by USAID to keep the local USAID Mission regularly updated on PREDICT activities and progress.
Wildlife Trust will provide WCS with regular reports that will also be used to keep the Mission regularly updated on PREDICT activities and progress.

In addition, the Country Coordinator, Regional Coordinator and Country Director communicate on a continual basis with the Regional director and WCS team through Skype meetings and email and sharing of monthly progress reports

AED

Academy for Educational Development

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by AED

Quarterly Report
January 1 – March 31, 2010

Submitted To

The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

April 14, 2010

PREVENT
Quarterly Report
January 1 – March 31, 2010

INTRODUCTION

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No.: GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT, a cooperative agreement. PREVENT focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT has four USAID "pylons" or areas of focus: emerging pandemic threats (EPT); avian influenza (AI); H1N1/pandemic influenza; and Humanitarian Pandemic Preparedness (H2P). PREVENT also received funds from USAID/Ukraine to work with UNICEF/Ukraine on H1N1 communication activities.

During the January 1 – March 31, 2010 time period,

- PREVENT continued to collaborate with USAID and EPT CAs to further develop its work plans; developed an initial version of a risk reduction framework; worked with partner GVFInc to identify possible opportunities in Gabon, Cameroon, Uganda, and the Republic of Congo to research safe hunting/safe butchering practices; mapped out an approach for research on advocacy to build a supportive environment for EPT; and conducted a two-day regional training in Dakar, Senegal on Applied Communication Skills for Field Epidemiologists.
- Thirteen countries received on-site PREVENT communication technical assistance, training, and print materials toward the launch of their WHO H1N1 vaccine initiatives: Azerbaijan, Bangladesh, Cambodia, Lao PDR, the Philippines, Vietnam, Ghana, Kenya, Senegal, Togo, El Salvador, Guatemala, and Nicaragua.
- Under its avian influenza pylon, PREVENT continued to provide on-site technical assistance for FAO's Cleaning and Disinfection wet market program in Bangladesh, and finished its community theatre, radio public service announcements, and community mobilization work in India.
- The H2P initiative continued to receive full participation from AED through PREVENT in a pilot country review in Uganda with IFRC, and in facilitating planning and advocacy sessions at the Humanitarians in Pandemic (HiP) retreat at IFRC in Geneva.
- UNICEF/Ukraine updated its proposal and AED developed a contract mechanism for approval in April 2010 to facilitate the "pass through" of USAID/Ukraine buy-in funds to the US Funds for UNICEF/New York to support H1N1 communication prevention and response efforts in Ukraine through 2010.

Emerging Pandemic Threats (EPT)

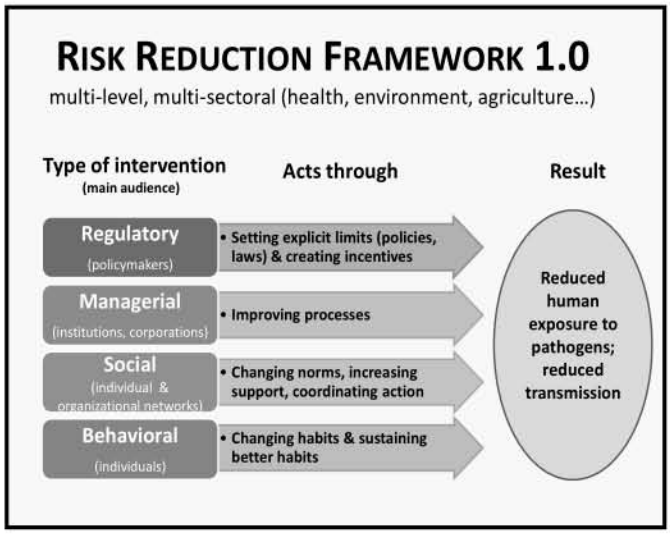
PREVENT/EPT continued to elaborate work plans in collaboration with partners and USAID. The project developed an initial version of a risk reduction framework; worked on an approach for research on advocacy to build a supportive environment for EPT, and made progress in clarifying the project's role in "community training" activities led by RESPOND.

Field activities gained momentum; plans for carrying out an assessment of GVFInc's safe hunting/safe butchering intervention in Cameroon are developing nicely. We identified three additional opportunities for field collaboration in Africa (one in Republic of Congo, one in Gabon, and one in Uganda) and made initial contacts with field personnel; these will be followed up early in Quarter 3. In addition, (b)(6) participated in an ILRI/IDRC meeting on "Asian Partnership on Emerging Infectious Disease Research (APEIR) Partner Meeting and Network Meetings" in Kunming, China, and discussed possible collaboration with the International Livestock Research Institute (ILRI).

Further details about activities are organized by intermediate results (IR) below.

Risk reduction framework

During this period, PREVENT developed version 1.0 of a risk reduction framework. It clarifies that preventive measures a) will not focus on just one sector, but on multiple sectors; b) will include policy, managerial and norm-changing approaches as well as individual behavior change approaches.



Next steps (in Quarters 3 and 4) will be to share this framework with EPT partners and then with a wider group of stakeholders for their feedback and input.

Longer term, the plan is to elaborate this simple framework with specific examples of interventions that work and the pathways through which they have their effect. PREVENT will poll partners and stakeholders for examples, review available documentation, and will assess selected interventions.

Development of effective interventions

Behavioral interventions

A key element in PREVENT's approach to developing effective at-scale interventions for reducing the risk of spillover zoonotic infections among the general population is learning from existing interventions. PREVENT agreed with GVFI that a core first-year activity would be assessing the GVFI safe hunting/safe butchering intervention in the 70 Cameroon villages where GVFI involves hunters and women who prepare food in collecting blood samples from wildlife. Specifically, PREVENT will collect information about

a) the intensity of exposure of villagers to information about protective practices.
b) the effectiveness of the intervention in promoting specific protective practices. Field staff have estimated that 50-60% of villagers practice protective behaviors: for example, they check their hands for cuts and refrain from butchering if they see any; wash with soap and water immediately if they are cut during butchering or are scratched or bitten by an animal; wrap fresh meat in plastic bags to avoid letting blood from carcasses drip onto their backs and legs; refrain from touching or eating animals found dead in the forest. PREVENT will collect information about the prevalence and consistency of these and other protective practices promoted by GVFI.
c) reasons for adherence or non-adherence to the recommendations
d) possible sustainability of the intervention
e) feasibility of implementing the intervention elsewhere

Current plans are to finalize the study protocol and obtain IRB approval by the end of June 2010 ([(b)(6)] and [(b)(6)] are travelling to Cameroon in early May 2010 to obtain information about field logistics, develop a sampling plan and interview potential research groups), and then begin implementation in July, to finish by August 2010.

Other field possibilities. PREVENT also initiated discussion with Wildlife Conservation Society (WCS) about the possibility of working with them to assess a safe hunting intervention in 46 villages in Republic of Congo. In late April 2010, PREVENT ([(b)(6)] [(b)(6)] and [(b)(6)] will meet with [(b)(6)] (WCS field veterinarian stationed in Brazzaville) to learn more about the intervention and discuss collaboration. [(b)(6)] will also be travelling to Kole, DRC for PREDICT; while there she will assess the potential for formative research on topics that might lead to interventions (for example, describing and interviewing people along the market chain working backwards from abattoirs that process bush meat to identify factors that promote or that might discourage commercial hunting).

PREVENT also identified is collaboration with the Uganda-STAR (Sustainable Tourism in the Albertine Rift) Program which has as one of its objectives creating alternative livelihoods that do not deplete natural resources – specifically, alternatives to bush meat hunting. The program is initially working in the southern Albertine Rift but anticipates activities in the northern Rift as well (where oil exploration is under way).

Representatives from several oil companies were involved in STAR's "whole system in the room" planning retreat held in Jinja October 20-22, 20009. During the "road show" visit to Kampala, (b)(6) and PREVENT's Pandemic and Infectious Disease Technical Officer (b)(6) will meet with (b)(6) Global Sustainable Tourism Alliance (GSTA)-STAR's chief of party, to explore the possibilities of collaborating with GSTA-STAR to develop and assess alternative livelihood interventions, and to possibly develop policy/managerial interventions for the oil companies involved in the northern Albertine Rift.

Social interventions

Review of the literature carried out in development of the risk reduction framework has indicated the importance of commerce to urban centers as a motivation for bush meat hunting in Gabon. There have been very few published studies in the international literature of urban demand for bush meat. We anticipate that work on characterizing high-risk groups and practices will involve a visit to Gabon in the next quarter; while there, PREVENT staff will try to identify any local studies and/or interventions related to this issue.

Managerial/policy interventions

During this quarter, USAID called PREVENT's attention to the role of extractive industries in providing an enabling environment for emergence. PREVENT Sr. Technical Advisor (b)(6) and (b)(6) began a review of the literature to map potential risk factors as well as identify reports of any interventions to mitigate risk. In addition, PREVENT staff have met and corresponded with RESPOND's (b)(6) and (b)(6). To date the discussion has focused on mining; (b)(6) has been meeting corporate social responsibility staff of selected mining companies, while (b)(6) (b)(6) has studied and can provide information about artisanal gold miners in Gabon (ref: Becquart P, Wauquier N, Mahlakö iv T, Nkoghe D, Padilla C, et al. (2015) High Prevalence of Both Humoral and Cellular Immunity to Zaire ebolavirus among Rural Populations in Gabon. PLoS ONE 5(2): e9126. doi:10.1371/journal.pone.0009126).

The biggest risk appears to be that development of mines stimulates in-migration to the mining site; if the site is in or near a forest, human-wildlife contact is increased as people hunt for food. In addition, underground mines may offer new roosting places for bats; thus one possible managerial intervention to reduce risk might be to persuade companies to engineer mine entrances to discourage bats from roosting.

Some of the people attracted to mining sites (both active and abandoned) are "artisanal" miners. Most of these are entrepreneurs with no relation to mining companies; if they are working tailings or open sites they might form a special segment of the general population in a hot spot, with bush meat/forest contact the major risk factor to address. If they are working abandoned underground sites, exposure to bats would be a concern.

PREVENT will continue working with RESPOND to understand the risks and possible interventions related to mining; in addition, during the next quarter we will begin to review literature related to logging and oil exploration.

Characterizing high-risk groups and practices

PREVENT will take advantage of (b)(6) visit for PREDICT to the International Centre of Medical Research in Franceville, Gabon (CIRMF) for discussions with (b)(6) (b)(6) about collaborating with CIRMF to characterize high-risk practices. (b)(6) team has recently published intriguing results of a population-based serosurvey for Ebola antibodies (see reference above); the team collected some behavioral data but appears interested in increasing the input of behavioral scientists.

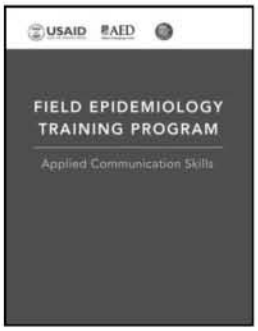
If results of these initial discussions are positive, PREVENT will make a follow up visit in Quarter 3 to work out specifics of collaborating on research to characterize risks.

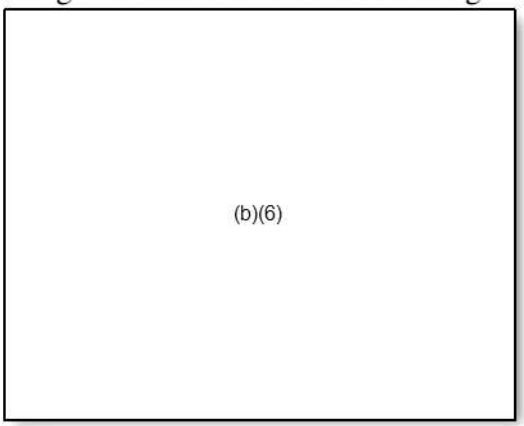
Collaboration with other EPT projects

RESPOND: PREVENT met with RESPOND regarding training, clarifying the status and plans for refining the FETP communications course. PREVENT and RESPOND also discussed how PREVENT might contribute to RESPOND's "community training" regarding outbreak response. PREVENT shared the current work plan, FETP course materials, an FETP handout, a Social and Behavior Change Communication Capacity Assessment Tool as well as materials related to surveillance (Polio community surveillance kit, Tanzania IDSR community materials). PREVENT and RESPOND also had initial discussions about "extractive industries" – specifically mining – to clarify the different projects' interest and possible roles.

ILRI/IDRC: (b)(6) AED's Regional Representative in Bangkok, was invited by the International Livestock Research Institute (ILRI) to participate in "the Asian Partnership on Emerging Infectious Disease Research (APEIR) Partner Meeting and Network Meetings" held in Kunming, China January 12-17 2010. Supported by funding from the International Development Research Center (IDRC), ILRI is leading implementation of the 'Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in the Southeast Asia Region' (EcoZEID). This project is linking, working with, and building capacity in multi-disciplinary research groups in six countries: Cambodia, Indonesia, Lao PDR, Thailand, Viet Nam, and China (Yunnan Province). ILRI invited (b)(6) to attend the networking meeting as they perceived a need to share information between the PREVENT and EcoZEID projects, including discussion on possible collaborations ((b)(6) attendance was cost-shared between ILRI and PREVENT). Discussions took place among (b)(6) (ILRI/Laos), and (b)(6) (ILRI/Kenya) on mutual interest in possible collaboration between ILRI and PREVENT, on PREVENT's providing some communication training for the APEIR participants, and on a "Challenge Dialogue" in 2011 – an approach for engaging a wide range of stakeholders in focused discussion on a specific topic, in this case, EPT.

AFENET: AED in partnership with the West Africa office of Africa Field Epidemiology Network (AFENET) conducted a two-day training in Dakar, Senegal on "Applied Communication Skills for Field Epidemiologists". Senior epidemiologists from Burkina Faso, Mali, Niger, and Togo as well as representatives from the government of Senegal's Ministry of Health participated in the training that focused on skills related to listening to the public; creating actionable recommendations and talking points; and communicating with select audiences including the media. Two journalists from Senegal also attended and assisted with the session on talking with the media. (b)(6) (b)(6) AED behavior change and communication advisor, conducted the training with PREVENT West Africa Program Coordinator (b)(6) (b)(6) AFENET West Africa Program Officer and his staff from Burkina Faso organized the event for AFENET. The training was held February 15-16, 2010. The FETP materials in English and French are available on http://avianflu.aed.org and http://H1N1vax.aed.org.





AFENET workshop: Senegal

Participants felt that the case study/role play scenario "listening to the public during the investigation" and "talking point" strengthened their communication skills and would particularly help them in their work with communities and the media. They also recommended integration of the training module into the curricula of MPH programs at the University of Ouagadougou, Burkina Faso, at the Regional Public Health School in the Benin Republic, and through similar academic programs in Togo. PREVENT will pursue opportunities for integration in Quarter 3.

EPT program web workspace

To facilitate sharing of information among EPT Program partners, USAID asked PREVENT to oversee a new and revised EPT program web workspace: https://eptprogram.basecamphq.com/login (password-protected). This new structure emphasizes EPT coordination among the EPT CA partners, and includes contact lists of organizations (including HQ, regional and country level staff, both USAID and projects); country office information; calendar of approved travel, conferences, and trainings; meeting minutes; quarterly reports/bullets; work plans; and country context information. The Lines of Work working group spaces and documents posted last quarter have been archived on the site.

H1N1/Pandemic

Thirteen countries received on-site PREVENT communication technical assistance, training, and print materials toward the launch of their WHO H1N1 vaccine initiatives: Azerbaijan, Bangladesh, Cambodia, Lao PDR, the Philippines, Vietnam, Ghana, Kenya, Senegal, Togo, El Salvador, Guatemala, and Nicaragua. PREVENT work closely with WHO and countries' WHO representatives and national government representatives to review communication plans, identify whether additional support for communication technical assistance, limited training, and print materials would be needed, and then implement agreed upon support. Training includes media orientations; advocacy and risk management for public health and media stakeholders on the vaccine initiative; interpersonal communication skills and the use of the vaccine job aids use for health care workers. Materials include limited printing runs of pretested, translated job aids, posters, fact sheets, and take-aways for health care workers, stakeholders, and the target audiences of the H1N1 vaccine. Depending on the WHO H1N1 vaccine deployment schedule, PREVENT may be providing similar assistance in Sri Lanka, Nepal, and Paraguay in Quarter 3.

Africa

Ghana: PREVENT's West Africa Program Coordinator (b)(6) worked in Ghana with the Government of Ghana's national H1N1 communication committee (which has the same members as the AI communication committee) and Ghana's National Disaster Management Organization (NAMDO) to review the H1N1 communication plan (patterned by the committee after the plan outlined for AI). (b)(6) shared the H1N1 vaccine training and job aid materials with the committee which endorsed its use without modification and will print them for distribution through the Government's health care worker training on the H1N1 vaccine later in the year. PREVENT will follow up with the Ghana H1N1 committee with regards to further training support once the vaccine delivery date is confirmed.

Senegal: On an opportunistic note, while attending PREVENT's FETP Senegal workshop, the Senegal Ministry of Health requested (b)(6) and (b)(6) attendance and communication input at a training organized by the Government for the Ghana Red Cross Society volunteers under its H2P program. (b)(6) and (b)(6) also reviewed upon request the Government of Senegal's H1N1 communication plan and discussed H1N1 materials proposed by the National Health Information and Education/Communication Services. The MOH will meet in Quarter 3 to discuss technical assistance and training needs in support of communication activities under the H1N1 vaccine deployment.

Togo: The Government of Togo requested PREVENT's support for two weeks prior to its H1N1 vaccine deployment in early April 2010. (b)(6) and (b)(6) trained health care workers on the vaccine and its use, worked with H1N1 communication committee members to conduct a journalist and stakeholder briefing, and provided a small quantity (1800 total copies) of training modules, job aids, and clinic poster materials for distribution at the April 6, 2010 launch of the H1N1 vaccine and at key health centers (as of this writing, the launch was conducted on schedule about 3 hours from Lome. In

attendance was the U.S. Ambassador and representatives from the MOH, WHO, and UNICEF; the WHO representative and several senior MOH officials received their vaccinations on camera. Health care workers from the two principle, targeted hospitals in Lome were also in attendance).

Kenya: PREVENT in-country consultant (b)(6) attended the Government of Kenya's BCC Subcommittee meetings on H1N1 to review and refine the PREVENT H1N1 vaccine communication materials, discuss resource needs, and review and make changes to the draft H1N1 vaccine communication plan. PREVENT has committed to fund the printing of 35,000 copies of the refined versions of the H1N1 vaccine clinic and health care worker posters and flyers, as well as 250 copies of the H1N1 vaccine training manual. The Government of Kenya is planning to approach potential international donors to support further materials production, broadcasting, and print material distribution. The H1N1 vaccine is scheduled to arrive in Kenya April 23, 2010.

Central, South, and Southeast Asia

Azerbaijan: In January 2010, PREVENT Program Officer (b)(6) and AED Sr. Communication Specialist (b)(6) provided technical assistance in communication with the WHO H1N1 vaccine deployment in Azerbaijan. The vaccine arrived in Azerbaijan on January 7, 2010. The following target groups have been selected by the Government of Azerbaijan (with recommendation from WHO):

- Health care workers
- Pregnant women in third trimester (priority) but also second trimester if requested
- Emergency workers, rail, airline workers and other vital infrastructure staff
- Persons with lung diseases
- School children in 8-11th grades



PREVENT worked with WHO and the Communication Working Group at the Ministry of Health to provide technical assistance develop a quick and simple communication implementation and work plan, materials for a health workers' training, materials for the press, and IEC materials for targeted recipients of the vaccine (vaccine guide, training guides for health care workers, materials for pregnant women and other target audiences). The vaccine guide developed by PREVENT was approved by the Ministry of Health, printed and used for training vaccinators in the field.

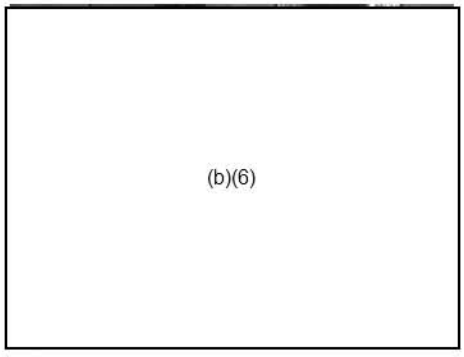
To help WHO and the government in their ongoing and future media communications on H1N1, PREVENT worked with the Center for Public Health Reforms on press packets that included information on H1N1 and the pandemic, the vaccine, target groups, pandemics, and non-pharmaceutical interventions and treatment The materials will be printed by the MOH with UNICEF funding, and made available through the MOH's three planned press conferences and website.

Philippines: PREVENT followed up with its initial work stemming from the Joint WHO/USAID Workshop Finalizing National Plans for Development of the H1N1 Vaccines (November 2010 in Bangkok, Thailand) with the Philippines Department of Health (National Center for Disease Prevention and Control (NCDPC), National Center for Health Promotion (NCHP), the Family Health Office (FHO), and the Material Management Division)), USAID/Manila, and WHO/Philippines to refine the H1N1 vaccine communication plan. PREVENT's in-country consultants (b)(6) (b)(6) and then (b)(6) also worked with the Department of Health's Bureau of International Health Cooperation (BIHC), Technical Assistance and Coordination Team (TACT), Health Policy Development and Planning Bureau (HPDPB), and the National Epidemiology Centre to ensure the communication plan and PREVENT technical assistance and training was officially approved by the Government of the Philippines.

Two major activities are part of this plan: the pretesting and finalization of H1N1 vaccine materials for the vaccine roll-out, which has been approved; the initiation of a mobile phone reporting system used by health care workers in target sites to report on acceptance of communication messages and materials by target populations coming to select clinics for their H1N1 vaccine (approval is expected April 8, 2010). PREVENT will work with the NCDPC to select six health centers and health care workers in/around Metro Manila for involvement in the phone reporting system; questions for reporting will be elicited from the NCHP. PREVENT will continue to brief USAID/Manila as to its activities.

Bangladesh**:** PREVENT's in-country consultant (b)(6) on the direction of USAID/Dhaka, met with the Government of Bangladesh Department of Health's EPI Program Manager, the Institute of Epidemiology, Disease Control and Research, and National Influenza Center (IEDCR/NIC), WHO, and the in-country representative of DELIVER to discuss the WHO H1N1 vaccine initiative deployment plans. Training and communication work groups were formed to develop implementation plans for the vaccine deployment. The training group proposed developing 2-3 instructional vaccination manuals for health care workers. A final draft version will be reviewed in early April 2010, as will the communication group's poster and leaflet designs based on the PREVENT H1N1 vaccine materials.

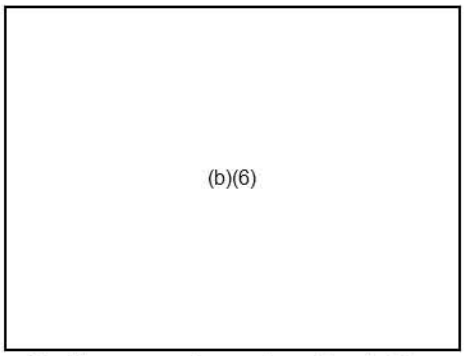
Cambodia: PREVENT BCC specialists (b)(6) (b)(6) based in Bangkok) and (b)(6) (b)(6) (based in Lao PDR) traveled to Phnom Penh, Cambodia in January 2010 to meet with the Cambodia National Immunization Program (NIP), WHO, USAID and other partners to develop communication plans in support of the WHO H1N1 vaccine deployment. (b)(6) returned in February 2010 to provide additional technical assistance and co-facilitated two H1N1 vaccine



Training of trainers: Cambodia

communication trainings of 75 trainers and health officials representing all 24 provinces of Cambodia. Participants included provincial health department directors or deputies, EPI chiefs, and continuing education officers. Participants from four priority provinces receiving the first tranche of vaccine (including Phnom Penh, Kandal, Kampong Chnang, Kampong Speu) will implement cascade trainings of healthcare workers and vaccinators at operational districts of their provinces. Those from the other 20 provinces are expected to prepare their operational plans while awaiting the next tranche of vaccine. The training included background on the H1N1 virus, its transmission, the current pandemic situation in Cambodia, logistics management, management of adverse events (AEFI), waste management, and termination of deployment. The communication component focused on helping health care workers identify target groups, provide messages to priority audiences, and use job aids developed by PREVENT for the WHO vaccine initiative. The sessions included interactive role-plays to strengthen participants' skill in dealing with potential difficulties, such as the possibility of adverse events following vaccination. In addition, role-plays allowed participants to practice their interpersonal communication skills--addressing client fears and concerns, and reassuring key audience segments about vaccine safety and efficacy during their counseling sessions. In addition, the training included a reiteration of basic non-pharmaceutical intervention messages, such as hand-washing, and coughing and sneezing etiquette. At the request of the NIP and WHO, AED prepared several communication materials that were used during the trainings and distributed to participants to take back to their provinces. These included informational flyers for pregnant women and healthcare workers, frequently asked questions (FAQ's) about the vaccine and a technical sheet on vaccine administration.

Lao PDR: Under the direction of AED's in-country resident advisor (b)(6) four communication materials were developed by PREVENT to assist the government's H1N1 vaccine deployment. These materials were based on discussions held with the Ministry of Health Center of Information and Education for Health (CIEH), the MOH EPI Department, WHO, and UNICEF to craft messages for the identified recipients of the vaccine. Patterned after the PREVENT global templates, posters and flyers for pregnant women and for people with chronic diseases were crafted. In March 2010, these materials underwent pre-testing among potential recipients of the vaccine, and health care workers. In Quarter 3, approval to mass print these materials will be obtained from the Ministry of Information and Culture for distribution during health care worker trainings and the EPI's distribution of vaccine supplies (vaccine, syringes, safety boxes) prior to the scheduled launch of the vaccine campaign in May 2010.



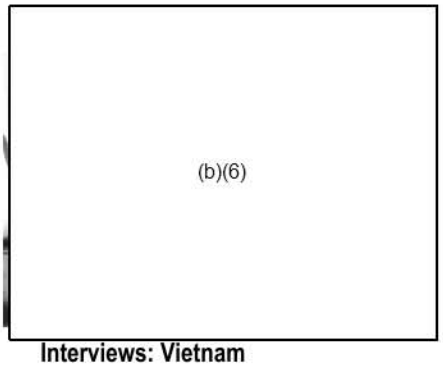
Health care worker review of materials: Lao PDR

Vietnam: Under the direction of AED's in-country resident advisor (b)(6) PREVENT has been providing support to the National Institute of Hygiene and

Epidemiology (NIHE), the agency in charge of the EPI Program, and WHO in preparing for the communication component of the H1N1 vaccine campaign. Although an initial 1.2 million doses have been earmarked for vaccination of pregnant women and health care workers (with additional doses scheduled for persons with chronic illnesses), the MOH will be conducting a clinical trial of the vaccine (Arepanrix from GSK Canada) before accepting the doses as this is a Government of Vietnam requirement for all new vaccines to be used in the country. As of April 1, 2010, the MOH is still in the process of sourcing the samples needed for the clinical trial. According to MOH officials, based on the clinical trial timeline, the vaccine may probably be received in Vietnam by August or September 2010. Regardless, NIHE confirmed that since they see no problem with the trial outcome, PREVENT and its stakeholders could move forward with communication materials development and refinement, and risk communication training for health care workers in Quarter 3 once trial is underway.

In this context, PREVENT worked on several endeavors:

- Results from H1N1 vaccine qualitative research done by PREVENT in November 2009 were presented to officials from NIHE, WHO, and USAID/Vietnam. The research, a series of in-depth interviews conducted in Hanoi and Ho Chi Minh City explored values and beliefs about the H1N1 pandemic and vaccination among health care workers, pregnant women, people with chronic illnesses, and stakeholders. Findings show that all responders agreed on the importance of the vaccine but were concerned about adverse effects.



Interviews: Vietnam

- Working with NIHE, the National Center for Health Education (NCHE), WHO, and UNICEF, PREVENT began adapting its global H1N1 vaccine prototype materials and messages based on the research findings. Specifically, the general information sheet for pregnant women and for health workers, and the Q&A sheet were refined, translated, and visually revised for future approval by the NIHE and During this meeting, the messages to be included in the General Information Sheet for pregnant women and health care workers and Question and Answer Document were agreed upon. AED refined the Information Sheet by arranging translation to Vietnamese and revising the visuals to reflect Vietnamese characters and settings. The messages and materials will be presented to NIHE and MOH for approval and subsequently pretested, finalized, and printed.
- The Vietnam H1N1 Communication plan, first developed with Vietnam health officials during the Joint WHO/USAID Workshop Finalizing National Plans for Development of the H1N1 Vaccines (November 2010 in Bangkok, Thailand) was revised to accommodate the change in vaccine availability. A budget was drafted to reflect the total cost of the plan, and both documents were reviewed by NIHE and USAID/Vietnam for funding consideration.

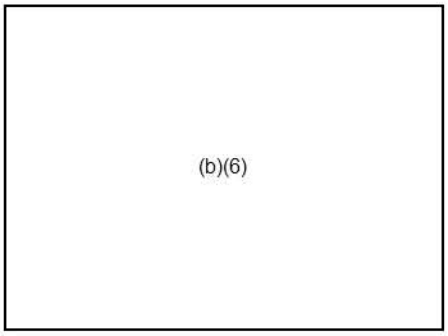
Other related AHI activities:
PREVENT participated in the Government of Vietnam's AHI BCC working group meetings during this quarter. The meetings focused on preparing for two major international fora to discuss AHI experiences: the Government of Vietnam's presentation on communication best practices for the Technical Discussion on Best Practices for Prevention and Containment of H5N1 HPAI held in Bali, Indonesia March 2010; the Inter-Ministerial Conference on Avian and Pandemic Influenza (IMCAPI) which Vietnam is sponsoring April 19 - 21 in Hanoi (and PREVENT Project Director (b)(6) (b)(6) will be attending).

PREVENT is also exploring the possibility of conducting women-centered research by a local research firm in Vietnam specifically on the perception and needs of women in providing pandemic protection and response to their families (through vaccination and non-pharmaceutical interventions). Research findings would be presented to the Government of Vietnam for further use in preparing for the H1N1 vaccination deployment.

Latin America
PREVENT has translated its global H1N1 vaccine print and training materials into Spanish in order to pretest and introduce them in Central America under the guidance of USAID, WHO, and specific countries' USAID, PAHO, and MOH representatives.

PREVENT visited El Salvador (where materials were initially and thoroughly pretested), Nicaragua, and Guatemala to

- Meet with H1N1 vaccine IEC committee members or designated communication officers to provide technical assistance regarding communication planning for the H1N1 vaccine deployment to ensure message/material coordination and harmonization with key stakeholders at the country-level
- Identify local opportunities/resources to pretest and finalize the prototype H1N1 vaccination print materials (for accuracy and cultural sensitivity)
- Identify any further technical assistance and training as requested on the communication aspect of the H1N1 vaccine activity before and when vaccines arrive in country



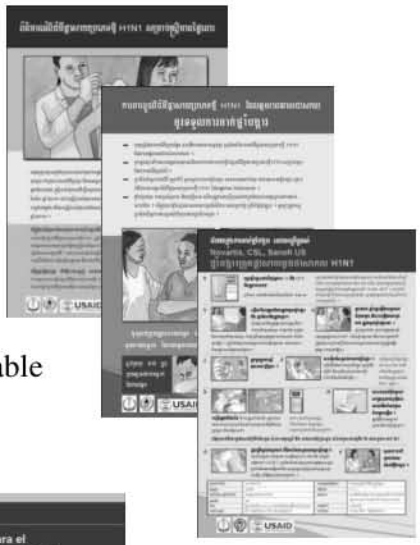
Material pretests with pregnant women: El Salvador

Follow-up activities will take place in Quarter 3, including an initial visit to Paraguay.

Knowledge Management Activities under H1N1/Pandemic

- H1N1 Vaccination Materials (job aids, posters, fact sheets, take-aways for health care workers, stakeholders, and target audiences of the H1N1 vaccines) were pre-tested in Togo, Kenya, Vietnam, Cambodia, and El Salvador and revised per recommendations as a result of the pre-tests. Materials were translated into French, Khmer, and Spanish and posted to the http://h1n1vax.aed.org website.

- H1N1 Vaccine job aids for in-country logistics staff were developed in coordination with JSI's Deliver project, translated into French and Spanish, and posted to the http://h1n1vax.aed.org website.



- The *H1N1 Influenza Vaccine Communication Training Workshop Guide* and the *H1N1 Influenza Vaccination: Model Training for National Adaptation* were both translated into French and Spanish. Both drafts are available on http://h1n1vax.aed.org/training.









- The http://H1N1vax.aed.org site has been redesigned to include photos, Spotlight items (recent activities of interest), and Featured Items or publications. Bookmarks were also developed to promote the website.



Avian Influenza (AI)

PREVENT continued to provide on-site technical assistance in Bangladesh and began to wrap up its communication work in India with a goal of ending its activities in both countries by the end of April 2010.

Bangladesh: PREVENT continued to work with FAO on their cleaning and disinfection (C&D) project in Bangladeshi involving 18 new wet/live bird markets. During the current renovation and infrastructure building phase, PREVENT's in-country consultant (b)(6) (b)(6) toured wet markets with FAO and provided recommends to improve behaviors that would prevent or reduce the transmission of AI, including separation of chickens and ducks; keeping fowl away from other parts of the market place; conducting slaughtering away from the area where birds are kept to avoid contamination from bird waste; proper disposal of waste; and wearing a face mask during slaughter. Once the renovated wet markets are launched by the Government of Bangladesh and FAO, PREVENT will discuss with the GOB the possibility of conducting site visits, providing existing AI materials for the Government's "train the cleaners" program, and offering final recommendations for maintaining AI-free wet markets. FAO and USAID/Dhaka also expressed an interest in PREVENT working with them to develop a communication and marketing strategy that would promote the attributes of these markets to other parts of Bangladesh. The strategy would include advocacy among stakeholders to promote the goals, qualities, and benefits of cleaned and disinfected wet/live bird markets. A meeting was set to occur at the end of March 2010 to further discuss this possibility.

India: Due to an outbreak of H5N1 in January 2010 and the Government of India's request to expand PREVENT's current communication activities to several more districts, PREVENT worked with in-country vendor Rouge Communication to print an additional 26,000 posters and rent an additional fifteen billboards in fifteen districts of West Bengal. The posters were distributed as part of the 330 community theater and social mobilization activities conducted in West Bengal by the local communication agency i-land Informatics, reaching an average audience of 175 people per show. PREVENT also aired four 40-second public service announcements on radio stations in the states of West Bengal and Assam through an agreement with the local media agency Top Advertising for a 10 week period beginning in February 2010. The PSAs will be aired 420 times through April 11, 2010.



Community theater at Sarkama Bazar in Malda, India

PREVENT continues to maintain the AI website (http://avianflu.aed.org) containing updated AI materials and reports.

Humanitarian Pandemic Preparedness (H2P)

AED through PREVENT remains active in the H2P Initiative through participation in the H2P Operations Committee and Program Review Team (PRT), and by hosting and maintaining the H2P website. In late January 2010, PREVENT hosted AED HQ a 3-day meeting with the PRT which brought together team members to finalize the selection of countries to receive reviews, and the scheduling of those reviews. The meeting also

furthered the questionnaire writing process for both global and country interviews. The result of this meeting confirmed that PREVENT Technical Officer (b)(6) would participate in the PRT country-visits in Uganda (March 2010) and in Latin America (tentatively El Salvador in May 2010). At the conclusion of this meeting, the H2P Operations Committee met for 2 days at AED HQ to address the future of H2P and collaborative work-planning. This meeting produced a list of key actions for partners that will take place over the next few months:

- The IFRC in collaboration with the World Food Program plan to test and pilot some Food Security & Livelihoods tools/materials
- PREVENT will review and revise materials that were created in response to the 2009 H1N1 Influenza Pandemic
- PREVENT will work with USAID to identify next steps on maintaining the H2P website after September 2010, and will provide a terms of reference for maintenance if a new host will take over
- The CORE Group will conduct the Health Curricula training in two countries—Ethiopia, and one in Latin America still to be identified
- The IFRC will pull together all of the H2P materials and put them in a single kit, and will finalize the edits/formatting of the Health Curricula



West Kampala Red Cross Branch group interview: Uganda

In March 2010, (b)(6) was a member of the PRT to conduct a pilot country review in Uganda (IFRC contributed a cost-share for (b)(6) airfare and lodging) (b)(6) traveled with the IFRC Avian and Pandemic Influenza Senior Advisor and two IFRC consultants to Uganda and interviewed country-level stakeholders, including government officials, UN officials, and district-level representatives, including Red Cross volunteers. The review took place over 4 days and produced a summary report that will be used by IFRC consultants in their final PRT report at the end of the review process. The PRT will visit 10 other countries, including the Philippines, Azerbaijan, El Salvador, Ukraine, and Nepal. Results will be included in the final PRT report, tentatively to be available September 2010. PRT will also conduct in-depth interviews with global partners and an online survey for non-PRT national societies.

Immediately following the Uganda PRT, (b)(6) traveled to Geneva, Switzerland to participate in several pandemic influenza-related meetings, including a review of the Uganda pilot country review; this meeting brought together key observations and notes from the trip to be used in the country trip report. (b)(6) also participated in the two-day Humanitarians in Pandemic (HiP) retreat and led the Advocacy breakout session. Agencies represented at the HiP meeting included Save the Children/CORE Group,

UNICEF, WHO, WFP, OCHA, IFRC, ICRC, US Dodd-AFRICOM, DFID, and USAID. This session worked with half of the participants to review and revise advocacy strategies and messages from lessons learned from the 2009 H1N1 Influenza Pandemic, including revisiting HiP's purpose, messages, success stories and sustainability.

An advocacy sheet was produced during the meeting on behalf of HiP for the "International Ministerial Conference on Animal and Pandemic Influenza (IMCAPI): the Way Forward", which will be held in Vietnam in late April 2010. PREVENT's acting Project Director (b)(6) will be attending this conference and present AED's experience with H2P and with pandemic preparedness and response, including 11 success stories from the experiences of AED's AI.COMM and AI-BCC projects.

The H2P Operations Committee also met for one day in the middle of that week at the IFRC. This meeting was a follow-up to the January 2010 meeting and the key actions that had to be done were communicated to the representatives. The PRT met at the end of the week for a 2 day meeting to address lessons learned from the first country visit in Uganda. In addition, this provided the opportunity to review the country questionnaires and finalize the online survey.

AED has continued to maintain and manage the H2P website. During January – March 2010, the website received nearly 2,000 visits (of which 50 percent were new visitors) from 109 countries/territories, including the U.S., Philippines, Indonesia, Switzerland, India, Kenya, Costa Rica, Hungary, and Thailand. The Latin America and Caribbean Municipal Toolkit created by the USAID-LAC partners ("Leadership During a Pandemic: What Your Municipality Can Do") was posted on the H2P website (www.pandemicpreparedness.org).

USAID/Ukraine buy-in

USAID/Ukraine set aside $130,000 for PREVENT to support UNICEF/Ukraine's public information campaign work in response to the H1N1 outbreak in Ukraine. The Government of Ukraine requested that the UN system support restoring public trust in vaccinations in general; conduct a comprehensive, evidence-based campaign on the importance and use of the H1N1 vaccine; and strengthen the capacity of national healthcare workers in close coordination with the UNICEF immunization program.

After further discussions with USAID/GH and USAID/Ukraine, and guidance from the AED contracts administrator on the kind of contractual mechanism appropriate to "pass through" USAID/Ukraine funds to UNICEF/Ukraine (through the US Funds for UNICEF/New York City office), UNICEF/Ukraine submitted a revised proposal valued at $100,000 that will be submitted by AED to the USAID AO for review in early April 2010. PREVENT will need its USAID AOTR to follow-up with the USAID AO to ensure that the USAID AO review is completed in a timely manner.

UNICEF/Ukraine activities will include the following:

- Outdoor media (bill boards, city lights, posters/light boxes in metro) will target the general population (roughly 2 million people). Distribution will be done in partnership with Association of Outdoor Advertising of Ukraine (Memorandum of Understanding between the Association and UNICEF Ukraine was to be signed by the end of February 2010).
- Posters and leaflets targeting 3 million school-aged children will be disseminated in partnership with Ministry of Health and Ministry of Education and Science of Ukraine.
- Radio and video/TV public service announcements (PSAs) will target the general population and specific at-risk groups in all urban and some rural areas, and through web resources targeting youth and the urban population. PSAs will be disseminated in partnership with Ministry of Health and other national partners.
- Media outreach and orientations (workshops, interviews, articles) will be conducted national media representatives.

Project preparation is scheduled for April – July 2010, with distribution, air time, and workshops set up for August – December 2010.

Financial Summary

A financial report that covers project expenditures January 1 – March 31, 2010 is enclosed under a separate attachment. As of March 31, 2010, PREVENT has paid out

(b)(4)

Cost Share

Also attached is PREVENT's spreadsheet summary of its cost-sharing successes and challenges. Based on the current obligation from USAID, PREVENT's cost-share goal is $256,500 (five percent of the total USAID funds obligated to date). Through March 31, 2010, PREVENT submitted cost share activities for AED approval during this quarter valued at $4,251.82. These included the following:

- International Livestock Research Institute (ILRI contributed towards (b)(6) (b)(6) travel expenses to attend the Asian Partnership on Emerging Infectious Disease Research Partners Meeting (held in China mid January 2010)
- The Ministry of Health/Senegal and the Ministry of Health/Togo both contributed level of effort towards attendance at the Dakar, Senegal FETP communication module pretest workshops in January 2010
- NIHE in Vietnam contributed staff time, a venue, and materials towards in-depth interviews on the H1N1 vaccine communication campaign.

- IFRC contributed towards the travel costs of (b)(6) attendance in the H2P Program Evaluation in Kampala, Uganda, and to Geneva, Switzerland to attend H2P meetings, including its Operations Committee.
- WHO/Togo contributed level of effort towards developing communication strategies, orienting representatives to vaccination materials, and discussing next steps for pretesting, finalizing, and introducing the materials for use by health care workers who are administering the H1N1 vaccine.

Nearly 30 additional cost share activities are in the documentation process with a total value of $20,000. The project plans to submit these activities and more within the next quarter. They include:

- Printing H1N1 materials and conducting a training of health workers in Azerbaijan with the Ministry of Health, UNICEF, UNHCR and WHO
- Translating H1N1 materials into Lao by UNICEF
- Translating and printing H1N1 materials in the Philippines by UNICEF
- Level of effort by AED's partner, GVFInc, on EPT activities

AED
Ideas Changing Lives

PREVENT

Global Avian Influenza and Zoonotic
Behavior Change and Communication
Support Activity

Implemented by AED

Quarterly Report
April 1 – June 30, 2010

Submitted To
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

July 15, 2010

PREVENT
Quarterly Report
April 1 – June 30, 2010

INTRODUCTION

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No.: GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT has four USAID "pylons" or areas of focus: emerging pandemic threats (EPT); avian influenza (AI); H1N1/pandemic influenza; and Humanitarian Pandemic Preparedness (H2P). PREVENT also received funds from USAID/Ukraine to work with UNICEF/Ukraine on H1N1 communication activities.

During the April 1 – June 30, 2010 time period,

- PREVENT spent much of its EPT time in Africa and Asia, participating with other EPT CAs in the USAID EPT Program roll-out meetings in DRC, Uganda, and Cambodia in April and May 2010; working with partner GVFInc in Cameroon to set up qualitative research on hunting and butchering practices; and supporting site visits and assessments in Gabon and DRC (by GVFInc) and in Lao PDR (by AED) for behavior change and communication risk reduction opportunities.
- Seven countries received on-site PREVENT communication technical assistance, training, and/or print materials toward the launch or continuance of their WHO H1N1 vaccine initiatives: Bangladesh, Cambodia, Lao PDR, Vietnam, Kenya, Togo, and Paraguay.
- Under its avian influenza pylon, PREVENT continued providing on-site technical assistance for FAO's Cleaning and Disinfection wet market program in Bangladesh, and completed its work in India with the final airing of radio public service announcements.
- The H2P initiative received full participation from AED through PREVENT even as H2P began winding up its activities (it ends September 2010). PREVENT was fully engaged providing technical input to the H2P Operations Committee and Program Review Team (PRT), and continued to update and maintain the H2P website (www.pandemicpreparedness.org).
- AED submitted to the USAID Agreement Officer for review and approval a $100,000 Grant to PIO agreement to facilitate the "pass through" of USAID/Ukraine buy-in fund to the US Funds for UNICEF/New York in support

of UNICEF/Ukraine's H1N1 communication prevention and response efforts in Ukraine through 2010.

Emerging Pandemic Threats (EPT)

PREVENT's field activities were initiated with the USAID EPT Program roll-out meetings in DRC, Uganda, and Cambodia in April and May 2010. In attendance at these meetings were PREVENT Technical Director (b)(6) (at Uganda, DRC, Cambodia); PREVENT Technical Officer (b)(6) (Uganda); PREVENT/Asia Sr. Research Advisor (b)(6) (Cambodia); GVFInc Director of Behavioral Sciences (b)(6) (DRC); GVFInc China Representative/wet market specialist (b)(6) (Cambodia). PREVENT took advantage of travel to the roll-out meetings to visit promising project activities and potential partner organizations in the Congo Basin and Mekong areas to further shape its strategic approaches and Year II work plan preparation:

Cameroon: PREVENT Technical Director (b)(6) and GVFInc Director of Behavioral Sciences (b)(6) traveled to Cameroon in early May 2010 to review the safe hunting/safe butchering intervention that GVFInc implements in 70 villages where it involves hunters and women who prepare food in collecting blood samples from wildlife. AED and GVFInc will assess the intervention, improve it, then implement and test the improved intervention, with a view to replicating it on a large scale.

(b)(6) and (b)(6) visit included conducting village site visits to get a sense of field logistics; they attended three community meetings, interviewed hunters and villagers and met with GVFInc staff to discuss the intervention. They also interviewed ten research agencies and identified a short list of five agencies prequalified to receive a request for proposal to conduct formative research. In early July 2010, PREVENT will issue an RFP to select one of the agencies to conduct a formative research study. The study will use a variety of qualitative and participatory methods, as well as censuses of adults in two villages, to determine people's behavior related to hunting, preparation, consumption and other exposure to bush meat and the factors motivating those behaviors. The goal is to develop an evidence base for identifying appropriate interventions and messages to decrease transmission of infections from bush meat. A research contract will be awarded in July 2010, with an expectation of initial research findings by the end of the calendar year.

DRC: While in Kole, DRC, to develop sampling and surveillance activities for PREDICT, GVFInc's (b)(6) participated in a brief reconnaissance on the possibility of replicating safe hunting interventions there. During her visit she visited eight villages and a market, and held a meeting with a traditional healer association. She has recommended further review of existing health infrastructures (hospital, laboratory, dispensaries), making contact with administrative and health authorities, and making contact with communities to further assess PREVENT opportunities for research and program interventions. DRC can be important in terms of testing PREVENT's Risk

Reduction framework because one key emerging infectious disease in this region, Monkey pox, displays some predictability in terms of outbreak.

Gabon: GVFInc's (b)(6) while in Gabon for the PREDICT project, spent time getting updates of pertinent activities related to studies that indicated a pattern of seroprevalence of Ebola in some villages but not in others. The studies were led by (b)(6) (b)(6) (Centre International de Recherches Médicales de Franceville (CIRMF), one of the lead institutions carrying out research on Ebola virus in the Central African region. Preliminary analysis strongly suggests that the difference between "positive" and "negative" villages is exposure to bats. (b)(6) studies have focused primarily on the virology and epidemiology of ebola but not on the behavioral, social or cultural risk factors that may contribute to its spread. With the objective of establishing a community alert system for Gabon, focusing on behavioral, cultural and social elements in high-risk populations, this first visit was intended to distinguish what is already in place in Gabon. Specifically, (b)(6) focused on getting an update on current studies and any reporting systems regarding animal die-offs or human disease outbreaks, as well as understanding existent links between the community and the district in terms of transportation, communication, community health centers, and wildlife organizations. GVFInc was briefed by CIRMF on current projects; CIRMF would be interested in collaborating with PREVENT to examine behavioral and social norms about bats among populations in the north of Gabon, notably in the Belinga cave region.

Lao PDR: Following the USAID EPT Program roll-out meeting in Cambodia, PREVENT's (b)(6) traveled to Lao PDR to explore possibilities for collaboration with WCS and with ILRI. She met with (b)(6) WCS wildlife veterinarian, and other WCS staff in Vientiane and received an in-depth briefing about their planned wildlife market surveillance activities including selection of sites for surveillance, animal species of special focus in the market work, current knowledge of high risk human populations and practices that could be candidates for behavior change initiatives. She also visited nearby wet markets with WCS's (b)(6) to inform future planning and logistics. (b)(6) also met with (b)(6) ILRI project coordinator for the Ecohealth Approach to the Control of Zoonotic Emerging Infectious Diseases project for Southeast Asia. He is based at the International Centre for Tropical Agriculture (CIAT)-Asia office in Vientiane. PREVENT and ILRI actively discussed collaborating on a "challenge dialogue" approach to involving a wide range of interested groups in discussing and developing a risk reduction framework.

Uganda: Following the USAID EPT Program roll-out meeting in Kampala, (b)(6) (b)(6) and PREVENT Technical Officer (b)(6) met with (b)(6) Global Sustainable Tourism Alliance (GSTA)-STAR's chief of party, to explore the possibilities of collaborating with GSTA-STAR to develop and assess alternative livelihood interventions, and to possibly develop policy/managerial interventions for the oil companies involved in the northern Albertine Rift.

AFENET: As follow-up to the master training conducted in Senegal last quarter with the Africa Field Epidemiology Network (AFENET), (b)(6), AED behavior change and communication advisor, with PREVENT West Africa Program Coordinator (b)(6) (b)(6) visited with (b)(6) Director, and (b)(6) Activities Coordinator, of the Regional Public Health Institute (IRSP) in Benin to discuss the incorporation of the "Applied Communication Skills for Field Epidemiologists" module into their public health curriculum masters' course for epidemiologists. Both representatives would formally review the module with their colleagues and submit a formal request to PREVENT in case they need some technical assistance to integrate the module into the curriculum. Senior epidemiologists from Burkina Faso, Togo, and Niger also expressed interest in seeing how the module could be included in their schools of public health or other academic programs. The module focuses on skills related to listening to the public; creating actionable recommendations and talking points; and communicating with select audiences including the media.

Following the USAID EPT Program roll-out meetings in Kampala, Uganda, PREVENT Technical Officer (b)(6) met with AFENET to further define PREVENT's role in supporting AFENET's communication and public affairs capacity. AFENET FETP materials in English and French are available on http://avianflu.aed.org and http://H1N1vax.aed.org.

EPT program web workspace: PREVENT continued to maintain and monitor the EPT program web workspace (https://eptprogram.basecamphq.com/login (password-protected) which allows EPT CA partners to share contact lists, draft trip reports, documents, travel schedules, calendars of events, meeting minutes, quarterly reports, work plans, and country context information. Next quarter, PREVENT will explore the initial frameworks of establishing a more public version of an EPT program website.

H1N1/Pandemic

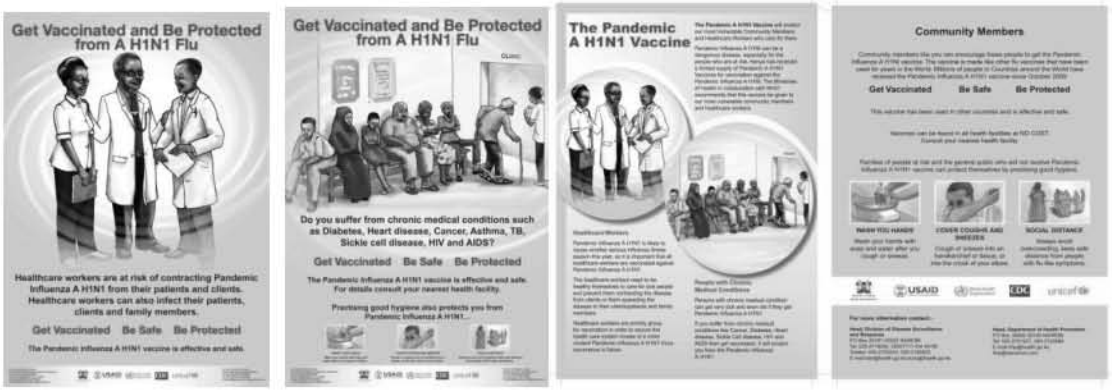
Following PREVENT's provision of communication technical assistance, training, and print materials toward the launch of the WHO H1N1 vaccine initiative in 13 countries over three continents (Asia, Africa, Latin America) since late 2009, this quarter found PREVENT giving similar assistance (or a continuance of assistance from last quarter) in seven countries: Bangladesh, Cambodia, Lao PDR, Vietnam, Kenya, Togo, and Paraguay. Depending on the WHO H1N1 vaccine deployment schedule, continued USAID support, and availability of funding in Quarter 4, PREVENT may be approved to provide similar assistance in Nepal and in several African countries that will be receiving their vaccine shipments, including Ethiopia, Cote d'Ivoire, Burkina Faso, and Madagascar. Technical assistance and training includes media orientations; advocacy and risk management for public health and media stakeholders on the vaccine initiative; interpersonal communication skills and the use of the vaccine job aids use for health care workers. Materials include limited printing runs of pretested, translated job aids, posters, fact sheets, and take-aways for health care workers, stakeholders, and the target audiences of the H1N1 vaccine (available at http://h1n1vax.aed.org).

Africa

Togo: The MOH launched its H1N1 vaccine deployment the week of April 6, 2010. The WHO/Togo representative and other senior MOH officials were vaccinated on camera for news broadcasts. PREVENT provided a small quantity (1800 total copies) of training modules, job aids, and poster materials for distribution at the launch to the two principal hospitals in Lome; broadcast journalists were briefed by the MOH and PREVENT staff (b)(6) towards the end of the week on the deployment's progress.

Kenya: The WHO H1N1 vaccination rollout arrived in Kenya in April 2010. As of May 31, 2010 only 20% of the H1N1 vaccines had been delivered (unevenly) throughout Kenya. PREVENT in-country consultant (b)(6) participated with the Ministry of Public Health and Sanitation (MOPHS) in monitoring H1N1 activities and trainings of health care workers in the Central Province. After the trainings, vaccinations took place immediately and reports of total persons vaccinated were made available on a daily basis for the first two weeks of vaccination and then on a weekly basis. The range of vaccination coverage as of May 31, 2010 was from 17.6% in Western Province to 32% in Central Province. Data continues to come in rapidly, especially since the MOPHS is using an innovative program (EpiSurveyor) that uses mobile phones to transmit data on a real time basis. The use of mobile phones has proven to be an easy, effective way to transmit and collect data and allows for redeployment of unused vaccine from oversupplied areas to areas of unmet demand. A final report will be shared with all MOPHS partners at the end of June 2010 when the vaccination campaign ends.

In support of the vaccination, IEC messages were being aired on the radio, published in print media, and printed and circulated on posters. PREVENT printed posters for health care workers (HCW) and Persons with Chronic Illnesses (PCIs), leaflets for HCWs, PCIs, and leaders that can reach the two groups. Posters and leaflets for pregnant women were not printed due to the decision by the MOPHS not to target pregnant women. HCW vaccination guides were printed by WHO but to date have not been distributed.



Kenya HCW print materials

Asia

Bangladesh: PREVENT's in-country consultant (b)(6) with the direction of USAID/Dhaka, worked with the Government of Bangladesh Department of Health's EPI Program Manager, the Institute of Epidemiology, Disease Control and Research, National Influenza Center (IEDCR/NIC), WHO, and the in-country representative of DELIVER to host the WHO H1N1 vaccine launch in Dhaka in early May 2010. Over 350 health officials and stakeholders from the national level and 64 districts from throughout Bangladesh attended the launch. Following the national launch, plans were developed for the vaccination deployment in all 64 districts. (b)(6) traveled to Rangpur, Sylhet, and Cox's Bazar and visited three sub-districts in each district to observe the vaccination campaign. In addition to the launch, PREVENT worked with UNICEF, IEDCR, WHO and EPI as a working group to finalize H1N1 field guidelines for health workers and posters for pregnant women.

Cambodia: The government launched its second national H1N1 vaccination campaign during the second week of June 2010. Print materials previously developed and produced by PREVENT with the National Immunization Program and WHO for the first campaign earlier in the year--including informational flyers for pregnant women and healthcare workers, frequently asked questions (FAQ's) about the vaccine and a technical sheet on vaccine administration—were available for this launch as well. The campaign promoted the deployment of 1.5 million doses of vaccines to 20 provinces. This volume is in addition to the 300,000 doses which were earlier received by Cambodia from the government of France with ancillary equipment donated by USAID. Those at increased risk such as health care workers, pregnant women, children between 6 months and 24 months, and patients with severe lung disease were among the priority groups who received the H1N1 vaccine through the local health centers during this deployment.

Lao PDR: AED country representative (b)(6) worked with the government to prepare for and support the national H1N1 vaccine campaign, launched May 3 – 12, 2010 across 17 provinces in Lao PDR. Prime Minister (b)(6) made an official pronouncement of the campaign and mobilized the ministries of public health and public information to widely disseminate the information to target groups, including 18,000 health care workers. Pregnant women and people with chronic diseases were also among the priority groups, although the rate of vaccination among pregnant women was less than 29 percent; uptake over the other populations was more than 70 percent. Four approved communication materials developed by PREVENT to assist the government's H1N1 vaccine deployment were mass produced and distributed during health care worker trainings and the EPI's distribution of vaccine supplies (vaccine, syringes, safety boxes) prior to the launch.

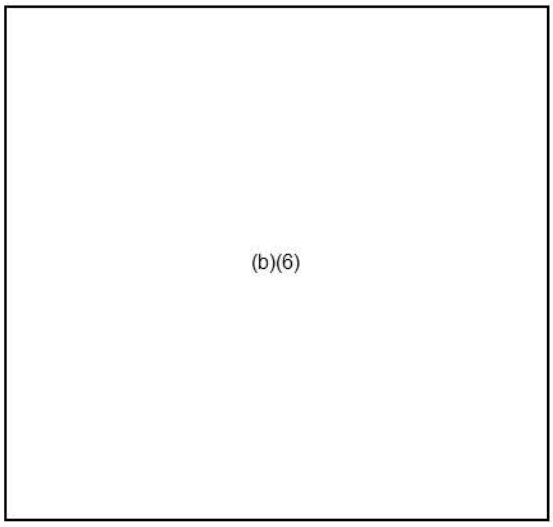


Lao H1N1 vaccination campaign

After this particular campaign, the government has requested from WHO an additional shipment of 400,000 doses.

Philippines:
The MOH launched its H1N1 vaccination deployment with health care workers in May 2010. Prior to the launch, PREVENT in-country consultant (b)(6) ensured that counseling print materials were approved by the MOH and distributed them during PREVENT interpersonal communication and vaccine orientation trainings for health care workers. Vaccinations of pregnant women, a secondary audience, were delayed by the MOH until July 2010.

Prior to the launch, AED set up a rapid response panel in the Philippines to monitor among health care workers the implementation of the H1N1 vaccination campaign and its communication materials efficacy and effectiveness. AED received approval and involvement from the Government of the Philippines to implement a mobile phone-based reporting system at the community-level among local clinics to collect information on how the H1N1 vaccination campaign would progress over time. The information was reported on a weekly basis and used to determine communication needs to further campaign activities. The panel participants were health care workers in Manila responsible for administering the vaccine for the H1N1 virus. PREVENT worked with the Philippines Department of Health (National Center for Disease Prevention and Control or NCDPC) to select six health centers and their health care workers in/around Metro Manila for involvement in the phone reporting system; questions for reporting were elicited from the National Center for Health Promotion (NCHP).



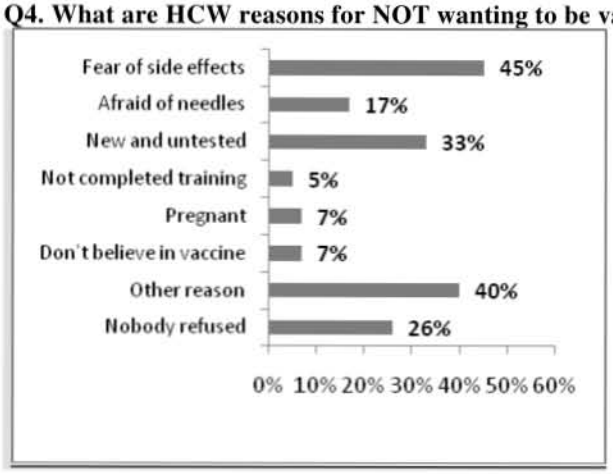
Philippine mobile phone panel of clinic HCWs

This extract below shows examples of what responses look like in their raw form based on single choice, number entry, and multiple choice:

Date	Time	IP Address	Submitted By (MSISDN)	What proportion of staff has been vaccinated so far?	How many staff are expected to be vaccinated in total?	How many staff at your clinic were vaccinated against H1N1 in the past 7 days?	What are the reasons for NOT wanting to be vaccin
2010-05-07			(b)(6)	Most	Most	310	Afraid of side effects, Afraid of needles or pain, Other reason
2010-05-07				All	All	11	Nobody refused
2010-05-07				Most	Most	29	Afraid of side effects, Afraid of needles or pain, Nobody refused
2010-05-07				Most	Most	28	Afraid of side effects, Afraid of needles or pain, Nobody refused
2010-05-07				About half	Most	192	Afraid of needles or pain
2010-05-07				Most	Most	29	Afraid of side effects, Afraid of needles or pain
2010-05-07				Just a few	All	3	Afraid of side effects, The vaccine is new and not tested yet, Other reason
2010-05-07				Most	All	17	Other reason
2010-05-07				Most	All	33	Other reason
2010-05-07				All	All	10	Nobody refused
2010-05-07				None	None		Afraid of side effects, The vaccine is new and not tested yet, Want to do the training first
2010-05-07				All	All	6	Nobody refused
2010-05-07				All	All	12	Nobody refused
2010-05-07				Most	Most	7	Afraid of side effects, Afraid of needles or pain, Pregnant, think it will harm their baby
2010-				Just a few	About half	2	Afraid of needles or pain, The vaccine is new and not tested yet,

Reports of this data and findings will be posted next quarter on http://h1n1vax.aed.org. An example of a report-out of findings follows:

Q4. What are HCW reasons for NOT wanting to be vaccinated? (Base: n=42 clinics)



Comment: Fear of side effects remains the main reason staff don't wish to be vaccinated. An attitude shift has occurred with less staff being afraid of needles and a larger proportion saying that the vaccine is still new and untested. Further communication to clinics on regarding safe testing may be needed as this information may also be relevant to convince patients.

Vietnam: In June 2010, AED Country Representative (b)(6) met with the MOH Communication Subcommittee of the National Steering Committee on Human Influenza to discuss the progress of the H1N1 flu vaccination campaign. The subcommittee includes chair (b)(6) and members (b)(6) Chief of the External Cooperation Division, MOH; (b)(6) EPI Team Leader of the National Institute of Health and Epidemiology (NIHE); (b)(6) of WHO; and (b)(6) of UNICEF. The status of the program is as follows:

- Since GSK has not responded to Vietnam's request for samples, the vaccine clinical trial, a necessary condition to the government's accepting the vaccine donation, has not yet started. Assuming the doses can be procured in July, the vaccination campaign can only be launched in September 2010 at the earliest since two months are required for clinical trial completion.
- The Vice-Minister of Health sent a letter to WHO informing them that the government will now only focus on health care workers (HCWs) and needs 200,000 vaccine doses instead of the 1.2 million initially requested.
- Considering the timeline, it would be important to discuss preparations for communication support since per the multi-sectoral meeting held last March 2010, it was agreed that preparations for communication and training can only commence once the clinical trial is underway.

PREVENT held a follow-up meeting with (b)(6) and (b)(6) and agreed that since the vaccine campaign will now only target HCWs, the previous communication plan will be revised. PREVENT will prepare a revised plan and propose draft communication materials which will mainly target HCWs. The group also agreed on the importance of providing correct information to the public about non-pharmaceutical interventions to prevent H1N1 since the virus is still circulating in the country. This will be included in the revised plan.

During this delay, in June 2010, PREVENT subcontracted the services of an in-country research agency to study Vietnamese lifestyles, values, concerns, and women's needs in regard to health care, livelihoods and food security as well as current barriers to an effective pandemic plan and response. Women are seen as having a major role and responsibilities to prevent and respond to emerging pandemics. As recipients of the vaccine and overall caregivers, they are key to assuring vaccination or non-pharmaceutical interventions in the home. The methodology comprised 36 individual in-depth interviews (IDIs), 6 FGDs, and 18 ethnographic interviews of women, influencers and stakeholders in provinces covering north, central and southern Vietnam. Key initial findings from the interviews:

- Communication messages should be put into family context in which the woman is the center; a happy family is a top concern

- Key messages should include respecting a woman's values: a happy family; bright future for children; fulfillment of her achievements in life (good mother, good wife, good worker)
- Women won't feel impact of an epidemic until they see the effects with their own eyes
- The local Women's Union and health care center staff play an important role in providing information and training in how to respond to an epidemic, especially in rural areas
- Raise more awareness on the threat of epidemics on food security and livelihoods since many women are not aware of the relationship

A final research report will be available for review, discussion, and possible application to the Vietnam H1N1 vaccination in July 2010.

Latin America

PREVENT in the last quarter translated its global H1N1 vaccine print and training materials into Spanish in order to pretest and introduce them in Central America under the guidance of USAID, WHO, and specific countries' USAID, PAHO, and MOH representatives. PREVENT consultant (b)(6) made visits to Nicaragua, Guatemala, and El Salvador, where materials were initially and thoroughly pretested. This quarter PREVENT sent (b)(6) to Paraguay quarter at the request of the USAID mission to attend country-level coordination and deployment meetings with USAID and country stakeholders, discuss and assess the communication strategy for the H1N1 vaccination program, and share vaccine communications materials recently pre-tested by PREVENT. The Government of Paraguay was in the process of completing its deployment and communication plan for the H1N1 vaccine campaign, which included an advertising campaign; such a campaign may be detrimental in the public setting since it may generate more demand than there would be vaccine doses. A mass media campaign would also not be cost-efficient for such a small, targeted audience which was to receive the vaccine. However, since the MOH was in process for finalizing its plans, it was unclear during the visit that the issue of a mass media campaign would be revisited. USAID's Health Officer (b)(6) agreed with PREVENT's input and was to discuss this with the MOH before their plans were finalized. (b)(6) was also going to follow up on a request from (b)(6) Communications Director for the MOH, for PREVENT to conduct a communications training workshop for the MOH's 18 Regional Directors in Asuncion, pending availability of mission funds.

Avian Influenza (AI)

PREVENT on-site AI technical assistance in Bangladesh and communication support in India came to an end this quarter, although further discussions with USAID/Dhaka may yield additional funding for continued AI work in Bangladesh in Quarter 4.

Bangladesh: PREVENT continued to work with FAO on their cleaning and disinfection (C&D) project involving 18 wet/live bird markets. PREVENT's in-country consultant (b)(6) provided input to FAO in developing a questionnaire for a rapid assessment

of the live bird markets. New customers, regular customers and stall owners were interviewed as part of the assessment and the findings were used to help FAO develop focused and structured messages for live births. (b)(6) assisted the communication unit in finalizing the checklist and reviewing the assessment's findings. Further work and funding on AI prevention communication in Bangladesh will be discussed in Quarter 4 with the USAID/Dhaka mission.

India: PREVENT completed its activities in India by supporting the airing of four 40-second public service announcements (aired 420 times) on radio stations in the states of West Bengal and Assam through an agreement with the local media agency Top Advertising. This radio campaign, ending April 11, 2010, complemented a concurrent community theatre and print material distribution that had been promoting the H1N1 vaccination rollout since February 2010.

PREVENT continues to maintain the AI website (http://avianflu.aed.org) containing updated AI materials and reports.

Humanitarian Pandemic Preparedness (H2P)

PREVENT continues to be an active partner of the H2P Initiative through its work on the H2P Operations Committee and Program Review Team (PRT), and by hosting and maintaining the H2P website. H2P activities in general have begun to decrease for all partners as the three-year program comes to an end in September 2010. PREVENT Technical Officer (b)(6) is active on the PRT by contributing to bi-weekly teleconferences, provided technical input to the IFRC consultants and via telephone with specialists in-country prior to and following country assessments, and reviewing documents and information collected from those visits. PREVENT also worked on the following:

- Revising materials that were created in response to the 2009 H1N1 Influenza Pandemic
- Providing H2P materials to the CORE Group's Health Curricula training in Ethiopia and Honduras
- Providing guidance in developing a single kit of H2P materials and in finalizing the Health Curricula, and putting it up on the H2P website.

(b)(6) plans to attend the July 2010 H2P Operations Committee and the H2P PRT meetings in Geneva, Switzerland. Bringing together H2P partners and representatives of UN agencies, these meetings will decide upon future H2P activities, including an end-of-project meeting September 2010 which will serve to disseminate PRT findings.

In April 2010, PREVENT Project Director (b)(6) and AED Country Representative/Vietnam (b)(6) attended the "International Ministerial Conference on Animal and Pandemic Influenza (IMCAPI): the Way Forward", held in Hanoi, Vietnam April 20 – 21, 2010. The conference was organized by Vietnam's Ministry of Agriculture and Rural Development (MARD) and Ministry of Health (MOH)

with support from the European Commission, USAID, Asian Development Bank, The World Bank and relevant UN system partners. Nora participated in the technical pre-conference meeting and shared her experiences as AI-BCC's country coordinator in Vietnam.

The purpose of IMCAPI was to 1) review progress with responses to HPAI H5N1, the H1N1 influenza pandemic, and other emerging global health threats; 2) agree on actions needed for both national governments and the global community to be ready to tackle these threats; and, 3) chart a way forward to ensure that these actions are addressed in ways that protect the health and well-being of the world's human and animal populations. The overall theme was Animal and Pandemic Influenza: A Framework for Sustaining Momentum. Discussions during the conference focused on three streams: prevent and control H5N1 HPAI; be ready to detect, assess and respond to influenza pandemics; and, ensure that control and response systems can address a broad range of emerging and existing disease threats through operating a One Health approach.

At the end of the conference, delegates adopted the Hanoi Declaration which encouraged countries and international partners to remain vigilant regarding emerging threats like H5N1 HPAI, H1N1 pandemic influenza, and other influenza viruses and continue efforts to control and eliminate H5N1 HPAI while working together to strengthen human and animal health care systems. The Declaration reaffirmed the critical role of communication "to promote understanding of the risk, policy direction and necessary prevention measures and to promote behavior changes."

AED organized an exhibit of communication materials from AI BCC and AI.COMM countries which was viewed by a large number of delegates. The exhibit was part of the USAID exhibit. AED showed video clips of TV spots on API from various countries and four poster presentations of accomplishments of the AI BCC, AI.COMM, H2P and PREVENT projects. Samples of materials and documents were also handed out to interested delegates. AED contributed ten success stories from our work in Vietnam, Laos and Cambodia; eight of these were among the 16 success stories included in the press kit given to journalists covering the conference:

- Field epidemiologists hone communication skills needed during outbreaks
- Using an integrated social marketing approach to battle avian and pandemic influenza outbreaks
- Hands-on training sessions help to educate first responders on how to protect themselves during avian and pandemic outbreaks
- Improving bio security in Lao PDR
- It takes a village: Village leaders bring their communities together to improve poultry raising practices and fend off avian influenza outbreaks
- Unlikely "Superhero" emerges in fight against bird flu
- Women lead the way: Lao Women's Union mobilizes communities to prevent avian influenza
- Provincial multi-media AHI campaign promotes "3 Good Things" in Vietnam

- AI communication materials reach their intended audiences in Vietnam villages: Provincial TV and radio campaign informs communities on mass poultry vaccination changes in Vietnam
- Cadre of trained AHI communicators reaches wide audience with AHI messages in Vietnam



(b)(6)

PREVENT Exhibit at International Ministerial Conference on Animal and Pandemic Influenza (IMCAPI): the Way Forward

As part of the AED exhibit for the 2010 Global Health Council annual international conference held from 14-18 June in Washington, DC, PREVENT provided avian and pandemic influenza materials. AED was one of over 100 exhibitors at the conference, with over 2000 attendees representing the diverse array of global health professionals. The theme of this year's conference was Dateline 2010: Global Health Goals and Metrics.

Success stories are found on the http://avianflu.aed.org website or at the following link http://avianflu.aed.org/whitepapers.htm. In addition, posters with information on PREVENT, H2P, AI.COMM and AI-BCC were created for the IMCAPI exhibit and materials from each of these projects were provided for distribution to participants.

AED has continued to maintain and manage the H2P website and will continue to do so through December 2010 (as directed by PREVENT's USAID AOTR), at which time the utility of the website will be reassessed. During April – June 2010, the website received nearly 1,000 visits (of which 63 percent were new visitors) from 92 countries/territories, including the U.S., Indonesia, Philippines, Switzerland, Thailand, South Africa, India, Canada, Kenya, and the United Kingdom. Updated versions of the H2P training curriculum (finalized by the IFRC) for District leaders and Community Volunteers have been posted to the H2P website (www.pandemicpreparedness.org).

USAID/Ukraine buy-in

USAID/Ukraine set aside $130,000 for PREVENT to support UNICEF/Ukraine's public information campaign work in response to the H1N1 outbreak in Ukraine. The Government of Ukraine requested that the UN system support restoring public trust in vaccinations in general; conduct a comprehensive, evidence-based campaign on the

importance and use of the H1N1 vaccine; and strengthen the capacity of national healthcare workers in close coordination with the UNICEF immunization program.

UNICEF/Ukraine activities will include the following:

- Outdoor media (bill boards, city lights, posters/light boxes in metro) will target the general population (roughly 2 million people). Distribution will be done in partnership with Association of Outdoor Advertising of Ukraine (Memorandum of Understanding between the Association and UNICEF Ukraine was to be signed by the end of February 2010).
- Posters and leaflets targeting 3 million school-aged children will be disseminated in partnership with Ministry of Health and Ministry of Education and Science of Ukraine.
- Radio and video/TV public service announcements (PSAs) will target the general population and specific at-risk groups in all urban and some rural areas, and through web resources targeting youth and the urban population. PSAs will be disseminated in partnership with Ministry of Health and other national partners.
- Media outreach and orientations (workshops, interviews, articles) will be conducted national media representatives.

Project preparation is scheduled for April – July 2010, with distribution, air time, and workshops set up for August – December 2010.

With a SOW and budget developed and approved by UNICEF/Ukraine, US Fund for UNICEF/NY, and AED, we submitted a $100,000 Grant to Public International Organization (PIO) agreement to the USAID Agreement Officer for review and approval on April 22, 2010. The remaining $30,000 of the USAID/Ukraine buy-in was to cover AED technical and administrative staff providing initial level of effort to guide UNICEF/Ukraine's development of its SOW and budget, any follow-up technical assistance or training needed by UNICEF/Ukraine as it implemented its plan, and AED overhead associated with the agreement's administration.

During this quarter, no response was received from the USAID AO to several inquiries from AED and PREVENT's AOTR regarding its review and approval of the agreement. We expect some manner of decision and guidance from the USAID AO and our AOTR in the next quarter.

Financial Summary

A financial report that covers project expenditures April 1 – June 30, 2010 is enclosed under a separate attachment. As of June 30, 2010, PREVENT has paid out (b)(4)

(b)(4)

Cost Share

Also attached is PREVENT's spreadsheet summary of its cost-sharing successes and challenges. Based on the current obligation from USAID, PREVENT's cost-share goal is (b)(4). Through June 30, 2010, PREVENT submitted to AED for approval a cost share valued at (b)(4). These included the following:

- Ministry of Health/Togo contributed their staff time, venue, and audiovisual equipment during meetings in Lome December 2009 and April 2010 regarding H1N1 vaccine rollout communication strategy development meetings with WHO and PREVENT
- WHO/Togo contributed venue costs during meetings in Lome December 2009 with the MOH/Togo, PREVENT, and other stakeholders
- Espace Technologie/Togo, a private-sector printing agency in Lome, contributed the production costs of printing H1N1 vaccine health care worker counseling and product management materials December 2009.

The total cost share submitted to AED for approval through June 30, 2010 is (b)(4) (b)(4)

PREVENT continues to document and identify new cost share opportunities. We expect to document about (b)(4) worth of printing and training costs related to the H1N1 vaccination roll-out in Azerbaijan sponsored by UNICEF, UNHCR, and WHO. PREVENT will also begin to seek cost share from research activities under its EPT pylon.

AED
Ideas Changing Lives

PREVENT

Global Avian Influenza and Zoonotic
Behavior Change and Communication
Support Activity

Implemented by AED

Quarterly Report
July 1 – September 30, 2010

Submitted To
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

October 15, 2010

PREVENT
Quarterly Report
July 1 – September 30, 2010

INTRODUCTION

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No.: GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT originally began with four USAID "pylons" or areas of focus: emerging pandemic threats (EPT); avian influenza (AI); H1N1/pandemic influenza; and Humanitarian Pandemic Preparedness (H2P). PREVENT also received funds from USAID/Ukraine to work with UNICEF/Ukraine on H1N1 communication activities.

During the July 1 – September 30, 2010 time period:

- USAID requested all EPT partners to initiate work plan and budget development for the July 1, 2010 – September 30, 2011 (Year Two) time period. As part of this request, USAID reconfigured PREVENT's original areas of focus (and budgeting) as follows:
    - EPT would receive the majority of funding in Year Two for activities conducted predominantly in the Congo and Mekong Basin areas and South Asia.
    - AI activities would continue in Bangladesh only, although USAID was examining the possibility of additional AI PREVENT work in Egypt.
    - H1N1/pandemic influenza activities, particularly the country-level communications support of WHO H1N1 vaccine deployment, would not be funded past September 30, 2010.
    - The H2P initiative, coming to an end September 30, 2010, would merit follow-up technical assistance to support a lessons-learned research and advocacy activity towards a Spring 2011 global meeting on pandemic preparedness and response (to be hosted by the World Food Programme).
    - AFENET (Africa Field Epidemiology Network) would become its own area of focus with a dedicated budget for PREVENT to support and promote AFENET's communications capabilities starting in Year Two.
    - PREVENT would continue to try to finalize an agreement with UNICEF/Kiev to support pandemic communication efforts there.
- PREVENT/EPT focused on furthering USAID's EPT collaboration and advocacy efforts, initiating formative research in Cameroon, finalizing plans to provide

technical assistance in Bangladesh surrounding Nipah virus transmission, and preparing for a scoping visit to Gabon.

- AI activities centered on Bangladesh where PREVENT worked with USAID/Bangladesh, the Government of Bangladesh, and eight other Avian and Pandemic Influenza partners (including Stop AI and Deliver) to plan and prepare for a final lessons learned workshop (to be conducted October 13, 2010).
- H1N1/pandemic work ceased September 30, 2010 with the end of the WHO H1N1 vaccine deployment. PREVENT work in Lao, the Philippines, Vietnam, and Nepal ended as well (the Lao and Philippines deployments were completed; in Vietnam and Nepal, the deployments were cancelled by the governments).
- The H2P initiative ended September 30, 2010; throughout the quarter, PREVENT was fully engaged providing technical input to the H2P Operations Committee and Program Review Team (PRT), and continued to update and maintain the H2P website (www.pandemicpreparedness.org).
- Despite further communication with the USAID AO and USAID/Kiev, no progress was made in the USAID AO's review and approval a $100,000 Grant-to-PIO agreement with the US Funds for UNICEF/New York in support of UNICEF/Ukraine's pandemic prevention communication efforts.

Emerging Pandemic Threats (EPT)

USAID EPT collaboration: AED participated at the two USAID EPT quarterly meetings (July and September 2010) where work plan development for Year Two was initiated to cover the July 2010 – September 2011 time period. PREVENT Technical Director (b)(6) (b)(6) led the PREVENT team of AED technical and BCC specialists (b)(6) (b)(6), and GVFInc program coordinator (b)(6) (who also serves as our liaison with PREDICT's work plan efforts) to develop comprehensive work plans covering global, regional (Congo and Mekong basins, South Asia), and country-specific activities (primarily Cameroon, DRC, Gabon, Republic of Congo, Laos, Vietnam, Bangladesh). USAID will be synthesizing EPT partners' work plans for priority countries (e.g., Vietnam, DRC) in order to inform and advocate EPT goals and activities with those countries' USAID missions.

In conjunction with the July 2010 quarterly meeting, PREVENT organized a social scientist meeting with specialists from PREDICT and RESPOND to begin to develop collaborative and complementary agendas, to better understand each of our fundamental approaches, and to plan out where we geographically would be working. Topics of discussion included data collection (instruments and how to include each others' questions in sampling; strategies for using and sharing Institutional Review Board requests); risk reduction frameworks; social factor inputs for modeling; commonalities and divergence of public health and conservation program approaches. Besides AED and GVFInc staff mentioned above, participants included (b)(6) from PREDICT/WCS, (b)(6) from PREDICT/EcoHealth Alliance, and (b)(6) from RESPOND/Tufts University.

Finally, in preparation for USAID EPT's coming launch of work in the Mekong Basin (Vietnam, Lao), PREVENT added Research and Program Officer (b)(6) to its team at AED HQ as the South/Southeast Asia coordinator, began to focus on adding AED research and program personnel in the region, and initiated discussions with Wildlife Conservation Society (WCS) to work more formally with AED, particularly in wildlife market research.

Cameroon: PREVENT initiated its formative research efforts in Cameroon by competitively awarding a formative research contract to White Dove, an in-country research agency. Starting October 2010, White Dove with PREVENT oversight will conduct a variety of qualitative and participatory methods as well as censuses of adults in two villages to determine people's behaviors related to hunting, preparation, consumption and other exposure to bush meat and the factors motivating those behaviors. The goal is to develop an evidence base for identifying appropriate interventions and messages to decrease transmission of infections from bush meat. PREVENT received IRB approval both in Cameroon and the U.S. to conduct this study. AED and GVFInc began finalizing research protocols and instruments and planned a joint visit to Cameroon (to occur early October 2010) to pretest questionnaires and train local survey personnel in conducting the interviews.

Gabon: PREVENT began preparations for a scoping visit (to be conducted in mid October 2010) by Technical Director (b)(6) and GVFInc Program Coordinator (b)(6) to meet with (b)(6) and his team at the Institut de Recherche pour le Développement/Franceville (IRD) and with the Centre International de Recherches Médicales de Franceville (CIRMF) to discuss collaboration. This would include the assessment of social and behavioral factors that might affect exposure to emerging infections and ethnography of populations with high exposure to bats. PREVENT was also planning to conduct a field visit with IRD to the north of Gabon, most notably in the Belinga region, where IRD is beginning work sampling bats, rodents and arthropods in caves, and where the anticipated initiation of mining activities is likely to affect bats and animal-human interactions.

Bangladesh: PREVENT initiated a collaboration with ICDDR,B--(b)(6) and the team he heads (Programme for Infectious Disease & Vaccine Sciences)--to refine and implement an intervention to reduce transmission of Nipah virus by increasing the use of "*banas*" which can protect data palm sap from contamination by bats. AED Sr. Technical Officer (b)(6) arrived in Dhaka late September to begin work with the ICDDR,B team to systematically review their pilot intervention from a behavior change perspective, and begin to develop a district-scale intervention. Activities during this trip (which will stretch into October 2010) include reviewing relevant data to identify (1) information gaps, particularly with respect to different audiences (tree owners, sap collectors, buyers/consolidators, consumers); (2) possible barriers and promoting factors for behavior change; and (3) need to design key informant interviews to obtain additional information. AED Sr. BCC Advisor (b)(6) would provide TA in early October to begin to develop with ICDDR, B an intervention plan.

EPT program web workspace: PREVENT continued to maintain and monitor the EPT program web workspace (https://eptprogram.basecamphq.com/login (password-protected) which allows EPT CA partners to share contact lists, draft trip reports, documents, travel schedules, calendars of events, meeting minutes, quarterly reports, work plans, and country context information. PREVENT created a public home page (http://www.avianflu.aed.org/eptprogram/) for the EPT program website that hosts photos, an EPT program overview brochure, and one page descriptions of the four projects (PREDICT, IDENTIFY, PREVENT, RESPOND). There is a link on this public page to the internal EPT program web workspace. Next quarter, a survey by USAID will be sent to EPT partners to elicit guidance on shaping the site's objectives and utility.



EPT Program public home page

AFENET (African Field Epidemiology Network)

AED under the USAID-funded AI.COMM Project provided technical assistance in public affairs and communication to AFENET in 2008-09 to 1) further heighten the visibility of AFENET among critical decision-makers regarding avian and pandemic influenza prevention, response, and control; 2) continue to establish AFENET as the "go-to" organization for accurate and credible information on communicable disease, field epidemiology, and other related public health topics throughout Africa; and 3) strengthen AFENET's public affairs function and office within the AFENET structure to conduct outreach on its technical activities, and to respond to requests for assistance.

Under PREVENT, USAID has asked that we continue to support the public affairs and communication activities of AFENET in Year Two. During this quarter, PREVENT developed a concept brief to frame that support based on discussions with USAID/GH, a review of AFENET's draft "Strategic Plan 2010-2014", and through discussions with and input from AFENET. One of the first tasks to be conducted in Year Two by AFENET and PREVENT will be a joint exercise to finalize a strategic communication plan that maps out activities, resources, budgets, and roles/responsibilities of AFENET, PREVENT, and other stakeholders (e.g., CDC).

Suggested activities will include the following:

Technical Assistance

- With AFENET stakeholders, develop a strategic communication plan that fits well with AFENET's five-year Strategic Plan.
- Identify a senior Public Affairs Officer (AED consultant or AED employee) to sit at AFENET Headquarters. S/he would provide technical direction to the AFENET Public Affairs staff in establishing an effective, sustainable PA Office that supports advocacy, public relations, strategic planning, message and material development, and community outreach.
- Work with AFENET on the strategic thinking, design, and oversight of a credible and recognized brand identity for AFENET. This entails positioning and placement of the organization in a regional and international setting.
- Review and manage the development of written materials and branding materials for accuracy, credibility, creativity, and quality assurance.

Capacity Building

- Institutionalize the Applied Communication Training Module as part of the regular capacity building offerings by AFENET for its member programs (e.g., continuing education credit program).
- Institutionalize the risk management training for AFENET member programs.
- Institutionalize standards and guidelines on how to manage an effective public affairs office – standards and procedures, chain of command for approval and vetting, training spokespeople and experts, messaging, and quality assurance.
- Conduct general media training for identified spokespeople – how to be comfortable talking to the media and other public audiences; techniques and general information messages about AFENET.
- Conduct media training for spokespeople on specific public health issues, i.e., dengue, malaria, H5N1 virus, ebola, in preparation for outbreaks and public health emergencies.
- Conduct refresher sessions and advanced seminars on applied communication and media training (semi-annually)
- Offer in-service training on specific public health issues to keep network informed and current on science, health status, and prevention measures.

Risk Management

- Develop risk communication strategy that fits the AFENET situation and relevant public health issues.
- Create a risk communication management team within AFENET to deal with the media, stakeholders, and general public. The team would include its PA officer, medical expert/field epidemiologist, liaison with governments, UN, and donors, press officer (media relations), and writer. Prepare and practice implementing the plan.

- Design talking points for outbreaks and epidemics; continually update talking points to reflect new information (science and epidemiology) and media training for spokespeople on finer points.

Public Affairs and Public Education

The Public Affairs office will have several responsibilities including keeping the general public and stakeholders informed about public health issues of interest, including preventive measures that individuals and communities can adopt to reduce health risks; responding to general inquiries from the public and stakeholders; and managing internal communication among AFENET and its members.

Public Education

- Design low-cost and simple-to-implement public outreach and public education programs on public health issues. The focus would be on prevention and best practices to reduce health risk. Includes materials for health clinics (public and private), schools, community organizations, and governments and private sector.
- Establish a Speakers Program led by an epidemiologist to address schools, business round tables, and donor and NGO meetings to present current information and data on specific health issues that are in the news or are of interest to a community.

Media Relations

- Establish working relationships with the local and regional media. Includes media placement of print and broadcast news stories (features, science, and news); stories to introduce AFENET; discussions about current health issues, prevention practices; press conferences about public health situations; editorial board meetings with local, national, and regional press on AFENET and its role in public health.
- Support AFENET spokespeople and medical experts to respond to outbreaks or news related to a public health issue.

Public Relations

- Write and distribute press releases; host and sponsor events including workshops and site visits.

Message and Material Development

- Working with the stakeholders and public affairs team to develop AFENET materials that position and brand AFENET for the press and donors and other stakeholders.
- Develop teachers' guides and health care worker guides/job aids on specific health issues that can be used in schools, clinics, and private sector.
- Support AFENET's website with current information and include interactive materials and information.

- Reporting and documentation of field work using new technologies, SMS, texting, flip videos, mobile phones to document investigations, findings, new development, dissemination of information and data.

Branding and Positioning

- Include AFENET branding in materials development, technical assistance, media placement, and public relations.

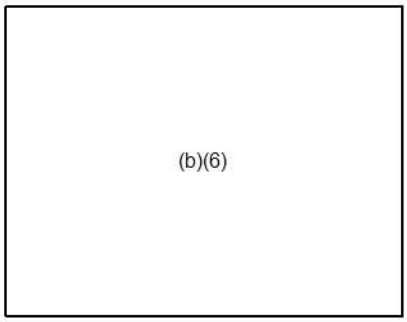
The initial strategic communication plan to be developed by PREVENT and AFENET will explore how PREVENT's support of AFENET will be provided, and may include the following conduits:

- Technical assistance provided to AFENET by AED staff and consultants working side by side with AFENET staff to conduct strategic planning, training, technical assistance, and materials development.
- Secondment to AFENET of an AED consultant or staff (with a plan by AFENET to absorb and staff the position over time) to provide technical direction, input, and management of a public affairs office and function.
- Subcontract to AFENET to provide funding for activities described below and expected to be conducted by AFENET.

H1N1/Pandemic

Based on USAID guidance, PREVENT's provision of communication technical assistance, training, and print materials for the launch of the WHO H1N1 vaccine deployment initiative (since late 2009) was curtailed to end September 30, 2010. This quarter found PREVENT providing only TA and BCC materials support to the deployment efforts in Lao and the Philippines, and the planning efforts in Nepal and Vietnam (Nepal and Vietnam subsequently cancelled their deployment of the H1N1 vaccine).

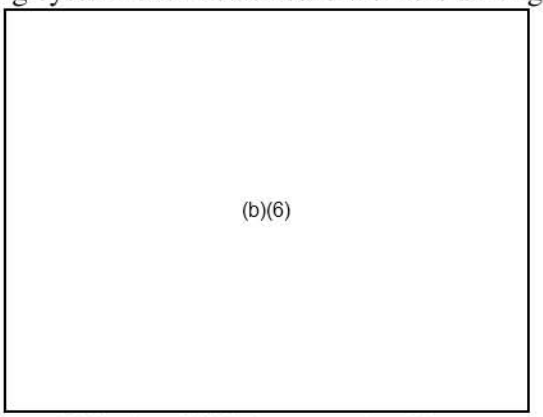
Lao PDR: AED through its Lao country representative Cecile Lantican provided additional materials (posters and leaflets) to the National Centre for Mother and Child Health's Expanded Program of Immunization which managed the distribution of vaccines (400,000 doses) to provincial health departments throughout the country in August 2010.



Lao H1N1 vaccination campaign

Philippines: The Government of the Philippines finished its training of regional health officials on the administration of the GSK adjuvant H1N1 vaccine in September 2010 (the second wave of deployment). Towards this end, PREVENT translated and distributed the Vaccination Announcement Poster and the Frequently Asked Questions Brochure in six languages (Cebuano, Waray, Hiligaynon, Ilocano, Ilonggo, and Tagalog).

In conjunction with the Philippines' initial wave of vaccine deployment this past May 2010, AED with involvement from the Government of the Philippines had been implementing a mobile phone-based reporting system with health care workers among six local clinics in/around Metro Manila to collect information on how the H1N1 vaccination campaign was progressing. The information was reported on a weekly basis and used to determine communication needs to further campaign activities. The final wave of reporting was conducted July 23, 2010. Reports of this data and findings will be posted on http://h1n1vax.aed.org.

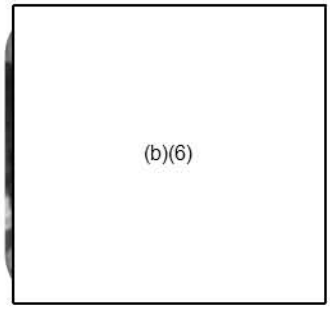


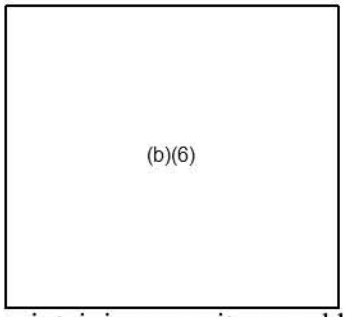
Philippines HCW phone panel training

Nepal: The Government of Nepal unexpectedly cancelled its H1N1 vaccine deployment in September 2010 (due to concerns about possible, albeit rare, vaccine side effects). In preparation of the deployment, PREVENT did translate and format into Nepali four materials (fact sheet for stakeholders; poster of vaccination fact sheet; job aid for health workers; booklet of questions and answers). These products were not printed, but are available at http://h1n1vax.aed.org/pharmaceutical/#nepal and http://www.avianflu.aed.org/H1N1.htm.

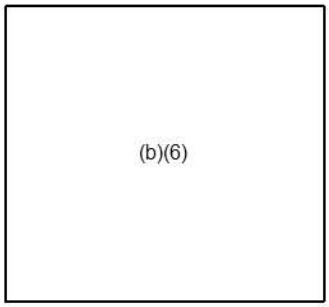
Vietnam:
Despite great strides by the Government of Vietnam to plan and prepare for their deployment of the H1N1 vaccine in June 2010, the deployment was ultimately cancelled; the required in-country clinical trial of the vaccine did not occur since the MOH was unable to access the needed vaccine samples from the vaccine manufacturer.

PREVENT's women-centered pandemic preparedness formative research was finished during the quarter. The research looked into Vietnamese values, concerns, and women's needs in regard to health care, livelihoods and food security as well as current barriers to an effective pandemic plan and response. The methodology comprised 36 individual in-depth interviews (IDIs), 6 FGDs, and 18 ethnographic interviews of women aged 25-45 years, their husbands, mothers-in-law and/or friends and stakeholders (women's union and health officials) in five provinces covering north, central and southern Vietnam. AED/Vietnam's Country Coordinator (b)(6) and a research consultant from within the region worked with the in-country research agency to develop the analytical framework and review findings from this research, which include the following:





- Motivations of women mainly focus on fulfilling basic needs and maintaining smooth personal relationships of their families. Among younger, working women in urban areas, however, motivation for self-growth is just emerging and is more prevalent.
- Women perceive their health role as providing fresh and nutritious food for the family and maintaining a sanitary and hygienic household. However, observations from ethnographic interviews of women reveal that claimed practices regarding sanitation and hygiene are not necessarily up to recommended public health standards, especially in rural areas.
- Women take responsibility for preventive and other health-related practices in the family. However, women initiate practices to prevent infectious diseases only when they receive information through mass media or government channels that the disease (e.g. dengue, cholera) is occurring.
- Women have insufficient knowledge and understanding of public health, pandemic issues and prevention measures. They are confused about what are H1N1 and H5N1. They believe that they and their families are not at risk for epidemic or pandemic diseases and think that these diseases can only affect those most at-risk e.g., H5N1 among those involved in the poultry sector.



The final research report will be made available next quarter.

Avian Influenza (AI)

PREVENT's AI efforts this quarter focused on coming to closure with its AI prevention communication work in Bangladesh, and possibly starting up similar efforts in Egypt in Year Two.

Bangladesh: PREVENT worked with USAID/Bangladesh, the Government of Bangladesh and eight Avian and Pandemic Influenza partners (including Stop AI and Deliver) to plan and prepare for a final lessons learned workshop, "USAID/Bangladesh Lessons Learned and Dissemination Workshop: H N (to be conducted October 13, 2010). Representatives from key ministries of the Government of Bangladesh, WHO, FAO, UNICEF, and local NGOs are expected to present and discuss the past four years of avian influenza prevention and response achievements and challenges. PREVENT will also be exploring additional AI prevention communication activities with USAID/Bangladesh which USAID had specifically budgeted for to occur in Year Two.

Egypt: USAID is exploring the possibility of AED (initially through PREVENT) continuing the country's AI prevention communication efforts in 2011. An exploratory

visit to Egypt by USAID/GH and by PREVENT (to be conducted in November 2010) was discussed. PREVENT began to collect CVs of possible in-country consultants to participate in such a visit, and printed 100 copies of the six core AI communication materials in Arabic for the mission:

- Avian Influenza - How to Protect Yourself and Your Animals: A Guide for Farmers
- Culling for Avian Influenza Containment: A Planning Guide for Government Officials
- Avian Influenza: A Guide for Health Care Workers
- Avian Influenza: A Guide for Health Care Administrators
- Culling for Avian Influenza Containment: A Planning Guide for Poultry Culling Supervisors
- Avian Influenza: A Guide for People Who Supervise Poultry Vaccination







PREVENT continues to maintain the AI website (http://avianflu.aed.org) containing updated AI materials and reports.

Humanitarian Pandemic Preparedness (H2P)

PREVENT Technical Officer (b)(6) traveled to Geneva, Switzerland in July 2010 to participate in the last H2P Operations Committee meeting and in an H2P Program Review Team working meeting. The PRT working meeting brought together PRT members and the IFRC-hired consultants over a period of three days to analyze the data collected from the global interviews, country visits, and global national society survey. Key findings and conclusions were highlighted. This information was compiled and used by the IFRC consultants to produce a summary report, executive summary, discussion starter, and a "meeting in the box". (b)(6) provided review, technical editing, and guidance to finalize the product by the IFRC and PRT members.

The Operations Committee met to plan for an end-of-program meeting to be held in Washington, DC September 2010. Also, members gave updates on how the work would be maintained within their individual organizations and through their main focal points. (b)(6) (USAID) briefed the group on a USAID-funded, UN-led global research activity and subsequent meeting on pandemic preparedness (i.e., "Toward a

Safer World"). He indicated that the meeting would be hosted by the World Food Programme in Rome, Italy tentatively April 2011 to demonstrate how the world is better off today as a result of pandemic preparedness and its application through a whole-of-society approach. Furthermore, USAID asked that AED provide technical support on public relations and communications towards these endeavors.

On September 27, 2010 AED hosted the H2P End-of-Program meeting with 40 representatives from partner organizations and USAID, including IFRC, CORE Group, InterAction, and the UN. The meeting highlighted achievements over the last three years by H2P – including a presentation by (b)(6) on the H2P website traffic and patterns. The meeting also highlighted issues regarding partnership and the way forward regarding pandemic preparedness within the humanitarian community. The lunch keynote speaker was (b)(6) AED provided materials and produced one-pagers summarizing partners' work over the life of H2P.

With regards to planning toward the tentative April 2011 "Toward a Safer World" meeting, AED is working with its subcontractor G6 Partners to establish a working strategy to provide assistance in public relations and communication. PREVENT Project Director (b)(6) and G6 Partners (b)(6) attended a high-level meeting in Washington on September 28, 2010, hosted by USAID's (b)(6) (b)(6) and the UN Chief for Influenza Coordination, (b)(6) The meeting laid out the framework, goal and objectives for the next few months leading to the Rome, Italy 2011 meeting. Nine subgroups based on specific topics (including communication, private sector, civil-military coordination, etc.) were established that will carry out research on pandemic preparedness. AED will lead the communication subgroup and is working to establish a methodology for information collection and analysis.

Finally, AED has continued to maintain and manage the H2P website (http://www.pandemicpreparedness.org) and will continue to do so through December 2010 (as directed by PREVENT's USAID AOTR), at which time the utility of the website will be reassessed. During July - September 2010, the website received 819 visits (down from 1,000 visits last quarter), of which 64 percent were new visitors from 76 countries/territories, including the U.S., Thailand, Switzerland, Indonesia, Philippines, Honduras, South Africa, Vietnam, Ethiopia, and Israel.

USAID/Ukraine buy-in

AED, with UNICEF/Ukraine input and US Fund for UNICEF concurrence, submitted a $100,000 Grant to Public International Organization (PIO) agreement to the USAID Agreement Officer for review and approval on April 22, 2010 (Year One, Quarter 3). Since then, no response has been received from the USAID AO, even after numerous written and verbal inquiries from AED and PREVENT's USAID AOTR regarding its review and approval of the agreement. AED and PREVENT's USAID AOTR need to have the USAID AO come to some decision in Year Two.

USAID/Ukraine set aside in Year One $130,000 for PREVENT to support UNICEF/Ukraine's public information campaign work in response to the H1N1 outbreak in Ukraine. The Government of Ukraine requested that the UN system support restoring public trust in vaccinations in general, and strengthen the capacity of national healthcare workers in close coordination with UNICEF immunization programs.

UNICEF/Ukraine activities were to include mass media for the general population, targeted print materials and messages to school-age children, TV/radio public service announcements for youth and urban populations, and media orientations for national media representatives. AED was to provide limited TA and training as needed.

Financial Summary

A financial report that covers project expenditures July 1 – September 30, 2010 is enclosed under a separate attachment. As of September 30, 2010, PREVENT has paid

(b)(4)

AED
Ideas Changing Lives

PREVENT

Global Avian Influenza and Zoonotic
Behavior Change and Communication
Support Activity

Implemented by AED

Quarterly Report
October 1 – December 31, 2010

Submitted To
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

January 14, 2011

PREVENT
Quarterly Report
October 1 – December 31, 2010

INTRODUCTION

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No.: GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenza. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT is currently focusing on emerging pandemic threats (EPT) predominantly in the Congo and Mekong Basin areas; avian influenza (AI) in Bangladesh; Humanitarian Pandemic Preparedness (H2P) in the context of the "Towards a Safer World" initiative; and supporting the communications capacity of AFENET (Africa Field Epidemiology Network) in Uganda.

During the October 1 – December 31, 2010 time period:

- USAID approved PREVENT's Year Two work plan and budget, and provided $11.75 million in new funds to PREVENT.
- PREVENT/EPT focused on furthering USAID's EPT collaboration and advocacy efforts in southeast Asia and DRC; collecting and analyzing formative research with GVFInc in Cameroon; providing technical assistance to ICDDR, B in Bangladesh with regards to developing a communications plan promoting the prevention of Nipah virus transmission; conducting a scoping visit with GVFInc to Gabon.
- PREVENT worked with USAID/Bangladesh, the Government of Bangladesh, and eight other Avian and Pandemic Influenza partners to plan and facilitate a final lessons learned workshop, conducted October 13, 2010; and conducted follow-up development of an AI work plan for 2011.
- The Humanitarian Pandemic Preparedness (H2P) Initiative ended in September 2010, and AED shifted work to the USAID-funded Towards a Safer World (TASW) Initiative as the primary communication partner in providing public relations guidance and research for communication in pandemic influenza preparedness and response.
- Despite further communication with the USAID AO and USAID/Kiev, no progress was made in the USAID AO's review and approval a $100,000 Grant-to-PIO agreement with the U.S. Fund for UNICEF/New York in support of UNICEF/Ukraine's pandemic prevention communication efforts.

Emerging Pandemic Threats (EPT)

Bangladesh: PREVENT is collaborating with (b)(6) and his team at ICDDR,B to develop and implement an intervention to reduce transmission of Nipah virus by increasing the use of *banas* or "skirts." *Banas* can protect data palm sap from contamination by bats (about 50 percent of all cases of Nipah and 75 to 80 percent of primary transmission is related to peoples' drinking contaminated sap). In early October, (b)(6) and (b)(6) traveled to Bangladesh to work with ICDDR,B to review relevant data, and identify information gaps, possible barriers and promoting factors for behavior change. During their visit they drafted an implementation plan, helped plan the final behavior trials, and began the process of identifying in-country resource agencies and consultants. PREVENT and ICDDR,B are currently working out the details of a contracting mechanism that will support both research and a district-wide intervention to reduce Nipah virus through the use of *banas*.

Cameroon: In early October, (b)(6) and (b)(6) GVFInc, traveled to Cameroon for a formal introduction with the USAID coordinator and to discuss Mission interests and expectations. In addition, the team worked with the in-country research agency, White Dove Company, to finalize plans and train interviewers for a formative research study on the context, importance, and perceptions of bushmeat hunting and food preparation practices. Results of the study will be used to improve and expand GVFInc's Healthy Hunter community outreach and education intervention. White Dove Company completed the study in early December. Currently, under the leadership of Lonna Shafritz, White Dove Company and PREVENT staff are analyzing the data.

Gabon: (b)(6) and (b)(6) GVFInc, conducted a scoping visit from October 10 – 22 (in conjunction with (b)(6) and (b)(6) who were traveling for PREDICT) to identify possible PREVENT work plan activities in Gabon for year two. Two specific activities under consideration are (1) developing an intervention to reduce risk of transmission of pathogens from bats to humans in a setting where bats are an integral part of the culture and (2) conducting formative research for policy/managerial interventions to reduce EPT exposure among mine and dam workers near Belinga.



The team also met with U.S. Embassy staff who were helpful in recommending and coordinating appointments with other key stakeholders: Wildlife Conservation Society, Aventures Sans Frontieres, Brainforest, and World Wildlife Federation, as well as with (b)(6), who worked from the now-closed Projet Gibier. In addition, while in Libreville, the team met with the National Parks

Service. A key finding from the meetings with the Embassy and Brainforest is that the Belinga mining activity is on hold; however, there are many other extractive industry activities – mining and logging – occurring in Gabon that may afford opportunities.

In the year two work plan, PREVENT proposed working with the International Center for Medical Research (CIRMF) in Franceville. CIRMF, the national reference laboratory for emerging viruses and part of the Gabon Ministry of Health, is a long-time partner with GVFInc. in sampling and testing for emerging viruses. The PREVENT team met with (b)(6) (b)(6) Director of the Emerging Viral Pathology Department and joined (b)(6), CIRMF Field Sampling Coordinator, during a bat sampling mission in the Belinga region. During this time (b)(6) and (b)(6) conducted interviews of villagers near Belinga, in Mayibout II, Mbondo, and Zadie. They found that the villages are small and diverse. Many villagers come from elsewhere to look for gold; those who are gold miners tend to buy food rather than hunt.

(b)(6)

In Franceville the team also visited GANFF, a Belgian company working with the Ministry of Energy to oversee a Chinese construction company building a hydroelectric dam at Poubara Falls and learned about working conditions there.

(b)(6)

Malaysia: (b)(6) attended the PREDICT annual partners conference in Malaysia from November 14 – 19. PREVENT's presence at the meeting allowed for information sharing, planning and coordination of PREDICT and PREVENT activities globally.

Thailand: (b)(6) and (b)(6) traveled to Bangkok, Thailand from November 8 – 12 to meet with USAID/RDMA to discuss regional activities and to work with AED/Bangkok staff to interview candidates for several PREVENT positions. They also met with RESPOND to discuss regional activities.

(b)(6) and (b)(6) met with (b)(6) and Dr. (b)(6) of FAO. (b)(6) is currently setting up a price monitoring

activity for livestock at a Thailand-Laos border area that seems to be a gateway route to Vietnam. The aim is to apply FAO's experience and understand implications for monitoring prices of wildlife. FAO has yet to implement the activity, but agreed to share lessons learned. PREVENT has proposed price monitoring in areas near borders to explore cross-border price fluctuations as potential indicators for predicting/monitoring wildlife animal trade.

(b)(6) at USAID/RDMA recommended that PREVENT staff speak to (b)(6), a local wild animal expert, while in Bangkok. The goal of the meeting was to apprise (b)(6) (b)(6) of PREVENT activities occurring regionally and utilize his knowledge to inform those activities. The outcome of the meeting was an open door to future collaboration.

In conjunction with other on-going activities, a pretest of PREVENT's wild animal consumption questionnaire was conducted in Bangkok for inclusion in an omnibus survey next quarter.

Vietnam: (b)(6) attended the Vietnam EPT launch and participated in the review of the coordinated EPT partner country-level work plan from October 18 – 21, 2010.

Global: (b)(6) and PREVENT consultant, (b)(6) traveled to EcoHealth Alliance's office in New York City to discuss development of a survey approach for estimating human-animal contact rates in a variety of settings. The group agreed to work on developing a protocol for a study, with (b)(6) taking the lead.

PREVENT will use omnibus surveys to find out how common it is for the general population to eat wild animal meat, of what type, how often, where they obtain it, what their preferences are, and reasons for their preferences. This quarter the omnibus survey was pretested in Thailand and Cameroon. After a competitive procurement, PREVENT selected two agencies that will implement the set of questions next quarter in Southeast Asia (Vietnam, Thailand, Indonesia, and Malaysia) and Africa (Gabon, Democratic Republic of Congo, Republic of Congo, Cameroon, and Uganda).

AFENET (African Field Epidemiology Network)

AED is working with the AFENET Secretariat to provide technical assistance in communication and public affairs planning and implementation. (b)(6) traveled to the headquarters in Kampala, Uganda from December 5 – 10, 2010. The purpose of the visit was to conduct initial meetings with AFENET's senior management team including the executive director (b)(6) and members of the Public Affairs Office – (b)(6) In addition to the AFENET staff, (b)(6) met with Abt consultant, (b)(6) who is providing technical assistance to AFENET on systems and management and with representatives from the local service industry, research firms, and communication agencies.

AED posted advertisements for a public affairs officer for AFENET with the application deadline set for mid-January, 2011. In January, AED communication advisor, (b)(6) (b)(6) will travel to Kampala to conduct a technical communication audit, interview potential candidates, and based on his findings design a communication plan.

Avian Influenza (AI)

PREVENT's AI efforts this quarter focused on preparations for the USAID/Bangladesh Lessons Learned and Dissemination Workshop held on October 13, 2010 in Dhaka, Bangladesh and revising the work plan for the next year of the project.

Bangladesh: On October 13, 2010, PREVENT, working with USAID/Bangladesh, the Government of Bangladesh, and eight Avian and Pandemic Influenza partners, held the "USAID/Bangladesh Lessons Learned and Dissemination Workshop: H5N1." Over 100 participants from key ministries of the Government of Bangladesh, WHO, FAO, UNICEF, USAID officials and funded projects, and local NGOs were present to discuss the past four years of avian influenza prevention and response achievements and challenges. The workshop consisted of nine technical sessions providing participants with a focused overview on AI issues within the region.

(b)(6)

Following the Lessons Learned Workshop, PREVENT technical consultant (b)(6) (b)(6) met with the PREVENT team in November to finalize the Bangladesh December 2010 – September 2011 work plan. The objective of the work plan is to reduce the incidents of H5N1 virus among key audiences in Bangladesh with an emphasis on advocacy among public and private sector and the government through appropriate communication working groups; engagement of the private sector to reduce incidents in the work place; capacity building of health care workers on counseling on non-pharmaceutical interventions (NPI); and monitoring impact of these activities.

Egypt: USAID/Cairo has expressed an interest for AED to explore adapting its global AI prevention and risk communication strategies and activities in Egypt. A one-week exploratory visit by PREVENT Senior Communication Officer (b)(6) is scheduled for early January 2011 to meet with USAID/Cairo, other U.S. Government agency officials, Government of Egypt stakeholders, national avian and pandemic organizations, and international donors. In-country consultant (b)(6) will be assisting (b)(6) to orient relevant stakeholders on AED's AI communication strategies, materials, and impact; learn of USAID and GOE strategies and expectations; and begin identifying local communication, logistical, research, training, and management resources to design and implement activities.

H1N1

(b)(6) attended the "WHO Pandemic Influenza A (H1N1) Vaccine Deployment Initiative: Main Operational Lessons Learned" (13 – 15 December 2010) in Geneva. The focus on the activity was to capture what happened, how activities could be improved, and what worked. Attendees included representatives from donors, countries, pharmaceutical companies, and contractors. The outcome of the meeting was identification of 10 key lessons that ranged from the need to find better ways to communicate about vaccine safety to looking at alternate packaging technologies for efficiency and environmental concerns to maintaining a framework for contracts between donor governments and manufacturers to expedite legal agreements during future pandemics.

Humanitarian Pandemic Preparedness (H2P)

As the Humanitarian Pandemic Preparedness (H2P) Initiative came to an end in September 2010, USAID requested PREVENT's participation in the USAID-funded Towards a Safer World (TASW) Initiative led by UNSIC and WFP, whose aim is to mainstream pandemic prevention findings and strategies into broader global disaster reduction initiatives (such as the International Strategy for Disaster Reduction). Under the direction of PREVENT Project Director (b)(6), AED will serve as the primary communication partner in providing public relations guidance (through PREVENT subrecipient G6 Partners) and in documenting lessons learned from communication in pandemic influenza preparedness and response. A conference will be held at WFP in June 2011 that will be used to disseminate information collected from 10 working groups (including communication) and provide guidance to stakeholders in this field.

Following the September 2010 TASW launch meeting, AED hosted a communication workshop on October 24 organized by PREVENT Technical Officer (b)(6) and facilitated by G6 Partners (b)(6). The workshop brought together key TASW Working Group members from UNSIC, WFP, USAID, WHO, AED, and IMC. From this workshop, a communication strategy and planning document was developed in order to establish communication roles and activities leading up to the June 2011 TASW Conference. The strategy document was circulated among meeting participants and will be finalized at a later date.

In December, AED hired (b)(6) to serve as a consultant and lead researcher for the TASW sector group on communication. (b)(6) is completing a literature review on communication products and materials resulting from pandemic preparedness and response since 2005. In addition, she will interview key informants from various organizations and regions to identify key lessons and changes in the field of communication as a result of pandemic preparedness. In the first quarter of 2011, (b)(6) (b)(6) will present a collection of findings to AED that will be shared with the wider TASW working group.

AED organized a follow-up meeting to the October 24 workshop on December 16, in Geneva, Switzerland. The meeting was held in the UN-PIC offices with participants from USAID, WFP, WHO, and UNSIC, in addition to (b)(6) and (b)(6) from AED/G6. The meeting helped finalize agreements on the communication strategy, framework and timeline. In addition, a logo for the TASW Initiative and developed by G6 Partners was agreed upon at the meeting.

The H2P Program Review final product was completed by the IFRC in November 2010. This review was a collaborative effort of H2P partners including AED, through Technical Officer, (b)(6) The H2P Program Review report will be placed on the H2P website for wider distribution. AED has continued to maintain and manage the H2P website (http://www.pandemicpreparedness.org) and under the direction of PREVENT's USAID AOTR will extend the website through September 2011. During the quarter (October – December 2010), the website received 738 visits (showing another decline from the last quarter), of which 56 percent were new visitors from 78 countries/territories, including the U.S., Indonesia, Switzerland, India, Germany, Canada, UK, Thailand, Vietnam, and Australia.

USAID/Ukraine buy-in

AED, with UNICEF/Ukraine input and U.S. Fund for UNICEF concurrence, submitted a $100,000 Grant to Public International Organization (PIO) agreement to the USAID Agreement Officer for review and approval on April 22, 2010 (Year One, Quarter 3). Since then, no response has been received from the USAID AO, even after numerous written and verbal inquiries from AED and PREVENT's USAID AOTR.

USAID/Ukraine set aside in Year One $130,000 for PREVENT to support UNICEF's public information campaign work in response to the H1N1 outbreak in Ukraine. The Government of Ukraine requested that the UN system support restoring public trust in vaccinations in general, and strengthen the capacity of national healthcare workers in close coordination with UNICEF immunization programs. UNICEF activities were to include mass media for the general population, targeted print materials and messages to school-age children, TV/radio public service announcements for youth and urban populations, and media orientations for national media representatives. AED was to provide limited TA and training as needed. AED will work with PREVENT's AOTR in Year Two to encourage resolution of this issue by the USAID AO.

Financial Summary

A financial report that covers project expenditures October 1 – December 31, 2010 is enclosed under a separate attachment. As of December 31, 2010, PREVENT has paid

(b)(4)

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by AED

QUARTERLY REPORT
JANUARY — MARCH 2011

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

April 15, 2011

Introduction

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No. GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT is currently focusing on emerging pandemic threats (EPT) predominantly in the Congo and Mekong Basin areas; avian influenza (AI) in Bangladesh; Humanitarian Pandemic Preparedness (H2P) in the context of the "Towards a Safer World" initiative; and supporting the communications capacity of AFENET (Africa Field Epidemiology Network) in Uganda.

Emerging Pandemic Threats (EPT)

In the second quarter of this year PREVENT started the Extractive Industry Working Group, developed research protocols and instruments and pretested selected instruments, continued to develop the "Safe Hunter Plus" intervention, and carried out intensive planning for Asia and Republic of Congo (ROC) activities. (b)(6) Senior Program Manager, joined the PREVENT team during this quarter taking the lead on the Extractive Industries Working Group. The role of PREVENT in countries continues to be formalized through the completion of three country-specific workplans in Southeast Asia and a formal meeting to introduce the EPT Program in Lao PDR. This process continues into next quarter beginning with an anticipated EPT meeting on April 14th in Cameroon.

Global Activities

Extractive Industries Working Group: PREVENT convened PREDICT, PREVENT, RESPOND and USAID members to work together on the Extractive Industries Working Group. The working group

explored different frames for discussing how extractive industry practices encourage human-animal contact. The working group focused on logging activities to develop sample tables that indicate potential direct impact and secondary impact from road construction activities, and highlight current best management practices. Through this exercise the working group identified potential challenges and, where appropriate, possible solutions.

Technical Presentations: At the quarterly EPT meeting, held March 23rd and 24th, PREVENT played an active role, contributing two technical presentations. (b)(6) and (b)(6) presented on current and future activities of the Extractive Industries Working Group, and (b)(6) PREVENT Technical Director, presented on behavior change and its role within EPT programs.

Project Director (b)(6) gave a presentation about PREVENT at the WHO IHR Risk Communication and Capacity Building working group meeting in Lyon, France March16-18, 2011. PREVENT also provided input on a PowerPoint presented in Melbourne, Australia at the 1st International One Health Conference by the Project's USAID AOTR, (b)(6)

Development of Protocols: During the second quarter PREVENT staff drafted five research protocols, for a market study (including market mapping, rapid ethnography and interviews along the value chain), documentation of human-animal contact, price/quantity monitoring of wild animal meat, a photo diary formative research approach and behavior trials of possible behaviors to include in the improved Safe Hunter Plus program. Individuals were tasked with developing assigned research protocols; then, through group working sessions the protocols were analyzed and improved.

Development of Instruments for Market Observations: The market study has two objectives: documenting risky practices in the market that may increase the possibility of transmission of EPT viruses, and improving our understanding of factors that affect supply and demand for wild animal meat. During this quarter, the group worked on:

- Market mapping tools to document key characteristics of markets as well as roadside displays of wild animals/meat for sale. These tools were used in Cameroon after pretesting (see below). The mapping information will be used to select the sample of markets for intense study.
- Instruments to guide observations of the market, including general observations of how animals and meat are handled and stored as well as specific observations of vendors, butchers and those cooking and serving food. First drafts of seven specific instruments--

general observation, observation of activities at close of market (storage, cleaning), vendors, butchers, food stall vendors, "shopper follows" and "meat follows"--were completed and pretested in Yaoundé and Douala. They are currently being consolidated and revised.

Administration of Global Viral Forecasting Incorporated (GVFInc) Activities: To streamline the contractual relationship between AED and GVFInc, AED initiated an Indefinite Quantity Subagreement (IQS) mechanism. Under the IQS individual task orders are issued for specific tasks. This quarter, four new task orders were issued to GVFInc to carry out specific activities in Cameroon (two TOs), Republic of Congo, and a regional literature review on protein alternatives. The task order process will continue into next quarter starting with a task order outlining activities in Gabon and further activities in Cameroon.

Congo Basin

Regional activities

Consumer survey: During the previous quarter PREVENT identified a firm to carry out an omnibus consumer survey. The selected firm went through a merger, temporarily slowing its survey implementation schedule. It is anticipated that the omnibus will be fielded in Africa, namely in Cameroon, Uganda, ROC, Democratic Republic of Congo (DRC), and Gabon during the third quarter. The consumer survey questionnaire continues to be refined; this quarter the draft instrument was further pretested and revised during visits to Cameroon and ROC.

Review of alternatives to wild animal meat: In Central and West Africa various NGOs have experimented with encouraging villagers to raise animals - ranging from chickens and fish to duikers, cane rats, pangolins and snails - instead of hunting wild animal meat. This quarter GVFInc's (b)(6) (b)(6) under the direction of (b)(6) , began work on a literature review of new protein alternatives (i.e., not chickens or fish) in West and Central African countries. (b)(6) will identify and review relevant published and "grey" literature inventorying programs, noting program duration, location, key stakeholders, the cost of implementation and reported successes and failures of these programs. As preliminary research has revealed a number of national organizations and networks, she and other PREVENT staff are carrying out selected key informant interviews to obtain additional information. For example, in Cameroon, AED's (b)(6) and (b)(6) met with the coordinator of the Cane Rat Association of Cameroon (representing 700 cane rat farmers) capturing

information on the scope and history of cane rat production in Cameroon for use in the literature review. The final report is expected at the end of June.

Republic of Congo (ROC)

In March, (b)(6) and (b)(6) completed a two-week scoping visit to ROC. The Wildlife Conservation Society (WCS) is the PREDICT project's partner in ROC. One of the major objectives of the visit was to learn more about WCS activities in the country and determine what activities PREVENT might carry out in ROC.



Figure 1. Restaurant Menu in ROC - "Monkey Stew"

During the visit (b)(6) and (b)(6) worked closely with WCS staff. They visited WCS program field sites in Ngombe and Moukangounda, where WCS is conducting surveillance of primate mortality. They observed the reporting network, reviewed surveillance system reports, and interviewed key informants about the surveillance system. They observed WCS community conservation education activities and provided feedback to WCS on possibilities for improving WCS educational activities.

(b)(6) and (b)(6) conducted key informant interviews with logging company staff to understand factors related to the companies' checking of logging vehicles to make sure they are not carrying wild animal meat. They visited markets, pretesting three of the market observation tools for further refinement of the tools and the market ethnography protocol.

Throughout their visit (b)(6) and (b)(6) met with a number of key individuals and stakeholders. They briefed, upon arrival, and debriefed, upon departure, with the U.S. Ambassador, (b)(6). They also met with (b)(6), National Public Health Lab, ROC Ministry of Health; (b)(6) Epidemic Alert and Verification Officer, Epidemic and Pandemic Alert and Response Disease Prevention and Control Cluster (DPC), World Health Organization, Africa (AFRO); Dr. Youssouf Gamatie, WHO Representative in Congo; (b)(6) (b)(6) Attache de Cooperation, EU Delegation; (b)(6), EU Delegation; (b)(6) (b)(6), Production and Education Outreach, International Conservation and Education Fund (INCEF); and (b)(6), environmental consultant/restaurant owner in Ouesso, ROC.

(b)(6) a GVFInc staff person working at the Kinshasa School of Public Health, and (b)(6) (from UCLA) came from Kinshasa, DRC, to Brazzaville, ROC, to participate in a one-day working session with (b)(6) and (b)(6) They discussed likely behavioral risk factors for monkeypox (what factors have/have not been examined; type and strength of the evidence for their relation to monkeypox transmission).

A more detailed account of the ROC visit is available in the ROC trip report.

Cameroon

Market mapping: During this quarter, (b)(6) GVFInc/Yaoundé, conducted a market mapping in Cameroon (from about 60 miles south of Yaoundé to the border with Gabon), reporting back on the instruments and the findings such as the number and types of markets and estimated number of the animals available. His feedback will provide input to refine the market scoping instruments and assist in determining the markets selected in Cameroon.

Improving the "Healthy Hunter" Program: In October 2010, PREVENT carried out an assessment of the Healthy Hunter Program implemented by GVFInc in Cameroon. During this quarter, White Dove, the subcontractor who completed the assessment under the direction of the PREVENT research team submitted qualitative and quantitative data files. AED's (b)(6) (a research analyst in the Bangkok office) and (b)(6) worked to clean the quantitative files; an analysis file has just been completed. (b)(6) will carry out analysis of the data – this census of two villages will provide information about the distribution of practices, i.e., the proportions of men who hunt intensively, not so intensively, and not at all.

A team led by (b)(6) consisting of (b)(6) and (b)(6) analyzed the qualitative results and synthesized them, with review by (b)(6) and (b)(6) Based on the findings, and degree of feasibility, six key behaviors were selected for behavioral trials. (b)(6) developed a request for an IRB exemption, and the AED's Internal Review Board exempted the study from review March 21, 2011.

(b)(6) and (b)(6) traveled to Cameroon in late March to begin implementation of the behavior trials. On March 30th training of the behavioral trials field team commenced. The objective of the behavior trials is to determine which behaviors should be included in a "Safe Hunter Plus" program (which are most do-able) and to identify the best ways to encourage people to adopt them, that is,

identify the barriers to adoption as well as possible perceived benefits. Of the six identified behaviors, four are already included in the Healthy Hunter education program; for these the behavior trials will focus on barriers/incentives for adopting the behavior:

1. Protect skin while hunting (to avoid cuts and blood exposure)
2. Wrap raw wild animal meat after it is butchered to avoid direct contact with the meat
3. Wash hands with soap and water
   - after touching animal blood or feces
   - before preparing food
   - before eating
   - after cutting yourself
4. Avoid handling wild animal meat when you have open sores.

In addition, the behavior trials will test two new behaviors. For these the behavior trials will focus on feasibility and acceptability of the behavior as well as possible barriers and incentives:

5. Avoid eating fruit touched/bitten by wild animals
6. Protect family from wild animal feces

In Cameroon, (b)(6) and (b)(6) pretested seven instruments drafted for the market ethnography. The outcome of the instrument pretesting will be used to finalize the market ethnography protocol and instruments next quarter.

(b)(6) and (b)(6) met with U.S. Ambassador (b)(6) and the USAID point of contact (b)(6) to discuss the PREVENT activities. (b)(6) will participate in a meeting to formally initiate EPT activities in Cameroon on April 14th.

Mekong Basin

'Country Packets' including country specific workplan narratives and GANTT charts were finalized in collaboration with the missions and EPT partners for Lao PDR, Vietnam, and Thailand. Next quarter we anticipate contributing to the final Country Packet for Cambodia.

Regional Activities

In Southeast Asia, the first phase of the consumer survey, through an omnibus mechanism, was fielded in Thailand, Vietnam, Indonesia, and Malaysia. Data were received the last week of the quarter and are currently being analyzed. PREVENT bought into the survey to find out how common it is for the general population to eat wild animal meat, of what type, and the frequency of consumption. Species of particular interest to PREVENT - rodents (rats, squirrels, mice), bats, and primates - were the focus of the questionnaire, which also included some questions about attitudes about eating wild animal meat. The surveys were conducted as phone interviews in urban and peri-urban areas of each country. Next quarter a country and regional analysis of the data will be undertaken and the results will be shared.

Lao PDR

In Lao PDR an EPT Program roundtable was held February 27th in Vientiane. (b)(6) presented on behalf of PREVENT. EPT program partners, USAID partners and the government counterparts were present, including (b)(6), representing the Lao PDR government (from NEIDCO) and (b)(6) (DLF Director General). On March 3, 2011, (b)(6) on behalf of AED, signed the Memorandum of Understanding (MOU) between the National Emerging Infectious Diseases Coordination Office (NEIDCO) and AED. The NEIDCO-AED agreement builds on AED's previous work in Lao PDR and extends collaboration on emerging infectious diseases through March 2013.

In the wake of the Vietnam country packet finalization AED's (b)(6) and (b)(6) (b)(6) traveled to Hanoi to discuss PREVENT activities with USAID and meet with potential partners. Two meetings were held with USAID, one to focus on PREVENT exclusively and a second that brought together representatives from the four EPT projects for a larger EPT Vietnam program discussion. In the one-on-one meeting USAID/Vietnam informed (b)(6) and (b)(6) that USAID will sign a Memorandum of Intent (MOI) with the government of Vietnam for all EPT partners. USAID/Vietnam encouraged PREVENT to talk to all organizations in Vietnam who are engaged in wildlife trade communication activities to find out what messages have been used and what worked well and what did not



Figure 2. Cho Hom Market, Hanoi

work well. They specifically recommended that PREVENT contact the U.N. Food and Agriculture Organization and Abt Associates to learn about their past work in markets in Vietnam.

On March 16 – 17, 2011, the Ministry of Agriculture and Rural Development implemented the "Wildlife and Emerging Infectious Diseases in Vietnam – current activities and visions for the future" workshop with support from the USAID's EPT Program. (b)(6) and (b)(6) attended the two-day workshop, which brought together animal, wildlife, and human health stakeholders to identify strengths and gaps in the current system. The workshop's opening speakers included (b)(6) (b)(6), USAID Mission Director, (b)(6) Department of Animal Health, and (b)(6) Director of Forest Protection Department. The workshop served as a stepping off point to begin strengthening communication and cooperation between ministries, local organizations, international organizations, private sector, and individual stakeholders.

(b)(6) and (b)(6) worked closely with WCS, specifically (b)(6) and (b)(6) to explore possible synergies between PREVENT and WCS. (b)(6) and (b)(6) also met with 30 stakeholders, representing government officials, agencies, individuals and local and international development firms.


Figure 3. Mobile Street Food Vendor, Hanoi

Throughout the visit (b)(6) and (b)(6) met with potential research partners and consultants, creating a list of knowledgeable potential local researchers.
PREVENT activities were further informed by input from WCS, TRAFFIC, and Education for Nature Vietnam. A productive visit to two large markets to pretest the market 'mapping' instruments was carried out. PREVENT continues to network with contacts made in country and will continue to update and revise Vietnam PREVENT activities based on information gathered.

Thailand

A "handover" ceremony with UNSIC for the Pandemic Preparedness Forum (PPF), along with ADPC and RESPOND, happened this quarter in Bangkok, Thailand. The name of the PPF was officially changed to the Emerging Infectious Disease Forum. A list of themes for the remainder of the monthly meetings for 2011 has been developed.

(b)(6) co-chaired the session on Risk Communication, at the United Nations System Workshop on Animal and Pandemic Influenza in Asia Pacific held in Bangkok on February 3-4, 2011.

African Field Epidemiology Network (AFENET)

USAID has been a key supporter of the African Field Epidemiology Network (AFENET), and as part of PREVENT's scope of work AED is providing technical assistance in establishing a strong working Public Affairs Office located at the AFENET Secretariat in Kampala. This is a follow-on to work begun in 2009. AED and the AFENET leadership conducted a competitive interview process to identify a public affairs director. (b)(6) was selected and began work March 14th. She formerly was with AAR Health Services (Uganda) Ltd and has experience in public affairs office start-up and working with the private and commercial sector. She and the public affairs staff are located at the Secretariat.

To continue our technical support to AFENET, AED's communication advisor, (b)(6), has visited Kampala in January and again in March to assist in designing the communication work plan and implementation plan. (b)(6) has worked closely with (b)(6) executive director, (b)((b)(6) deputy executive director and head of science and public affairs, (b)(6) head of programs, and (b)(6) new initiatives officer, to identify their interests and needs in public affairs. He worked with (b)(6) scientific writer, (b)(6) editor, (b)(6) (b)(6) IT manager, (b)(6) network administrator, and (b)(6) editor of the Pan-African Medical Journal (PAMJ) to develop the communication plan.

On March 17, 2011, (b)(6) and (b)(6) met with (b)(6) USAID/Uganda Mission, to present the AFENET communication and implementation work plan. The mission works with 14 journalists from the international press corps who may be included in the AFENET media breakfast, tentatively scheduled for June 2011.

(b)(6) AED program officer, visited Kampala in March to orient (b)(6) in AED program and operations procedures. AED has on the ground a financial officer, (b)(6) working with other AED projects in Uganda. (b)(6) will provide financial support to AED's work for AFENET and (b)(6) oriented her to the PREVENT Project.

AED identified through a competitive bidding process an advertising/communication agency to support the public affairs office; and a web design/IT company to update the AFENET web page and to create an intranet that will connect all 19 AFENET countries together.

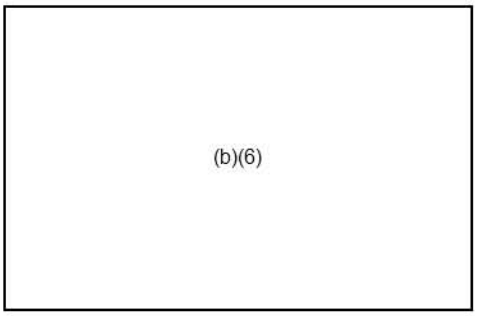


Figure 4. Winning group photograph

Planning has begun for a series of applied communication workshops and media training workshops for members of the network. Tentative dates have been set for Anglophone Africa in Kampala from May 30–June 2, 2011 and Francophone Africa from June 6–10, 2011 in Burkina. AED will conduct a master training for representatives in the Secretariat and in countries to build their capacity in these important communication areas.

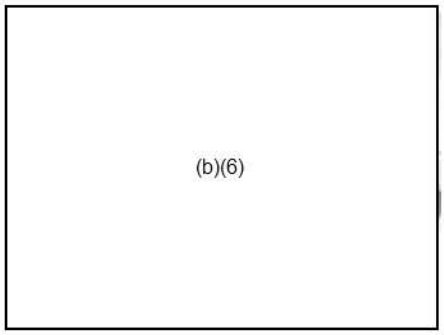


Figure 5. Most creative group photograph

From March 29–30, 2011 (b)(6) conducted a Basic Photography and Digital Editing training for the AFENET Public Affairs Unit as well as the AFENET field team that are usually tasked with taking pictures of activities and meetings in which they participate. The training consisted of basic photography tips on composition, background selection, lighting, proper use of the flash, photo directing, composing people's pictures and basic photo retouching and enhancement. In total, there were four sessions conducted over the two day period with a total of 18 people including AFENET's executive director, (b)(6) and deputy executive director, (b)(6 (b)(6)

Humanitarian Pandemic Preparedness (H2P)/Towards a Safer World (TASW)

AED has continued to maintain and manage the H2P website (http://www.pandemicpreparedness.org) and under the direction of PREVENT's USAID AOTR will continue to do this until September 2011. During January–March 2011 period, the website received 582 visits (showing another decline from the last quarter), of which nearly 60 percent were new visitors from 78 countries/territories, including the U.S., Belarus, India, Indonesia, Switzerland, Philippines, Spain, Germany, and Turkey.

AED has been supporting the Towards a Safer World Initiative in various capacities since the TASW launch in the Fall of 2010. The three main areas that PREVENT has been supporting are communication research and writing, public relations and advocacy, and development of an online portal/community. In addition, through PREVENT resource partner, G6 Partners, AED has been supporting the development and implementation of the TASW Communication Strategy including public relations and advocacy efforts. This has included the creation of the TASW logo and tagline.

PREVENT consultant (b)(6) developed a paper for the communication sector that was shared with the TASW working group in mid-February. The communication paper was the result of a combination of literature review and key informant interviews. (b)(6) interviewed various stakeholders that had been involved in pandemic preparedness in the communication sector including individuals from UNICEF, UNSIC, PAHO/WHO, IFRC, WHO, AED, Save the Children, FAO, and CARE. The paper will undergo further edits based on feedback from the TASW working group members and additional information collection from country-level actors.



On March 8–10, 2011, Senior Communication Advisor (b)(6) Technical Officer (b)(6), and G6 Partners' (b)(6) traveled to Rome, Italy, for a TASW planning meeting at the World Food Programme. They participated in the three-day meeting hosted by the WFP in order to discuss research papers for the 10 identified sectors (including the aforementioned communication paper), and to facilitate a third day regarding the communication support under TASW. Based on the three day meeting, AED will support the TASW working group in developing a packaged product of the ten papers in addition to an overarching chapter that will be disseminated at the TASW Conference in Rome, Italy. In addition, in anticipation of the May 2011 UN-ISDR Global Platform meeting where TASW will be responsible for a plenary session, AED will help develop a product that can be shared with conference participants. This product will be

used to better inform the participants on the TASW and the overarching themes learned over the last 6 years of pandemic preparedness.

On March 22, 2011 several TASW working group members came to Washington, DC to participate in a follow-up to the Rome planning meeting. (b)(6) (USAID), (b)(6) (WFP), (b)(6) (WFP), (b)(6) (WFP), (b)(6) (UNDP), (b)(6) (USAID), (b)(6) (AED), (b)(6) (AED), (b)(6) (PREVENT Resource Partner – G6 Partners), and (b)(6) (AED) identified 4 overarching themes that crossed the 10 identified sectors and could be used in a product that will help planners and stakeholders for future pandemics or large scale emergencies. This product will be developed by AED and shared by the TASW members at the UN-ISDR Global Platform meeting in May 2011 in Geneva, Switzerland. Furthermore, based on the discussion of the meeting participants the TASW Conference will be postponed until September 2011.

The other key activity that the PREVENT project is doing in support of TASW is the creation of a TASW online website/community. PREVENT developed a temporary website that has information regarding TASW and the meeting. Two web addresses were procured for this activity; http://www.towardsasaferworld.org and http://www.towardasaferworld.org. This temporary website will be used until a permanent website will be developed by Forum One Communications. Forum One Communications was awarded a contract after an RFP process in order to develop the permanent web portal for TASW including the creation of an online community. This website which is targeted for an early May public launch will be used as the primary resource for sharing information with the public regarding TASW. In addition, this website will be used by registered users for information exchange and product sharing that can help strengthen the existing sector reports and build consensus leading up to the TASW Conference in Rome, Italy. Furthermore, TASW will be using different types of social media to further promote itself, including Twitter (@tasw_initiative) and YouTube.

Avian Influenza (AI)/Bangladesh

AED's consultant (b)(6) has traveled to Bangladesh twice in this quarter (February 17–March 4 and March 12–20). His scope of work and activities included meetings with the appropriate ministries and agencies of the government of Bangladesh (Ministry of Health and Department of Livestock Services), as well as international and national NGOs, World Bank, FAO, UNICEF, the Bangladesh Poultry Association, and three private sector companies involved in hygiene and sanitation, to plan for and begin implementation of the communication activities for flu outbreaks. Meetings were

also held with USAID/Bangladesh. The outcome of these meetings was to obtain agreement with all parties on a common response to avian influenza. The private sector meetings that were of importance to the non-pharmaceutical interventions being proposed were with Unilever, ACI, and Squared, all manufacturers of soaps and/or antiseptic hand gels.

The government's request has focused on our work being conducted in seven districts and focusing on live bird markets. During (b)(6) second TDY there were a few human cases of H5N1 virus reported, and the emphasis switched to responding to those outbreak areas with continued emphasis on non-pharmaceutical interventions. AED's regional director, (b)(6), and AED communication consultant (b)(6) will visit Dhaka in mid-April to put the communication activities in place and to finalize the Letter of Agreement between Unilever and AED and work out specific details. Trip reports and background documents will be submitted to USAID with details of the meetings and next steps.

Financial Summary

A **financial report** that covers project expenditures January 1–March 31, 2011 is enclosed under a separate attachment. As of March 31, 2011, PREVENT has paid out (b)(4)

(b)(6)

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT
APRIL 1 — JUNE 30, 2011

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

July 15, 2011

fhi360
THE SCIENCE OF IMPROVING LIVES

Introduction

On September 30, 2009, the U.S. Agency for International Development awarded FHI 360 the USAID Client Associate Award No. GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A-00-07-00004-00 entitled, "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

PREVENT is currently focusing on emerging pandemic threats (EPT) predominantly in the Congo and Mekong Basin areas; avian influenza (AI) in Bangladesh; Humanitarian Pandemic Preparedness (H2P) in the context of the "Towards a Safer World" initiative; and supporting the communications capacity of AFENET (Africa Field Epidemiology Network) in Uganda.

Emerging Pandemic Threats (EPT)

Global Activities

Extractive Industries Working Group

Over this quarter the Extractive Industries Working Group reconfirmed with USAID the expectation for this work group: to have a completed toolkit that contains the risk assessment tool and a set of mitigation strategies companies can adopt as well as guidance for countries on regulations that need to be established and enforced. While each project may not have direct extractive industries activities, all projects will contribute to the meetings and review materials as they are developed.

The group further refined the specific extractive industry tables on impacts that affect wildlife dynamics to focus on impacts on the three types of animals of highest interest - rodents, bats, and primates - and whether these impacts increase the potential for disease transmission. In addition, the

group has developed a table that looks at impacts that affect human-wildlife dynamics. PREVENT developed a table that examines how to improve current practices. While the current emphasis is individual and community practices, the table can and should be expanded to industry practices as well.

The group reviewed the PREDICT Risk Assessment Tool and provided substantive comments on its content. This is being further revised and will come back to the group at a later date. RESPOND is developing a paper to help elucidate the evidence base for human-wildlife contact/exposure within the extractive industry sector. Eventually this paper will link with transmission but is not currently set to do that in this initial stage.

Meetings with colleagues already working more closely with extractive industries indicated that engaging an entire industry requires a lot of time to build trust and develop consensus. An interim strategy might be to engage a particular company to develop some guidelines and tools and test some approaches that can then be advanced higher up within the industry community. The EIWG is discussing possibilities.

Development/Refinement of Protocols and Tools

Market ethnography. During the third quarter PREVENT staff revised the research protocol for the market ethnography, including consent forms, draft instruments for vendor and butcher observations and interviews, a market manager interview, and shopper exit interviews. (b)(6) GVFInc Program Manager, organized a rapid pretest of the consent forms and instruments in Yaoundé following a brief training. Comments from the interviewers indicated that the forms are difficult to follow; in addition, there was a high refusal rate. PREVENT has decided that this result warrants revision of the forms and an intensive field test of the consent process, instruments and operational procedures first outside Yaoundé and then, when forms have been finalized, at a city market. The field test is scheduled for early August. Once the instruments have been finalized, the protocol will be submitted for IRB approval. We expect the market ethnography to be implemented late in Q4.

Human exposure to animals. It is important that human-animal exposure surveys are adapted to the country, sub-population and setting in which they are implemented. To develop survey instruments that are accurate, valid and relevant, PREVENT will conduct formative research to guide finalization of the survey instruments in each country. During this quarter, staff finalized a research protocol for developmental testing of tools for the formative research.

The formative study will elicit information about:

1. *Animal names*: What are the local names of the key animals of interest – various types of bats, primates and rodents?
2. *Animal domains:* What categories do people use when they think about animals? For example, will asking about "wildlife" elicit reports about peri-domestic contact with rodents or should there be questions about both "wildlife" and "pests"?
3. *Animal roles:* What cultural, religious or legal issues may make it difficult to obtain information?
4. *Animal contacts:* How do people recognize/categorize their exposure to animals (direct or indirect)?

It will employ both individual interviews and focus group discussions. The developmental study, which is ongoing in Thailand, will involve both a test of the effectiveness of alternate tools to gather information as well as a determination of the optimal representations of animals to use in administering them.

The following tools will be tested:

1. *Identify animals- you see/touch/smell/hear/taste:* Focus group participants will be asked to name animals that they see, touch, hear, smell or taste, or whose excretions/secretions they see or touch (or are touched by). (animal names, contacts)
2. *Identify animals- in different spheres of life:* Participants will be asked to name the animals that they may come in contact with in different locations – in the house, near the house, while farming etc. (animal names, contacts)
3. *Free pile sorting:* Participants will be asked to sort representations of animals into groups, with the selection of groups determined by the participants. (animal domains, names)
4. *Guided free listing:* Participants will be asked to list all animals that are like the animals of primary interest for the study – bats, primates and rodents as well as pigs and chickens. (animal domains, names)
5. *Free association:* Focus group participants will be asked to state the first thing that comes to mind when they are reminded of a certain animal. (animal roles, sensitivities)

6. *Guided pile sorts:* Focus group participants will be asked to sort animals along various dimensions including food (animals that can be eaten or not), danger, healing/medicinal properties, etc... (animal roles, domains, names)
7. *Direct questions about human-animal interactions:* Focus group participants will be guided through a set of questions about different possible types of exposure to animals. (animal contacts, domains, names)
8. *Story telling:* Photographs displaying interesting scenes will be selected to elicit rich and in-depth information about particular aspects of exposure to animals – for example, a person preparing a commonly eaten wild animal, a child holding a dead animal, a mouse or mouse droppings in a domestic environment. Participants will be asked to tell a story about what is going on in the picture. (animal contacts, roles, sensitivities)
9. *Word bubbles:* Participants will be asked to state what someone would "feel", "think" and "say" if faced with a sensitive situation. (navigating sensitive issues)

In addition to testing alternative tools to collect information related to the different research themes, the Thailand pilot study will also pre-test the effect of different ways of representing animals- including writing the name of the animal on paper, drawing symbolic representation of animals by participants, and/or photographs or drawings of animals.

During this quarter staff developed and finalized the protocol for this study. It was submitted to the FHI 360 IRB and received an exemption. The study was started July 11. Results will be reported next quarter. They will be used to finalize a formative research toolkit that can be used in different countries to obtain information about animal names, domains, roles and contacts. In addition, specific results from this pilot test will be used to develop a survey instrument that will be tested in the same area of Thailand.

Market mapping. The market mapping tool used in Cameroon was further refined to collect additional information about the status of market bio-security and to collect information about the number of vendors selling wild animals as well as the number of animals. The revised form was used to map markets in northwest Gabon. The mapping was completed in late June; PREVENT is awaiting results.

(b)(6) PREVENT Senior Program Officer and SouthEast Asia "Anchor" began working with WCS to adapt and pretest the revised tool in Laos.

Presentations

A poster presentation, "Behaviors of Cameroonian hunters and butchers put them at risk of zoonotic disease transmission" (b)(6) (b)(6) was accepted for APHA 2011.

Administration of Global Viral Forecasting Incorporated (GVFInc) Activities

During this quarter PREVENT issued four Task Orders to GVFInc:

- TO5--Modification of safe hunter/ butcher study (additional time for analysis)
- TO6--Market ethnography protocol finalization
- TO7--Support for the EPT Inter-Ministerial Meeting held in Yaounde, Cameroon April 14, 2011
- TO8--Gabon Market Scoping

PREVENT is currently in the process of issuing two additional Task Orders:

- TO9--Pretest of market ethnography
- TO10--Market ethnography

Congo Basin

Regional activities

Review of alternatives to wild animal meat. (b)(6) (GVFInc) submitted a revised draft of the review of alternatives to wild animal meat. She found that people have tried introducing blue duiker, porcupine, African giant rats and snails as species that farmers might raise. Efforts with blue duiker and porcupine were unsuccessful because of their low reproductive rates; and attempts to promote rearing of African Giant rats in DRC were unsuccessful because of the cost and effort needed to raise them - they were seen as requiring more work than rabbits – and perhaps because there are many taboos related to consumption of their meat. Both WCS and Heifer International have had some success in introducing snails, though it seems likely that the programs would founder without continuing input. Grasscutter has been the most successful type of animal tried, to the point that there is a national association of grasscutter raisers in Cameroon that has about 700 members. In contrast,

attempts to introduce grasscutter raising in Gabon have failed, perhaps because wildlife is more easily obtained there.

Some overall lessons learned are that animals selected for rearing have to be:

- Biologically suitable: not require too much food or compete with humans for food; have a high reproductive rate; not require special handling; and not be a host of zoonotic disease that is a risk to humans or their domestic animals.
- Culturally suitable: be acceptable as food, not considered sacred or associated with witchcraft.
- Economically competitive: farmers who raise them need to be able to get a good price; start-up costs must be low.

The draft will be further revised, then edited and circulated to USAID and partners.

Republic of Congo (ROC)

No activities this quarter. (b)(6) will be meeting with WCS/ROC at the Kinshasa meeting to discuss work in the coming year.

Cameroon

Market mapping: Results of the market mapping activity carried out during the previous quarter were used to select the markets that will be included in the market ethnography: two ***rural village*** markets of Ngoulemakong and Menguémé near Ebolowa, two markets in the ***small market town*** of Djoum, and two markets in ***midsized towns,*** one in Ebolowa and one in Sangmelima, towns that are located at the intersection of multiple roads, and are trade intersections with other Central African countries, including Gabon, Equatorial Guinea, and Republic of Congo.

Improving the "Healthy Hunter" Program: Behavior trials of six key behaviors began in April. From April 6-21, approximately 100 male and female participants in 8 villages, 4 in Southern Cameroon and 4 in Southwest Cameroon were recruited, introduced to possible behaviors and asked to choose at least one that they would try.

The behaviors include four that are already included in GFVInc's Healthy Hunter program. However, the first three focused on different specific actions than previously promoted.

1. Protect skin while hunting (to avoid cuts and blood exposure); the new piece was to focus on keeping arms, legs and feet covered.
2. Wrap raw wild animal meat after it is butchered to avoid direct contact with the meat; the new piece was to focus on meat that has been prepared in smaller pieces for sale.
3. Wash hands with soap and water, with a new focus on specific times for handwashing.
    - After touching animal blood or feces
    - Before preparing food
    - Before eating
    - After cutting yourself
4. Avoid handling wild animal meat when you have open sores.

The behavior trials also tested two new behaviors.

5. Avoid eating fruit touched/bitten by wild animals.
6. Protect family from wild animal feces.

The trials focused on identifying the barriers and possible incentives for practicing these behaviors, as well as feasibility and acceptability for the new behaviors and new variations of former behaviors.

From May 14-27, researchers made follow-up visits to interview participants about what behaviors they tried, if/how they modified them, what barriers they encountered, what benefits they perceived and whether they thought they would continue the new practices.

Analysis has started. However, as a result of some implementation decisions (e.g., for convenience, about 38% of the participants were recruited from villages regularly visited by GVFInc and another 13% from a village that participated in the benchmark study) the analysis is more complex than originally anticipated, and is still under way.

Mekong Basin

Regional Activities

Results of the first phase of the consumer survey, obtained through an omnibus mechanism in Thailand, Vietnam, Indonesia, and Malaysia, were received late last quarter. The questions provided by PREVENT focused on whether people consume species of particular interest to PREVENT - rodents (rats, squirrels, mice), bats, and primates, as well as one open-ended question about consumption of wild animal meat and 5 attitudinal questions. The surveys were conducted as phone interviews in urban and peri-urban areas of each country.

Interestingly, Vietnam stands out as different from the other three countries. In response to the unaided question: "Please tell me all of the types of wild animal meat that you or someone in your household ate since this time last year" very few respondents in Indonesia or Malaysia mentioned any animal (for Indonesia, the highest proportion mentioning any specific animal was 7%, for eels; for Malaysia, the highest proportion was 5%, for deer). In Thailand 10% of respondents spontaneously mentioned wild pig; that was also the animal mentioned by the highest proportion of respondents in Vietnam (21%). Other animals mentioned spontaneously by more than 10% of respondents from Vietnam were cane rat (19%), frogs (18%), and snake (14%). Numbers for all these animals were even higher when looking just at respondents from Ho Chi Minh City.

In response to closed-ended questions about animals of interest ("In the past year, did you or someone in your household eat the following animal: ____") Vietnam again had higher rates of positive responses than other countries. Twenty percent of respondents (27% of men and 14% of women) reported having eaten rat although fewer than 1% reported eating bats, monkeys, squirrels or mice. In Thailand, 8% reported eating rats and 1% squirrel, with fewer than 1% reporting eating other animals of interest. In Malaysia no more than 2% and in Indonesia no more than 1% of respondents reported eating any of the animals of interest.

Attitudes were also different in Vietnam compared with other countries. Respondents to the omnibus were asked "To what extent do you agree or disagree with the following statement?" Answers were rated on a scale, with 5 "Strongly agree" and 1 "strongly disagree." The following table shows averages of the answers by country:

Statement	Vietnam	Indonesia	Thailand	Malaysia
It can be dangerous to have contact with the blood of a wild animal.	2.9	3.6	3.2	3.0

Wild animal meat tastes better than domestic animal meat	3.9	2.1	2.0	2.3
People can get sick from eating wild animal meat.	2.7	3.2	3.5	3.1
I eat more wild animal meat than I did five years ago.	2.1	1.6	1.8	1.7
Many people I know eat wild animal meat.	3.2	2.0	2.0	2.1

Vietnam is consistently higher or lower than the other three countries, which are consistently similar to each other. On average, respondents in Vietnam were least likely to believe that contact with wild animal blood can be dangerous and least likely to believe that people can get sick from eating wild animals. On the other hand, Vietnamese were most likely to believe that wild animal meat tastes better than domestic, eat more wild animal meat than they did 5 years ago, and report that many people they know eat wild animal meat. Thus the results of the attitude questions are consistent with the higher rates of reported consumption of wild animal meat in Vietnam than in the other countries.

Lao PDR

On April 27, 2011, NEIDCO chaired a one-day Work Plan Review Meeting for GOL and USAID implementing partners to review draft work plans for each of the four EPT component projects: PREDICT, IDENTIFY, RESPOND and PREVENT.

The Work Plan Review Meeting provided an opportunity for the GOL and EPT implementing partners to present their plans for final review by all participating NEIDCO members.

Participants included representatives from the relevant government agencies including NEIDCO, MAF, DLF, NAHC, MOH, CIEH, NCLE, MOFA; USG representatives including USAID (Lao PDR and RDMA), USCDC, and DoD, as well as EPT partners, IDENTIFY (OIE, WHO and FAO), PREDICT (WCS) and RESPOND (DAI). The purpose of the meeting was to familiarize the government of Lao PDR with the EPT program and to identify and address next steps for implementation.

The issue of MoUs was discussed in great detail. This requires further discussion and clarification. Dr. Bounlay would like activities to begin June 1, and asked if EPT could provide required materials immediately to get the process moving. FHI 360 (PREVENT) and WCS (PREDICT) have existing MoU's that cover all anticipated EPT activities. However, it is possible the dates and budgets may need to be updated—each will consult with MoFA on their individual needs. FAO/WHO/OIE (IDENTIFY) do not require an MoU. RESPOND needs to provide lists of potential partners to NEIDCO. (b)(6) (b)(6) will help to identify a plan to get the work approved and begun. All new activities with a budget must be approved by MoFA.

Cambodia

(b)(6) PREVENT's behavior change and communication (BCC) regional specialist in Bangkok attended the Zoonotic Diseases Technical Planning Workshop, held at the Hotel Sofitel May 18-20 in Siem Reap, Cambodia. It was organized by USAID (through RESPOND), and hosted by the Royal Government of Cambodia. Participants included government representatives from the Ministry of Agriculture Forestry and Fisheries/Cambodia, Ministry of Health/Cambodia, National Veterinary Research Institute/Cambodia, USAID representatives from Cambodia and Washington, EPT partners (RESPOND, PREVENT, PREDICT, IDENTIFY), Wildlife Conservation Society, AFRIMS, OIE and UNICEF.

The purpose of the workshop was to follow up the workshop held in Cambodia in January 2011 and to identify RGC resources and needs for development and implementation of a zoonotic disease national strategy.

There were three specific objectives:

- Identify RGC needs for development and implementation of a zoonotic disease national strategy
- Identify resources available to RGC and how partners can support assessment and implementation of a zoonotic disease national strategy
- Identify next steps towards implementation of the action plan and development of partner work plans

The day before the workshop started, a brief meeting was held among USAID EPT partners. USAID was represented by USAID/Cambodia and USAID Washington, with (b)(6) and (b)(6) (b)(6) leading the meeting. Participants were asked to ensure compliance with USAID/Cambodia rules when working in Cambodia.

On the first day of the workshop welcome and introductions were provided by USAID and Royal Government of Cambodia (RGC) partners. (b)(6) provided the welcome for USAID and (b)(6) of the Ministry of Health (MOH) and (b)(6) of the Ministry of Agriculture, Forestry and Fisheries (MAFF) provided the welcome from RGC and introduced their teams.

Following the welcome and overview, (b)(6) provided a brief review of the January meeting conducted in Phnom Penh. He indicated that the meeting had started the process of development of the national plan for emerging infectious diseases and that priority diseases had been identified and agreed to. The meeting had resulted in a draft TOR for the zoonotic technical committee and a plan of action for 2011. However, the long term plan itself had not yet been drafted, as they were waiting for a consultant to provide assistance to the process. The TOR for the technical committee includes the development of the National Strategy for the Control of Zoonoses. The committee members include MOH/CDC, MAFF, DAHP, FA, WHO, FAO, Pasteur Institute (PI) and WCS. The meeting also identified the priority zoonotic diseases: AI, Rabies, Anthrax, Leptospirosis, Brucellosis, Salmonellosis, TB, Nipah and unknown zoonotic diseases. It was noted that this list of priority diseases would be reviewed periodically. Their short term action plan for 2011 included the development of guidelines for proper prevention and control of priority zoonotic diseases, and conducting research on Anthrax, Rabies and Leptospirosis.

Each partner was asked to provide a brief presentation. RGC presentations were given by MOH, MAFF, and Forest Administration. USAID/W gave an overview of the EPT program and described each partner project (PREVENT, RESPOND, IDENTIFY and PREDICT). Other presenters included Institut Pasteur/Cambodia, US CDC, SAFETYNET, USDA, UNICEF, FAO, and WHO.

Following the presentations and discussions, the participants were asked to develop the key components of the Cambodia national strategy, by answering 7 key questions in working groups. These were:

1. What are the components of a strategic plan for Cambodia?
2. How could RGC ensure sharing of information such as surveillance data that is collected?
3. How might RGC conduct research on zoonotic diseases in Cambodia?
4. How does Cambodia use guidelines for proper prevention and control priorities?
5. How does Cambodia encourage harmony between animal and human health workers at each level?
6. How could Cambodia ensure adequate funding for outbreak investigation and response?
7. What might be a feasible training plan for Cambodia at all relevant levels (central, provincial, district, community)?

Following the presentations of the working groups, the 8 Activity Areas were posted around the room, and each USAID EPT Partner was asked to write the specific activities for which they could provide support to RGC in that area.

The activity areas were as follows:

1. Establish information sharing system
2. Establish sharing of surveillance information
3. Develop guidelines for proper prevention and control of priority zoonotic diseases
4. Develop strategic plan
5. Establish harmonized human and animal officers at every level
6. Support funding for outbreak investigation and response
7. Conduct research on zoonotic diseases: Nipah, Anthrax, Rabies, Leptospirosis
8. Training on joint investigation and response on zoonotic diseases

PREVENT listed the following types of support they could provide to Activity Area #7 (Research): Desk Review of Literature, Market Studies, Animal-Human Contact Studies, Consumer Studies. PREVENT also listed support under #8 (Training): Provide assistance to RESPOND in the adaptation of communication module(s) to FETP training.

Participants reviewed each set of activities and RGC was asked to identify the areas in which they needed/requested support. During this discussion, RGC counterparts (primarily MAFF/DAHP) indicated that they would like to pursue the PREVENT-listed activities under Research.

Following the identification of specific activities, all participants--led by RGC--engaged in an exercise to plot these against a timeline. Next steps for PREVENT-related activities would be for an in-country visit to meet with MAFF ((b)(6)) and other relevant RGC counterparts to identify and agree on specific activities and schedules. RGC discussed at length the strategy development process, and agreed that this would be completed in the last quarter of 2011.

Closing remarks were made USAID and MoH. In his closing remarks, (b)(6) highlighted the need to prioritize strategy development so that the other activities may follow. The development process, he

said, will be led by the technical working group. He also requested that, whenever and wherever possible, local staff should be included in research activities.

Vietnam

USAID/Vietnam signed a memorandum of intent (MOI) with the Ministry of Agriculture and Rural Development on April 7. The MOI will serve as an umbrella agreement for activities under the EPT program. FHI 360 will move forward with signing a PREVENT-specific MOU with MARD during the next quarter.

The Vietnam Integrated National Operational Program on Avian Influenza, Pandemic Preparedness and Other Emerging Infectious Diseases (AIPED), 2011-2015, was developed by the National Steering Committee for Avian Influenza Prevention and Control. PREVENT provided input and comment for integration of the PREVENT program into the AIPED five-year vision that will steer the national agenda.

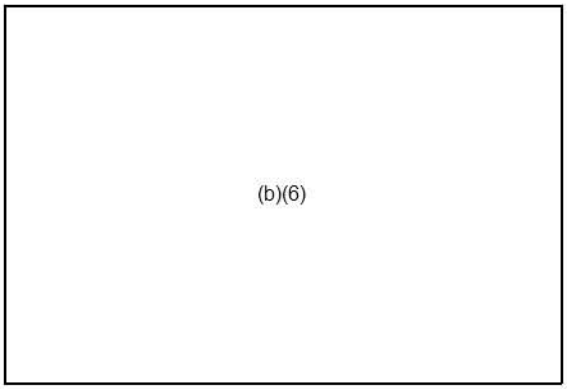
Senior Program Officer (b)(6) traveled to Hanoi to participate in the country-level EPT work planning meeting for FY12 in Hanoi on June 21 and 22. The outcome of the planning meeting was an integrated GANTT chart of EPT activities and proposed timelines for FY12. The coordinated work plan will be used during the Regional EPT meeting to be held in Bangkok, Thailand July 12 and 13. In addition (b)(6) interviewed potential candidates for a Senior Program Officer to be based in Hanoi and met the FHI country director for Vietnam, (b)(6)

Thailand

(b)(6) carried out preparatory work for a pilot test of tools for the formative research phase of the survey on human exposure to animals, which will be initiated in Khon Kaen July 11. She identified the locations where the study will be held, found consultant candidates, and recruited participants for the key informant interviews and focus group discussions.

African Field Epidemiology Network (AFENET)

In continuation of its technical assistance to the African Field Epidemiology Network (AFENET) Public Affairs Office, a series of regional seminars and workshops as well as on-site TA have been conducted at the AFENET Secretariat in Kampala and in Dar es Salaam, Tanzania.



Web design team at AFENET meeting

Following the approved communication plan and implementation timeline, technical work began on the redesign and update of the AFENET website and intranet connectivity that eventually will connect all country offices through a web-based system and be a core component of communication among the partners and network. The Public Affairs Office and PREVENT technical team worked with a local contractor on content and website design. There have been several tests of the website and plans are to have it operational by mid-July 2011.

AFENET
African Field Epidemiology Network
A healthier Africa

An effort to update or create communication materials for both web and print distribution also was started. We have worked with our Ugandan contractor, Real Marketing, to format and design communication packet on AFENET. Materials being revised or developed include AFENET Organization Profile, Risk Management Communication Guide, an information packet, an interactive newsletter, a Communication Manual and eight AFENET program booklets. The materials are awaiting final approval by the AFENET executive committee and then will be available on the website and in print form. AFENET Secretariat has also revisited its logo keeping the African map on the left side, eliminating the world globe and enlarging the AFENET brand name, underlining it with the "African Field Epidemiology Network" in small text. The tag line "A Healthier Africa" is placed at the bottom. All the elements continue to be in the AFENET blue used in the previous design. The board of directors approved the new logo on June 24, 2011.

In May, an ebola virus outbreak was declared in Uganda after one young girl was believed to have died from the ebola virus in the Luwero district, 46 miles north of Kampala. Several suspected cases were also identified in the first two weeks after the young girl's death. (b)(6) AFENET

epidemiologist, along with the Public Affairs Office worked closely with the Ministry of Health Task Force to provide support in the areas of surveillance and containment and communication technical assistance. Utilizing existing funds, AFENET funded the first two weeks of an advertising campaign to alert the population about the risk and prevention measures against the ebola virus. The campaign was coordinated by Real Marketing. As part of their contract with FHI 360, Real Marketing also helped secure media interviews for (b)(6) as an expert spokesperson during the outbreak. She was interviewed by several national and international media outlets on the progress of the investigation and follow up steps on the outbreak. Fortunately, there were no additional cases discovered and the outbreak was declared over on June 17, 2011, 42 days after the young girl's confirmed diagnosis.

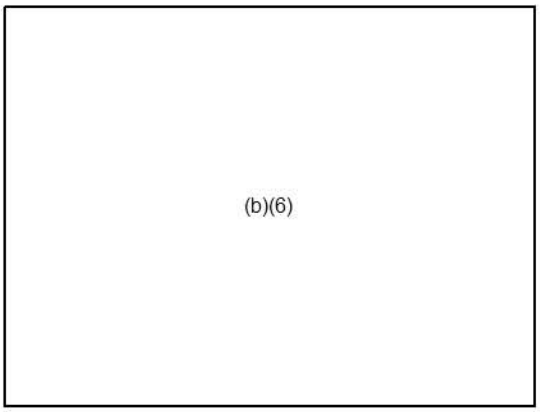


Dr. Musenero at Luwero Press conference.

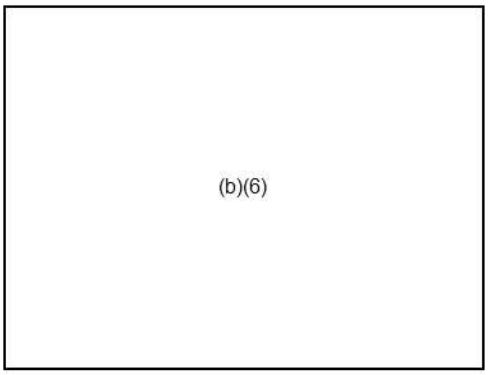
An overlooked skill of field epidemiologists is the ability to communicate with diverse audiences. Field epidemiologists are generally seen when there is a serious or crisis situation and have to be the bearer of bad or serious news. A cornerstone of the technical support PREVENT is providing to AFENET is to create a network of spokespeople strategically located throughout AFRICA. The first of a series of communication workshops for Anglophone Africa was held June 26-28, 2011. Fifteen field epidemiologists from nine countries participated in the three-day workshop on Applied Communication. Conducted by PREVENT technical staff, the workshop was a mix of classroom practicum and on-camera experience. The majority of the participants are spokespeople in their countries when there are public health issues or outbreaks and though they have experience in dealing with the media, decision-makers and general public, having a better understanding and experience of thinking through key talking points, communication strategies, and techniques will enhance their skills and performance. The case study for the Applied Communication training was the ebola virus outbreak in Uganda. A special interest was voiced and discussions held on ethics in communication. It was agreed to plan a day-long seminar on ethics to look carefully at what is good for the public health of a community and how to protect the rights of an individual.

The next workshop will be on Risk Communication for the original participants plus two new participants. That workshop will be held in Dar es Salaam on July 21-22. A francophone Applied Communication training workshop is scheduled for September in Dakar.

A second training was conducted in Dar es Salaam on July 2-3, 2011for the public affairs officers and account executives from the public affairs agency. The three participants were (b)(6) and (b)(6) from the AFENET Secretariat's Public Affairs Office, and (b)(6) Real Marketing. The workshop, a master training on spokesperson and media management skills, was conducted by (b)(6), PREVENT consultant. The training builds capacity and transfers technology to the Public Affairs staff so these functions can be conducted without PREVENT and outside consultants.



Applied communication workshop in Dar es Salaam



AFENET workshop participants

In 2011, AFENET celebrates the 5th Anniversary of its founding. To commemorate the occasion, a Scientific Conference is planned for December in Dar es Salaam. The Public Affairs Office will provide communication support in the planning and public affairs activities. AFENET will work with a Tanzanian public relations agency to help with logistics and coordination of the communication. AFENET communication materials will carry a special AFENET logo highlighting the Fifth Anniversary and a second with the Scientific Conference. More than 500 participants are expected to attend the event in Dar es Salaam in December.

Humanitarian Pandemic Preparedness (H2P)/Towards a Safer World (TASW)

FHI 360 has continued to maintain and manage the H2P website (http://www.pandemicpreparedness.org) and under the direction of PREVENT's USAID AOTR will continue to do this until September 2011. During the April - June 2011 period, the website received 493 visits of which nearly 50 percent were new visitors from 62 countries/territories, including the USA, Switzerland, Italy, Thailand, UK, India, Canada, Australia, Bangladesh, and Indonesia.

As a follow-on to H2P, FHI 360 continues to support the Towards a Safer World Initiative in various capacities since the TASW launch in the fall of 2010. The three main areas that PREVENT has been supporting are communication research and writing, public relations and advocacy, and development of the online portal/community. In addition, through PREVENT partner, G6 Partners, FHI 360 has been supporting the development and implementation of the TASW Communication Strategy including public relations and advocacy efforts.



PREVENT consultant (b)(6) submitted another iteration of the communication sector paper which will be further edited and put into a book to be shared at the September meeting. The communication paper was the result of a combination of literature review and key informant interviews. (b)(6) interviewed more individuals at the country-level to get a better understanding of events from a local perspective, including interviews with individuals from Egypt and Nigeria. PREVENT has hired a consultant, (b)(6), as the primary editor for the TASW book. (b)(6) will take the existing TASW sector papers and pull them together as a final product that will be shared in September. She will work with paper authors and other stakeholders to gather more information and bring together relevant supporting documentation. PREVENT has also identified (b)(6) Design as the graphic designer to design and put the product together.

On May 8-12, 2011, Technical Manager (b)(6) and G6 Partners' (b)(6) traveled to Geneva, Switzerland, for the UN-ISDR Global Platform for Disaster Reduction. The Global Platform for Disaster Reduction is a biennial forum for information exchange, discussion of latest development and knowledge and partnership building across sectors, with the goal to improve implementation of

disaster risk reduction through better communication and coordination amongst stakeholders. (b)(6) and (b)(6) provided technical assistance as part of TASW, including providing communication support to presenters (b)(6) (USAID), (b)(6) (IMC-PREPARE), and (b)(6) (b)(6) (WFP). In addition, (b)(6) and (b)(6) helped record (by video and text) TASW specific events including the Preparedness Roundtable chaired by (b)(6) and the IGNITE sessions conducted by (b)(6) and (b)(6)



To coincide with the UN-ISDR Global Platform for Disaster Reduction forum, the TASW website launched to the public on May 9, 2011. The website (http://www.towardsasaferworld.org) which was developed by Forum One Communications is the central repository for information regarding TASW and encourages individuals to register as part of the TASW community. This community will help generate discussion between individuals and help in the information gathering activity of the TASW Initiative leading up to the September meeting. From May 9 - June 30, 2011 period, the website received 1,686 visits of which nearly 45 percent were new visitors from 53 countries/territories, including the USA, Italy, Nigeria, Canada, Uganda, United Kingdom, India, Switzerland, Philippines, and Sweden. Furthermore, TASW will be using different types of social media to further promote itself, including Twitter (@tasw_initiative), Facebook and YouTube. These social media outlets were used during the UN-ISDR Global Platform to share TASW information including "live-tweeting" the panel on preparedness that was chaired by (b)(6) PREVENT will continue to collect relevant stories and information from regional and national level actors to support the TASW Initiative, including individuals from AFENET that will then be uploaded to the TASW YouTube page.

On June 27 – 29, 2011 (b)(6) traveled to Rome, Italy to participate in TASW working group meetings. These meetings were intended to finalize details regarding the September event, update on progress of communication support including the TASW book and sector chapters, and establish roles leading up to the meeting. After the meeting, it appears the venue will change to a hotel instead of the WFP-HQ in order to accommodate more participants. In addition, PREVENT will work with the WFP Communications team closer to the event to support the meeting.

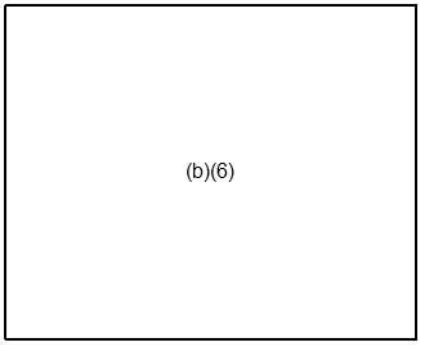
Avian Influenza (AI)/Bangladesh

FHI 360 began its final full quarter of activities in Bangladesh. With the reported human case of H5N1 in urban communities close to several life markets, FHI 360 had two of its technical teams visit Dhaka in April and May. (b)(6) from FHI 360's Bangkok office and communication consultant, (b)(6) (b)(6) visited separately and had a series of meetings with the appropriate government ministries and agencies, Ministry of Health and Department of Livestock Services. They also met with the international and national civil society community, i.e., World Bank, FAO, UNICEF, and the private sector, including the Bangladesh Poultry Association, Unilever, and Square (soap manufacturer). Plans were established to implement a prevention campaign in response to the H5N1 virus outbreak.

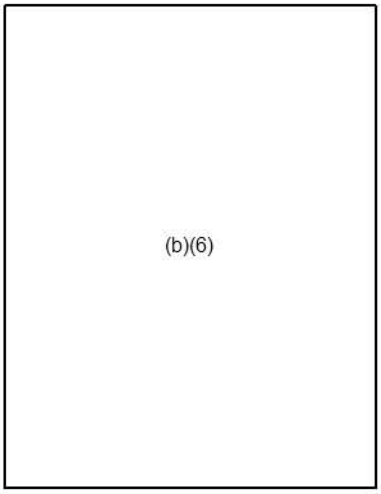
A communication plan that responded to the threat of human cases was developed, and along with our local training partner, Research, Training and Management International (RTM) and our local consultant, (b)(6) we organized a stakeholders meeting for approval to move ahead with work in the markets and then a series of training of trainers for the high-risk markets' staff. The stakeholder meeting was held June 8, 2011 in Dhaka.

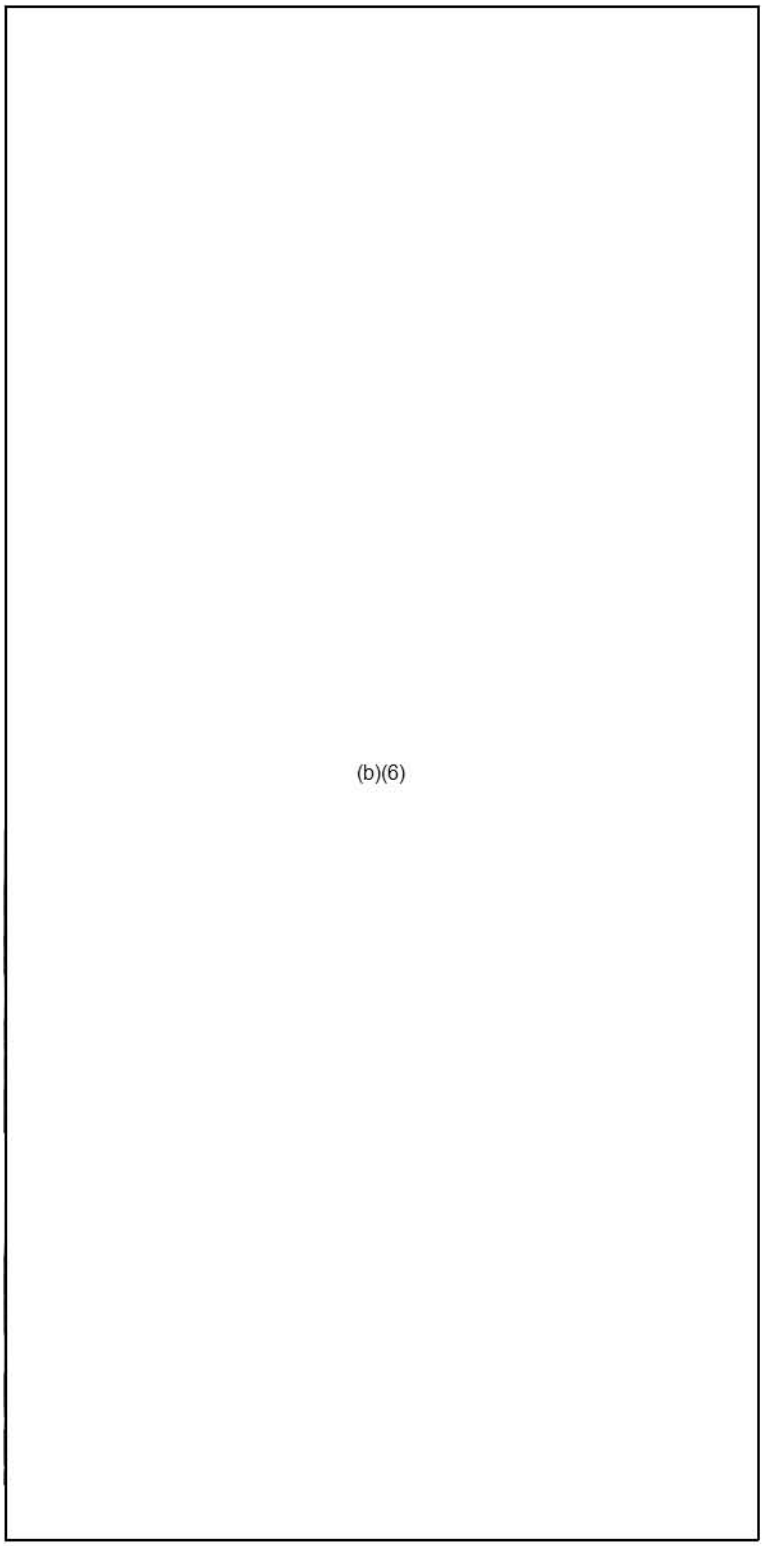
Stakeholders Meeting

Attendees and speakers at the June 8 meeting included Department of Livestock Services; Veterinary Officers from Dhaka City Corporation (DCC); scientists from the Directorate General of Health Services (DGHS); project manager of Live Bird Market Project, national consultants and scientists from FAO; Head, Respiratory Viruses Cluster and Assistant Scientist from ICDDR,B; scientists from Institute of Epidemiology, Disease Control and Research (IEDCR)/WHO; a project director for Avian Influenza Preparedness and Response Project (AIPRP)/World Bank; and owners/leaders from the live bird markets where we would be working and where there were outbreaks.

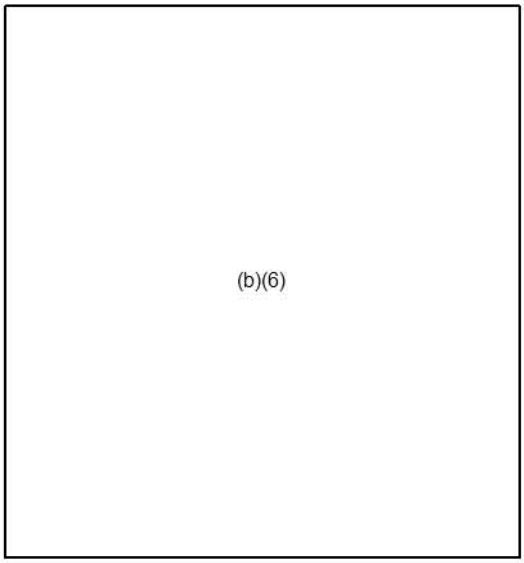


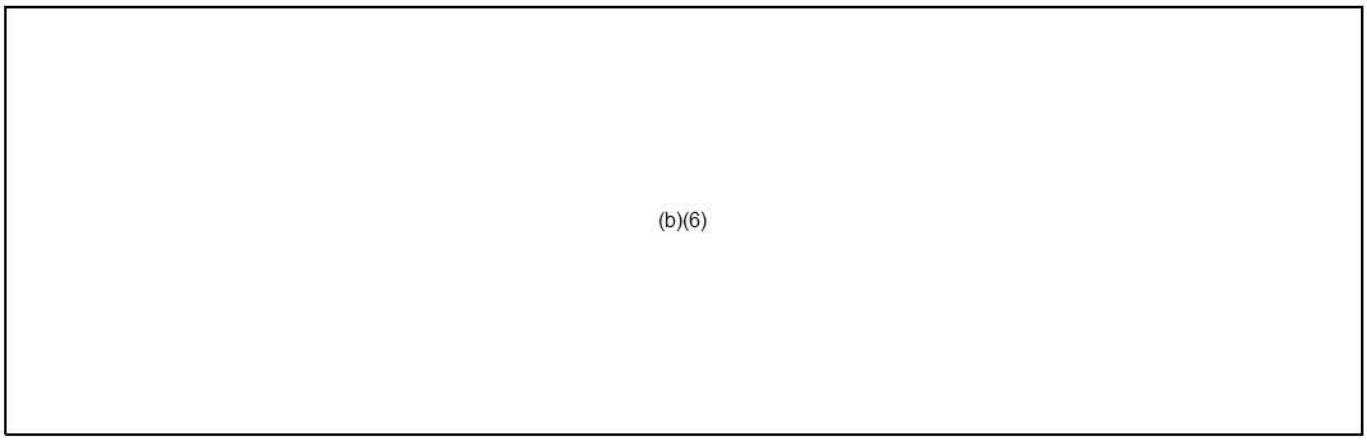
Participants at the stakeholders meeting





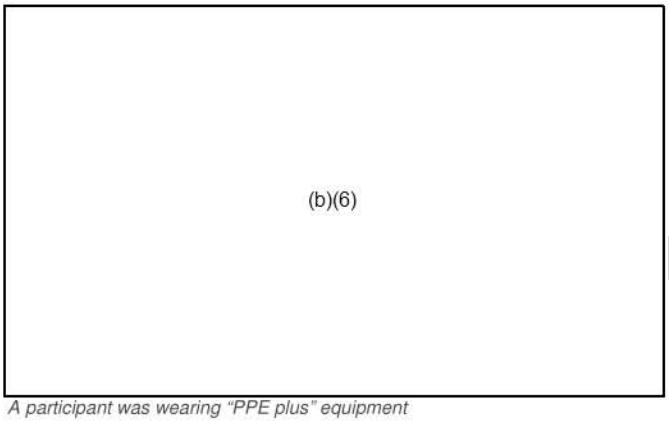
The Joint Secretary of the Ministry of Fisheries and Livestock (MoFL) expressed his appreciation for the rapid response initiative funded by USAID through FHI 360's PREVENT project and acknowledged the need of such projects for the Live Bird Markets (LBMs) to improve their bio-security measures. He also emphasized the long-term need for behavior change activities to sustain positive actions. He said that the people working in live bird markets need to continue with good practices of bio-security and bio-safety in their daily activities so these practices become routine.





Training of Trainers for Vendors and Veterinarians

With support from the stakeholders we moved ahead with RTM and our government counterparts to conduct a series of training of trainers for live bird market vendors and veterinarians that work in and around the at-risk markets. Building on our previous work with STOP AI and FAO, we worked in partnership with Department of Livestock Services (DLS), MOFL, FAO, and Dhaka City Corporation and market owners to implement the training. The June 20-21 TOT included 25 market staff that are responsible for cleaning and disposal of poultry waste and 100 poultry processing vendors from the five live poultry markets in Dhaka. Participants also included the chief veterinary officers (CVO) of Bangladesh, DLS, Asst. Director, four DLS veterinary surgeons, three solid waste management officers from Dhaka City Corporation and three veterinarians.



A participant was wearing "PPE plus" equipment

The training focused on cleaning and disinfection of facilities, cages, processing and disposal areas at the five large poultry markets in and around Dhaka.

(b)(6) Chief Veterinary Officer (CVO) of Bangladesh, stated that it is not possible for the Government to do all the necessary work alone; and that he seeks help from donors and NGOs to prevent AI in Bangladesh. He also stressed building awareness, maintaining good practices, and striving for sustainable approaches.

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT
JULY 1 — SEPTEMBER 30, 2011

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
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Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. The Project focuses on using behavior change and communication to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. PREVENT, a cooperative agreement, is part of a larger USAID program on Emerging Pandemic Threats (EPT Program).

AED Acquired by FHI – Formation of New Entity

On June 30, 20ll, Family Health International (FHI) acquired AED and all of its programs and assets, including PREVENT. To facilitate a smooth transition and continuity of services, FHI created two wholly-owned subsidiaries named FHI Development 360, LLC (formerly AED) and FHI Solutions, LLC (formerly AED/ARTS) that will operate these programs on their behalf. As part of the integration process, FHI Development 360, LLC is actively engaged in the local registration process with the appropriate government authorities in countries where it operates. Once the registration process and other preparatory activities are completed, assets and employees will transition to FHI Development 360, LLC.

Until such time, FHI and AED have legal agreements in place that enable AED to operate programs and act as a local representative agent on behalf of FHI Development 360, LLC to ensure continuity of operations. During this transition period, FHI will lease the services of AED to administer the relationships with banks, employees, partners, sub-grantees, vendors, and other service providers including facilitation of payments.

During the past year, PREVENT has been focusing on emerging pandemic threats predominantly in the Congo and Mekong Basin areas, the H5N1 virus in Bangladesh, human pandemic preparedness in the context of the "Towards a Safer World" initiative, and supporting the public affairs and communication capacity of AFENET (Africa Field Epidemiology Network).

Emerging Pandemic Threats (EPT)

Congo Basin Regional

Planning Meeting

PREVENT Technical Director (b)(6) attended the EPT Program Congo Basin Regional Meeting in Kinshasa on July 27–28. Partners reviewed plans, discussed coordination, and reviewed activities proposed by all the partners for each of the countries in the region. In addition, (b)(6) gave a presentation about the 20-year effort of USAID's Central African Regional Programme for the Environment (CARPE) in the region and invited partners to work with CARPE.

(b)(6) met with (b)(6) World Conservation Society – Republic of Congo (WCS ROC) to discuss collaboration between PREVENT and WCS on a number of areas where conservation and health interests overlap – for example, in persuading communities to report dead animals and either refrain from eating them or handle them in a way that reduces possible risk; in working with extractive industries (logging and mining); and in working with markets. They decided that collaboration would most effectively be accomplished if PREVENT could second a staff person to ROC to work there with WCS. She also met with (b)(6) from the U.S. Embassy – ROC, who expressed strong interest in PREVENT's working on extractive industry in ROC, and with (b)(6) the EPT lead from WHO-AFRO, who expressed interest in tapping PREVENT's expertise in communication and behavior change. PREVENT is currently proposing hiring an advisor who could spend 80 percent time at WCS and 20 percent time with WHO-AFRO.

Cameroon

Behavior Trials

Over the past several months, PREVENT subcontractor, Global Viral Forecasting Incorporated (GVFInc), worked with FHI 360 to conduct behavioral trials in Cameroon. Based on the Trials of Improved Practices (TIPS) approach (Manoff International, 1980; Dickin, Griffiths and Piwoz, 1997), the behavioral trials technique allows an analysis of the acceptability (willingness to try) and the feasibility (ability to perform) of specific behaviors, in this case aimed to prevent zoonotic disease transmission to hunters and butchers of wild meat. The behaviors that were trialed included more detailed versions of several that have been promoted by GVFInc's's rural Healthy Hunter program, including: 1) protecting skin from animal blood exposure – *by wearing long sleeves, long pants and/or*

shoes – when hunting ; 2) wrapping cut meat in plastic or leaves – *before transporting to sell* – to avoid blood contact; 3) washing hands with soap – *after touching animals and preparing food and before eating*; and 4) avoiding handling wild animal meat *when you have open sores*. To investigate behaviors addressing other transmission routes, the PREVENT team added two additional behaviors to the behavioral trials: 1) avoiding eating fruits that have been touched/eaten by wild animals; and 2) avoiding inhalation of rodent or bat feces/urine around the house.

During April the team recruited 101 hunters and butchers in the Francophone region of Nyabaissan and in the Anglophone region of Abat. During enrollment, they presented possible behaviors and asked people to select ones that they would try to practice during the following period. In May, five weeks after enrollment, follow-up visits were conducted in the six villages of Nyabissan and in the five villages of Abat to learn who tried each selected behavior and what results they had. If people did not try a negotiated behavior, the team found out why.

During the follow up phase, 50 percent of participants tried the recommended behaviors (some had said they would try behaviors that they turned out to have no opportunity to practice; in addition, some participants were not available for the follow-up interview. We conservatively estimate that they did not try the behaviors). Behaviors that focused on hand washing and protecting family members from breathing dust from excrement and hand washing were tried by the largest percentage of participants that had agreed to try them – 75 percent and 85 percent, respectively. Data is currently being analyzed to ascertain motivating factors for the six behaviors and sub-behaviors, as well as barriers to adopting those practices. Based on the results of the behavioral trials, specific recommendations will be made for development of a strategy for the program expansion phase, which will be developed next quarter.

Pretest of the Market Ethnography Instruments and Methodology

In August, following three days of team training, PREVENT conducted an intensive field test of the approach, consent forms, and instruments to be used in the rapid market ethnography. The pretest was carried out in seven markets in small- and mid-sized towns in Eastern Cameroon and in six markets in Yaoundé. The study involves several types of data collection: in-depth interviews with market managers, vendors, butchers, cleaners and others who work in the market, observations of sales interactions and of people cutting meat, a detailed observation of the market and short observations of the numbers of sellers and different types of meat for sale at specific periods during the day, and a short exit interview survey of shoppers.

The team successfully pretested all but one instrument – for "other vendors" – as it did not prove possible to talk with wholesalers, transporters, etc. More than 100 people were interviewed (66 shoppers plus 42 market sellers, butchers, managers, and cleaners). Twelve detailed market observations were completed, as well as 17 sets of short observations. In addition, the team completed observations of 47 sales interactions and of 21 people cutting/butchering meat (many of them vendors).

Interviewers encountered vendors and shoppers with a range of reactions, some of whom were open to discussion and others who were hostile. The interviewers reported sometimes spending up to an hour explaining the informed consent form, receiving evasive and inconsistent answers. In addition, some vendors stopped answering midway through the interview, possibly because of discomfort with the content of the questionnaire but also because the questioning session could be long, with frequent breaks while vendors dealt with customers. In most cases where sellers refused or stopped the interview, it was possible for interviewers to sit nearby and observe sales interactions with clients.

Getting consent was challenging. PREVENT had opted to ask only for a mark (X) so that no record of names appeared on any interview form. However, a significant number of shoppers, in all markets, were willing to be interviewed but unwilling to mark (X) the Informed Consent form. This resulted in fewer interviews with sellers than desired and required intercepting many shoppers in order to get the quota of six per day. In the Yaoundé markets, it was extremely difficult to engage shoppers, because the markets are crowded, people are in a hurry, and they are concerned about security issues and therefore often don't respond to people who address them.

Unsurprisingly, most people (except for those who manage markets) did not agree to have their interview recorded.

Selected Findings

While the pretest was not designed to collect systematic information about markets (for example, instruments were revised several times in the course of testing as the team found better ways to ask questions) we learned some interesting things.

Market management: In rural market sites, it seems that private individuals manage the market, whereas in urban areas, the council manages the market.

Source of bush meat: In rural markets vendors (mostly women) procure meat from hunters (mostly men) or from other suppliers (both men and women) who bring meat to market to sell to other vendors. In urban markets, both in Bertoua and Yaoundé, we were unable to get much information about sources, as vendors are naturally protective of their sources and acutely aware of the potential for law enforcement crackdown on their business.

Circulation of meat: East and South regions supply Yaoundé in bush meat, which is considered a precious gift kept for visiting family members. Bush meat flows from hunters in bush to small bush meat markets and to towns. Less bush meat is sold in town markets than in rural markets.

Transport of meat: All types of vehicles are used to transport meat – motor bikes, public transport vehicles, cars, etc. The transporter may be in contact with animal's blood all the time (meat is not wrapped in waterproof plastic papers).

Meat availability, types and storage: Most of the meat visible in markets in Yaoundé was smoked; in other areas a range of live animals and fresh and smoked meat was available. For the smoked meat, it was hard to determine species, apart from bats and monkeys.

Some markets had cold storage. In others, due to the cost or simply the absence of freezers, meat is buried in holes dug in the ground and covered with dirt, then removed the next day and offered for sale again.

Shoppers' profile: Most shoppers were women, with a few men and adolescent children. The women are either restaurant holders or are buying for family consumption.

Reasons given for consumption of bushmeat: Availability; cost, people claim it is cheaper; taste, people say bush meat tastes good.

Sanitation and bio-security: Extremely poor in the markets:

- Meat is exposed to dust and touched/handled by almost everyone coming to buy;
- Live animals wander around the market; sometime dogs carry meat away when the vendor is not vigilant.

- Most sellers and butchers do not use protective garments, except for dirty clothes to keep their actual clothes clean. Butchering is done directly on the bare ground or on old aluminum sheets or planks of wood. Wounds while butchering are reported to be common.
- Viscera are disposed in the nearest bush and sometimes eaten by dogs and birds, or cleaned for consumption by buyers who may seek out cheap meat.

Awareness of possible health hazards: Low awareness associated with bush meat consumption or manipulation at all levels: market managers, vendors, butchers, shoppers, etc.

Next steps

The PREVENT technical team has revised the instruments and protocol based on the pretest experience. The FHI 360-expedited Institutional Review Board (IRB) approval was received in September,, and PREVENT has been notified that the Cameroon National Ethics Committee has approved the protocol. We are waiting for signature. We expect the market ethnography to be implemented before the end of 2011, with PREVENT staff present for training and first field site to standardize and to assure data quality.

Gabon

Market Mapping

In June–July, the revised market mapping form was used to map markets in the Woleu – Ntem, in northwest Gabon. (b)(6) the GVFInc Rural Site Coordinator, traveled from the Cameroon border to the villages of Bitam and Minvoul and the city of Oyem to observe roadside wild meat vendors and map markets along the main road. At the Cameroon-Gabon borders, the team observed procedures for checking imports/exports of animals.

The team observed that there were not as many roadside markets in Gabon as in Cameroon. In the twenty five-kilometer sections of road surveyed, a total of 21 different roadside markets selling bush meat were observed. The most frequently observed species for sale were porcupines, antelopes (mostly blue duiker), spotted-nosed monkey, moustached monkey, and De Brazza monkey.

On the main road between Bitam and Libreville, Gabon, bush meat is "first come, first served." The traffic is high, and bush meat is displayed on the roadside or held by the hunter coming back from the forest and collected by passengers in the first bus or car that passes. Buyers feel lucky to come across the meat, and price is not discussed – the buyer appears to pay the amount the hunter asks. Sometimes a hunter will refuse to sell because he has received an order to supply in town.



Gabon Market: Poor biosecurity

Markets in this part of Gabon are found only in towns. Six markets were observed: four large and two small. The most busy and diverse markets for bush meat sales were Bitam and Oyem, where bush meat is always available. In the bush meat markets, law enforcement seems not to be as strict as in Cameroon. There seems to be less reticence among vendors in talking to outsiders than in Cameroon, perhaps due to there being fewer repercussions and less crackdown from law enforcement.

Key informants stated that vendors and household consumers are regularly supplied by hunters from surrounding villages or traders who sometimes travel to remote areas in the forest and other markets for wild animals to sell.

Due to the high demand for bush meat, many hunters (especially those living in remote areas) do not display their meat after hunting or visiting their traps. The phone network coverage is quite good and the majority of villages are connected to at least one service. Hunters keep traders' (always women) phone numbers and call them when the meat is available. Then they will either transport the meat by "public pickup" or bush cars to supply their client in the city, mostly Oyem. Due to this informal communication and sales network between hunters and traders, a good proportion of the meat trade is likely to be conducted outside market settings.

During fieldwork, the team did not observe any smoked meat in markets or on roadsides, meaning that most wild animal meat is prepared and consumed when it still fresh.

Mekong Basin Regional

Work planning meeting in Bangkok

EPT project partners were brought together to continue to build project collaboration and a shared vision for FY 2012 at the Regional Southeast Asia EPT Planning meeting held July 12–13 in Bangkok, Thailand. Dennis Carroll set the stage on day one by presenting an overview and vision of the EPT program. He emphasized both inter-project collaboration and the importance of continued partnership with local government and partners. Presentations were given by ICDDR,B, ARREST, AFIRMS, US-CDC, FAO, and WHO. The presentations included both EPT activities and potential synergies with activities external to the EPT program. The final afternoon was spent in an open forum. EPT projects posted proposed FY 2012 activities by country, and all participants were encouraged to walk around and discuss synergies and share information across projects. PREVENT posted activities for Indonesia, Viet Nam, Lao PDR, Thailand, and Cambodia. Many participants expressed interest in PREVENT's planned research for estimating human-animal exposure rates.

In addition to the regional planning meeting, work plan meetings were scheduled across the region this quarter. Similar to the regional meeting, the purpose of the country-level planning meetings was to improve project collaboration and provide a forum for information sharing before work plans were due. The country-level planning meetings provided a forum for open discussion of completed and on-going activities planned for FY 2012. PREVENT's attendance at work plan meetings in Hanoi and Bangkok for Lao PDR, Vietnam, Cambodia, and Thailand provided a platform for PREVENT to leverage opportunities and co-plan with project partners. The individual country planning meeting highlights are outlined under the country-specific sections on the following pages.

Thailand

(b)(6) was in Bangkok, Thailand to participate in the Lao PDR and Thailand EPT Workplan Meeting held on June 23–24 and the Regional EPT Workplan Meeting in Bangkok, Thailand on July 12–14.

EID Preparedness Forum

The EID Forum is a regularly scheduled monthly meeting held in Bangkok on the first Thursday of every month. It is hosted by PREVENT, RESPOND, and the Asia Disaster Preparedness Center, with

a rotating chair. PREVENT's Asia Regional BCC Advisor, (b)(6) chaired the Emerging Infectious Disease Forum on September 1, 2011.

The theme of the meeting was the Use of Mobile Technologies for Health and Disaster Response. The event featured two speakers. (b)(6) Deputy Director, Communicable Disease Control Department, Ministry of Health, Cambodia, spoke about the Cambodian MOH's utilization of mobile technology to receive feedback from the field and to be able to provide rapid updates and alerts to its 1200 field officers throughout the country.

(b)(6) Head of Communications, Asia/Pacific, for the International Federation of Red Cross and Red Crescent Societies shared their experiences in using mobile technologies to provide rapid informational updates in the Haiti earthquake disaster.

(b)(6) also attended the EID Forum meetings in July and August. The theme of the August monthly forum was "One Health," chaired by (b)(6) FAO Communication Coordinator. There were three speakers: (b)(6) Regional Focal Point, Environmental Animal Health Management Initiative – Philippines, "An Intersectoral Approach to Bat Surveillance for Ebola Reston in the Philippines;" (b)(6) Principal Scientific Officer and Head, Department of Medical Sociology Institute of Epidemiology, Disease Control and Research (IEDCR) Bangladesh, who spoke on the topic, "Putting One Health to Work in Bangladesh;" and (b)(6), Head, Animal Disease Eradication Section, Directorate of Animal Health, Ministry of Agriculture, Indonesia, who spoke on the topic, "An Intersectoral Approach to Rabies Control in Indonesia."

The July Meeting was chaired by Stan Fenwick, DVM, Public Health Veterinarian, RESPOND South East Asia Technical Advisor. The speakers included (b)(6) PREDICT Vietnam Country Coordinator, WCS, speaking on the topic of "The Illegal Trade in Wildlife – a Catastrophe for Conservation and a Melting Pot of Microbes" and two speakers from Freeland – (b)(6) Senior Programs Officer and (b)(6) Regional Communications Officer, who presented on the topic, "Wild Trade – a Threat to National Security."

Human-animal Exposure – Formative Study Pilot in Thailand

In July, PREVENT piloted the formative study portion of the human-animal exposure study in Thailand. The goal of the formative study is to obtain information to inform the development of standard surveys that will be used to document frequencies of humans' exposure to animals. The formative study covers four areas:

- ***Animal names***: What are the local names of the key animals of interest – various types of bats, primates and rodents?
- ***Animal domains:*** What categories do people use when they think about animals? For example, will asking about "wildlife" elicit reports of peri-domestic contact with rodents or should there be questions about both "wildlife" and "pests"?
- ***Animal roles:*** What cultural, religious or legal issues may make it difficult to obtain information?
- ***Animal contacts:*** How do people recognize/categorize their exposure to animals (direct or indirect)?

The pretest also assessed different methods of obtaining this information.

The study was conducted in the Khon Kaen Province (in I-San region) in the districts of Phu Pa Man (rural) and Muang (urban). Fourteen focus groups and 20 individual interviews were conducted among three groups: adult women, adult men, and mothers of 10–14-year-old boys. The study received IRB exemption in the U.S., and was given approval by the Khon Kaen Public Health Center (KKPHC). A team of three researchers (one from the U.S. and two from Thailand) conducted the pilot between July 12 –24, 2011.

During the pilot, formative tools were tested and continually modified in the field to improve their effectiveness in gathering rich and reliable information as well as ease of administration. The tool kit developed from this activity will be used in the region for gathering formative information.

A preliminary report on the findings from this study is available; the final report is currently being written. A toolbox for the formative study is being assembled; it will be used in one country in the Mekong region in the next quarter.

Vietnam

Work Planning Meeting

(b)(6) participated in the EPT Work planning Meeting held at USAID/Vietnam on June 20–21, 2011. Representatives from USAID, PREDICT (WCS), RESPOND (DAI), and IDENTIFY (OIE,

WHO, and FAO) began the meeting reporting on progress made and activities planned for year three. Ample time was reserved to discuss project synergies within the EPT Program and of relevant non-EPT programs. A spreadsheet that organized project activities by line of work and theme was created to organize activities across all EPT projects. At the end of the meeting EPT project participants debriefed the USAID Vietnam Mission Director on the EPT program and project activities. The result of the two-day working meeting was an EPT-coordinated Vietnam Work plan that was used during the Regional EPT Workplan Meeting in Bangkok, Thailand in early July.



Vietnam Planning Meeting

Hiring a Vietnam Country Coordinator

PREVENT will be ramping up activities in Vietnam and is hiring an in-country coordinator to support activities. In August the project advertised for a Program Coordinator in Vietnam. In early September, PREVENT short-listed five potential candidates. While in Hanoi, (b)(6) PREVENT BCC Advisor, interviewed potential candidates for the position. PREVENT is in the final stages of completing reference checks.

Lao PDR

Work Planning

This quarter, (b)(6) and (b)(6) advanced work planning for FY 2012 through meetings with EPT partners and stakeholders including FHI 360, Wildlife Conservation Society (WCS), Lao Women's Union (LWU), and research firms Indochina Research Company (IRL) and the Burnet Institute.

The acquisition of AED by FHI 360 was completed by the beginning of this quarter. (b)(6) and (b)(6) met with the country FHI 360 office to introduce the PREVENT and MID-BCC projects and to learn about FHI 360 programs. Additional operations issues such as the MOU with the Government of Lao PDR were addressed at this time.

(b)(6) and (b)(6) met with Indochina Research and Burnet Institute. These two firms have the capabilities to carry out qualitative research necessary for PREVENT's formative research to

understand human-animal exposure rates. Next quarter, PREVENT will develop a request for proposals and compete all potential in-country research partners.

In February 2011 PREVENT carried out an omnibus survey in the region on respondents' consumption of key types of wild animal meat: bats, rodents and primates. Because the price for an omnibus in Laos was not competitive, PREVENT conducted the research only in Thailand, Vietnam, Indonesia, and Malaysia. PREVENT would like to explore the possibility of working with the Lao Women's Union (LWU) on a rapid questionnaire regarding consumption and location of key wild animal species in order to select areas of the country where human exposure to potential zoonoses through this route might be greatest. LWU expressed interest in using their extensive network to collect data for PREVENT's proposed consumption study. PREVENT will develop a concept note for LWU that explains the specifics of the 'research training' that will be given to LWU members; collecting data will build capacity of LWU and provide information on the consumption of wild animals for a fraction of the cost of a customized survey.



Vang Vien Market, poor biosecurity



Vang Vien Market - Wild birds, squirrels, bats

(b)(6) and (b)(6) from WCS, PREVENT's proposed partner in Lao PDR, worked together to adapt and pretest PREVENT's market scoping tool (used by PREVENT in Cameroon and Gabon). They visited the Vang Vieng market in the evening (4:00 p.m.) and in the morning (6:00 a.m.) and the medicinal market at Pa Hom (3:00 p.m.). The markets carried bats, bamboo rats, and squirrels (all key species for PREVENT). Most vendors were willing to have their pictures taken and chatted with them casually. Most of the women observed during this field visit who were selling wildlife did it in conjunction with vegetables or fruit.

Based on the field visit, PREVENT will update the market scoping forms. In FY 2012 PREVENT and WCS will gather quantity, price and biosecurity data from markets over the course of the next year. This activity is planned in conjunction with WCS's animal sampling at markets.

Literature Review

The Lao PDR literature review began this quarter. Two consultants will work in tandem to perform a desktop review of existing published and unpublished literature (in local languages and English) on risky practices and behaviors that affect the transmission of disease from wildlife to humans, on social norms that support these practices or that might support less risky ones, and on the "enabling environment" for such practices or for less risky ones. The outcome of this research will be a report that provides an up-to-date summary of what is known about contact between humans and animals in Lao PDR, with a focus on bat, rodent and primate species and the motivations and circumstances that support risky practices. The final report is expected next quarter.

Meeting with U.S. Ambassador to Lao PDR, Karen B. Stewart

On July 28, PREVENT BCC (b)(6) attended a meeting with the U.S. Ambassador to Lao PDR, (b)(6) The purpose of the meeting was to brief (b)(6) on the four components of the EPT program. The Ambassador was interested to know the objectives of each component and the expected outcomes in Lao PDR.

USAID's (b)(6) facilitated the meeting, introduced the EPT program, and representatives from each of the projects briefed the Ambassador on key objectives and expected outcomes of their projects, with an emphasis on synergies and complementarities.

PREVENT coordinated with the other partners to jointly prepare a summary – a combined matrix showing each project's key objectives and outcomes. The meeting provided a useful opportunity to increase the Ambassador's understanding of EPT and help to keep it prominently on her screen. It also represented an important opportunity to strengthen support for EPT within the U.S. Embassy. The Ambassador expressed her strong support and appreciation for the EPT program, and the component projects. She indicated that she wanted to better understand EPT and also wanted to see how the projects coordinated with and complemented each other.

Introduction to Surveillance for Emerging Zoonoses in Wildlife Workshop

On July 29, PREVENT BCC Advisor (b)(6) and Lao PDR Country Coordinator, (b)(6) (b)(6) attended the introduction to surveillance for emerging zoonoses in wildlife workshop at the Lao Plaza Hotel. The workshop was chaired by (b)(6) of USAID. Approximately 35 participants attended the workshop. They included national and provincial representatives from NEIDCO, Ministry of Agriculture and Forestry, Department of Livestock and Fisheries, National

Animal Health Center, and Nabong Agricultural College. Provinces represented included all seven provinces in which PREVENT and PREDICT expect to work: Vientiane Capital, Huaphanh, Xieng Khuang, Bolikhamxay, Khammouan, Champasak, and Attapeu. Also in attendance were regional and country representatives from PREDICT, RESPOND, and USAID.

The main purpose of the workshop was to provide national and provincial animal health officials with an orientation to the EPT Program and the One Health Concept, as well as to provide specific, practical training in sampling and surveillance of wildlife for zoonotic diseases. Presenters included (b)(6) (b)(6) (USAID), (b)(6) (PREDICT/WCS), (b)(6) (PREVENT/FHI360), and (b)(6) (b)(6) (RESPOND/DAI).

The opening presentation by (b)(6) provided an orientation to the overall program, while (b)(6) (b)(6) provided more specific information about the "One Health" Concept, and practical aspects of surveillance and sampling. (b)(6) provided an overview of PREVENT's work in behavioral aspects of zoonotic disease risk and the role of behavior change and communication, while (b)(6) (b)(6) provided an overview of training activities being conducted by RESPOND and their partnership with Nabong University.

Presentations included:

- One Health Approach and Emergence of Zoonotic Diseases from Wildlife
- Targeted Surveillance Through Identification of High-Risk Interfaces and Species for Zoonosis Transmission from Wildlife
- Human Behavior and Zoonotic Disease Transmission -- Risk and Reduction
- The Use of Personal Protective Equipment during Sample Collection
- Current Wildlife Surveillance and Sampling in Lao PDR: What Species? What Samples? Where?
- A Practical Hands-On Session on Animal Sampling, Focusing on Human Safety and Animal Safety
- Technical Aspects of Sampling, Storage and Transport
- Additional Data Collection for Wildlife Identification and Risk Behavior Analysis and Data Management

In addition to the workshop, PREVENT and PREDICT also discussed how best to collaborate for the collection of behavioral data such as market data, during sampling visits.

Cambodia

The Diseases Technical Planning Workshop held in Siem Reap, Cambodia, May 18–29, concluded with PREVENT's next step being an in-country visit to meet with (b)(6) Ministry of Agriculture Forestry and Fisheries (MAFF) and other relevant Royal Government of Cambodia (RGC) counterparts to identify and agree on specific activities and schedules. (b)(6) and (b)(6) (b)(6) traveled to Phnom Penh July 4–8. Throughout the week, (b)(6) (b)(6), and (b)(6) of USAID/Cambodia met with RGC individuals and organizations including (b)(6) MAFF; (b)(6) Wildlife Protection Office, MAFF, and (b)(6) MOH. In addition, they met with EPT partners and potential stakeholders: (b)(6), FAO; (b)(6) (b)(6) PREDICT-Cambodia; (b)(6) Pasteur Institute; (b)(6) UNICEF; and representatives from FHI and IRL. PREVENT used these meetings to strategize for FY 2012 activities. PREVENT's visit overlapped with a Friday meeting that was chaired by (b)(6) MOH. (b)(6) (b)(6) gave meeting participants an overview of human and animal health issues in Cambodia, then reviewed the Action Plan and Timeline created at the May EPT workshop. PREVENT was identified as completing all tasks on the Action Plan and Timeline, to date. Activities proposed in the 2012 work plan will be shared with RGC and local stakeholders as soon as the work plan is approved.

Indonesia

The first visit to Indonesia by PREVENT was carried out this quarter. (b)(6) and (b)(6) (b)(6) participated in the Indonesia FY 2012 EPT planning meeting held July 15–18. The purpose of the meeting was to begin planning EPT FY 2012 activities in conjunction with EPT partners, the Government of Indonesia, and relevant stakeholders. Opening remarks were given by (b)(6) (b)(6) KEMENKOKESRA, on the KOMNOS Zoonosis and the Government of Indonesia's One Health efforts. Each EPT project partner was allotted time to introduce their proposed program for FY 2012 and have time for group discussion. Since this was PREVENT's first visit, their allocated time was used to propose activities and gather recommendations from the knowledgeable meeting participants. After the two-day meeting, a one-day EPT program internal meeting was held to coordinate different EPT projects' operations in-country. In a short time PREVENT was able to meet with key stakeholders and begin to narrow down proposed activities in Indonesia for FY 2012.

(b)(6) and (b)(6) went on to meet with stakeholders and potential partners to identify 1) areas/populations of interest, that is, related to human-wildlife contact (including hunting, consumption and trade) and/or extractive industry; 2) possible locations; and 3) interest from local partners. PREVENT was able to reach key stakeholders during this time including SAFE, 707 Project, University of Indonesia School of Public Health, and the Primate Research Center. Key outcomes were:

- Based on these meetings PREVENT will consider focusing on North Sulawesi due to the open and regular consumption of bats and rodents and PREDICT's likely presence in the area. Kalimantan was also recommended based on the presence of extractive industry and the potential for carrying out a human-animal exposure study in a set of areas ranging from pristine forest to disrupted land use in urban centers. The information from this study would be particularly useful to PREDICT to refine their hotspot models because the ecology in Kalimantan is similar to that in Borneo, where they have extensive information on wildlife and its relation to different types of landscape.
- The Regional Framework for a Communication Strategy against Emerging Infectious Diseases in Asia and the Pacific 2011–2016 was distributed to PREVENT by (b)(6) FAO. The strategy was distributed more formally at an EID Forum meeting in August.
- (b)(6) and (b)(6) USAID/Indonesia, met with (b)(6) Dean of Public Health at the University of Indonesia. (b)(6) welcomed the possibility of future collaboration and invited PREVENT to return to do a presentation for a larger audience of faculty next quarter.
- The Primate Research Center in Bogor will likely be the in-country lead for PREDICT. Therefore, PREVENT met with Entang Iskandar, Head of the Conservation Division. (b)(6) provided an overview of the past and on-going work at the center. He also provided a tour of the Center's labs and breeding facilities. Recently, the Primate Research Center wrote a short article about macaques' distribution and conflict with residents of Java. Of interest to PREVENT is the larger, follow-on study planned for later this calendar year. The study will sample for viruses in macaques and humans in contact with macaques in 'high-exposure' sites identified on Java.

Bangladesh

ICDDR,B

PREVENT discussed next steps in helping ICDDR,B develop an at-scale intervention to promote the use of protective "skirts" to reduce bat contamination of raw date palm sap and therefore the risk of transmission of Nipah virus. Proximately, the project will support ICDDR,B to analyze data that they have previously collected in order to answer two questions.

Do *gachhis* and tree owners continue to use *banas* the year following their introduction without further educational intervention or prompting? To answer this question, ICDDR, B will analyze data collected in five wards during the 2009–2010 and 2010–2011 seasons. They will identify how many sap harvesters and tree owners who used *banas* during the first season continued to use them the second season and ascertain the motivating factors for their specific behavior (questions about motivation were asked during the second season). The information obtained from this analysis will help ICDDR,B and PREVENT refine the long-term strategy for promoting *banas*. Information about "weak spots" will strengthen the initial introduction; results of the analysis will also indicate whether supplemental input will be needed after the first season and what topics might need to be addressed.

Does letting communities know that *banas* can be made from a variety of materials increase the proportion of *gacchis* using *banas*? This pattern would be typical of other behavior change interventions; for example, letting prospective clients know about a range of family planning methods instead of just one increases the probability that they will use family planning. To answer this question, ICDDR,B will analyze survey and qualitative data collected a month after a "low-intensity" introduction of *banas* to communities that highlighted bamboo, polyethylene sheeting, jute, or *dhoincha* as possible materials (intervention carried out during the 2010-2011 season) and compare it with data collected after "low-intensity" introductions of *banas* made one of the materials in earlier seasons. Results will be used to fine-tune the way *banas* are introduced to communities.

Global

Review of Experience with Domestication of Selected Wild Animals

Hunting, preparing and consuming "bush meat" provides a major source of exposure to zoonotic disease for people living in Central Africa. One possible approach for reducing this exposure is to ensure the supply of alternative sources of protein. In Central and West Africa, various NGOs have

experimented with encouraging villagers to raise animals – ranging from chickens and fish to duikers, cane rats, pangolins and snails – instead of hunting bush meat. GVFInc recently completed a review summarizing the experience with raising domesticated wild animals in this region.

Efforts have focused on a small number of animals – blue duiker, brush-tailed porcupine, African giant rat, grasscutter/cane rat, and giant snails. Of these, the greatest success has been obtained with grasscutters. In Cameroon there is a national association of farmers raising grasscutters with 700 members. Interestingly, efforts to promote grasscutter-raising in Gabon, while initially successful, ultimately failed, possibly because bush meat is still readily available.

The report, which discusses cultural, biological, and ecological considerations related to domesticating wild animals, economics, reasons for success and failure, and risk of disease transmission, is being edited and will be available in the coming quarter.

Extractive Industry (EI) Working Group

This quarter the EI working group was largely dormant. The group had one meeting to share updates on plans for Year 3 activities related to extractive industries. USAID intended to send guidance and a revised XRAT tool, but this was not forthcoming this quarter. PREVENT has been planning activities related to extractive industries for Year 3. In addition, PREVENT reviewed the first segment of the literature review conducted by RESPOND on extractive industry's role changes that exacerbate the risk of transmission of zoonoses to humans. The mitigation section of RESPOND's literature review will be available and reviewed in the first quarter of FY 2012.

Presentations

The poster presentation, "Behaviors of Cameroonian hunters and butchers put them at risk of zoonotic disease transmission" ([b)(6)] [b)(6)]), accepted for APHA 2011 for late October, is being finalized.

Abstracts are being prepared for submission to the Society for Applied Anthropology and the Joint International Tropical Medicine Meeting.

Administration of Global Viral Forecasting Incorporated (GVFInc) Activities

During this quarter PREVENT issued one Task Order to GVFInc: TO9--Pretest of market ethnography. PREVENT is currently in the process of issuing two additional task orders: TO10-- Market ethnography—and TO11, a new administrative task order.

African Field Epidemiology Network (AFENET)

USAID has been a key supporter of the African Field Epidemiology Network (AFENET), and as part of PREVENT's scope of work FHI 360 is providing technical assistance in strengthening the Public Affairs Office located at the AFENET Secretariat in Kampala.

During the last quarter, FHI 360 focused its technical assistance on three priority areas: 1. Capacity Building; 2. Public Affairs outreach; and 3. Public Private Partnerships.

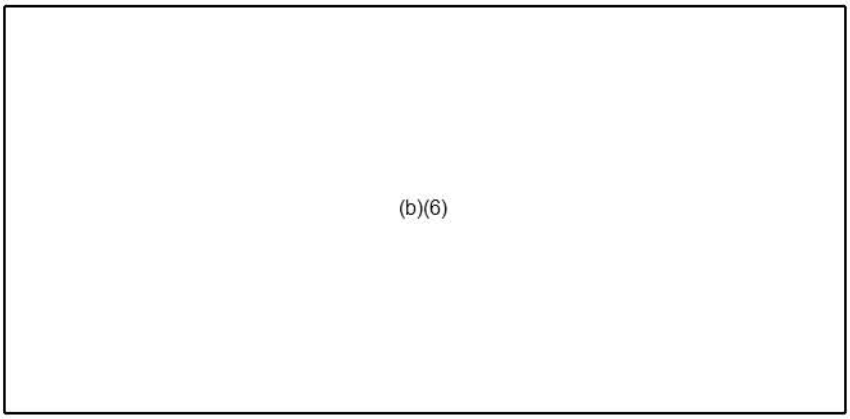
Capacity Building

FHI 360 had a two-pronged approach to capacity building. (1) to strengthen the skills and introduce new skill sets to the Secretariat public affairs and management team; and (2) to conduct a series of communication workshops for member programs from Anglophone and Francophone Africa.

(b)(6) FHI 360 communication advisor, made several TDYs to the Secretariat and worked closely with Anita Tibasaaga, AFENET Secretariat public affairs officer, (b)(6) executive director, and (b)(6) deputy executive director, to implement the approved communication work plan. This included training-by-doing as well as training sessions with the various operations and public affairs staff. He also assisted in finalizing the updated and re-designed (more interactive) AFENET website (www.afenet.net), and the communication outreach materials. He held training sessions with the in-house technology department on how to manage the new website, and digital and conducted a photography workshop for public affairs and technical staff.

Risk Communication Training – Anglophone: On July 21–22, 2011, FHI 360 conducted a Risk Communication workshop in Dar es Salaam, Tanzania. The workshop, designed to strengthen the skills in risk communication of professionals that are not primarily communication experts, was conducted by (b)(6) Fourteen field epidemiologists, representing nine AFENET Anglophone member countries, had previously participated in the *Applied*

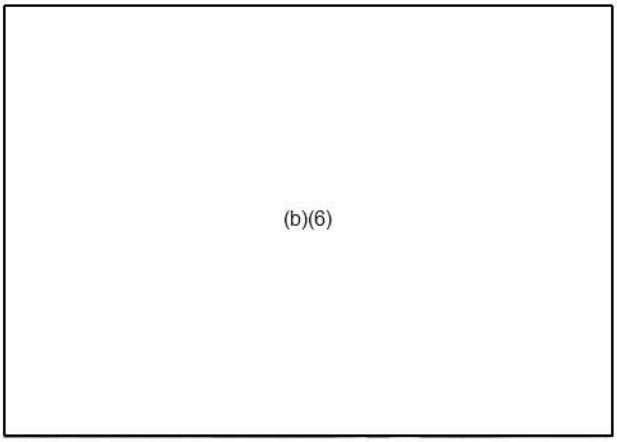
Communication workshop held in Dar in May 2011. The *Risk Communication* workshop built on that training and their personal experience in responding to emergencies and working in risk situations.



Risk Communication Workshop participants

The workshop combined media coaching with communication planning for an emergency or high-risk situation. The field epidemiologists spent time practicing on camera, as well as off camera, discussing and diagramming successful and not-as-successful broadcast interviews. As part of this workshop, FHI 360 adopted its *Risk Communication Guide* to the AFENET setting. It is available on the AFENET and FHI 360 website as a reference tool and for future use by any organization in need of communication training.

Combined Francophone Applied Communication and Risk Communication Workshop: The initial plan was to follow the Anglophone workshop with a similar workshop for the Francophone countries. Because of Ramadan it had to be postponed until September. A combined workshop was conducted by FHI 360's capacity building advisor, (b)(6) on September 26–30, 2011 in Dar es Salaam, Tanzania. It was attended by 10 participants from the West Africa Field Epidemiology and Laboratory Training Program (WAFELTP) and the Central African Field Epidemiology and Laboratory Training Program (CAFELTP). Both Programs cover several countries; WAFELTP comprises Burkina Faso, Mali, Niger, and Togo while CAFELTP comprises Cameroon, Central African Republic, and Democratic Republic of Congo. The four-day workshop primarily focused on applied communication, with a day-and-a-half for risk communication. The participants, in addition to classroom discussions, had on-camera practice and role-play sessions to strengthen their communication skills.



Francophone Communication Workshop participants

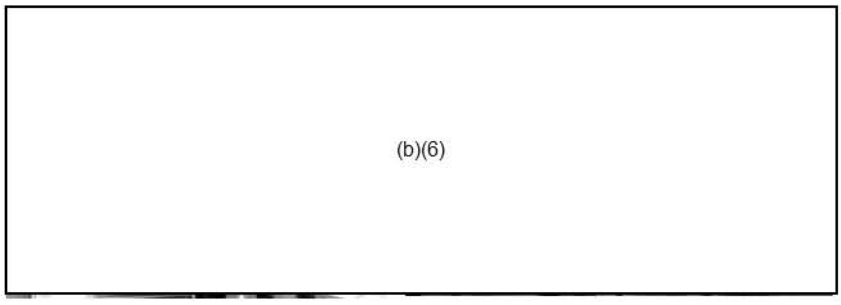
Materials for both the French and English workshops were adapted to public health issues specific to each region. For East and Central Africa the case studies were on Ebola virus, Marburgh, and Rift Valley Fever; for West Africa, cholera and malaria.

The overriding goal for these activities was to establish, throughout the AFENET system, a network of credible and effective spokespersons prepared to explain field epidemiology, address public and stakeholder inquiries, and manage fears and expectations during crisis or emergency situations.

Results

- The feedback from both series of workshops was very positive and the post-evaluation surveys indicated high interest and understanding of how communication can assist them when they do their jobs.
- There is the beginning of a strong communication network that can be utilized and should be maintained even when there isn't an emergency.
- Materials are available in French and English, posted on the AFENET website and easily accessed by anyone interested in learning about these workshops.

One Health Fellowship Training: While at the Secretariat, (b)(6) conducted several workshops to introduce the public affairs, IT department, and technical staff to different technical skills including managing the AFENET website and the basics in photography and digital editing. The latter was conducted for the six One Health Fellows in training at the AFENET Secretariat. As part of the AFENET field team and to document their work, these officers often find that they are taking pictures of activities or situations in the field. To help improve the quality of their photographs the training provided tips on camera usage, composition, background selection, lighting, proper use of the flash, photo directing, composing people's pictures, and basic photo retouching and enhancement.



One Health Fellowship Training

(b)(6) from AFENET's public affairs unit, has been a participant in FHI 360's *Applied Communication* and a master training workshop on communication. She put her training to use and

conducted a training session on communication for the One Health Fellows on September 14, 2011. The session focused on basic communication techniques and message delivery for different audiences, as well as improvement on presentation skills. The fellows are expected to occasionally serve as spokespersons for their districts' health programs once they return to their work place, and communication should be an integral part of their skill set.

With the new website up and running, (b)(6) and the web design company conducted a training on website management for the AFENET IT department.

Results

- (b)(6) has shown that she is a good trainer and has a grasp of the fundamentals of *Applied Communication*. The training of the One Health Fellows in communication should continue and be part of the six-week curriculum. (b)(6) recommended this idea and we will pursue it with the Secretariat.) (b)(6) training session was a good start.
- The IT department has been trained, but we are less confident that the website will be maintained and populated on a regular basis. This is a situation we will monitor.

Public Affairs Outreach



AFENET website

The re-designed website (www.afenet.net) was launched the second week of September with an announcement letter from the executive director sent to all the country program members. It is designed to be the centerpiece of all AFENET communication. The content has been updated (checked and rechecked), and French and English versions uplinked with Portuguese to follow. It now includes an easier to navigate platform that allows faster viewing of graphics and photos and a search feature within the website. The look-and-feel, along with new photos and an easier to follow distribution of information in different sections, makes navigating the website more user-friendly. It also can be downloaded to smart devices.

The previous website was dated and did not contain current information. The challenge will be to keep this website updated, populated, and interactive so it does not become stagnant or outdated. FHI 360

will continue its relationship with the web design team to provide TA to the IT team for maintenance, but this is a stop-gap measure.



AFENET Organization Profile Cover

AFENET Print and Web Materials: The materials that populate the website are also available in hard copy. The revised and new materials include French and English versions of: AFENET's Organization Profile, AFENET Program and Project informational one-pagers, and AFENET press kit materials. All the materials are being translated into Portuguese.

Media Event Planning: Web redesign, expanded country program, and the AFENET Scientific Conference are all part of the re-introduction of AFENET to the media at a media breakfast to be held November 9 in Kampala. AFENET will host the media event and invite the local media. Short presentations will be made by AFENET leadership and officials from the government of Uganda. Special guests will include representatives from USAID/Uganda and CDC/Uganda. A new AFENET interactive newsletter has been designed and the first issue is scheduled to be distributed the third week of October.

Several months ago FHI 360 discussed with USAID/Uganda the possible inclusion of the international media in a media event. FHI 360 will follow up with the mission and, with their approval, include international journalists in the invitation list for the media breakfast. (b)(6) is planning to be at the Secretariat to assist with the logistics and messaging for the event.

Results

- The tools are in place and have been introduced in a soft launch. Maintaining them will be the next challenge.
- There is up-to-date information that can be used by country programs and the Secretariat to introduce the activities. This will help in establishing AFENET as a source of correct information and show the range and scope of the organization's work.
- Portuguese-speakers have felt that they are overlooked and omitted from activities including our communication training. We are working to rectify this by translating all materials into Portuguese (print and website); also, for the December communication refresher training

candidates from Angola and Mozambique will be invited to attend and we will make available a Portuguese trainer to work closely with them in a mentoring process.

Private Sector

A combination of events have highlighted the opportunity to diversify funding support, including the Tullow Oil investment in public affairs and communication during the Ebola outbreak and the company's expressed interest in working with AFENET. ((b)(6) was the Public Affairs Consultant under AI.COMM and he has an interest in AFENET and working with the Secretariat.)

AFENET spends about (b)(4) a year in travel, most of it with Kenya Airways. (b)(6) drew up a private sector concept and presentation that highlighted opportunities for Kenya Air and AFENET to collaborate. A meeting has been set for October in Kenya. (b)(6) and (b)(6) will attend the meeting with (b)(6) of Kenya Airways.

The goal is to expand AFENET's donor base to help make them more sustainable and less dependent on U.S. Government funding.

Upcoming Activities

AFENET 4th Scientific Conference: The media breakfast will also serve as a launching platform for AFENET 4th Scientific Conference taking place in Dar es Salaam on December 11–16, 2011. The theme of the Conference is "Field Epidemiology and Laboratory Training Programs as a platform for Public Health Systems Strengthening." FHI 360 is providing TA in the strategic planning for an efficient public relations effort in support of the AFENET PA Unit and the Tanzania Ministry of Health Public Affairs team. The Conference is expected to be attended by close to 500 participants including many Ministries of Health from AFENET Network countries.

SMS communication tool: As part of the AFENET communication plan, FHI 360 is in the process of creating an intranet-based SMS communication tool to reach key stakeholders in a timely manner during a crisis. This tool will be based on AFENET's intranet. In its initial stages, the tool will be used to maintain communication among our various workshop participants, starting with English speaking countries and then expanding it to French-speaking countries. It will be used to provide real time

information on activities and relevant news and will serve as a forum where participants can share opinions and upload their own information as needed. It can be accessed via computer and cell phone.

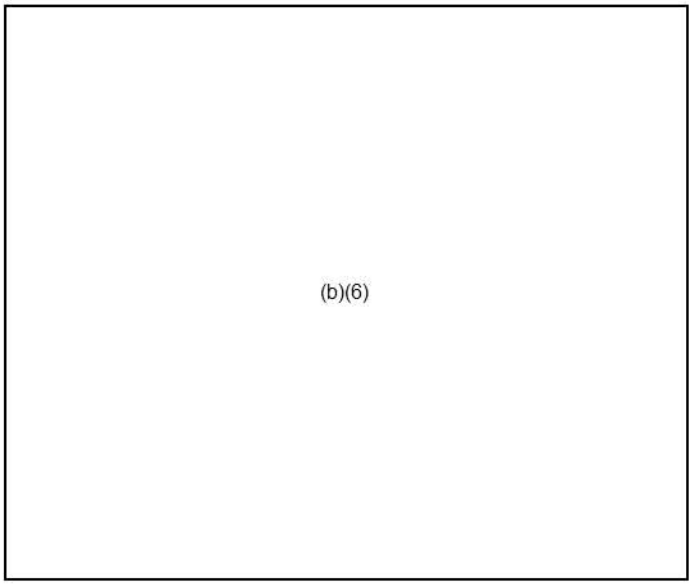
Previous to the Scientific Conference, FHI 360 will conduct a refresher Communication Workshop for the participants of previously held workshops with the objective of continuing to improve their communication skills. They will also receive training on the SMS communication tool to start an interactive dialogue among the epidemiologists in the AFENET network.

Summary

FHI 360 has been impressed with AFENET's country member programs and their representatives , and our work with them appears to have been well-received and valued by the participants. The Secretariat team has been cordial and receptive to our technical assistance and the program's objectives. However, high quality public affairs and communication will not be sustained if it is not part of AFENET's long-term planning as a mandated, funded activity. With the departure of (b)(6) and the executive director often overstretched and overcommitted, the Secretariat and Uganda field epidemiologists do not have a strong communication representative. This is an important issue for PREVENT, but a larger review of the AFENET Secretariat that goes beyond the communication and public affairs component would benefit both the network and its donors.

Humanitarian Pandemic Preparedness (H2P)/Towards a Safer World (TASW)

PREVENT has been the key communication partner to the Towards a Safer World (TASW) Initiative since its launch in the Fall of 2010. Working with several partners including the United Nations System for Influenza Coordination (UNSIC), the World Food Programme (WFP), and USAID, PREVENT has been a primary technical actor in the planning and implementation of TASW activities – attending several planning meetings in Rome, Geneva, and Washington, DC. Over the past twelve months PREVENT has taken the lead in designing the TASW logo; design and maintenance of the website, development of key



messages and assistance in focusing the communication and public relations information, and editing and production of TASW Report based on the sector assessments. All of these activities culminated in the communication component for the TASW meeting on September 15-16 in Rome. The TASW meeting brought together nearly 180 participants and panelists from around the world representing various organizations and governments engaged in pandemic and disaster planning.

TASW Book



The most visible task of the TASW initiative that PREVENT managed was the editing and production of *Beyond Pandemics: A Whole-of-Society Approach to Disaster Preparedness*. The 10-chapter book was a compilation of papers and assessments conducted on 10 critical sectors that represent the planning for pandemic or disaster situation. Sectors include Health, Animal Health, Civil-Military Coordination, Communication, Logistics, Private Sector Preparedness, Community-level preparedness, Humanitarian Assistance, Whole of Government Planning, and Travel/Tourism. ASEAN's experience with multi-sector pandemic preparedness also was included. Each chapter was written by different authors and agencies and each had a different level of information and content.

PREVENT's technical team produced an easy to read and cohesive product that captures a look at the situation among these sectors. In addition to writing and editing, PREVENT's design team produced an electronic version available on the TASW website (www.towardsasaferworld.org) and a print version for delivery at the conference.

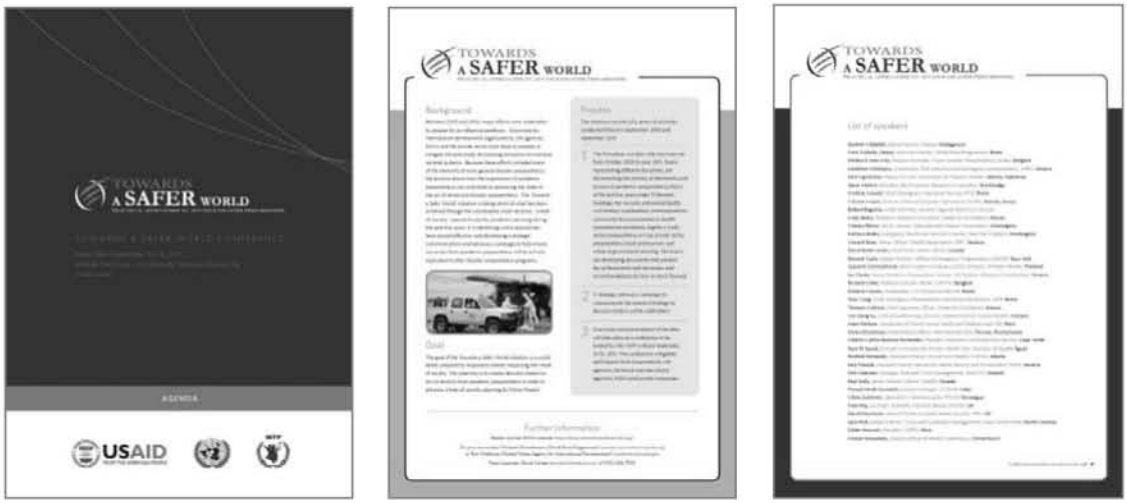


US Assistant Secretary of State Kerri-Ann Jones promotes the TASW Book Photo by WFP/Rein Skullerud

Beyond Pandemics: A Whole-of-Society Approach to Disaster Preparedness was released to the public at the TASW Meeting in Rome, Italy and received high praise from meeting participants and panelists. The book which is also available on the TASW website outlines the human, economic and societal benefit of increasing collaboration, planning and dialogue across the entire societal architecture. It demonstrates how forming partnerships with non-traditional partners in public health issues, including travel, animal health, private business,

and civil-military response teams can advance disaster preparedness. The book has been requested by the U.S. Centers for Disease Control and Prevention, U.S. Congress, the White House, State Department and globally by organizations and individuals.

Information and press materials were produced for the attendees and for the media. A press release on the event was issued and distributed to the industry press and posted on the media wires (PR Newswire). A release on the book was issued the week of the event which was picked up by YAHOO



Finance, Reuters, MarketWatch, and many more that had approximately 81 million hits. An article in *La Unita* highlighting the meeting ran on September 19, 2011. PREVENT worked closely with the WFP's press office. WFP also distributed the releases to the local (Rome) media and their specialized press list. Participant information kits were prepared and given to each participant at the meeting. These kits included the event release and book, biographies of the TASW Steering Committee, TASW speaker lists, one-pager and four-pager on TASW, and the meeting agenda. Participants also were given a USB thumb drive that contained an electronic copy of the TASW book and direct links to the TASW website.

The **TASW Communication session** was organized and moderated by Acting Project Director, (b)(6) (b)(6) PREVENT'S communication advisor based in Lao, (b)(6), was also a presenter and discussed PREVENT's work on avian influenza and pandemic influenza in Lao PDR. The other participants included (b)(6) (Vietnam), (b)(6) (ECDC), (b)(6) (b)(6) (PAHO/WHO), (b)(6) (WHO), and (b)(6) AFENET). Copies of each presentation are posted on the TASW website.

The **TASW website** was designed and managed by PREVENT. (http://www.towardsasaferworld.org). From July 1 – September 30, 2011 period, the website received 3,974 visits, more than double the previous quarter. The visitors were from 128 countries and territories, including the United States, Italy, United Kingdom, Nigeria, Switzerland, Canada, India, France, and Senegal. Nearly 54% of visitors were considered "new visitors." TASW website has approximately 170 registered users from around the world representing various agencies and interests.



(b)(6) was the community leader for the communication community.

TASW has been very active on other social media channels including Twitter (@tasw_initiative), YouTube, and Facebook (http://www.facebook.com/TowardsASaferWorld). These social media outlets have been used to promote TASW, including updates on information regarding the TASW meeting in Rome and products associated with TASW. Information from the TASW meeting was shared via "live-tweeting." The TASW twitter account has approximately 80 followers.



The positive response to TASW is illustrated by the following selected feedback comments received from Rome conference participants:

May I use this opportunity to congratulate you for organising a very successful conference on Towards a Safer World. This conference has offered a great opportunity to be at par with current issues on pandemic preparedness and response and has opened up ways for ECOWAS to learn from best practices. We at ECOWAS will be grateful to be involved in WFP activities in this regard. This way we will develop strategies and responses to the many humanitarian challenges in the ECOWAS region. My report to ECOWAS authorities will certainly trigger positive responses and put in motion strategies that will provide further solutions to the humanitarian problems of the Peoples of West Africa. I am deeply satisfied with the process and will appreciate sustainable efforts towards making TASW a global

model for disaster and pandemic preparedness, touching the most and least developed countries. (Alozie Amaechi Godfrey, ECOWAS Commission, Abuja, Nigeria)

I wanted to send a quick note of appreciation for a superbly organised and important Towards a Safer World Conference in Rome last week. You simply deserve the highest respect for bringing together such a wide range of critical stakeholders to identify the key lessons discussing how we can best translate them into action long after the last pandemic scare was over. Am very glad I participated, as I took away much useful thought and ideas on how we can ensure that we don't get complacent about pandemic preparedness specifically and disaster preparedness in general. We had a first discussion as a Red Cross / Red Crescent group in Rome, and we will try to do our bit to ensure that work continues in meaningful ways. (Matthias Schmale, Under Secretary General, International Federation of Red Cross and Red Crescent Societies, Geneva | Switzerland)

The TASW conference was a life changing experience both professionally and personally for me. This was a unique opportunity to interact with passionate individuals from around the world with a common goal of improving how we as a global community can learn from each other, help each other prepare and help each other respond to disasters of any type. I was truly inspired by the stories, the people and the hearts of all involved. Thank you for letting me be a part of this amazing experience which I hope was only the first of many to come. (Jack Holt, Global Director, Crisis and Continuity Management, GlaxoSmithKline, Philadelphia)

You really did a stupendous job. Not just in organizing but in preparing a really super report. Meaty and readable and relevant. I strongly support the continuation -- and growth -- of TASW. It seems the best way not to lose all the good experience gained in the 5 years of pandemic preparation and experience with the mild pandemic. This will pay off in the future in many ways. (Charlie Blitzer, International Finance Corporation, Washington DC)

I look forward to more publications by the TASW initiative and having you on Twitter and Facebook is great to keep abreast of news and related events. I greatly enjoyed my time at the conference, learned a lot, met a lot of interesting people, and look forward to other events, especially with such impeccable organization as the one provided by WFP. (Yara Youssef, Centre for Disaster and Humanitarian Assistance Medicine, Bethesda)

H2P Website

PREVENT has continued to maintain and manage the Humanitarian Pandemic Preparedness (H2P) website (http://www.pandemicpreparedness.org). During the July 1 – September 30, 2011 period, the website received 396 visits from 60 countries/territories, including USA, Russia, India, Vietnam, Switzerland, Thailand, Philippines, United Kingdom, Indonesia and Thailand. Of these visits, nearly 86% of visitors were "new visitors."

Planning Meetings

Leading up to the TASW event, in July, PREVENT Technical Manager (b)(6) traveled to Rome, Italy for TASW planning meetings at the World Food Programme (WFP). This meeting was used by the TASW working group to finalize actions leading up to the TASW meeting in September. (b)(6) met with the United Nations System Coordinator for Avian and Human Influenza (b)(6) (b)(6) WFP staff (b)(6) (b)(6) U.S. Department of Defense personnel (b)(6) and (b)(6) , and USAID Senior Public Health Advisor (b)(6) At this meeting it was agreed that PREVENT would be responsible for the production of informational kits that would be shared with TASW meeting participants and the timing for release of information for targeted media leading up the September event. WFP and the US Department of Defense representatives at the meeting agreed on their roles in identifying and providing financial support to TASW meeting participants.

PREVENT will continue to provide follow-up support to TASW as needed including the maintenance and management of the TASW website.

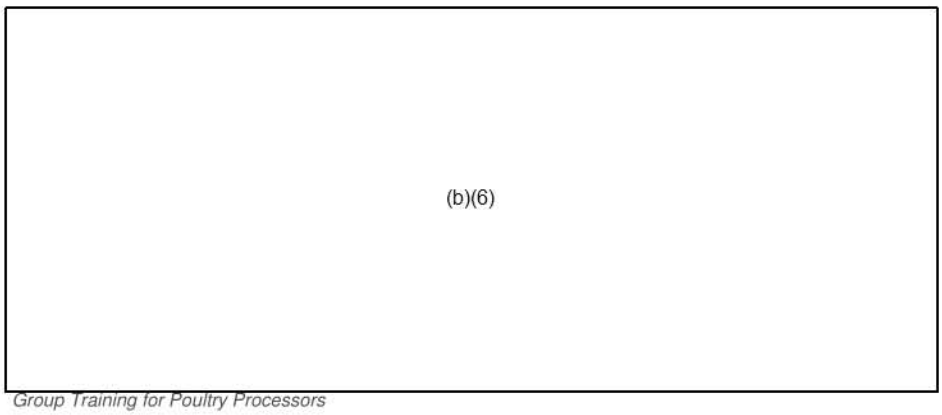
Avian Influenza (AI)/Bangladesh

Bangladesh Avian Influenza Component Ends

Bangladesh has had several human cases of H5N1 virus, and PREVENT placed an emphasis on targeting the markets that were seen as hot spots for the virus and communities where the human cases have been reported. Last quarter, FHI 360 continued its partnership with RTM International (Research, Training, Management International), a local NGO, to assist with creating a roster of master trainers in infectious disease prevention that in turn could conduct trainings with at-risk audiences in the five live-

markets. The original plan was to focus on the five hot spots in and around Dhaka and to expand the training and mobilization to other regions throughout the country.

PREVENT was successful in establishing approval with the presidents and secretaries of the key wet markets and received permission to conduct training among their poultry processing vendors and market staff responsible for disposing of poultry waste.



Group Training for Poultry Processors

A meeting held on June 28 at the office of the president of Kaptan Bazar Market Association included the leaders of the five live bird markets, the veterinary officer of Dhaka City Corporation, the veterinary surgeon of the Central Veterinary Hospital, and RTM (representing FHI 360, then AED). The five live bird markets where training was to be conducted were Jatrabari bazaar, Doyagonj bazaar, Kaptan bazaar, Fakirapool bazaar, and AGB colony bazaar; all agreed on the training, content, logistics, and schedule. Because the holy month of Ramadan was starting on July 29, the decision was to try to complete all of the trainings in July before Ramadan with follow-up and monitoring to take place in August. This made July an intense training period.

By the end of July, five training sessions for poultry processing vendors and one training session for market staff responsible for poultry waste and refuse were completed. One-hundred and twenty-five participants were trained. These 125 represented 61 retailers, seven wholesalers, 45 poultry processors, seven market owners, and five leaders. The trainers were from the Government's Department of Livestock Services, Dhaka City Corporation, RTM's project coordinator, and three veterinary doctors recruited by FHI360. Also in attendance were livestock officers and veterinary surgeons that had participated in the master training and joined as resources in the trainings.

In August, training sessions continued in these live bird markets. An additional 100 vendors and poultry processors were trained. PREVENT's work ended on August 25. In addition to the training sessions, representatives from RTM visited all of the markets where the original training took place five times to monitor any changes or application of new and best practices. The visits included discussions with the individual vendors as well as the presidents or secretaries of the market association

to make recommendations and suggestions on ways to reduce risks. Over 450 vendors, processors, and sanitation workers were visited.

Another component of this activity was a cleaning and disinfection mobilization. The training team worked closely with FAO, DLS, and the five market owners to oversee a cleaning and disinfection activity. Disinfection was focused on the market facilities, cages, processing, and disposal areas. A total of 560 cages, 64 processing, and nine disposal areas were cleaned and disinfected. This was similar to an activity that AED conducted with StopAI, FAO, and the government a year ago.

(b)(6)

Disinfection demonstrations

Finally, a monitoring survey was conducted during the course of the activity to help us gauge improvement or impact. The findings were compiled and submitted as part of the final report from RTM. RTM, the Government, and market workers and owners had many suggestions and recommendations that are included in the final report.

Copies of the final report were submitted to the Mission and Government.

Results

- There is in place a network of master trainers that are experienced in cleaning and disinfection and individual sanitation and hygiene training. Selected from the government and private sector these trainers are a solid foundation on which to build future activities.

- The training was an excellent opportunity to engage the live bird markets' management. Their involvement in the prevention side is critical. Also having them as advocates for this activity – both the training and the cleaning and disinfecting – will help contribute to any policy changes that need to take place.

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT

OCTOBER 1 — DECEMBER 31, 2011

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Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. On June 30, 2011, Family Health International (FHI) acquired AED and all of its programs and assets, including PREVENT; the resulting new integrated organizational entity is FHI 360. PREVENT, a cooperative agreement, focuses on using behavior change and communication to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. The Project is part of a larger USAID program on Emerging Pandemic Threats (EPT Program).

NEW PROJECT DIRECTOR

In late December, FHI 360 welcomed a new Project Director, (b)(6) to lead PREVENT. (b)(6) has more than 30 years of experience as a field project manager, researcher, and technical expert in public health and related international development fields. Most recently, he served as Team Leader for an Asian Development Bank project designed to reduce HIV and human trafficking in Vietnam and Lao PDR. From 2007-2011, he served as Advisor for Special and Most-at-Risk Populations at UNESCO/Bangkok, working on issues of risk behavior and movement patterns among high-risk populations in the Greater Mekong Sub-Region. He also served for five years as Chief Technical Advisor, HIV/AIDS, for the UNDP in Myanmar. His work in these positions included risk mapping among vulnerable populations, design of behavior change strategies, and design of impact evaluations using both qualitative and quantitative research methods. (b)(6) experience also includes two years as Asia Regional Representative and Thailand Country Director for PATH and 11 years in a similar position for the International Human Assistance Programs (IHAP). He holds a PhD in political science from the University of Hawaii and a master's degree in regional and community planning from Kansas State University.

Emerging Pandemic Threats (EPT)

CONGO BASIN

Cameroon

Market Ethnography

From October 16 to December 12, 2011, a rapid market ethnographic study was conducted in six markets in Southern Cameroon and two in Yaoundé. The study involved several types of data collection: in-depth interviews with market managers, vendors, butchers, cleaners and others who work in the market; observations of sales interactions and of people cutting meat; a detailed observation of the market; short observations of the number of sellers and different types of meat for sale at specific periods each day; and a short exit interview survey of shoppers.

The instruments and methodology had been pretested in August 2011 in seven markets in small- and mid-sized towns in Eastern Cameroon and in six markets in Yaoundé, after which they were somewhat revised. The FHI 360-expedited Institutional Review Board (IRB) approval was received in September, and in October PREVENT was notified that the Cameroon National Ethics Committee approved the protocol. Staff from PREVENT subcontractor GVFInc co-facilitated the training and observed and coached during the first field site to assure data quality.

A total of 270 people were interviewed (see below for details).

Type of person	Number of interviews conducted	Comments
Market Manager	6	1 refused and 1 managed 2 markets.
Association Leader of Vendors or Butchers	5	Not all markets had an association and some refused.
Market Cleaner	6	No market cleaner interviewed in either market in Yaoundé; 1 not available and one refused.
Vendors of Uncooked Animal Meat	45	In two markets there were no vendors of uncooked meat. Vendors of cooked meat were interviewed as other key informants.

Type of person	Number of interviews conducted	Comments
Total Other key informants: Cooked meat seller/restaurants Hunters Transporters Wholesaler	49 18 10 19 2	
Butchers	35	In one market there were no butchers (no uncooked meat).
Buyers	124	591 total approached in 7 markets (In one market there were no buyers of uncooked meat). 467 either refused, didn't buy meat, or ignored the interviewer.
TOTAL	**270**	

As during the pretest, interviewers encountered vendors and shoppers with a range of reactions, ranging from willingness to be interviewed to hostility. In some markets, especially in Yaoundé, it was hard to get interviews with vendors; it helped to talk to the association leader first (in markets where they existed), but in at least one case this person was one of the main barriers to other vendors being willing to talk with interviewers. Finding qualified shoppers willing to be interviewed was also difficult; in five markets only 20% or fewer of those approached were interviewed.

The reticence/hostility toward outsiders has much to do with the fear that the outsiders are associated with the Forestry Ministry, whose staff enforces sanctions related to illegal species. In addition, because of this, in most of the markets, those interviewed indicated that a good portion of bushmeat trade, especially in illegal species, takes place outside the formal market locations.

Selected findings from one of the Yaoundé markets are presented below. The data have not yet been fully synthesized, however.

Biosecurity/Awareness of Contagion

- Unlike in the other six markets, some vendors mentioned they have experienced diseases that they believed had resulted from the manipulation of bushmeat, including skin rashes, HIV and ebola, indicating an awareness of possible contagion of diseases from animals.
- In one market, bushmeat is exposed on plastic bags and sheets on the floor. All species are mixed together and vendors hold them, live or dead, with their bare hands.
- Women track mud on their shoes to the pavilion where meat is exposed.
- Live pangolins are thrown on the plastic sheets and, from time to time, they move to a pool of standing water to drink or defecate, and people consider it normal.
- There is a tree trunk in front of the vendors' stands on which some of them butcher meat. Larger animals are butchered in a fenced place, quite hidden, where butchering takes place on a daily basis. Basically, the same instruments are used: machetes, knives, razor blade, fire and axe.

Hygiene and Sanitation

- Sellers selling live fish and grubs alongside the bushmeat need to change water in their large pots constantly to keep the fish and the grubs alive. The water dropping on the floor regularly stands there and does not dry. They use the same water again and again.
- Vendors manipulate meat with no protective clothes, as consistently observed in other markets.
- The space is very small for the number of vendors present, and it looks overcrowded, with not enough space for all of them to sit. When they arrive in the morning, butchers put on their working "uniforms" (covering clothes) which they always leave in the market at the end of the day. (In the second market, there is no protective clothing used. In one market they never sweep the area and there is a lot of dust.)
- No protection covers the hands, and the water used is dirty and used for all types of meat (domestic and wild).
- Both vendors and butchers eat with dirty, unwashed hands.
- Generally, the meat is covered only to protect it against the sun, so that fresh meat, especially, will not become rotten in the heat.

- Toilets are present in the market and women were not observed urinating in the open, as was the case in two of the markets outside Yaounde. Butchers say they sometimes bathe in the market before going home.
- In both markets, after the meat is sold or cleaned, it is put in the customer's bag without wrapping.

Data are currently being analyzed and synthesized and a full report is expected next quarter. At that point the team will ascertain whether to proceed with price/quantity of different meats and/or to develop a market-based intervention.

Behavior Trials

During this quarter, PREVENT subcontractor GVFInc with feedback from FHI 360, finalized the report of the behavioral trials in Cameroon. The trials were conducted in April and May 2011 among 101 hunters and butchers in 10 "Healthy Hunter" villages in the Francophone region of Nyabissan and in the Anglophone region of Abat.

The following behaviors emerged as ones which would be worthwhile for intervention because they were adopted by people and proved feasible for them to sustain:

- **Reducing consumption of fruit contaminated by animals, by washing fruit before eating it.** This behavior should be promoted to both men and women, since people of both genders spend time in the forest, either working their land, tending traps, hunting, or gathering fruits. Motivations for the behavior include avoiding sickness (e.g., stomach problems) by washing.

- **Protecting oneself and the family from rodent or bat excrement dust around the house by taking precautions while cleaning.** This is a behavior that is most relevant for women and young adults who may help in cleaning the house. People who tried the different sub-behaviors were very enthusiastic about their health benefits and said that it made their house feel cleaner. Thus, these sub-behaviors should be included in the intervention phase. These activities include the following:

  - Covering your mouth while you sweep
  - Wetting the ground

- Putting the children outside while sweeping
- Washing hands after sweeping

- **Washing hands with soap at specific times.** This includes:

  - after having touched blood or excrement of a wild animal
  - before preparing a meal
  - after getting cut
  - before eating
  - after cleaning the floor

For each of these three behaviors, participants talked about noticing a difference in their own and their children's health since beginning to practice the behavior. During the follow-up interviews, female participants often remarked that one of the benefits of reducing dust while sweeping was that they saw an immediate respiratory health improvement in their children and themselves as a result of the behavior change. Improvement in gastrointestinal health was observed related to washing fruits before eating them and washing hands after having touched animal excrement or blood, or before eating in general. Noticing significant and/or immediate improvement in her children's health is an important factor in motivating mothers. The fact that a number of people were able to notice how certain changes in three behaviors improved their lives within a short (i.e., five-week) period is quite important. Other positive outcomes noted were cleanliness of people and the home, and less smell.

Other behaviors tested during the trials that we do *not* recommend promoting include:

- Hunters protecting their skin while hunting. Most of the trial respondents said they already did this.
- Butchers protecting themselves from contact with raw meat when selling or transporting it. Most butchers said this was not a relevant behavior since they do not sell or transport meat.
- Butchers and hunters avoiding cutting meat when they have open wounds. Most of the trial respondents said they already did this.

These behaviors could be incorporated into a more generalized reminder to both men and women to "avoid your skin coming in contact with blood and feces of wild animals."

As women were especially enthusiastic during the study and indicated their intentions to continue the behaviors they adopted, we recommend that they should be a particular focus of an intervention.

Next Steps

PREVENT staff are currently discussing what type of intervention might be appropriate to consider given that GVFInc has cut back its internal funding for the Healthy Hunter program. A total of 32 villages will be supported with one visit a year from the Yaoundé coordinator to supplement the work of four local "village coordinators" who each serve about eight villages; through 2011, the program was supported in 65 villages, with four visits a year from the Yaoundé coordinator.

One option being considered is for PREVENT to train the four male local coordinators to conduct negotiations about improved behaviors as an intervention. If that option is selected, PREVENT will also support identifying and training women in each of these areas to conduct negotiations with the women in the Healthy Hunter villages.

Democratic Republic of the Congo (DRC)

(b)(6) PREVENT AOTR, and (b)(6) PREVENT Technical Director, met with (b)(6) (b)(6) head of the Poxvirus and Rabies Branch of CDC, to discuss possible collaboration between PREVENT and CDC focusing on monkeypox, specifically about applying PREVENT qualitative research approaches to get a better understanding of human-animal relationships. (b)(6) expressed interest, but as CDC is about to start a case-control study in their study area in DRC, suggested that PREVENT explore the possibility of similar work in the Republic of Congo. PREVENT will follow up with potential partners in ROC.

During this quarter, PREVENT reviewed and provided comments on RESPOND's plan for a participatory impact assessment of INCEF's educational intervention to reduce primary and secondary transmission of ebola.

Uganda

(b)(6) FHI 360 behavior change and communication advisor, served as on-the-ground technical advisor to Uganda during the quarter. In addition to his regularly scheduled meetings and work with AFENET, (b)(6) participated in several EPT activities as follows.

On October 26, 2011, (b)(6) attended the second EPT regular monthly meeting organized by Thomas Easley, EPT Country Coordinator, USAID/Uganda. It was attended by most of the USAID-globally-funded partner organizations working on EPT in Uganda. The purpose of these meetings is to keep the partners informed of each other's activities to look for potential areas of collaboration and avoid duplication of efforts.

Overall, most of the activities are related to sample collection and analysis, but there were some areas that interface with some of PREVENT's communication activities. Under the One Health Program, PREDICT, in partnership with Makerere University, is offering a Master's degree in several specialties that includes Risk Communication as part of the curriculum. (b)(6) will follow up with the personnel in charge to explore opportunities for collaboration.

(b)(6) also attended the third EPT meeting on December 7, 2011, at the RESPOND offices. Most of the updates were very specific to topics that the different partners work on but unrelated to communication with the exception of two potential opportunities indicated below.

During the RESPOND update, (b)(6) emphasized the potential for collaboration between RESPOND and PREVENT related to private-sector partnerships that RESPOND is working on, including a peer-educator program that will start in February 2012. (b)(6) suggested that PREVENT collaborate on the creation of risk communication materials. (b)(6) (Regional Director/RESPOND) will forward the materials they are developing to obtain suggestions on potential areas of collaboration.

During the PREDICT update, (b)(6) also suggested that PREVENT may have a role in planned wildlife sampling activities in the Queen Elizabeth Conservation Area, an anthropogenic disturbance area, by helping to produce educational materials for the population currently living in and around that area. It was agreed that this possibility will be discussed during (b)(6) next trip in January 2012.

SOUTH AND SOUTHEAST ASIA

Cambodia

The Office of Public Health and Education presented a brief update of the EPT program in Cambodia to the USAID Mission Director in mid-October. At the request of (b)(6) USAID/Cambodia, PREVENT provided a short presentation on the current progress of the PREVENT project and planned activities for FY12. Early next quarter, (b)(6), FHI 360 Regional Advisor, will attend an EPT partners meeting to present PREVENT's work plan for FY12 in Cambodia.

Indonesia

FHI 360's Senior BCC Advisor (b)(6) was in Jakarta in November and December for a separate project. While in Jakarta, (b)(6) conducted two important meetings on behalf of PREVENT: a follow-up presentation with the University of Indonesia and a work plan update meeting with USAID/Jakarta.

In July 2011, (b)(6) University of Indonesia Dean of Public Health, invited PREVENT to return to University of Indonesia (UI) to do a presentation of PREVENT activities for a larger faculty audience. (b)(6) followed up on the request and met with (b)(6) and faculty assembled from many of the UI departments, including faculty from public health, epidemiology, research, environment and industry, nutrition, and health education, as well as the dean of partnerships, among others. (b)(6) provided an overview of PREVENT's approach and plans in the region and Indonesia. Following the presentation, participants engaged in a lively discussion about both PREVENT's plans and UI's capabilities to serve as a partner in Indonesia. All participants were highly engaged and several mentioned relevant studies that UI has undertaken on related topics, such as on the eating habits of the Minahasa people in North Sulawesi. The dean and his faculty were eager to support PREVENT, indicating that they had expertise in a variety of fields, including research, epidemiology, and nutrition, and could conduct literature reviews and research.

(b)(6) also met with (b)(6) and her team at USAID/Indonesia to discuss recent changes in the PREVENT work plan. They discussed the FY12 work plan, particularly formative research on human-animal exposure. The USAID team in Indonesia is eager to see the human-animal exposure study conducted in Indonesia. Therefore, PREVENT is working to align the formative

research study with extractive industry activities planned for FY12. In addition, (b)(6) linked PREVENT with USAID's Office of Environment. A separate meeting was held with (b)(6) (b)(6) Program Management Specialist within USAID's Office of Environment. (b)(6) was eager to learn of PREVENT's plans for extractive industry and indicated that his office would offer whatever information it could to assist. Specifically, he mentioned USAID's Indonesian Forest and Climate Support (IFACS) Project, which could provide input into PREVENT's extractive scoping assessment.

Literature Review

The PREVENT literature review is a regional activity planned for five countries in the region: Lao PDR, Thailand, Vietnam, Cambodia, and Indonesia. PREVENT is currently implementing the literature review in Thailand and Lao. Based on experience implementing the literature review in these two countries and the difficulty of recruiting a consultant to complete the review in Indonesia, PREVENT has decided to divide the scope of work into smaller, more focused reviews. PREVENT staff is in the process of writing more focused literature review scopes of work for dissemination to specialists in different sectors to overcome this challenge.

Lao PDR

Literature Review

The Lao PDR literature review continued this quarter. The two consultants carrying out the review have collected over 85 articles in Lao and English that will be compiled into a report on risky practices and behaviors that affect the transmission of disease from wildlife to humans, on social norms that support these practices or that might support less risky ones, and on the "enabling environment" for such practices or for less risky ones. A draft report was developed and will be finalized next quarter.

Market Study

Bats and rodents are purchased openly from markets in Lao PDR. Because bats and rodents have been shown to harbor EPT viruses in studies conducted in other countries in the region and globally, PREVENT proposed concentrating on open markets in areas where bats and rodents are consumed to determine potential risk posed to people and animals by the presence of wildlife in markets. This quarter, PREVENT issued a request for proposals to identify one or more organizations to collect

information about market biosecurity and the price and volume of key species (rodents, bats, civets and non-human primates) in multiple markets in Lao PDR. The Wildlife Conservation Society (WCS) was the organization selected.

WCS, a partner on the PREDICT project, will conduct a pilot study over the course of four months (January – April 2012), and a longer-term study will be considered based on the results of this pilot. WCS will collect data on biosecurity, the wildlife price and availability from markets in which they are sampling wildlife (including key species of bats and rodents) for PREDICT and from markets within 50km of those markets. WCS will collect the market information using observation tools developed and pretested by PREVENT. The market study will begin next quarter.

Formative Research

Steps to implementing the formative research for the human-animal exposure survey were under way in Lao PDR this quarter. A research protocol was developed and submitted for U.S. IRB permissions and approval was given. An RFP was issued and bids from local research companies to implement the formative research in January were received. To prepare for January 2012 implementation, PREVENT has undertaken development of a program to train the eventual research team on the formative study tools and an operational manual.

PREVENT held a half-day meeting in Vientiane on December 5, 2011 to present the formative research portion (i.e., method and tools) of the EPT human-animal exposure study and to facilitate approval for its implementation in Lao PDR. Three PREVENT staff, (b)(6) Research Manager, Washington, D.C., (b)(6), Research and M&E Officer, Thailand, and (b)(6) (b)(6) FHI 360 Country Coordinator, Lao PDR, facilitated the meeting. Ten government officials attended the meeting, including representatives from NEIDCO, Ministry of Health, Department of Livestock and Fisheries, and the Wildlife Division of the Department of Forestry. The government officials suggested provinces that would yield the most information to satisfy PREVENT's research objectives: Oudomxay, Xiangkhuang, Boulikamxay, and Attapeu. NEIDCO also agreed to help facilitate local IRB permissions in collaboration with PREVENT. This quarter the research protocol was submitted for local IRB approval. PREVENT will implement the formative research for the human-animal exposure study next quarter.

Tripartite Meeting

(b)(6) FHI 360 Country Coordinator, attended the EPT Tripartite Review Meeting on November 23, 2011. Participants represented all EPT partners, Government of Lao PDR officials, USAID, and local stakeholders. The meeting was opened by the U.S. Ambassador (b)(6) (b)(6) (b)(6) and (b)(6) (b)(6) and (b)(6), facilitated the meeting.

(b)(6) presented PREVENT's progress to date and activities planned for FY12. At the meeting it was determined that PREVENT's counterpart during its research phase will be NEIDCO. In subsequent years, when PREVENT proceeds to the intervention-development phase, PREVENT can contact NEIDCO to identify another/additional point of contact for the project. One of PREVENT's activities is to reconstitute the Market Working Group. (b)(6) liked PREVENT's proposal and will assist in contacting (b)(6) who could provide government leadership of this effort.

Malaysia

During this quarter, PREVENT conceptualized and began to plan a study relating to human exposure to biodiversity and ecosystem disturbance. EcoHealth Alliance is planning to measure biodiversity and identify viruses along a "disturbance gradient" using a transect along the Kinabatangan River in Sabah District, Malaysia. The amount of ecosystem disturbance ranges from a very-disturbed zone near the coast to a virtually undisturbed zone in the Maliau Basin. PREVENT has had extensive discussions with EcoHealth Alliance about adding an additional layer of investigation to examine the relationship between disturbance, biodiversity and human exposure to animals, particularly risky exposure. Tentatively (and as illustrated below), PREVENT will measure human exposure in at least two sites that differ in terms of "culture" in at least two zones. ("Culture" could be marked, for example, by different occupations, or by different ethnicities, or by different religions; the point is to observe to what extent attributes that can be changed might affect exposure.) Conceptually, PREVENT will compare exposure rates of humans from the same "culture"– for example, loggers – across disturbance zones; we will also compare the exposure rates of humans from different "cultures" in the same zone. Data will be collected using an adaptation of the human exposure survey piloted in Thailand during this

quarter. Selection of specific zones will depend on the variety of cultures and size of the populations belonging to them in different zones.

			Culture A Culture B			Culture A Culture C			
Zone 1	2	3	4	5	6	7	8	9	Zone 10

Least disturbed ←----------→ Most disturbed

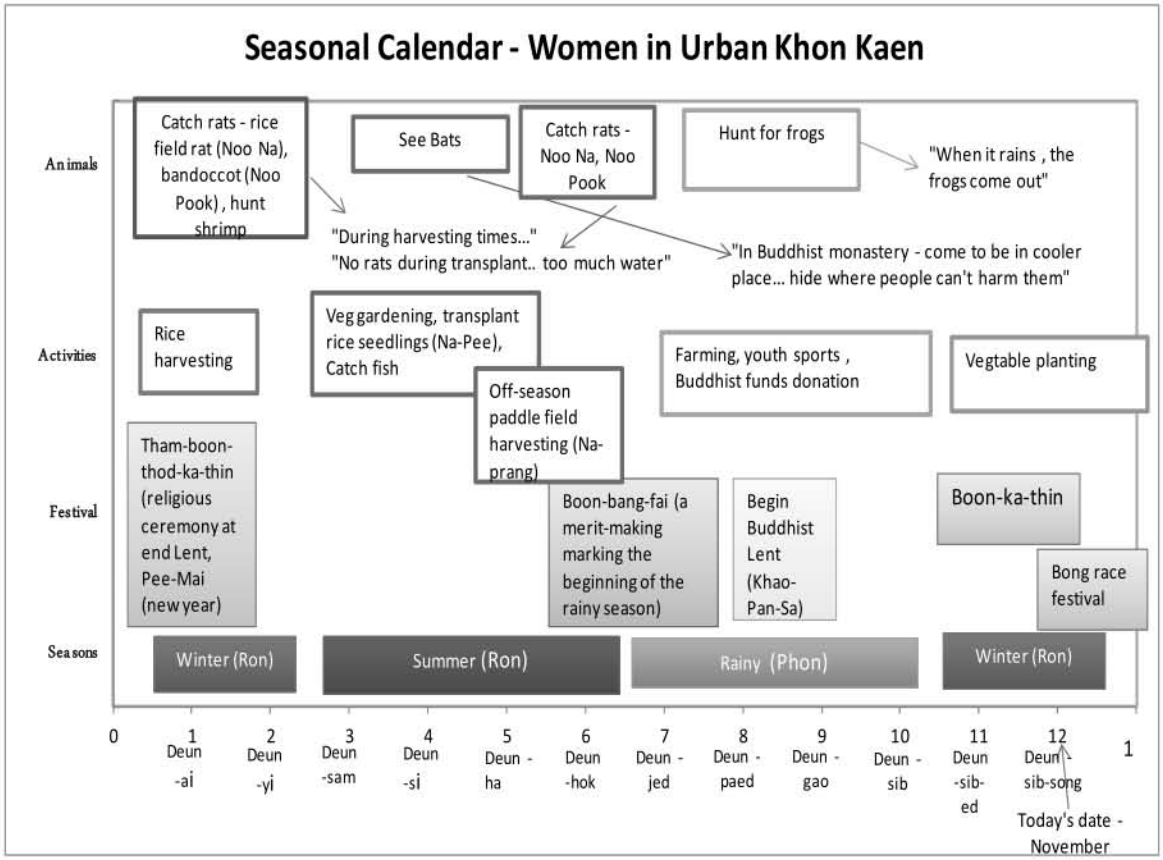
PREVENT began working with EcoHealth Alliance to obtain the demographic information needed to make this decision. The project also issued an RFP to identify a company or research group to carry out the formative research. We received only one response, which was not adequate, and have begun to develop plans to organize the formative research team ourselves. Data collection is tentatively set to begin during the summer of 2012, after the rainy season.

Thailand

Human-Animal Exposure Research

This quarter, PREVENT continued to analyze the results of the human-animal exposure formative research pretest and to pretest additional formative research tools. Ongoing analysis of data from the Thailand pre-test in July 2011, as well as work in the development of the survey instrument for the animal exposure survey, identified the need for the development of new formative tools. PREVENT needed tools to assess variations in people's exposures over the year, as well as to identify places of possible exposure for people.

To elicit this information, two new formative tools – the seasonal calendar and daily profile – were developed. These tools, common in participatory research, were modified to accommodate PREVENT's specific research questions. The tools were then tested this quarter in Khon Kaen Province in both rural and urban settings with men and women. Both tools were very effective in eliciting the needed information and will be used in future formative research studies.



In addition, PREVENT developed and pretested an instrument to assess frequencies of exposure to animals. The instrument was informed by the results of the formative study conducted earlier in the year in Thailand, as well as literature reviews and conceptual frameworks developed to assess indicators of exposure.

Concurrently, PREVENT began preparing for a pilot study to assess the potential and limitations of the newly developed instrument and methodology, and sought approval from local authorities and U.S. IRB exemption. U.S. IRB exemption was obtained and approval was given by the Khon Kaen Provincial Health Office (KKPHO) and the Ministry of Public Health of Thailand.

To start, key questions in the instrument were tested using cognitive interviews that aim to understand how respondents are processing information when responding to questions. Cognitive interviews (with 30 respondents in urban and rural Khon Kaen) were used to identify and correct potential problems and misunderstanding with the survey instrument. The information collected through the cognitive

interviews was incorporated into the survey instrument. Then the survey instrument and the sampling methodology for the human-animal exposure survey were tested in four districts, in villages representing urban, forest and agricultural landscapes. Two hundred respondents (100 women and 100 men) were interviewed. Analysis is under way.

PREVENT Comments on a Thai Questionnaire about Nipah

PREVENT received a request for assistance with a questionnaire from (b)(6) from the Department of Medicine/Neurology at Chulalongkorn University, a major expert on bat viruses in Thailand. She and colleagues are conducting investigations in two villages near Pattaya with a population of about 2000 people and 12,000 bats. They have found both the Bangladesh and Malaysian strains of Nipah in bats, but no human cases yet, though some human antibody tests have come back as "borderline" (almost all of these borderline cases have a history of exposure). (b)(6) team has a good relationship with the community and wants to develop materials to educate villagers and tourists, perhaps via health volunteers, and to educate providers to recognize and treat encephalitis. They requested help in finalizing a survey of villagers.

(b)(6) helped to clarify that PREVENT could provide technical assistance in the form of comments on the survey questionnaire, but could not provide logistical support. She translated the questionnaire into English for review by (b)(6) and (b)(6) and then translated the PREVENT comments for (b)(6)

Literature Review

The Thailand literature review began this quarter. A consultant is performing a desktop review of existing published and unpublished literature (in Thai and English) on risky practices and behaviors that affect the transmission of disease from wildlife to humans, on social norms that support these practices or that might support less risky ones, and on the "enabling environment" for such practices or for less risky ones. The outcome of this research will be a report that provides an up-to-date summary of what is known about contact between humans and animals in Thailand, with a focus on bat, rodent, and primate species and the motivations and circumstances that support risky practices. The final report is expected next quarter.

Presentations

(b)(6) abstract entitled "Taking the First Step to Prevent Transmission of Zoonoses to Humans: Formative Research on Human Exposure to Animals in Khon Kaen, Thailand 2011" was accepted for oral presentation in the Joint International Tropical Medicine Meeting. (b)(6) (b)(6) presented at JITMM on December 1, 2011 in Bangkok.

Meetings

On October 6, 2011, PREVENT Regional BCC Advisor (b)(6) and Lao Country Coordinator (b)(6) participated in the monthly EID Preparedness Forum in Bangkok. The October forum was organized by PREVENT and chaired by (b)(6), while (b)(6) served as the keynote speaker. The theme of the meeting was "Towards a Safer World (TASW): Promoting Lessons Learned from the Pandemic Experience."

(b)(6) shared her experiences from the TASW conference in Rome, followed by a lively question-and-answer period. About 20 participants attended the meeting, representing United Nations agencies, non-governmental organizations, universities, and private sector firms working on emerging disease issues in the region. Minutes of the meeting can be found at: http://www.eidforum.org/index.php/forum/9-2011-meetings.

In addition, at the suggestion of USAID, (b)(6) was invited to a two-day brainstorm session hosted by FREELAND Foundation on November 14-15, 2011. The purpose of the brainstorm was to solicit input into a new campaign being developed across Asia region to reduce wildlife trafficking. A diverse group of wildlife experts mainly from the Asia region participated in these discussions to provide perspective and advice to communication experts from JWT, an advertising agency that is designing a regional campaign to reduce Asia's massive illegal wildlife trade.

Participating organizations included Wildlife 21 International, MerTech Global Consulting, ASEAN Centre for Biodiversity, ASEAN-WEN, Vietnam Ministry of Environment/Bio-diversity, ENV, Rapid Asia, International Fund for Animal Welfare (IFAW), USAID, and the U.S. Embassy. In addition to FREELAND, the event was hosted by the ARREST Project (Asia's regional response to endangered species trafficking), and funded by USAID.

Vietnam

PREVENT hired a program coordinator based in Hanoi, Vietnam. The program coordinator will start at the beginning of 2012 and will help to facilitate PREVENT work plan activities in Vietnam. The program coordinator will share office space with Wildlife Conservation Society, the lead implementing partner of PREDICT in Vietnam. The shared office space will allow for more robust cross-project collaboration between PREDICT and PREVENT. The terms of the office sharing lease have been negotiated and are ready for execution next quarter.

Bangladesh

ICDDR,B

During this quarter PREVENT finalized a work order for ICDDR,B to analyze previously collected data to answer questions about: 1) the sustainability of the *banas* intervention (i.e., Do *gachhis* and tree owners continue to use *banas* the year following their introduction without further educational intervention or prompting?); and 2) message specifics (i.e., Does recommending a greater variety of possible materials for making *banas* result in more of them being made and used?). By December 31, ICDDR,B finished cleaning the data and started analysis. They are on track to submit a report during the next quarter.

GLOBAL

Work plan

PREVENT submitted a revised Year 3 work plan and budget in response to USAID's comments and requests. The project also provided USAID with in-country cost information for all of the Southeast Asian countries.

Review of International Wildlife Trade

USAID requested a review of international wildlife trade. PREVENT developed terms of reference and competitively selected a consultant to write a report on trade between Africa and Asia and from these continents to Europe and the U.S. The paper will be available at the end of February 2012.

Extractive Industries Activities

PREVENT continued to host the Extractive Industries Working Group meetings this quarter. A discussion of the XRAT tool in October highlighted the need to rethink the purpose and structure of the tool. PREVENT organized several internal and joint meetings with RESPOND to identify a structure for the revised tool. The group set up a face-to-face meeting in December 2011, and identified a series of documents that could be included in a toolkit designed for extractive industry companies and national governments. PREVENT has continued to work on these documents. PREVENT and the working group are developing a presentation for the partners meeting in January 2012.

PREVENT reviewed and provided extensive feedback on the RESPOND White Paper that examines the literature on the zoonotic disease risks associated with extractive industry and resultant land use changes.

PREVENT and RESPOND wrote and submitted several abstracts on zoonotic disease transmission risks and mitigation activities related to extractive industries. The abstract for the OneHealth conference in Davos, Switzerland was accepted, and PREVENT will present at this conference in February 2012.

PREVENT participated in a meeting and discussions with the World Wildlife Fund's West and Central Africa regional advisor. A meeting planned for November 2011 with Australian mining companies was postponed until March or April 2012. PREVENT and/or RESPOND plan to co-sponsor this meeting and introduce the concept of zoonotic disease prevention and the links with biodiversity and ecological conservation in the context of extractive industries.

PREVENT attended a meeting at Resources for the Future on regulations and protocols for the timber industry working in pristine wilderness areas. In general, the industry is not well regulated and, though a few conventions regulate forestry practices, they are not followed unless the wood needs to be certified. In general, the industry has not thought about zoonotic disease transmission, but it may be possible to piggyback activities onto biodiversity and ecological protocols.

Subcontracts

FHI 360 and GVFInc negotiated and signed Task Order 11, which covers GVFInc participation in technical meetings. PREVENT also drafted and began discussing TO 12, intended to cover development and implementation of the healthy hunter/butcher intervention. This discussion is taking longer than anticipated because the activity was originally envisioned as an add-on to GVFInc's blood spot collection visits to 65 villages four times a year. In December 2011, FHI 360 was informed that GVFInc had decided to reduce that activity to a once-a-year visit to 32 villages, albeit with ongoing attention from four "village coordinators" living in the villages. PREVENT is considering the likely impact of a low-intensity intervention and is actively exploring whether other groups or organizations pay regular visits to the villages.

African Field Epidemiology Network (AFENET)

(b)(6) FHI 360 behavior change and communication advisor working with AFENET, made his last trip to Uganda from October 21 to December 9, 2011. The focus of this trip was to finalize the public affairs activities that were part of the larger AFENET communication strategy (web site redesign, intranet, communication materials on AFENET), to assist the Secretariat in the organization of a media breakfast to launch AFENET's Fifth Anniversary activities, and to provide support on AFENET's Scientific Conference held in Tanzania in December 2011. While in Kampala, (b)(6) also attended several USAID-hosted Emerging Pandemic Threat meetings and helped organize a media orientation workshop on Emerging and Re-emerging Pandemic Diseases.

To provide technical assistance to AFENET, (b)(6) held regularly scheduled meetings with the Secretariat executive committee, the Public Affairs unit personnel, the public relations firm, Real Marketing, and the web site design company, MAAD/Hostalite Ltd.



Media Breakfast: Fifth Anniversary of AFENET

The AFENET Secretariat celebrated its fifth anniversary in 2011 and planned to hold a media event highlighting this accomplishment and to reposition AFENET and its role in public health. Throughout the year, the media event had been scheduled and rescheduled and was set for

November 2011. A major reason for rescheduling this media event was to allow AFENET time to revise its print materials, redesign and re-launch its web site, and to develop the key messages and position statements supporting AFENET. Over the course of the year, (b)(6) worked closely with the Secretariat leadership – including (b)(6) (b)(6) along with Real Marketing and MAAD – to write, edit and prepare the materials, redesign and re-launch the AFENET web site, and strengthen the Public Affairs Unit so it could be showcased at the media event.

In preparation for the media breakfast on November 7, 2011, (b)(6) (b)(6) and (b)(6) conducted a mini media-training session with all AFENET personnel attending the media breakfast to brief them on the event and outline their specific role at the breakfast. The mini-media training allowed them to practice referring questions exclusively to (b)(6) the official AFENET spokesperson at the event.

(b)(6)

FHI 360 organized the AFENET media breakfast and worked closely with Real Marketing to reach the key media representatives to attend. Press packets and the event agenda was sent to the most important media houses in Uganda. The event was held at the Sheraton Hotel in Kampala on November 9, 2011, and was attended by 58 persons, including 35 journalists representing local broadcast and print media. Interviews were conducted with (b)(6) following the presentation. Guest attendees were (b)((b)(6) and (b)(6) from USAID, as well as (b)(6) Information Officer for the U.S. Embassy.

AFENET achieved its objective of re-introducing itself to the media and positioning the organization as a go-to source for reliable information on public health. Post-event media coverage included TV, radio and print, with an estimated value of over 17.9 million Ugandan shilling.

Links to examples of the TV coverage for the AFENET media breakfast are as follows:

- http://www.youtube.com/watch?NR=1&feature=endscreen&v=31-_z4EBKrI
- http://www.youtube.com/watch?v=yJE1nHd0YYc&feature=related

- http://www.youtube.com/watch?v=3WO1UV9gd2c
- http://www.youtube.com/watch?v=qIMVkixbVaM&feature=youtu.be

(b)(6)

AFENET Website, Intranet, and Profile

The web site was redesigned to be more user friendly, to populate it with usable information and content, and to expand it to include French, English and Portuguese materials. After all of the content was approved and vetted by program countries and the Secretariat, the web site was repopulated and a soft launch made on November 6, 2011 (www.afenet.net). Content for the web site included a revised and redesigned AFENET Portfolio and information packet. At the time of this report, the Portuguese version was being finalized and the French version was pending final comments from the different countries.

The AFENET web site design included adding an intranet function. The intranet includes a private chat feature to allow network members to communicate in "real time" with one another from different program countries. (b)(6) and MAAD/Hostalite personnel held training sessions with four key AFENET Secretariat staff – two from information technologies and two from the public affairs unit – on how to upload information and maintain the new system. They, in turn, will train the personnel in charge of populating the AFENET intranet. These training sessions were finalized the week of October 17, 2011. At the time of this report, AFENET personnel were in charge of populating the intranet with the required information from the different departments, and management was deciding on who has access to each of the sections.

AFENET's Bi-Annual Scientific Conference

AFENET's Fourth Scientific Conference was held in Dar es Salaam during the week of December 11, 2011. Although not directly involved in the actual implementation, FHI 360 provided guidance and training to AFENET's (b)(6) on the handling of the public relations activities of the event. (b)(6) helped prepare the plan to reach Tanzania media, provided advice on the materials about the event, and coached (b)(6) on how to approach Tanzanian media for them to attend the event's press conference. In collaboration with the Tanzania Ministry of Health Public Affairs Unit, a press release and a press conference invitation was sent with the event's agenda to the major media outlets in Dar es Salaam. FHI 360 has strong media ties in Tanzania that are a result of several communication activities managed there. (b)(6) (b)(6) was able to connect AFENET with the media to assure extensive media coverage for the event and the content of the meeting.

(b)(6)

Links to some of the TV media coverage for the Scientific Conference are as follows:

- http://www.youtube.com/watch?v=CUYop1zYU4g&feature=share
- http://www.youtube.com/watch?v=q-yMQICQu68&feature=related

(b)(6)

Ministries of Health from 12 countries participated in the conference.

Media Tour

FHI 360 organized a media tour for the AFENET public affairs unit and management to get them acquainted with the most important media outlets in Kampala. Given the proximity to the Scientific Conference and the holidays, this media tour is scheduled to take place during January 2012.

Emerging and Re-Emerging Diseases Media Orientation

Following up on the success of the AFENET media breakfast, (b)(6) requested a follow-up media orientation on emerging and re-emerging diseases. This meeting was held on November 22, 2011, at the RESPOND offices in Kampala.

Although organized on very short notice, 10 journalists from the main media houses in Uganda and two representatives from Makerere University attended the event. The event was facilitated by (b)(6) (b)(6), Regional Technical Lead for the RESPOND project, and by (b)(6) SDS Central Region Director for USAID/Uganda. (b)(6) Information Officer for the U.S. Embassy, recorded a podcast with (b)(6) and (b)(6) This podcast was later distributed to different radio stations.

The orientation started at 9 AM and lasted three hours. It was divided into two sessions, covering the following topics:

- Useful definitions
- Introduction to risk communication
- Example of a just-in-time risk communication briefing
- Disease fact sheet review (exercise)
- Disease updates
- Mock press conference (exercise)

The participant journalists expressed pleasure with the orientation and they conducted several interviews with (b)(6) on the anthrax disease outbreak.

Humanitarian Pandemic Preparedness (H2P)/Towards a Safer World (TASW)

PREVENT has continued to support the Towards a Safer World and Humanitarian Pandemic Preparedness initiatives on a limited scale. As a follow-up to the September 2011 TASW conference, PREVENT has updated and distributed the TASW book, *Beyond Pandemics: A Whole-Of-Society Approach to Disaster Preparedness* online and in hard copy as requested by USAID and TASW partners. In addition, PREVENT has continued to manage and maintain the two websites.

TASW Website

The Towards a Safer World (TASW) website (http://www.towardsasaferworld.org) continues to be the primary resource for information on the TASW initiative. From October 1–December 31, 2011, the website received 2,098 visits, a decrease from the previous quarter. The visitors were from 111 countries and territories, including Australia, Canada, India, Italy, Nigeria, Sweden, Switzerland, the United Kingdom and the United States. Nearly 72 percent of visitors were considered "new visitors." The TASW website has grown to approximately 186 registered users from around the world representing various agencies and interests.

TASW continues to be active on other social media channels including Twitter (@tasw_initiative), YouTube, and Facebook (http://www.facebook.com/TowardsASaferWorld). These social media outlets have been used to promote TASW. The TASW twitter account has grown to approximately 91 followers.

H2P Website

The Humanitarian Pandemic Preparedness (H2P) website (http://www.pandemicpreparedness.org) came to an end on December 31, 2011, as requested by USAID. The site first launched in April 2009 during the beginning of the 2009 H1N1 influenza pandemic and was one of the primary international information portals for pandemic preparedness and response at the community level. The U.S. Centers for Disease Control and Prevention linked to H2P as one of its key resources for international audiences. For the period from October 1–December 31, 2011, the website received 545 visits from 78 countries/territories, a slight increase from the previous quarter. The top ten countries/territories included Canada, Germany, India, Indonesia, Kenya, Malaysia, Russia, Switzerland, the United Kingdom and the United States. Of these visits, nearly 87 percent of visitors were "new visitors."

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT
JANUARY 1 — MARCH 31, 2012

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

April 15, 2012

fhi360
THE SCIENCE OF IMPROVING LIVES

Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. On June 30, 2011, Family Health International (FHI) acquired AED and all of its programs and assets, including PREVENT; the resulting new integrated organizational entity is FHI 360. PREVENT, a cooperative agreement, focuses on using behavior change and communication to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. The Project is part of a larger USAID program on Emerging Pandemic Threats (EPT Program).

Emerging Pandemic Threats (EPT)

CONGO BASIN

Cameroon

Market Ethnography

Data from the rapid market ethnographic study, conducted from October 16 to December 12, 2011, in six markets in Southern Cameroon and two in Yaoundé, are being analyzed. A draft report of the qualitative data was submitted by GFVI in late February 2012; a final report is expected during the next quarter. Some qualitative research findings were included in last quarter's report. FHI 360 is analyzing the quantitative data; some preliminary quantitative data are presented below.

At each market, shoppers were approached at particular exits for a specific time period at specific times during the day and asked if they had bought meat that day or the day before. For those who responded affirmatively and agreed to participate, a series of questions was asked about the meat they had bought, and what animal meat they prefer to eat, as well as questions on the frequency of their shopping and their opinions on advantages and disadvantages of wild animal meat in general.

135 interviews were completed with shoppers from seven markets (one market had no sellers of uncooked meat, so no shopper interviews were conducted there). A total of 591 shoppers were approached in the seven markets; 456 either did not buy meat or refused to participate.

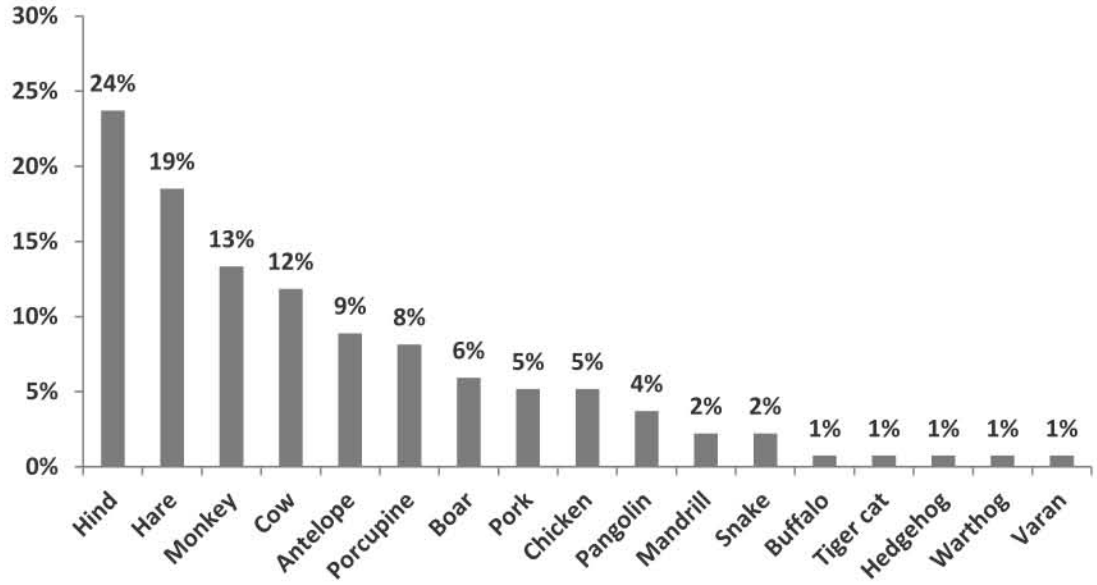
Most shoppers interviewed (87%) were women. Nearly all were estimated to be ages 20-49 years, with 58% estimated to be in their 30s. The 135 people interviewed bought a total of 152 animals/meats, with 17 buying two and the rest buying one.

Meat Bought at Market

While types of animals/meat bought varied across markets, this summary is based on all seven markets, due to small numbers. Information is provided for the key animals, but all sample sizes were small.

The six animals/meat bought most often across markets were: deer (24%), hare (19%), monkey (14%: 2% mandrill; 12% unspecified), beef (12%), antelope (9%) and porcupine (8%).

Figure 1. Type of Animals Bought, n=152 Animals



Meat can be purchased in different forms: fresh, smoked or frozen. In addition, vendors may sell whole carcasses, large or small pieces of meat, or small fixed amounts of cut-up meat (called a *tas*, or "heap"). Live animals can also be purchased in some of the markets.

About half (54%) of all meat the interviewed shoppers bought was fresh, and evenly split between carcasses and pieces. Thirty-seven percent of the meat was smoked, mostly in pieces; 4% was bought as live animals, and 3% was bought frozen, in pieces. The presentation varied by animal, with 100% of beef purchased as fresh pieces. Ninety-one percent of porcupine and 50% of hare was bought as fresh carcasses. The highest proportions of antelope (67%), deer (59%) and monkey (44%) were bought as smoked pieces.

Overall, 56% of the meat was bought in pieces. About one third (35%) was bought as whole carcasses, with 82% of this amount (or 29% of the total meat bought) not being cleaned or cut before leaving the market. This uncut meat was expected to be cut and cleaned by respondents (85%) or someone in the household (15%). Respondents said that they, themselves, would wash and season (prepare) 80% of all meat bought, regardless of form, and 16% said someone else in their family would wash and prepare.

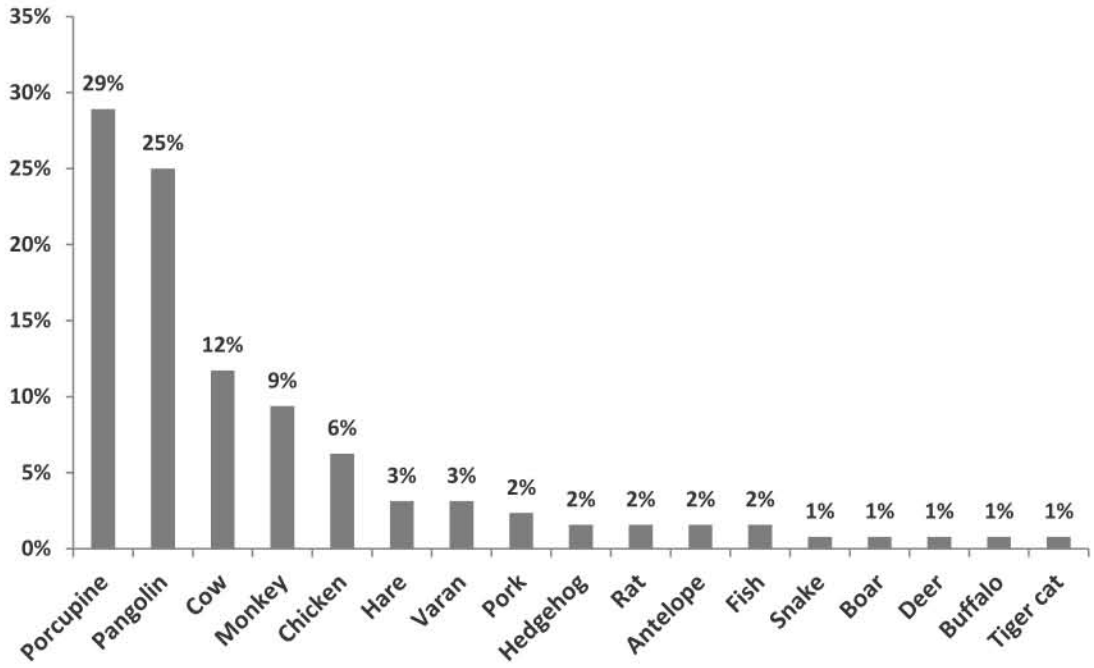
About half of the shoppers (55%) bought meat to serve at home, while 38% bought it for a restaurant. This varied by meat: 75% of the porcupine bought was to be served in a restaurant, as was 60% of the hare, 38% of the deer, 26% of the monkey, 17% of the antelope and 13% of the beef.

The main reasons given for buying the specific type of meat was: availability (28%), taste (23%) and price (23%). Taste was the reason given most often for porcupine, followed by price and "clients appreciate" it. For monkey, taste was most often given as the reason for its purchase, followed by availability.

Preferred Meat

When asked what animal meat they most like to eat, the main answers the interviewed shoppers gave were: porcupine (29%), pangolin (25%), beef (12%), monkey (9%: 1% mandrill; 8% unspecified), and chicken (6%). Porcupine, beef and monkey were also among the animals most frequently purchased.

Figure 2. Type of Animal Meat Most Preferred by Buyers, n=128



Almost all respondents (87%) said that taste was the reason they liked to eat the meat they mentioned. No other reason was given by more than 2% of respondents. Taste was the answer given by all of those who preferred monkey and porcupine, but only 67% for beef and 75% for chicken.

About two-thirds of respondents said they ate their preferred meat less than once a month in the last year, with about one-third saying they ate their preferred meat between two and five times per year. By meat, most of those who prefer porcupine, pangolin and monkey were likely to have eaten that animal less than once a month, while more than half of those preferring beef said they ate beef more than once a month during the last year.

Most respondents (80%) said they obtained their preferred meat most often at the market where they were interviewed; 6% said they obtained it at another market; 6% said they or a member of their family hunted the animal; and another 1% each said they bought it from a hunter, or from an itinerant vendor or at a restaurant. All 11 respondents who preferred monkey said they obtained it mostly at the market where they were interviewed.

Benefits and Disadvantages of Wild Meat

The two main benefits mentioned by respondents of wild animal meat in general was better taste and good price/free; 27% did not specify any benefit and 11% said there was no benefit.

The main disadvantage of wild animal meat mentioned by respondents (38%) was that it can make you sick, mainly with gout (23%), but also stomach ailments. The next highest answer (27%) was "don't know," followed by illegal, expensive and "no disadvantage."

Market Ethnography Discussion

About one-third of shoppers mentioned that they preferred porcupine or rats (rodents), while another 9% mentioned that they preferred monkey or mandrill (non-human primates). However, two-thirds or more of those who prefer porcupine and monkey said that they ate that animal less than once a month in the last year, so these animals are not very frequently consumed, at least among those who agreed to be interviewed for this study. We note that many shoppers refused to be interviewed. We also know from the field staff that people are wary about talking about animals that are illegal to purchase. This information needs to be taken into account when considering the data collected during these exit interviews: while other animals may not have been mentioned, that does not mean they are not bought or preferred.

Shoppers, especially those running restaurants, are at risk of exposure to animals they buy from markets in terms of the frequency of cutting/butchering at home as well as when preparing meals. The fact that 38% of respondents believe that wild animal meat can make you sick and that 27% said they do not know any disadvantages provides a good base to build upon for a potential behavioral intervention to raise awareness of the possibility of zoonotic illness transmission from wild animals to humans.

Quantitative data are still being analyzed and synthesized, and a final report is expected next quarter. After reviewing both the final quantitative and qualitative results, the team will decide whether to proceed with a price/quantity study of different meats and/or to develop a market-based intervention.

Behavioral Intervention in Healthy Hunter Villages, Using Results from the Behavioral Trials

During this quarter, PREVENT continued to discuss and plan some potential next steps for a village-based intervention for the Healthy Hunter program. One option being considered is for PREVENT to identify and collaborate with local NGOs that also work in the villages, with the objective of training GFVI's local coordinators and NGO staff to conduct negotiations about improved behaviors as an intervention.

SOUTH AND SOUTHEAST ASIA

Cambodia

In early January, (b)(6) FHI 360 Regional Advisor, attended an EPT partners meeting to present PREVENT's work plan for FY 2012 in Cambodia. As a result of this meeting, (b)(6) (b)(6) USAID/Cambodia, requested that PREVENT follow up with PREDICT, led by the Wildlife Conservation Society (WCS) in Cambodia, to discuss collaboration on activities. Since this request in January, important changes to PREVENT's work plan activities have taken shape.

(b)(6) Senior Program Officer/PREVENT, went to Cambodia February 14 – 16, 2012. The main objective of the trip was to address specific coordination issues with EPT partner PREDICT in Cambodia. (b)(6) met with PREDICT Cambodia country lead (b)(6) to discuss immediate coordination possibilities and future linkages. The outcome of these discussions is extensive coordination between PREVENT and PREDICT on two activities in Cambodia.

Specifically, PREVENT and PREDICT have agreed to work together to conduct research in Preah Vihear and Mondulkiri Province. PREDICT/WCS is conducting an animal sampling study in the protected forest areas of those provinces, and is interested in obtaining information about hunting, animal raising, and perceptions of risk related to animal health both at the individual household level and more generally. As it turns out, this information need can be met by adapting and implementing a formative research package that PREVENT has been developing, along with a brief survey.

A protocol for this collaborative effort was submitted to the Cambodian National Ethical Committee for its next round of review at the end of this quarter. The protocol was also submitted to the FHI 360 IRB. If we gain approval, PREVENT and PREDICT will begin field work in May 2012.

PREVENT will take primary responsibility for implementing and analyzing most of the qualitative research, and PREDICT will take responsibility for implementing and analyzing the survey. We will fully share these results and will jointly analyze and write up the results of focus groups about hunting. Depending on the size of the populations in those areas, PREVENT may apply the results of this research to adapt their human-animal exposure survey instrument for implementation later this year. The benefits of this coordination are the leveraging of EPT partner capacities in Cambodia and assurance that behavioral research activities are carried out within the same areas as animal sampling occurs.

Specific information on this research is as follows.

PREVENT is working with PREDICT/WCS to carry out research in two forest protected areas of Cambodia where WCS will be testing samples from wild animal meat consumed by villagers. The areas are in Mondulkiri Province (eastern Cambodia) and Preah Vihear Province (northern Cambodia). The research consists of two parts:

1. A survey to obtain information about meat consumption and associated hunting and butchering from all households to understand how risk associated with these activities is distributed among the population. This will be implemented in three villages in each province where WCS is carrying out sampling. The households identified as consuming the most wild animals in the previous month and a random sample of other households in the village will be invited to participate in a quarterly follow-up survey.
2. Qualitative data collection in nearby similar villages using PREVENT's standard formative research package. These tools will:

- Identify animal names and categories and any issues (such as regulations restricting hunting or associations of certain animals with sorcery) that may result in over- or under-reporting of certain exposures;
- Determine patterns in seasonal and daily routines of people to assess possible locations and times of exposure to animals and to identify significant differences between sub-groups (e.g., men and women) that might have implications for risk.

In addition, in these villages we will carry out focus groups on hunting, butchering and perception of the associated risks to find out who hunts and why (food, income, manage pests), what health problems

people associate with their domestic animals and the wild animals they hunt and/or butcher, and what they do, if anything, to reduce risks associated with hunting and butchering.

PREVENT and PREDICT will also work together on the rice-field rat trade in southern Cambodia. PREVENT recently conducted a rapid market mapping activity in the Mekong Delta area of Vietnam to better understand the extent of the rice-field rat trade in this region. The rapid study revealed the extensive importation of rice-field rat from Cambodia to Vietnam. Meanwhile, PREDICT has uncovered villages in Cambodia's Kandal Province that are involved in herding and catching rice-field rats for the trade. Together, PREDICT and PREVENT will conduct the first half of the rapid market mapping of rice-field rats, bats, and other wildlife at the end of April 2012. PREDICT will sample the rice-field rats and other key EPT species, while PREVENT will conduct the rapid market mapping of the rice-field rate trade within Cambodia.

PREVENT has secured a team to conduct this exploratory visit on the rice-field rat trade: the PREVENT Vietnam Coordinator, Hai Le Thanh, a consultant, and a driver will complete the study. In addition, the team has coordinated with PREDICT to make sure the teams are visiting villages in Kandal together the week of April 22, 2012. Currently, PREVENT is working to obtain authorization from a Royal Government of Cambodia counterpart. Results of this exploratory visit will be available in the next quarter.

Indonesia

During this quarter, PREVENT undertook initial planning for work to be conducted in Indonesia. From prior discussions with USAID, including the USAID Mission in Jakarta, it was determined that PREVENT would focus on either Kalimantan or Sulawesi. To better inform the decision, an RFP for a desk study (*Indonesia Desk Study to Support Programming Decision--RFP # 3879-06-165*) was publicly competed in February. A consultant was selected, and the study was commissioned to be completed by the end of March.

The scope of work for this study included such issues as impacts of palm oil plantation expansion on local livelihoods, carbon emissions of land use change associated with logging and palm oil plantations, and characterization of the political and cultural dimensions of land conflict between communities and companies at logging and palm oil sites.

In making the comparison between Kalimantan and Sulawesi, the consultant will compile and summarize land use, biodiversity, demographic, labor, and company characteristics pertaining to recent and large-scale land use by extractive industry in these two provinces.

One consideration that will be entertained is that PREVENT might determine that formative research in both provinces may be warranted. This will be decided in consultation with USAID following review of the consultant report.

Lao PDR

Literature Review

The Lao PDR literature review final report was submitted for comment this quarter. The final report is the result of two consultants working from September 2011 to February 2012 in Vientiane Capital. The aim of the review was to identify human exposure to wildlife, and more specifically to address exposure to primates, small carnivores, rodents and bats. The final review is based on secondary data obtained from 197 documents in English and 15 documents in Lao language, mostly from gray literature and collected from nine libraries, offices, and the internet, as well as information gleaned during 41 interviews (22 in English and 19 in Lao) with selected stakeholders working in the fields of nature conservation, agriculture, human and animal health, human nutrition, hydropower, tourism, press, and communication.

The review identified four main fields bringing humans into contact (both direct and indirect) with wildlife: (1) subsistence hunting and consumption; (2) domestic commercial trade and consumption; (3) international trade; and (4) sharing habitat and conflicts between humans and animals. Although the demarcation line between these areas is often blurred, the distinction is necessary as each field often encompasses different species. The review identified the following issues concerning each of the four orders of focus:

- **Primates**: Large-scale private farming of macaques and other primate species for international export is of major concern, as sanitary conditions at farms are not properly monitored and general farming conditions are poorly known.

- **Carnivores**: Local, urban domestic consumption, as well as international export of viverrids is still widespread and of particular concern, knowing the role these animals played in the regional SARS outbreak in 2003.
- **Rodents**: Murine rodent outbreaks are reportedly increasing and conflicts with humans in agricultural activities are numerous. Moreover, murine rodents share the most extensive habitats with humans both in rural and urban areas. Non-murine rodents (e.g., squirrels, shrews) still form a non-negligible proportion of small mammals consumed traded as food item or as pets.
- **Chiropters:** Bats are heavily hunted, consumed and traded locally and thus pose a potentially great risk in terms of disease emergence.

PREVENT is editing the final report and plans to have it ready for dissemination next quarter.

Market Study

(b)(6)

Bats and rodents are bought openly from markets in Lao PDR. Because bats and rodents have been shown to harbor EPT viruses in studies completed in the region and globally, PREVENT proposed concentrating on open markets in areas where bats and rodents are consumed to determine potential risk posed to people and animals by the presence of wildlife in markets. PREVENT identified Wildlife Conservation Society (WCS), a partner on the PREDICT project, to conduct a pilot study over the course of three months (January – April 2012). A longer-term study will be considered based on the results of this pilot.

To begin the pilot study PREVENT conducted a three-day training in Vang Vieng, Lao PDR. (b)(6) (b)(6) Senior Program Officer/PREVENT, led the training with co-facilitator (b)(6), Country Coordinator/Lao PDR and with translation by (b)(6) A total of 10 participants attended the training; five Lao PDR/WCS staff, two Cambodia/WCS staff, and three Government of Lao PDR staff of the National Animal Health Center. A total of five market data collection forms and an analysis matrix were selected for the pilot market study. The participants were guided in using the structured observation tools, day-to-day market observation schedule, data entry tool, and reporting tool. Everyone's active participation and participants' comments and observation

contributed to refinement of the tools and making these more user-friendly. The WCS team left the training prepared to begin the pilot market study.

The week following the training, WCS began to monitor biosecurity practices and wildlife price and availability data at markets in which they were sampling wildlife (including key species of bats and rodents) for PREDICT and from markets within 50km of those markets. Six markets were visited between January 21 – February 29, 2012 from three provinces: Vientiane, Xieng Khouang, and Luang Prabang. Wildlife was found at seven main markets (markets preselected by FHI 360 and WCS due to known high quantities of wildlife for sale) and at several small markets or roadside locations. At each main market where wildlife was found, a full market observation survey was performed. At peripheral markets within a 50km radius of a main market, a general market observation was completed. At roadside markets, a basic evaluation was performed. To protect wildlife species, market identities (names, locations, and maps) were excluded from this report.

(b)(6)

The five most common types of wildlife being sold in the markets were wild birds, frogs, bats, squirrel, and rats (most prevalent to least prevalent, respectively). Of the six main markets selling wildlife, four markets were found to be selling species selected as priorities in this collaboration (rodents, bats, primates, and civets). These species were selected as priorities due to their relatively high risk of zoonoses transmission. Rodents were the main type of wildlife sold in five of the 11 markets selling wildlife. Of the main markets selling wildlife, bats were sold in two markets, wild birds in four markets, and civet in one market (in that case, the civet was the only wildlife being sold at the market).



Figure 5. Bats for sale at Vang Vieng Market, Lao PDR

The sale of live wildlife was relatively uncommon. Of the 11 markets where wildlife was found, live wildlife was found in six markets. From all of the markets in combination, a total of 129 live wild animals were found (excluding frogs because of the large numbers sold), compared to 833 dead wild

animals. The only animals found to be sold live included 165 bamboo rats (some of these may have been seen on consecutive days if not sold), two flying squirrels, and 132 wild birds.

The most expensive items of wildlife were bamboo rats, brush-tailed porcupines, and civets. From all markets combined, the average price of the species were 4,900k/individual bat (63 cents), 20,900k/individual squirrel ($2.68), 98,600k/individual bamboo rat ($12.63), 10,700k/individual rat ($1.37), 272,000k/individual brush-tailed porcupine ($34.83), and 130,000k/individual civet ($16.65) *(see Table 1)*. The prices of wildlife did not vary significantly between vendors in a market except for bamboo rats and civets. This variation reflected the size and form of the bamboo rat; live, large bamboo rats were more expensive. The variation in civet price reflected both the form and species of the civets; fresh civets were more expensive than smoked ones and the highest price was seen for a masked civet (which is a bigger species than the common civet). Price did not vary greatly between markets except for bush tailed porcupines and bats.

Table 1 - Price of Key Animal Species

Name of market	Bats	Squirrel	Bamboo rat	Rat	Brush tailed porcupine	Civet	Rice
SUMMARY OF ALL MARKETS	4,900/ individual	20,900/ individual	98,600/ individual	10,700/ individual	272,000/ individual	130,000	4,700

The markets varied significantly in size. The larger markets were generally found in towns or cities, whilst rural markets were smaller. The number of wildlife traders was highest in cities and towns; however, there was little or no wildlife in two of the markets. A final report on all 15 markets visited is expected next quarter.

Markets Working Group

An objective of the PREVENT work plan in Lao PDR is to expand the Markets Working Group (MWG) agenda to include other emerging infectious diseases. Last quarter at the EPT quarterly meeting, (b)(6) appointed (b)(6) Hygiene and Sanitation, as the contact to liaise with PREVENT regarding the MWG. On February 18, 2012, (b)(6) (b)(6) and (b)(6) met with (b)(6) to find out about the MWG's current avian influenza-related activities and to introduce the PREVENT project. The outcome of the meeting was two-fold: to achieve agreement that the first step is to identify active MWG members, and to call a meeting at the national level to introduce PREVENT. On February 20, (b)(6) chaired a

meeting of the MWG and (b)(6) presented PREVENT to MWG members in Vientiane Capital. The idea of an expanded mandate to include EID was well received by the group. PREVENT, as an active member of the working group, will continue to explore opportunities for synergy with the MWG as an entry point for intervention at markets in Lao PDR.

Formative Research

PREVENT recently issued an RFP and selected and contracted a research firm, Burnet, to conduct a formative study on human-animal exposure in Lao PDR in two provinces: Bolikhamxay (central Lao PDR) and Attapeu (southern Lao PDR). The research is expected to help finalize instruments for a human exposure survey to be conducted in Lao PDR later this year.

During a trip in March 2012 by (b)(6) and (b)(6) specific study communities and sites that meet the project criteria were selected after consultation with key informants and Burnet staff. In Bolikhamxay, two groups (Hmong and Lao communities) were selected in Khamkeuth District in the area around the Theun Hinboun Power Company (THPC) dam extension reservoir. In Attapeu, we determined that the study will be conducted in Lao communities in the Attapeu provincial capital (Attapeu town), located in Samakhixai District, and in the Brao ethnic community in the area known as 'Lak 52' (an area of heavy logging) in Phouvong District.



(b)(6)

Figure 6. Examples of Research Tools

FHI 360 staff trained Burnet field staff (including focus group facilitators, note takers, and translators) and other researchers on the implementation of the formative research protocol. The training was participatory, engaging participants to master the tools employed in the research *(see photos above)*. The training had several components including three days in-class training of field staff, and two days of field pre-testing of all tools in Lao and Hmong communities near Vientiane. Staff representing the

National Emerging Infectious Diseases Coordination Office and the Department of Livestock and Fisheries attended the trainings to build local capacity around these topics.

Burnet started implementing the formative research in the two provinces on March 21, 2012. The field portion of the research is expected to end on April 6. Burnet will then analyze the data from this research and is expected to deliver a draft report by the beginning of June 2012.

Malaysia

Human-Animal Exposure Study

PREVENT is collaborating with EcoHealth Alliance, a partner in the PREDICT project, to coordinate studies in a number of countries including Malaysia where PREDICT is implementing a "Deep Forest" study. PREVENT's portion of the collaboration will be to conduct assessments of human-animal exposure of populations living in or using some of the deep forest sites. One exciting possibility is the potential of linking indexes of human exposure to animals with information about whether those types of animals are carrying potentially pathogenic zoonoses. In addition, PREVENT will be looking for opportunities to compare exposure rates of different groups living in or near the same defined ecosystem to assess how social factors can affect exposure.

During this quarter, PREVENT began preparing a research protocol on Human Animal Exposure Studies in Malaysia to submit to the relevant Malaysian authorities and to the FHI 360 IRB in April 2012. The protocol includes both formative (qualitative) and household survey components, and is anticipated to start sometime in the summer of 2012. PREVENT and EcoHealth will work together to select optimal study sites as well as data-sharing agreements to help meet both of their study objectives. A meeting to determine the next steps in implementing these studies has been set for later in April 2012. In addition, FHI 360 staff is scheduled to accompany EcoHealth staff on a scoping mission of the study sites in Malaysia in May 2012.

Thailand

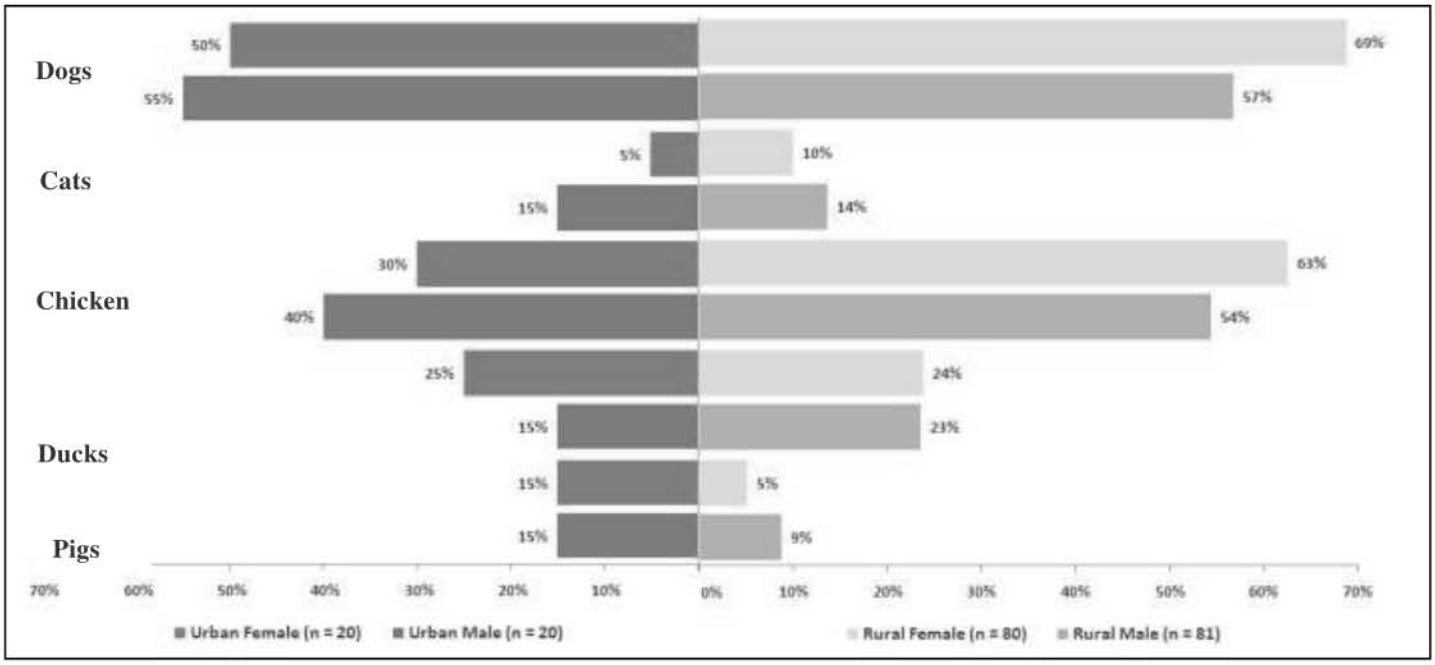
Human-Animal Exposure Research

During this quarter, (b)(6) Senior Research Advisor, analyzed results of the Thai pretest of the human-animal exposure survey. The survey instrument and the sampling methodology were tested in Northern Thailand, in villages representing urban, agricultural and forest landscapes. Independent samples of 100 adult men and 100 adult women were obtained using a cluster sample design. Some preliminary results are presented below. Despite very small sample sizes – 20 in urban areas and 40 in each of the forest and agricultural areas – point estimates obtained from the male and female samples are very consistent. Few differences were observed between the agricultural and forest landscapes, so results are presented together.

Animals Raised

People are most exposed to the animals that they raise – commonly pets and domestic animals. In both urban and rural areas, dogs, cats, chickens, ducks, and pigs were the animals most commonly raised.

Figure 8: Animal Raised

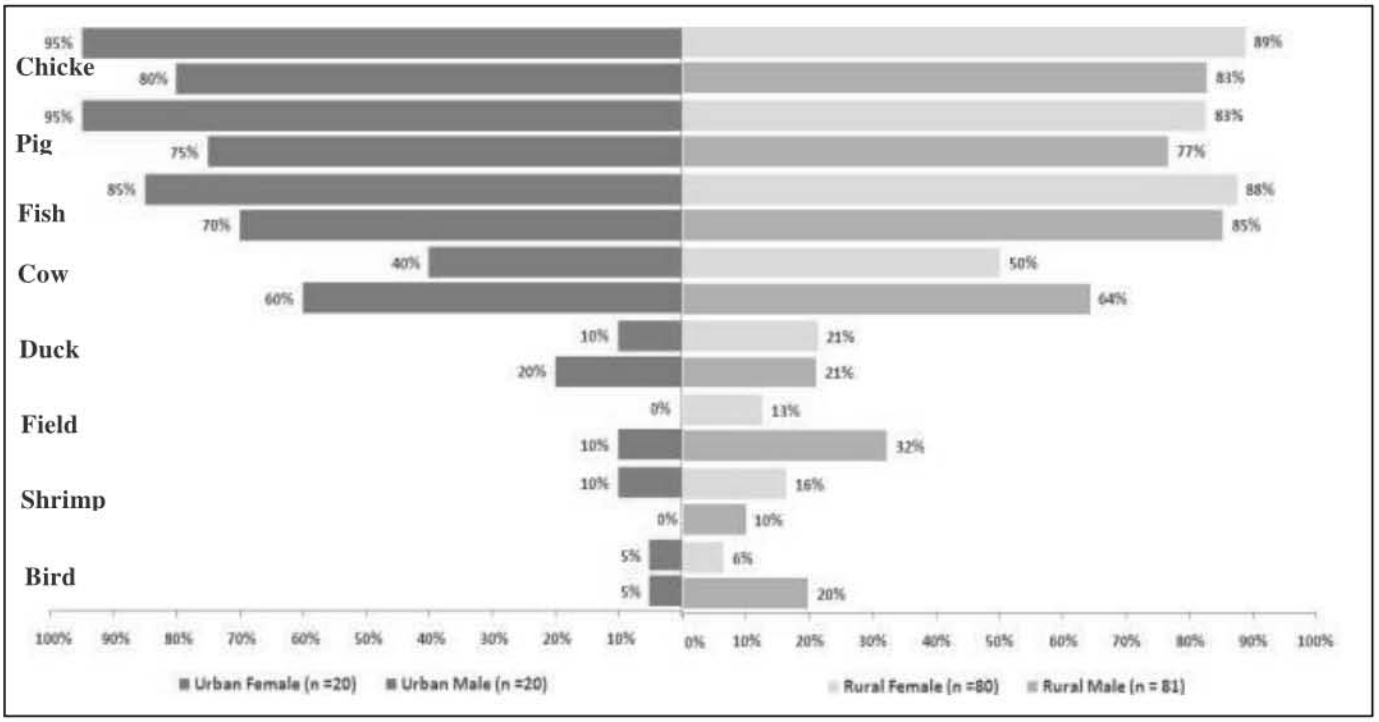


Five percent or fewer people reported raising birds, fish, cows, and gamecocks in both urban and rural areas, and animals that are probably pets – rats in urban areas, and guinea pigs, rabbits and monkeys in rural areas.

Animals Consumed

Overall, there was no variation in the main types of animal meat consumed during the previous month between areas or by gender. Chicken, pig, fish, cows, and ducks were the main sources of animal protein. More people in rural than in urban areas reported consuming field rat/rats and birds. Consumption of buffalo, crab, squirrel and dog was reported by only a few people.

Figure 9: Animals Consumed

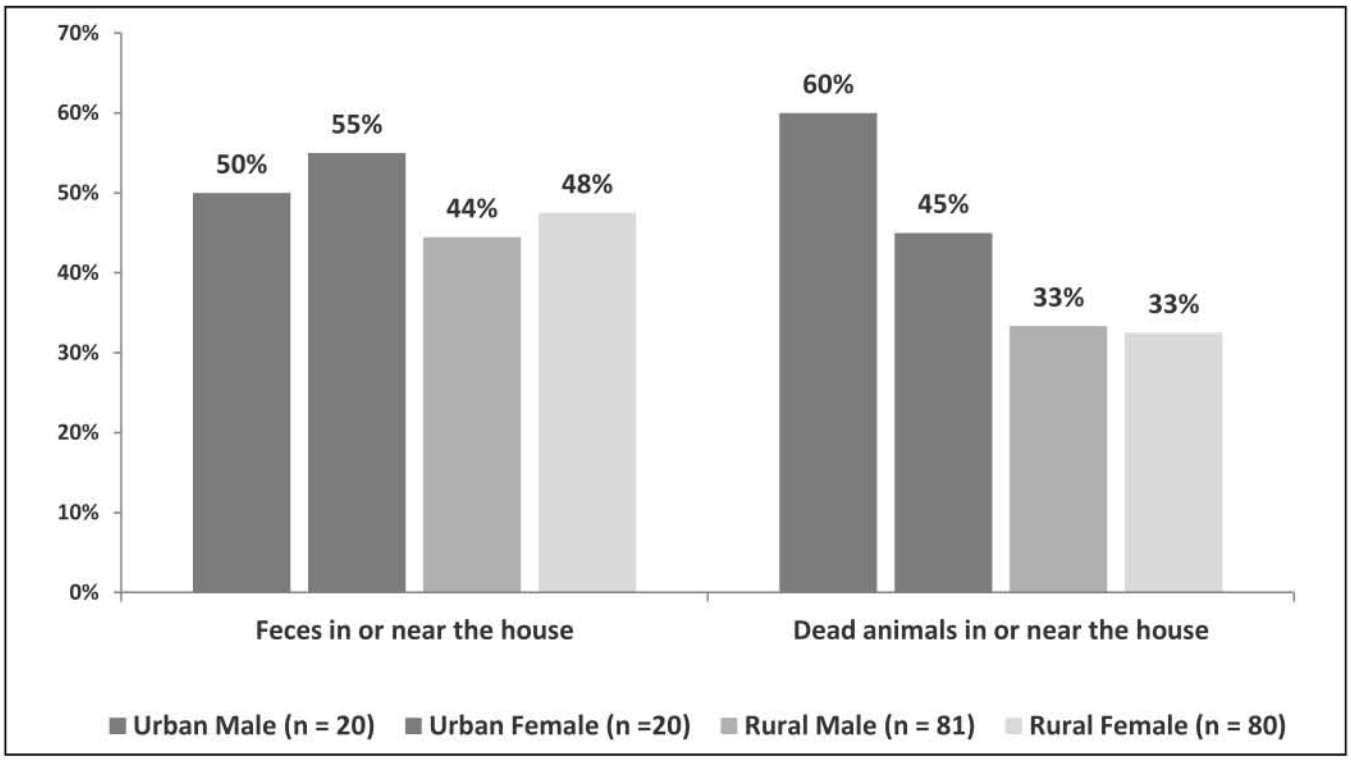


Potential Contact with Rodents

As a proxy for contact with rodents or fomites from rodents, PREVENT asked about presence of dead rodents, rodent feces in food or water and in places where people live or work, and evidence of rodents (chewed objects) during the past year.

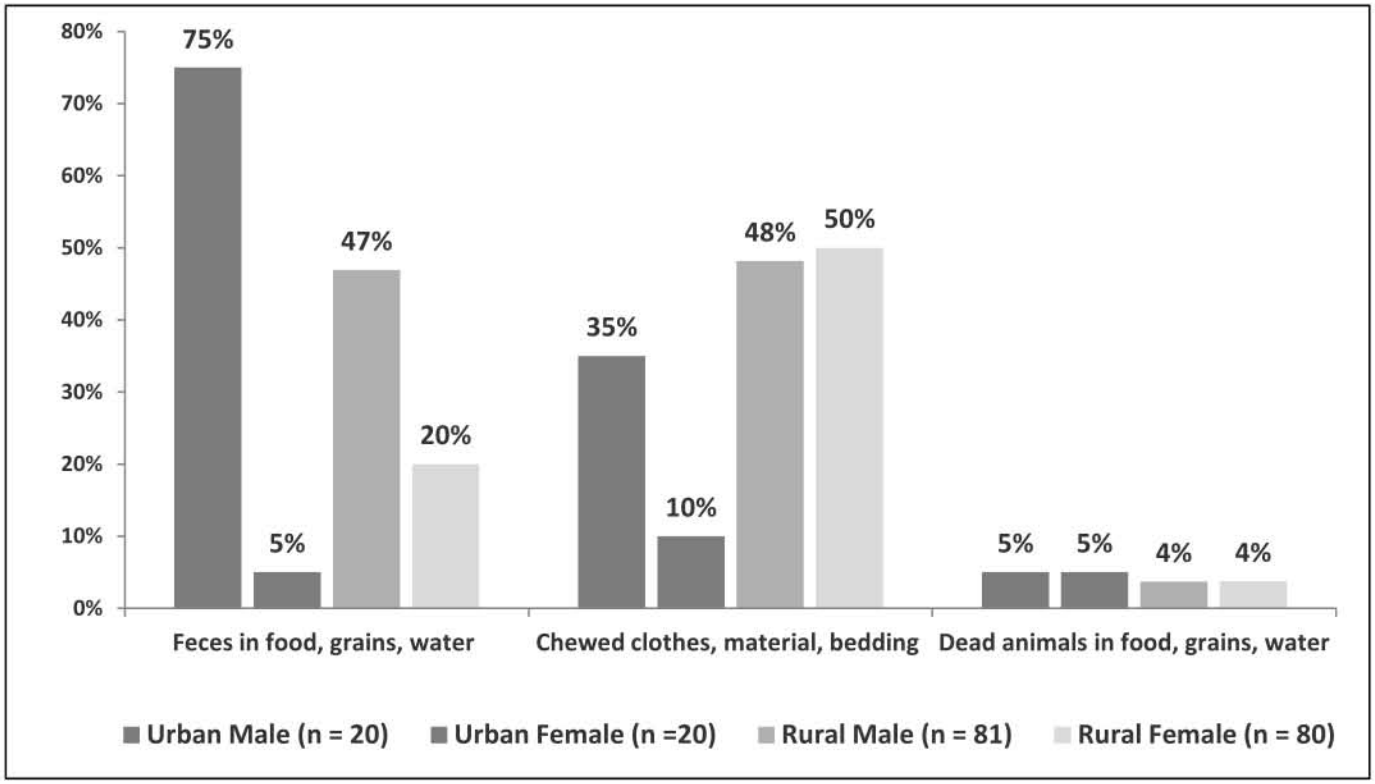
In and near the house. About 50% of all respondents (male or female, urban or rural) reported seeing feces in or near the house, and about a third in rural areas reported seeing dead rodents in or near the house (Figure 10). Interestingly, more people in urban than in rural areas, and more men than women, reported seeing dead rodents in or near the house. The difference between men and women in urban areas in rates of seeing dead animals in or near the house is statistically significant at p=0.033.

Figure 10: Feces and Dead Animals in or Near the House



Responses to more detailed questions also revealed variation by survey area and gender of the respondent. For example, more men in urban areas (75%) reported rodent feces in food, grains, and water than men in rural areas (47%). Similarly, more men than women reported chewed items in urban areas, though the proportions in rural areas were similar and higher. All of these differences were statistically significant. Very few people (≤ 5% of men or women in any area) reported finding dead animals in food, grains, and water.

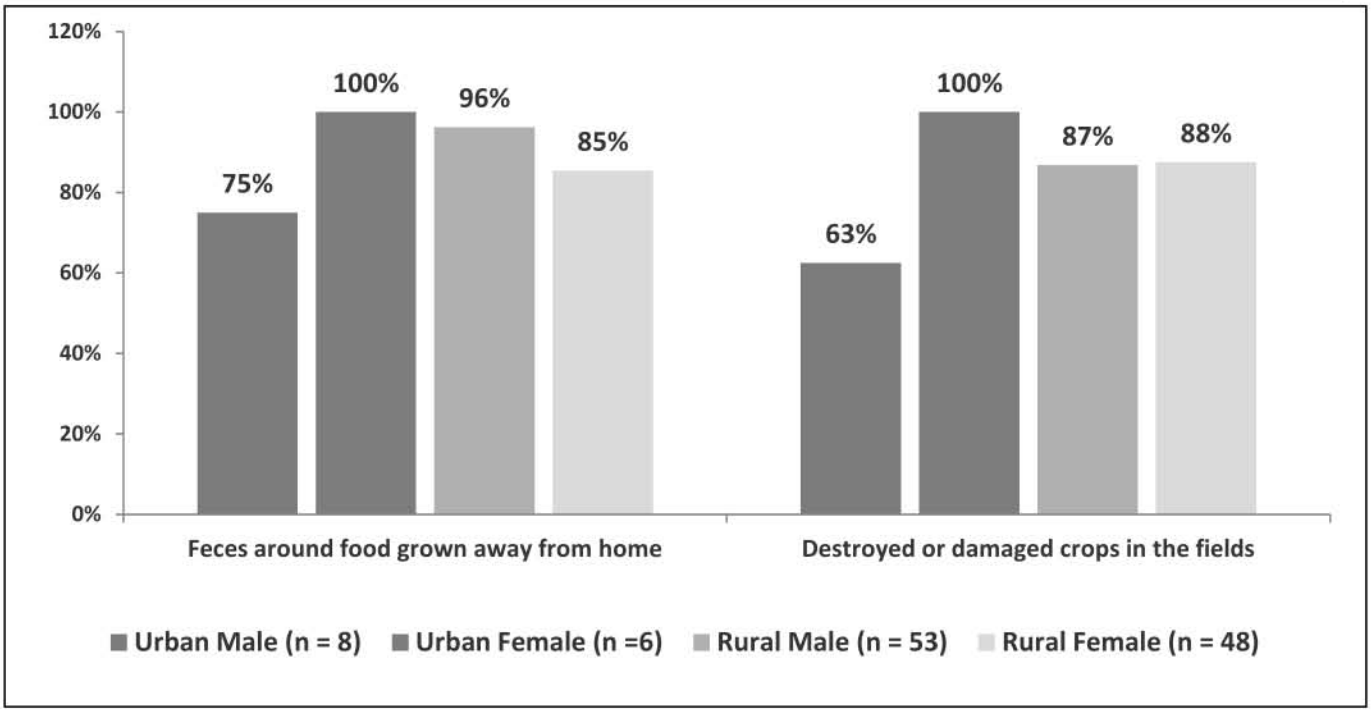
Figure 11: Feces and Dead Animals in Food, Grains, Water and Animal-Chewed Clothes, Materials, Bedding in House



Away from the house. Among those who grow crops away from the home (i.e., not in kitchen gardens), most reported noticing feces around food grown away from the home and noticed rodent damage to crops.

Based on results of the pretest, the survey instrument is being revised. It will be implemented in Lao PDR during the next quarter.

Figure 12: Feces Around Food Grown Away from Home



Literature Review

Thailand's literature review has been conducted since late 2011 by a consultant who is adjunct professor at College of Public Health Sciences, Chulalongkorn University, Thailand. The review process followed PREVENT's format and instruction from a regional literature review consultant. Deliverable dates have been extended due to severe flooding in Thailand that would have made it difficult for the consultant to access and search the literature on time. The final deliverable was submitted in early March 2012 and the PREVENT team reviewed and related comments to the consultant. We expect to have the revised deliverable by the end of April 2012.

Meetings

EPT Work Plan Review Meeting

The Regional Development Mission for Asia (RDMA) called a 2012 EPT work plan review meeting in Thailand on February 6, 2012. The objective of the meeting was to discuss areas of synergy among EPT projects. (b)(6) and (b)(6) of RDMA chaired the meeting. Seven participants representing EPT projects attended the meeting: (b)(6) and (b)(6) on behalf of PREVENT, (b)(6) and (b)(6) for RESPOND, (b)(6) FAO, for IDENTIFY, and (b)(6) on behalf of PREDICT. Each project reported on the progress of FY11/FY12 activities undertaken to date, FY12 expected activities, and any monitoring and evaluation framework. The meeting was interactive, and the group spent time discussing areas of synergy to maximize resources in a collaborative way. The outcomes of the meeting were presented by RDMA to Royal Thai Government and Thailand International Cooperation Agency (TICA) as the formal launch of EPT in Thailand.

Vietnam

MOU with DAH Signing

This quarter the Memorandum of Understanding between the PREVENT project and the Government of Vietnam's Department of Animal Health (DAH) was signed. On February 27, 2012 (b)(6) (b)(6) DAH and (b)(6) of FHI 360 Vietnam, signed the MOU. The MOU outlines the cooperation between DAH and FHI 360 on PREVENT activities during the period October 1, 2011 – September 30, 2012.

PREVENT Staff in Vietnam

A new PREVENT program coordinator, (b)(6), based in Hanoi, Vietnam, began at the start of this quarter. In early February, Senior Program Officer, (b)(6) went to Hanoi to brief the new PREVENT program coordinator on work plan activities for 2012. To assist in cross-EPT project collaboration, the PREVENT program coordinator is sitting at the offices of the PREDICT project lead in Vietnam, the Wildlife Conservation Society (WCS). At WCS, (b)(6) and the program coordinator discussed EPT activities for 2012, including possible collaboration on activities.

While in Hanoi, (b)(6) and (b)(6) met with USAID, local government officials, local EPT partners, the FHI 360 Vietnam staff, and WCS staff.

Meetings

On February 7, 2012 (b)(6) and (b)(6) met with (b)(6) and (b)(6) to introduce (b)(6) as PREVENT's local contact and to discuss PREVENT's FY12 work plan. This meeting was followed by an EPT program meeting chaired by (b)(6) and (b)(6) Representatives from PREVENT ((b)(6) and (b)(6)), from PREDICT ((b)(6)), from the World Health Organization, from FAO for IDENTIFY, and from RESPOND via remote desktop ((b)(6) attended. (b)(6) from PREVENT, and (b)(6) of RDMA also attended. The teams spent the morning reviewing FY12 plans and discussing leveraging opportunities and areas of cross collaboration.

The following day a productive meeting was held with the Department of Forestry Protection's (DFP) Deputy Director of CITES Management Authority in Vietnam, (b)(6) and (b)(6) introduced (b)(6) to PREVENT's FY12 work plan. (b)(6) was particularly interested in PREVENT's work with wildlife farms. (b)(6) highlighted the lack of awareness of disease transmission from wildlife by local enforcement authorities and wildlife farmers. To follow up on this request, PREVENT worked with DFP to collect data on wildlife farms in Vietnam. According to the data available at DFP, there are around 3,041 wildlife farms in the Mekong Delta Region. The purpose of raising wildlife is mostly for trading and many farms are raising PREVENT priority species such as rodents (porcupine) and primates. In the next quarter, PREVENT will continue to collect information on the wildlife farms to address DFP's disease-transmission concerns.

While in Hanoi (b)(6) and (b)(6) also met with representatives of FAO's Partnership for Avian and Human Influenza Control (PAHI) to discuss PREVENT's participation and partnership in the Avian Influenza Behavior Change Communication (AI BCC) Working Group. As a result of this meet and greet, PREVENT was invited to attend the next AI BCC working group meeting held on March 16, 2012. At this meeting PREVENT was invited to present its project work plan, objectives, and goals. The remainder of the meeting time was set aside to create a road map for implementing the National Communication Strategy Framework 2012-2015 under AIPED. It was announced at the meeting that the Ministry of Agriculture and Rural Development had officially assigned National Agriculture Extension Center to play a leading role to facilitate the AI BCC working group for the

remainder of 2012. PREVENT will continue to be an active member of the AI BCC Working Group, contributing technical expertise in behavior change communication.

Cross-border Trade of Rice-Field Rats Exploratory Mapping

PREVENT's FY12 work plan includes an examination of the cross-border rodent trade from Cambodia to southern Vietnam. (b)(6) and the program coordinator traveled to Ho Chi Minh City (HCMC) to prepare for the rapid market mapping activity. (b)(6) and a DAH government counterpart conducted a full-day scoping of village and roadside markets carrying rice-field rats. Together, the team modified the rapid market mapping forms to be used during the following 10-day exploratory visit of the rice-field rat trade.

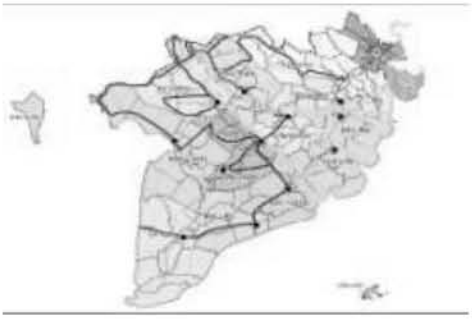


Figure 13. Cross-border trade exploratory market mapping route

From February 15 – 24, 2012, (b)(6) and a DAH government counterpart conducted a rapid market mapping observation in the Mekong Delta Region. During the observation, the team visited a total 53 places consisting of main and district markets, roadside markets, processing villages, and collection stores.[1] These places are located in 11 provinces: Ho Chi Minh City, Long An, Dong Thap, An Giang, Kien Giang, Can Tho, Vinh Long, Bac Lieu, Hau Giang, Soc Trang, and Ca Mau. For a closer examination of the sites visited the route traveled is outlined in Figure 13.



Figure 14. Transporter bringing rice field rats to market

Rice-field rat (*chuot dong* in Vietnamese) and other wild animals such as wild bird, snake, eel, and turtle were commonly found in the Mekong Delta Region during the mapping activity. The PREVENT team identified markets and villages where collecting and/or processing of rice-field rat was reported to be 1 ton of rat and rat meat per day throughout the year and 2-3 tons during the seasonal peak from March to May. The team also confirmed that most of the rice-field rats caught in Cambodia are imported to Vietnam through border gates in An Giang and Dong Thap provinces from March to

[1] A place with high number of local people (around 10 workers) are involved in butchering, processing and transporting of rice field rat and other wildlife.

May. The importation of rice-field rats was reported to be around 30 tons of rice-field rats per month. The rodent trade scoping visit to HCMC has provided necessary information to finalize plans for a closer examination of the rodent trade through a value chain analysis and price and quantity monitoring.

One limitation to the rice-field rat trade activities is limited knowledge on the viruses carried by the rice-field rats. At the EPT quarterly meeting, FAO expressed their interest in sampling rice field rats. PREVENT has passed this contact and supporting information to PREDICT country lead, (b)(6) (b)(6) of WCS.

Bangladesh

ICDDR,B is continuing to carry out further analysis of previously collected information to answer questions about the sustainability of the tree-skirt intervention and about whether letting date-palm growers know they have a choice of materials that can be used to make protective coverings increases the proportion that actually make and use them. We expect a final report in the coming quarter.

GLOBAL

Communication

PREVENT completed its handbook and training guide on how to design and implement an advocacy campaign. Entitled *Subtle Persuasion: Changing the World of Public Health through Advocacy,* the guide can be applied to any advocacy need, and includes case studies from pandemic and other disaster preparedness scenarios. The guide will be used in several upcoming training activities at the community and national levels. It will be used in late April 2012 along the Lao and Thai borders, and in June for the Ministry of Public Health in Thailand. The guide can be found here: http://mekong.aed.org/policy/

Pandemic Influenza and Other Emerging Threats (PIOET)

A results-oriented dissemination program for the articles, white papers, research findings and communication campaigns designed under the PIOET activity was developed and aspects of it have been tentatively approved by USAID. The plan includes the design of a web site to house items from

all the PIOET partners, with links to their web sites; and use of social media such as a blogs, Twitter, and a Facebook page that documents important events and distributes interesting and valuable information. The PREVENT Twitter account has continued building on work under the Towards a Safer World (TASW) initiative (http://preventproject) and design of the web site has started. An editorial calendar has been created, highlighting upcoming activities to capture on the web or in social media and to promote to critical bloggers, journalists, and publications.

Review of International Wildlife Trade

PREVENT selected consultant Marianne Asmusson to write a review summarizing the state of knowledge about legal and illegal international trade in wild animals/meat (wild mammals used for food, unprocessed animal ingredients used for medicine) and its potential contribution to the increase in the number of pathogens jumping from animals to humans. The first draft was received and reviewed; Ms. Asmusson will revise it after she completes defense of her dissertation.

Extractive Industries Activities

The Extractive Industry Working Group was busy during second quarter. After a productive face-to-face meeting that charted next steps in December 2011, the group developed an education brief that was presented at the Partners' Meeting in January 2012, along with a progress report on extractive industry activities. The brief was then tailored for the mining industry in time for the Mining Indaba conference in South Africa in early February 2012. (b)(6) from RESPOND and (b)(6) USAID, met with numerous stakeholders at the conference. The International Council on Mining and Minerals requested permission to post the educational brief on its website. Once the document has been finalized and cleared with the working group and USAID, we will send it to ICMM to post on its website. (b)(6) also attended a gathering hosted by World Wildlife Foundation with Australian Junior Mining Company CEOs with an interest in Central Africa. The meeting introduced the idea of bringing together the companies in Brazzaville in May 2012 to discuss conservation and emerging infectious disease risks and mitigation/action.

PREVENT and RESPOND submitted abstracts on emerging infectious diseases and mitigation opportunities to several conferences, all of which were accepted. (b)(6) of PREVENT presented at the One Health conference in Davos, Switzerland, where she and (b)(6) made good contacts with World Bank, Asian Development Bank, and other One Health stakeholders. The Forestry conference in Nairobi, Kenya in late June 2012 will introduce the EPT concept within the forestry and

timber industries and the Society of Petroleum Engineers Conference will be in Australia in September 2012.

The team also worked on developing the EPT mitigation tool this quarter. PREVENT developed a schematic that was circulated to the group for comment. After a clarifying meeting with USAID to simplify the concepts, PREVENT further developed the schematic and a checklist tool that was shared with the EI Working Group and USAID. This will be further developed and finalized in the next quarter. RESPOND is spearheading the development of other documents such as a guidance document about EPT to accompany Environmental, Safety, Health Impact Assessment Guidelines and the expansion of the White Paper. These will be commented on and refined by the Working Group.

Representatives from PREVENT, RESPOND and USAID also met with Chatham House to begin discussion on an activity to introduce emerging infectious diseases to the larger banking and political communities involved in extractive industries. These negotiations are ongoing and will likely result in a sub-activity under PREVENT to engage this higher-level advocacy effort around EPT risk mitigation among extractive industry. PREVENT and RESPOND also met with Assheton Carter, currently with PACT, to discuss his experiences and networks around extractive industry activities.

Subcontracts

African Field Epidemiology Network (AFENET)

(b)(6) FHI 360 behavior change and communication advisor, continued to serve as the on-the-ground technical advisor in Uganda from January 29 to March 10, 2012. The focus of this trip was to continue providing technical assistance to AFENET's Public Affairs unit related to implementing key facets of the communication strategy (e.g., website updating and maintenance and intranet training). While in Kampala, (b)(6) also attended an USAID-hosted Emerging Pandemic Threat meeting and met with AFENET and Makerere University personnel to discuss inclusion of a Risk Communication course as part of their curriculum for veterinary and field epidemiology careers.

To provide TA to AFENET, (b)(6) held regularly scheduled meetings with the Secretariat executive committee, the Public Affairs unit personnel, the public relations firm, Real Marketing, and the web site design company, MAAD/Hostalite.

(b)(6) was also a guest speaker at a Participatory Epidemiology three-day workshop organized by AFENET for their One Health Fellowship program in Mukono, Uganda on February 28, 2012. (b)(6) (b)(6) made a presentation on communication and its role within the field epidemiology field and participated in a group discussion with the fellows and other guests.

From January 29 to March 10, 2012, (b)(6) also traveled to Maputo, Mozambique to scout locations and prepare the ground for an upcoming Applied Communication and Risk Communication workshop to be held for field epidemiologists in Lusophone Africa (Angola and Mozambique). The four-day workshop is set for Maputo, Mozambique on 17-20 April 2012.

From January to March 2012, AFENET's website experienced a higher than ever volume of visitors for an average of 6,227 visitors per month. A 21% increase over the previous quarter and a 102% over the monthly visitors' average before the launching of the updated AFENET website. In terms of monthly hits, the AFENET website surpassed the one-hundred-thousand mark in March for a record high of 107, 923 hits.

Towards a Safer World (TASW)

TASW Website

The Towards a Safer World (TASW) website (http://www.towardsasaferworld.org) continues to be the primary resource for information on the TASW initiative. For the January 1 – March 31, 2012 period, the website received 1,370 visits, a decrease from the previous quarter. The visitors were from 102 countries and territories, including the United States, Italy, United Kingdom, Switzerland, Canada, India, France, Kenya, Singapore, and South Africa. Nearly 72% of visitors were considered "new visitors." The TASW website has grown to approximately 196 registered users from around the world, representing various agencies and interests. As directed by USAID, the management and hosting of the TASW website will migrate from the PREVENT Project to UNSIC. This is planned for the next quarter.

TASW continues to be active on other social media channels including Twitter (@tasw_initiative), YouTube, and Facebook (http://www.facebook.com/TowardsASaferWorld). These social media outlets have been used to promote TASW. The TASW twitter account has grown to approximately 99 followers.

Financial Summary

A **financial report** that covers project expenditures January 1–March 31, 2012 is enclosed under a separate attachment. (b)(4)

(b)(4)

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT
APRIL 1, 2012 – JUNE 30, 2012

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

July 16, 2012

fhi360
THE SCIENCE OF IMPROVING LIVES

Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. On June 30, 2011, Family Health International (FHI) acquired AED and all of its programs and assets, including PREVENT; the resulting new integrated organizational entity is FHI 360. PREVENT, a cooperative agreement, focuses on using behavior change and communication to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. The Project is part of a larger USAID program on Emerging Pandemic Threats (EPT Program).

Pandemic Influenza and Other Emerging Threats (PIOET)

CONGO BASIN

Cameroon

Two abstracts from PREVENT were selected for presentation at the 140th American Public Health Association Annual Meeting on October 27 - October 31, 2012 in San Francisco, CA. The titles are: "Conducting Behavioral Trials in Rural Cameroon to Determine Feasible Strategies for Reducing Zoonotic Disease Transmission in Villages" and "Biosecurity Risks and Perceptions of Contagion in Bushmeat Markets in Yaoundé and Southern Cameroon."

SOUTH AND SOUTHEAST ASIA

Cambodia

Exploratory Mapping of Rat Trade in Collaboration with PREDICT/WCS

In the previous quarter, PREVENT conducted a rapid market mapping activity in southern Vietnam to better understand the extent of the rat trade in Mekong Delta region. The rapid study revealed the extensive importation of rats from Cambodia to Vietnam. Meanwhile, PREDICT/Wildlife Conservation Society uncovered villages in Cambodia's Kandal Province that were involved in herding and catching rats for the trade. This quarter, PREVENT conducted a rapid market mapping of the rat trade within Cambodia, and PREDICT/WCS conducted sampling of rats specimens.

To begin the exploratory mapping of rats in southern Cambodia, PREVENT first sought approval from (b)(6) (b)(6) of the Royal Government of Cambodia, Ministry of Health. (b)(6) approved PREVENT's request to conduct an exploratory visit of the rat trade in Kandal, Takeo, Prey Veng and Svay Rieng Provinces on April 17 – 27, 2012. The team from PREVENT, led by Mr. Le Thanh Hai, PREVENT/Vietnam Program Coordinator, recorded general observations related to the rat trade in the four approved provinces. The team began the exploratory visit in Takeo, Prey Veng and Svay Rieng Province, and then continued to Kandal province to join the PREDICT team, who were there sampling rodents. During the exploratory visit, the PREVENT team recorded observations on important aspects of trade, including the locations of villages actively involved; actors involved in catching, selling and trading rats; and rough estimates on the availability and volume of rats traded.



Exploratory rapid market mapping route

PREVENT visited 38 places along the border areas between Cambodia and Vietnam, including five district markets, 13 Khmer/Vietnamese villages, five collection stores, and 15 check points at the border. Preliminary observation in Cambodia confirmed findings from last quarter in Vietnam: that there is a high-volume rat trade across the border. In Cambodia, the team observed poor biosecurity and hygiene practices, and exposure both directly and indirectly of rat catchers and middlemen to the bites, blood, saliva, scratches, and entrails of the rats. As in Vietnam, the rat trade seems to be a significant source of livelihood for rural communities in Cambodia.



Khmer woman butchering rats outside her home.

Human-Animal Exposure Research

During this quarter, PREVENT also collaborated with PREDICT/WCS to implement human-animal exposure research in Mondulkiri, in the eastern part of Cambodia.

From April 30 – May 8, 2012 in Phnom Penh, 17 participants were trained on the techniques of qualitative and quantitative research, human exposure survey methods and instruments, and human subjects protection. The team implemented the study in six forest villages of Mondulkiri. The qualitative research team conducted six focus group discussions among adult men and women, three key informant interview, and 10 individual interviews in three forest villages. This qualitative research focused on learning which wild animals people could identify, which animals they were most exposed to, sensitivities about talking about animals, and hunting. The quantitative research team interviewed senior women in all (92) households in three other villages about animals raised and consumed, and about some hunting-related activities.

Initially, the team also planned to implement the qualitative and quantitative research in Preah Vihear province. However, due to the low accessibility of targeted villages, an epidemic of chikungunya, and issues related to a nationwide election at the time of the survey, it was decided to shift data collection from Preah Vihear province to Banteay Meanchey province. The new study site met key criteria, such as being one of the WCS forest intervention sites; potentially having significant hunting activity of a large variety of wildlife, including bats and rodents, animals of interest, and priority species for the study; and the population is all Khmer and similar to the Preah Vihear community. After receiving IRB approval for an amendment to the study protocol, data collection activities in Banteay Meanchey began on June 26, 2012.

During this quarter, (b)(6), PREVENT Senior Technical Advisor, completed preliminary analysis of the Mondulkiri quantitative survey. Data from the Mondulkiri qualitative sites is being transcribed and translated; full results are expected in the next quarter.

Meetings

An EPT regional coordination meeting to plan for the next fiscal year was held during this quarter. On behalf of PREVENT, (b)(6) attended the EPT Cambodia planning meeting on June 5-6, 2012 in Siem Reap, Cambodia.

Indonesia

Following up on the Indonesia desk study for Kalimantan and Sulawesi conducted last quarter, (b)(6) (b)(6) PREVENT Project Director, traveled to Indonesia to attend an INDOHUN (Indonesia One Health University Network) meeting organized by the RESPOND project. The purpose was to meet with national colleagues with an interest in EPT-related research, especially in these key provinces. In the coming quarter, the PREVENT project will explore next steps to initiate research activities around the human-animal interface in Sulawesi. Further exploratory missions regarding extractive industries in Kalimantan are also planned. Responding to the direct requests of the Indonesia Mission, the PREVENT project will also initiate recruiting for a Jakarta-based project coordinator.

Lao PDR

Literature Review

PREVENT disseminated the final *Desk Review on Exposure of Humans to Wildlife and the Risk of Spread of Zoonotic Diseases with Pandemic Potential in Lao PDR (April 2012).* This report was prepared by consultant (b)(6) with input from (b)(6) and (b)(6) of FHI 360 under the PREVENT Project. This desk review was a result of 197 documents (both in Lao Language and English) and 41 interviews with selected stakeholders working in the fields of nature conservation, agriculture, human and animal health, human nutrition, hydropower, tourism, press, and communication. The report has received an extremely positive response from interested stakeholders and is available on the Central Desktop.

Market Observation Pilot Study

Bats and rodents are purchased openly from markets in Lao PDR. Because bats and rodents have been shown to harbor emerging viruses in studies completed in the region and globally, PREVENT, in collaboration with PREDICT/WCS, undertook a market observation pilot study concentrating on open markets in areas where bats and rodents are consumed to determine the potential risk posed to people and animals by the presence of wildlife in markets. From February to April 2012, 44 markets were visited across the country during the dry season. Of the 44 markets visited, wildlife was found at 36.



Wildlife for sale at market in Lao PDR

The study took place in public markets and involved observation of the markets and of the people who work in, shop, or are associated with the markets. The study focused primarily on availability and price of key wildlife in the markets and on market hygiene and sanitation. Each market was assessed for the risk it poses as a potential point for a spillover event – in other words, transmission of an animal disease to humans or vice versa.

The study found that priority wildlife was most commonly sold as whole fresh dead animals. Live priority species were seen in 12 of the 36 main markets. Rodents were the most common type of wildlife observed (in 13 out of the 36 markets). Bats were the most common type of wildlife sold in four of the markets, and civets were the most popular in two markets. Only two markets were found to be selling all four types of priority wildlife (rodents, bats, primates, and civets). Significant numbers

of bats were observed in markets located near limestone karsts, which contain many caves that provide roosting sites for the bats. Fruit bats were more commonly seen in the markets than insectivorous bats. Civets were commonly seen in the markets, and were documented in 16 of the 36 observation sites across the country. Despite the relatively large number of primate species present in Lao PDR, only lorises (pygmy lorises and slow lorises) were seen in the markets. Lorises was seen infrequently and in small numbers.

The most expensive types of wildlife (by individual animal) of priority species were bamboo rats, Indian giant flying squirrels, and civets. The average price of brush-tailed porcupines (per kg) was also high relative to other wildlife items. Priority wildlife that was inexpensive in local terms included bats, squirrels, and small flying squirrels. Other non-priority species that were also found to be higher priced were marbled cat, leopard cat, monitor lizards, and mouse deer. From all markets combined, the average price of the wildlife was 4,354K per individual bat, 10,586K per individual rat, 24,362K per individual squirrel, 77,500K per individual loris, 102,657K per individual bamboo rat, 112,777K per kilogram of brush-tailed porcupine, 122,217K per individual flying squirrel, and 156,876K per individual civet cat. In general, wildlife is more expensive than an equivalent amount of domestic meat; the highest price recorded for pork was 40,000K/kg, but a squirrel weighing a few hundred grams averaged 24,362K per individual.

Across all markets observed, basic market hygiene was generally poor. Rarely did markets have both running water and drains, and all markets were found to have areas where there was either blood or entrails on the ground. Wildlife vendor hygiene was generally poor. Only two of the individuals observed at two different markets were seen to wash their hands. The level of contact of wildlife with other fresh food products (such as fruit and vegetables) was high. It was very common to see wildlife for sale alongside vegetables or other fresh produce in a stall.

The study identified nine markets to be considered for follow-up based on the high volume of priority species present (live and dead), as well as poor biosecurity and hygiene. A study report is being finalized and will be disseminated during the next quarter.

Formative Research

During the previous quarter, PREVENT issued an RFP and selected and contracted a research firm, Burnett, to conduct a formative study on human-animal exposure in Lao PDR in two provinces: Bolikhamxay (central Lao PDR) and Attapeu (southern Lao PDR). The research is expected to help finalize instruments for a human exposure survey to be conducted in Lao PDR later this year.

In Bolikhamxay, two groups (Hmong and Lao communities) were selected in Khamkeuth District in the area around the Theun Hinboun Power Company (THPC) dam extension reservoir. In Attapeu, the study has been conducted in Lao communities in the Attapeu provincial capital (Attapeu town),

located in Samakhixai District, and in the Brao ethnic community in the area known as 'Lak 52' (an area of heavy logging) in Phouvong District. Burnett has delivered a draft report which is under revision and will be available early in the next quarter.

Meetings

(b)(6) FHI 360 Lao PDR Country Coordinator, attended the EPT quarterly meeting in Lao PDR on April 5, 2012 covering the reporting period January - March 2012. All EPT partners were present: RESPOND, PREDICT, and IDENTIFY, as well as (b)(6) from USAID/Washington, and (b)(6) from USAID/RDMA. (b)(6) reported on PREVENT's progress in Lao PDR to date, followed by other EPT partner presentations and a discussion of reported activities.

PREVENT also participated in a half-day meeting in Vientiane, Lao PDR on April 22, 2012 to present the design of the quantitative survey portion of the human-animal exposure study and to facilitate approval for its implementation in Lao PDR. The meeting served as the quarterly meeting organized by the national and multi-sectoral Wet Market Working Group (WMWG). Two PREVENT staff, (b)(6) (b)(6), Senior Technical Advisor, and (b)(6) facilitated the meeting. Eight government officials attended the meeting, including representatives from the National Emerging Infectious Disease Coordination Office (NEIDCO), the Department of Hygiene and Prevention, and members of the WMWG. The government officials supported and approved conduct of the survey. Following receipt of IRB approval, PREVENT anticipates implementation in November 2012. This timeframe coincides with the dry season, so access to each survey site is expected to be easier. Because this period also coincides with the legal hunting season, fewer hunting sensitivity issues are expected during survey implementation. The FHI 360 Country Coordinator will submit the quantitative survey protocol, instruments, and consent forms for local IRB approval during the next quarter, following circulation of the formative research results.

On behalf of PREVENT, (b)(6) and (b)(6) attended the EPT Lao PDR planning meeting in Bangkok on June 11. EPT partners (b)(6) RESPOND, (b)(6) from IDENTIFY (FAO), (b)(6) from IDENTIFY (WHO), and (b)(6) FAO/BKK attended, as did USAID representatives (b)(6) USAID/Lao PDR, (b)(6), USAID/RDMA, and (b)(6) USAID/RDMA. (b)(6) NEIDCO/Lao PDR and (b)(6) from AusAID were also in attendance. Each of the participants introduced themselves and presented a summary of FY12 activities and plans for FY13. Copies of the presentations can be found on the Central Desktop. It was announced that there would be four planning meetings during the next fiscal year with EPT partners and the Government of Lao PDR to be held in Vientiane. (b)(6) requested support from the four EPT projects to alternately fund the meetings. All EPT partners will submit updated workplan activities and budgets in the next quarter.

Malaysia

In Malaysia, PREVENT is collaborating with PREDICT/EcoHealth Alliance (EHA) on a Deep Forest study in Sabah Province. In April, (b)(6), PREVENT Regional Communication Advisor, traveled to Sabah. (b)(6), PREDICT/EHA Project Coordinator for Malaysia, introduced (b)(6) to the director and staff of the Sabah Department of Wildlife (SDW). (b)(6) (b)(6) gave a presentation about PREVENT and the human-wildlife exposure research at a meeting chaired by the Director of the Wildlife Department, (b)(6) The meeting was attended by approximately 20 people, including staff of the Sabah Wildlife Department and several representatives from the major conservation NGOs that work closely with the wildlife department on conservation issues, including HUTAN and the Danau-Girang Field Centre.

Following the meeting, (b)(6) and (b)(6) had a separate discussion with senior management of SDW, who indicated that they would be pleased to work with PREVENT with the understanding that PREVENT will work in close collaboration with SDW, and in partnership with EHA, with whom they have had a very productive relationship. Next steps should be closely coordinated with EHA and the SDW, especially with respect to the selection of field sites and sampling activities.

During this quarter PREVENT substantially revised the generic Deep Forest survey instrument, which will be adapted for each location based on results of formative research. The new instrument was posted on the EPT Desktop. (b)(6) PREVENT Senior Researcher, drafted the research protocol for the Sabah human exposure study; the protocol will be submitted to the FHI 360 IRB as soon as information about the study sites – and the PREVENT sampling approach, which will reflect local demography – have been finalized. Concurrently, during the next quarter, PREVENT will follow up with SWD regarding EPU approval (Economic Planning Unit Research Pass), and submit the protocol to a local IRB for approval.

Thailand

Meetings

(b)(6) attended the EPT Thailand planning meeting in Bangkok on June 10, 2012. EPT partners included representatives from USAID RDMA, RESPOND (DAI and US-CDC), IDENTIFY (FAO and OIE), and PREDICT (Chulalongkorn University). There were several discussions for possibility of integration activities between several partners such as PREVENT and PREDICT to conduct PREVENT's further studies at location that PREDICT found virus in next fiscal year.

Vietnam

Meetings

On June 20, 2012, (b)(6) Vietnam Program Coordinator, participated in the regular quarterly AI BCC working group meeting and updated the group on PREVENT activities in Vietnam. The update focused on PREVENT's inventory of communication interventions undertaken in Vietnam to reduce human consumption of wildlife, plans to conduct a stakeholder mapping activity on One Health, and plans to conduct a training of AI BCC Working Group members in advocacy and/or BCC in the coming fiscal year. At this meeting it was proposed that the title of the working group be changed from AI BCC to the "One Health Communication Group." It was felt that this would align with the group's expanded mandate to encompass all emerging infectious diseases.

The EPT Vietnam country planning meeting was held on May 30 -31, 2012 in Hanoi. The meeting summarized key FY12 activities by project; reviewed accomplishments, lessons learned and challenges; introduced planned FY13 activities and expected deliverables by project; and identified opportunities to harmonize activities across projects in furtherance of an integrated EPT program in Vietnam. (b)(6) chaired the meeting with facilitation support from (b)(6), an independent consultant. Participants representing EPT projects included (b)(6) on behalf of PREVENT; (b)(6) and (b)(6) of WCS for PREDICT; (b)(6) for RESPOND; (b)(6) for IDENTIFY (OIE); (b)(6) (b)(6), and (b)(6) of FAO; and (b)(6) (b)(6) of WHO.

After the two-day meeting, an integrated workplan for FY13 was drafted for EPT in Vietnam based on active input and feedback. A draft version for review by each EPT partner is posted on the Central Desktop to ensure that proposed activities are adequate and in line with other partners and stakeholders.

Workshop on Live Bird Markets and Slaughterhouses

On June 7-8, 2012, the Department of Animal Health (DAH) in Vietnam, in cooperation with the Avian and Pandemic Influenza Initiative project funded by USAID, organized a workshop to assess current standards and practices in live bird markets and slaughterhouses and make recommendations for food safety, slaughtering, processing, and trading poultry and poultry products. (b)(6) PREVENT's Program Coordinator in Vietnam, was invited to the workshop to present the exploratory mapping of the rat trade carried out in Vietnam and Cambodia. This also provided an opportunity to present an emerging infectious disease/wildlife perspective to the Avian and Pandemic Influenza stakeholders in Vietnam.

Exploratory Mapping of Cross-border Trade of Rats

As presented in the review of activities for Cambodia, a cross-border study of rats is under way. To gain a general sense of the current size of the trade in rats between the two countries, PREVENT conducted an exploratory visit to areas of Vietnam (in February 2012) and Cambodia (in April 2012). The visits uncovered a wide distribution of rats in markets in the Mekong Delta region of Vietnam and Cambodia. Observations and discussions with local officials suggested that markets may be selling as much as one to two tons of rats per day. At the border crossings, rats were observed being transported by motorbikes and boats in wire cages that allow for mixing of rats and the spread of excrement during transport.

In Cambodia, it appeared that the suppliers are working to deliver rats to the higher-demand Vietnamese consumers, with rats being supplied by individual farmers. In both Cambodia and Vietnam, observations indicated poor biosecurity and hygiene practices, with individuals involved in the trade exposed both directly and indirectly to rat bites and scratches, as well as blood, saliva, and entrails.

PREVENT has not found systematically collected information about the rat trade and its potential for zoonotic disease transmission, although the trade appears to be sizable and involve high rates of risky exposure for those involved in it. The structure of the market chain and the number of people participating in the trade remains unidentified, apart from the paper by Khiem, *et al*. The scale of the trade -- including the volume of rats bought and sold, and the seasonality of the trade -- remains undocumented. Specific practices and situations that create opportunities for exposure to disease have not been recorded. From these preliminary findings, PREVENT proposes conducting a research study to answer these important questions.

To that end, PREVENT began drafting a research protocol this quarter to conduct a market and value chain analysis of the rat trade. PREVENT will set out to document the market system and environment to understand the potential extent and location of risk related to the rat trade. Using information from the market chain analysis, PREVENT will explore specific practices and situations of market chain actors that could result in potentially risky exposure from rats for the purpose of developing interventions. The rat trade market chain analysis protocol will be submitted to the FHI 360 IRB and to the local IRB in Vietnam and Cambodia for approval next quarter. The goal is to begin research in February 2013 during the annual peak in the rat trade.

Review of Communication Interventions to Reduce Consumer Demand for Wild Animal Meat

To date, PREVENT has identified over 10 communication interventions carried out since 2000 to reduce consumer demand for wild animal meat and products in Vietnam. These interventions include a “Green Restaurant” campaign; promoting awareness and public action through television, radio, and newspapers; advertising on buses and billboards; hosting high-profile events; producing a variety of

publications in Vietnamese for the public; and providing frequent news feeds to network media. These activities have been funded by both international and national NGOs in Vietnam, and some have been implementing wildlife consumer demand reduction communication activities since 2000. To date, PREVENT has not found any documentation of evaluations of these activities and their impact. During the next quarter, PREVENT will continue to build on this inventory of communication interventions and collect, as available, evaluations of the interventions.

Wildlife Farms Biosecurity Assessment

During the quarter, PREVENT worked with the Department of Forestry Protection (DFP) under the Ministry of Agriculture and Rural Development (MARD) to collect data on the location and species of registered wildlife farms. So far, PREVENT has obtained data from 26 provinces, including 13 provinces in the Mekong Delta Region. Figure 1 shows the number of wildlife farms in the 26 provinces with PREVENT's priority species – rodents, bats, and primates. The majority of farms (1,722) are breeding rodents, bamboo rats, and porcupines. Some of the farms are breeding primates (28). None of the farms identified, to date, are breeding bats.

According to the data collected, Ninh Binh in the North and Dong Nai in the South have more than 200 wildlife farms breeding PREVENT priority species. The majority of these farms are breeding porcupines (H*ystrix brachyuran)*. Other provinces like Binh Duong, Dien Bien, Hoa Binh Tuyen Quang, and Hanoi capital have more than 100 farms.

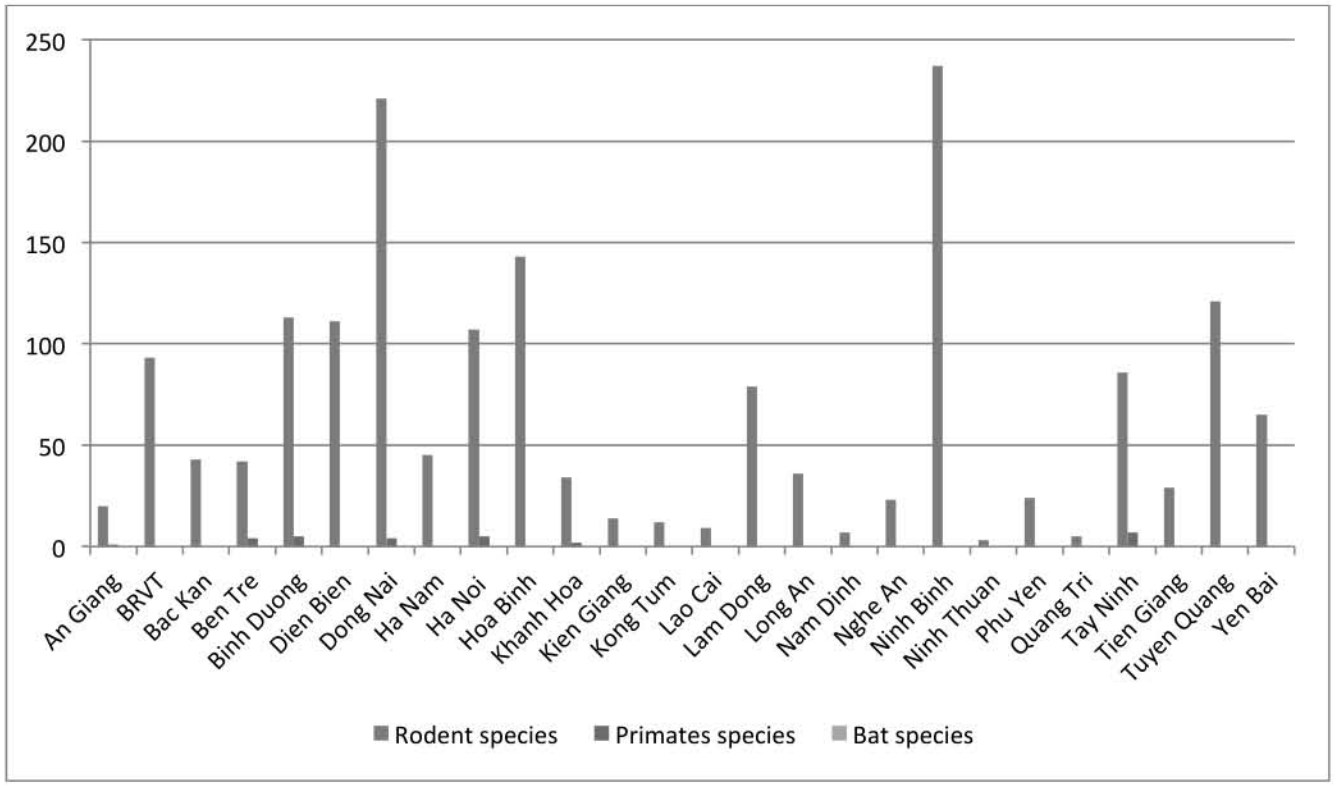


Figure 1 -- Wildlife Farms in 26 Provinces of Vietnam

Bangladesh

(b)(6) traveled to Bangladesh to participate in the "Meeting for Strategic and Technical Discussion to Maximize USAID's Pandemic Influenza and Other Emerging Threats Investments in Bangladesh" in Dhaka on May 21-22. After presentations by each of the EPT partners, a highlight of the meeting was small group work to discuss each organization's planned activities and possibilities for partner collaboration.

While in Bangladesh, (b)(6) also worked with staff of ICDDR,B – (b)(6) (b)(6) – who have developed an intervention to reduce the risk of Nipah. Since 2001, there have been more than 10 outbreaks of Nipah virus in Bangladesh. Bats (in Bangladesh, *Pteropus gigantus*) are the animal host for Nipah; they shed virus through both their saliva and urine. Outbreaks of Nipah in Bangladesh have been traced to consumption of raw date palm sap, which can be contaminated by infected bats. A substantial proportion of confirmed primary cases of Nipah have a history of having consumed raw date palm sap.

Beginning in 2006, a team of anthropologists and physicians at ICDDR,B has explored ways to prevent contamination of the palm sap. They identified a traditional method of protecting sap from debris and animals, improved it, and have carried out a series of pilot studies to test its acceptability, feasibility, and efficacy. The method – using skirts (*bana* in Bengali), which can be made from a variety of materials to cover the cut portion of the tree and the sap collection pot – provides an effective physical barrier to bats contaminating the sap, is low-cost and relatively easy for sap collectors to use on the trees from which they obtain raw sap for drinking.

To date, *bana* have been promoted in only a few villages at a time; this year, PREVENT is supporting ICDDR,B in adapting the intervention so it can be implemented at scale and in implementing it in up to 1,000 villages. (b)(6) and ICDDR,B staff discussed the steps and a timeline for launching the intervention in mid-fall 2012.

Following the visit, PREVENT identified a BCC consultant to work with ICDDR,B and (b)(6) and ICDDR,B have been working to finalize the protocol. The consultant will begin working with ICDDR,B in July 2012.

ASIA REGIONAL

AusAID

The U.S. Agency for International Development (USAID) and the Australian Agency for International Development (AusAID) signed a memorandum of cooperation (MoC) on June 6, 2012 to help reduce the risk of emerging pandemic disease threats in the Mekong region of Southeast Asia. Under the MoC, AusAID is providing Aus$6 mil. to USAID's PREVENT project.

Work supported under this memorandum will focus on the countries in the Greater Mekong Subregion, including Cambodia, Lao PDR, Vietnam, and possibly Burma.

The MoC with AusAID reflects USAID's ambitious new reform effort, USAID FORWARD, which includes a greater emphasis on collaboration and partnership with bilateral donors, multilateral, and international organizations to increase synergies and avoid duplication.

GLOBAL

Extractive Industries Activities

The PREVENT project staff and members of the Extractive Industries Working Group (EIWG) were very productive during the past quarter. The EIWG, comprised of members from each of the EPT

projects and chaired by PREVENT, released a near-final draft of the EIWG White Paper that is now available for review and comment. Coupled with the new initiative with Chatham House (below), the EIWG is taking the global lead on risk mitigation from large-scale extractive industry.

USAID requested that the EIWG finalize the extractive industry tools by June 2012, and different models were explored for developing these tools. The EIWG, under the technical leadership of (b)(6) (b)(6) of ENE/RESPOND, produced two draft tools: 1) the Planning Tool, which is designed to supplement IFC guidance during the planning phase of an extractive industry project; and 2) the Audit Tool, which is designed for facilities that are operational. PREVENT provided extensive input on these products and shared them with the EIWG for comment and finalization.

Together with RESPOND, PREVENT also developed an educational brochure for mining companies that was shared with the EIWG at several junctures and was eventually finalized with the scientific input from PREDICT during this quarter. The brochure was sent to the International Council on Mining and Metals (ICMM), as requested following the first presentation of the brochure at the Mining Indaba meeting in South Africa in February. A similar educational brochure was developed for the timber industry and one will be developed for oil and gas companies in the coming quarter.

PREVENT and RESPOND continued to jointly interact with World Wildlife Fund as part of participating in the Mining and Conservation meeting planned with Australian Junior mining companies operating in the TRIDOM region of Central Africa. PREVENT and RESPOND attended this meeting and presented information on emerging infectious diseases. Feedback was elicited on the tools EIWG was developing for USAID review. Based on feedback from both EIWG members and the participants at the Mining and Conservation workshop, PREVENT and RESPOND finalized the tools and submitted them to USAID on behalf of the working group (as noted above). One mining company expressed keen interest in the tool, and PREVENT will explore whether to conduct a pre-test in collaboration with this company.

PREVENT and RESPOND attended the IUFRC-FORNESSA conference and presented as part of the Forestry and Human Health Panel: *Biodiversity, Conservation, Industry, and Emerging Pandemic Threats*. As this conference emphasized forest researchers, the timber industry was not present; however, the project established important contacts in the forestry community. The executive director from the International Tropical Timber Organization (ITTO) and the president and executive director of IUFRO were very interested in the issue of emerging infectious diseases in forestry context. Further, we learned of a timber industry group in Cameroon and met someone with connections to that organization. The Center for International Forest Research (CIFOR) has an office in Cameroon that would be good to visit in the coming year.

The abstract, Emerging Pandemic Threats and the Oil and Gas Industry was accepted for presentation at the Society of Petroleum Engineers (SPE) conference in Perth in September 2012.

Chatham House

As part of the focus on potential risks from major land-use changes often associated with extractive industry, the PREVENT project has contracted the Centre on Global Health Security at Chatham House to provide initial funding for a series of preparatory policy-level discussions among extractive industry members, international finance institutions, national stakeholders, and science leaders about the risks of infectious disease outbreaks in locations relevant to the international extraction industry.

As part of the preparations for these roundtable discussions, Chatham House will produce a background "white paper" on policy-level issues pertinent to industry-wide adoption of risk mitigation measures. Chatham House is tasked with developing a framework for global response that will address the policy environment, technical guidance, best practices, implementation planning and support. Chatham House will also aim to convene other major players that fall outside the international regulatory and finance systems, such as China-based companies and finance institutions. The Chatham House white paper should be completed by the end of the coming quarter.

During this quarter, the PREVENT team and (b)(6) from ENE/RESPOND met with (b)(6) (b)(6) who directs the Chatham House activity. Although only an initial meeting, substantial ground was covered, and a process was outlined for working together to ensure that communication lines are open and work streams are complementary.

Meetings

PREVENT staff attended a Coordinators Meeting for the upcoming 6th Annual Prince Mahidol Award Conference in New York City. The 6th Annual Prince Mahidol Award Conference is scheduled to be held in Bangkok on January 28 – February 3, 2013 and entitled, "One Health: A World United against Infectious Diseases: Cross-Sectoral Solutions." The first-time Conference will be a five-day event, with specific days focused on three areas related to "One Health" and infectious diseases: strengthening health systems, surveillance, and prevention and response.

(b)(6) and (b)(6) were asked to be co-organizers of two parallel sessions focusing on the strengthening of health systems. (b)(6) is organizing Parallel Session 16 on *Strategic Public Communication to Affect Practices and Livelihoods* and (b)(6) will be leading Parallel Session 19 on *Social Science Adds Value to One Health.*

At the Coordinators Meeting on June 13-15, participants reviewed plenary and parallel session proposals, fine-tuned the order of the conference, and identified potential speakers. The Coordinators Meeting was organized by the Prince Mahidol Secretariat and hosted by the Rockefeller Foundation, which is a partner in the Prince Mahidol Conference.

Global One Health Core Competencies (OHCC) Working Group

The Global One Health Core Competencies (OHCC) Working Group met again on June 7-8, 2012 in Arlington, Virginia. The meeting was led by the RESPOND Project. The OHCC Working Group has been working over the last year to develop core competencies for One Health professionals.

(b)(6) has been the representative of the PREVENT Project to the working group and participated in the two-day meeting. The meeting with participants from the RESPOND Project, PREDICT Project, USDA, and CDC developed the following seven Competency Domains: Planning and Management, Culture and Belief, Values and Ethics, Collaboration and Partnership, Leadership, Communication and Informatics, and Systems Thinking. Examples of competencies were then identified and placed within these domains.

The resulting product from this meeting will be a toolkit and informational document that will be shared with global- and country-level actors. The RESPOND Project will be the coordinating body for this work and anticipates conducting country-specific workshops in Malaysia, Indonesia, Thailand, and Vietnam in July/August 2012. The OHCC will have an interim report and product by August 2012. The next Global OHCC Working Group Meeting will take place in December 2012.

Communications

Social Media and Web

PREVENT has entered into the social media realm with a series of blogs written by technical staff in the field and Twitter activities to highlight PREVENT events. (b)(6) Lao PDR Country Coordinator for USAID/RDMA's Mekong Infectious Disease and Behavior Change and Communication (MID-BCC) Project, has blogged about her work in live animal markets, and her participation at the 6th Annual International Conference on Community-based Adaptation in Hanoi on April 16-20. (She presented a paper at the workshop that addressed work FHI 360 has done under MID-BCC, and how it has been effective for mobilization and response.) Her blog was then replicated in the World Food Programme's inaugural edition of its *One Health* newsletter and appeared under the title of Climate Change, Infectious Diseases and Health: Connecting the Dots.

(b)(6) regional behavior change advisor for PREVENT, blogged about his trip to Malaysia and meetings with government counterparts, and his tour of the Sabah Wildlife Department. (b)(6) blogged about the Maputo communication workshop (see AFENET section below). Each of the bloggers added photographs and more personal observations that normally would not be documented in a report, which offers color and analysis to the work in the field.

The feedback on the stories that the blogs are telling has been very positive. The World Food Programme using the climate change blog post is a good example of how these informal write-ups can

be transferred to larger audiences and different media. We have also received positive comments from Mission technical staff. Plans are to continue blogging activities and expand to cover more areas.

The blogs are posted on the MID-BCC (http://mekong.aed.org) web site. The PREVENT website is under development and being reviewed, with plans for a July 2012 "soft" launch.

New Publications

During the quarter, PREVENT released *Subtle Persuasion: An Easy and Effective Handbook for Changing the World Through Advocacy* in March 2012. Created to address the growing need among government, private sector, and civil society about how to advocate for change, the training guide and participants notes were written and pre-tested with provincial leaders in Lao PDR. The eight-step process spells out how to identify like-minded organizations and individuals, and how to plan and implement advocacy activities for maximum results. It can be downloaded at **http://mekong.aed.org/policy/index.html**. The guide is similar to the Advocacy Guide developed for H5N1 under AI.COMM, but expands it to include other issues beyond H5N1.

In addition, the *Applied Communication* and *Risk Communication* guides were translated into Portuguese, and are available at http://mekong.aed.org/policy/index.html

Subcontracts

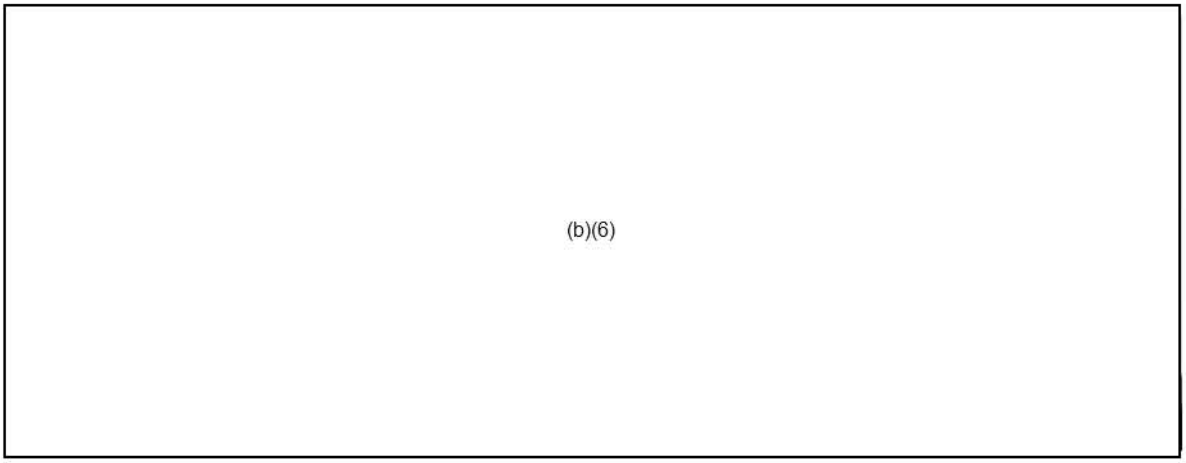
African Field Epidemiology Network (AFENET)

Lusophone Communication Workshop in Maputo, Mozambique

PREVENT conducted a communication workshop for the Lusophone field epidemiologists from Angola and Mozambique. The four-day workshop was held in Maputo, Mozambique on April 17-20, 2012. The curriculum was developed by the technical team and facilitators to combine content from two pre-existing workshop curricula, *Applied Communication* and *Risk Communication* to fit the participants' experience and needs. The previous workshops using the two curricula had been held for African Anglophone and Francophone field epidemiologists. Facilitators for the workshop were (b)(6) (b)(6) of Brodeur Partners and (b)(6) of FHI 360. Technical oversight was provided by (b)(6), and (b)(6) managed the logistics and financial aspects of the workshop.

The eight participants were from Angola and Mozambique, with seven out of the eight being women. They were a diverse group in terms of their professional roles and experience -- unlike our two previous workshops that were almost completely comprised of field epidemiologists. Participants included community educators, field epidemiologists, and ministry officials. Their experience in communication ranged from expert spokespeople for a government ministry to community workers specializing in interpersonal communication at the village or community level.

The most salient skills that were developed over the course of the workshop were about integrated communication planning, messaging, and presentation via interpersonal communication and with the media. All participants recognized the value of communication planning but virtually none of them had been conducting proactive planning in a strategic and coordinated manner in their professional roles. The exercises and discussion during the workshop focused on the planning process – the need to



develop a communication plan long before an outbreak occurs, to identify sanctioned spokespersons, to develop up to three key messages, to ensure that all spokespersons, staff, partners adhere to those messages, and to prepare and practice so that those messages are communicated clearly and effectively in the community and to the media. We also introduced the need to develop a thorough "Q&A" document that captures all of the possible questions that might be posed along with answers to ensure that spokespersons are equipped to respond appropriately.

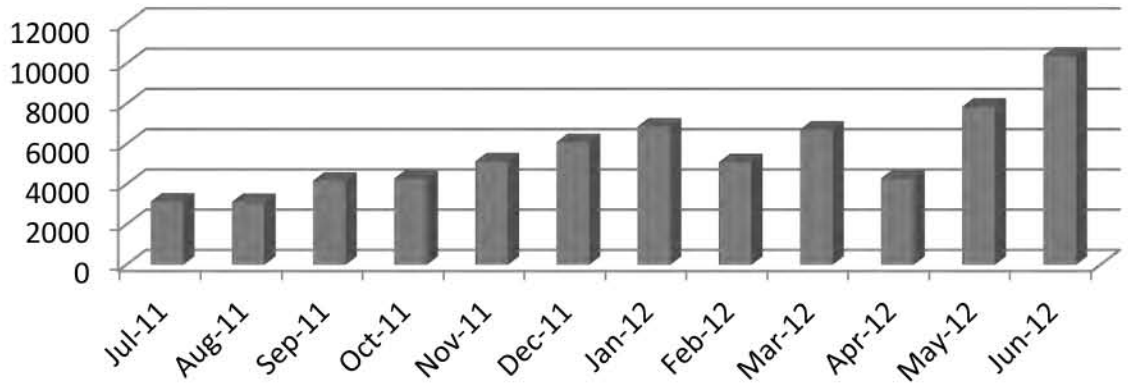
One point worth noting is the different environment around pro-active media outreach. In Angola, the media are receptive to proactive outreach to garner earned media coverage. The participants from Angola have established relationships with key journalists with whom they can work to develop relevant news stories and articles (they are not doing this on a regular basis so there is an opportunity to improve proactive media relations). In Mozambique, the participants reported that the media charge for editorial coverage, even from a public health entity. Because they lack the resources for paid coverage, the participants in Mozambique do not conduct any proactive media relations, only reactive. We discussed the fact that as social media and online channels continue to become more accessible, traditional media will lose their monopoly as news and information sources. This will open up other avenues for proactive communication beyond paid coverage.

The participants were very committed to learning, very engaged throughout the workshop, and openly embraced self-critique and critique from their peers and the facilitators. By the end of the workshop, the participants all reported having learned important lessons and further developed their skills as communicators.

AFENET Website Activity

From April to June, 2012, AFENET's website continued to experience an increased volume of visitors, for an average of 7,515 visitors per month. The site experienced a 20 percent increase over the previous quarter and a 173 percent increase over the monthly visitor's average for the same period in 2011, before the launching of the updated AFENET website.

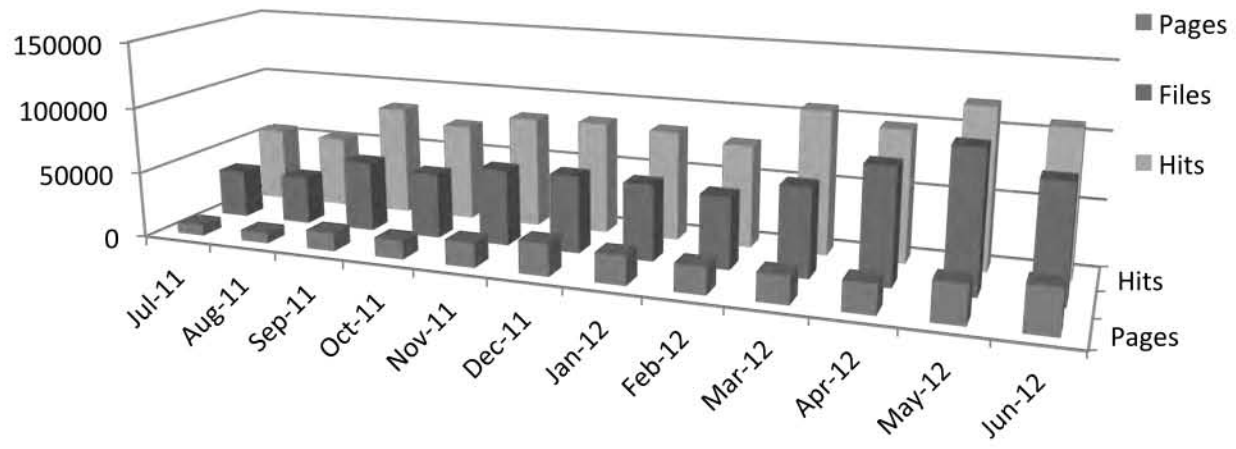
Although the April visits were lower than average due to a country-wide internet failure that affected Uganda for about six days, the website's number of monthly visitors maintained a growing trend. This result can be attributed to the regular updating of the features, home page, and other sections which attract AFENET's partners as well as journalists and other members in search of information on the Network's activities.



Monthly Visits

In terms of monthly hits, the AFENET website surpassed the one-hundred-thousand mark in March 2012, reaching 107,923 hits and continued the trend during the current quarter, reaching 108,976 average monthly hits. This was a 20 percent increase over the previous quarter.

For the quarter, the number of hits was 154 percent higher than the previous year, before the launching of the AFENET redesigned website. These results were also affected by a country-wide internet failure that affected Uganda in April.



Hits, Files and Pages

During the quarter, PREVENT staff held discussions with Hostalite and AFENET regarding identifying visits to the Portuguese and French versions of the website. The idea was to understand how visitors interact with those websites and put together a plan to attract more people to them. One of the potential solutions is to engage some of the AFENET members from French- and Portuguese-speaking countries to collaborate with the website by posting news and activities, as well as helping to translate the feature stories from the English version of the website. The final goal is to have the website become a regional center for information rather than merely being the Secretariat's source for news and updates. This is consistent with our objective of making the AFENET website the center for all communication across the network.

The team also discussed the need to engage the AFENET departments in utilizing the Intranet. One of the ideas discussed was to place the AFENET updates in the intranet to increase traffic and usage. These updates are currently being sent via email.

Towards a Safer World (TASW)

TASW Website

On June 1, 2012 the domain, hosting, and management of the TASW Website (http://www.towardsasaferworld.org) was transferred to United Nations System Influenza Coordination (UNSIC) and the World Food Programme (WFP). This was under the guidance provided by USAID as UNSIC and the WFP continue to work on the TASW Initiative globally.

For the April 1 – June 18, 2012 period, the website received 944 visit, a decrease from the previous quarter. The visitors were from 81 countries and territories, including the United States, Italy, Indonesia, Switzerland, United Kingdom, India, Kenya, Australia, Canada, and Sweden. Nearly 64% of visitors were considered "new visitors." The TASW website has grown to approximately 199 registered users from around the world, representing various agencies and interests.

TASW continues to be active on other social media channels including Twitter (@tasw_initiative),YouTube, and Facebook (http://www.facebook.com/TowardsASaferWorld). These social media outlets have been used to promote TASW. The TASW twitter account has grown to approximately 108 followers.

Financial Summary

A **financial report** that covers project expenditures April 1– June 30, 2012 is enclosed under a separate attachment. (b)(4)

(b)(4)

PREVENT

Emerging Pandemic Threats

Quarterly Report
October 1, 2012 – December 31, 2012

Submitted To

The United States Agency for International Development (USAID) and the Australian Agency for International Development (AusAID)

January, 2013

USAID FROM THE AMERICAN PEOPLE

Australian AID

fhi360 THE SCIENCE OF IMPROVING LIVES

The PREVENT Project is funded by the United States Agency for International Development (USAID)/Global Health under Client Associate Award Number GHN-A-00-09-00002-00 under Leader Award (C-Change) No. GPO-A -00-07-00004-00. In Cambodia, Lao PDR, Burma/Myanmar and Vietnam, PREVENT activities are also supported by AusAID. PREVENT is managed by FHI 360. The contents of this report do not necessarily reflect the views of USAID or the U.S. Government.

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Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. On June 30, 2011, Family Health International (FHI) acquired AED and all of its programs and assets, including PREVENT; the resulting new integrated organizational entity is FHI 360. PREVENT, a cooperative agreement, focuses on using behavior change and communication to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. The Project is part of the larger USAID program on Emerging Pandemic Threats (EPT Program), also referred to as Pandemic Influenza and Other Emerging Threats (PIOET).

On June 6, 2012, the U.S. Agency for International Development (USAID) and the Australian Agency for International Development (AusAID) signed a memorandum of cooperation (MoC) to help reduce the risk of emerging pandemic disease threats in the Mekong region of Southeast Asia. Under the MoC, AusAID is providing Aus$6 million to USAID's PREVENT project over three years. The Australian support emphasizes the support to PREVENT as a way to boost efficiency and effectiveness in combined actions to reduce the risk of emerging infectious disease. This co-funded work will focus on countries in the Greater Mekong Subregion, particularly Cambodia, Lao PDR, Vietnam, and Burma/Myanmar.

On August 7, 2012, the U.S. Agency for International Development (USAID) signed a one-year, no-cost extension of the PREVENT project through September 29, 2015.

Pandemic Influenza and Other Emerging Threats (PIOET)

GLOBAL

Extractive Industries Activities

PREVENT continues to host the Extractive Industries Working Group (EIWG) meetings. Chatham House now contributes to EIWG discussions as well. USAID and RESPOND traveled to Uganda in October 2012 to discuss whether testing the EIWG tools for extractive industry would be appropriate. The general consensus was that the oil and gas industry in Uganda is fraught with politics and should be avoided, but it might be possible to work with the mining and timber industries. (b)(6) from RESPOND provided the assessment tools to several companies and promised to send feedback forms for the companies to use to share their impressions of the tools.

PREVENT and RESPOND developed two feedback forms that can be used by companies to comment on the EIWG planning and audit tools. Respondents felt that these tools are important given that emerging infectious diseases are prevalent in their region. They indicated that they would like to incorporate these tools and some mitigation efforts into their activities, but felt that the mitigation options not directly related to worker health are not feasible or too costly.

In the future, it will be useful to administer the feedback form in person, as that will facilitate obtaining more detail about specific mitigation efforts. This initial response, nevertheless, is interesting and shows that there is interest in the topic in the "hot spot areas" where these industries work.

Chatham House

During the last quarter, Chatham House commissioned a paper from EcoHealth Alliance to inform the planned November 7, 2012 meeting in London. PREVENT and the EIWG reviewed the paper and concluded that it was not clear who the audience was and what the purpose of the paper was. The paper's unique contribution was the attempt to develop economic arguments, but they were not compelling as presented. In the end, the paper was tabled and did not form the basis for discussion at the November meeting.

The IDRAM Initiative: Extractive Industries Infectious Disease Risk Assessment and Management Stakeholder Roundtable brought together 20 stakeholder representatives from science and public health, international development, private foundations, and the extractive industries. The meeting included presentations, discussion, and breakout sessions to foster knowledge sharing on the state of the science, provide a platform to hear the industry perspective, and to tout the availability of the assessment tools.

Two proposed activities resulted from this meeting: 1) to organize a meeting at the Mining Indaba conference with key Australian mining companies to discuss working in the Katanga Province of the Democratic Republic of Congo to test the tools; and 2) to organize a pilot test of the tools in the Katanga Province.

The Chatham House Roundtable summary report is attached as an Appendix.

Following the Chatham House Stakeholder meeting, USAID requested a meeting with Steven Phillips and the EIWG in Washington, DC to clarify roles and responsibilities. Chatham House and USAID will form the Policy Strategy Group. This meeting helped to reinforce the different roles: Chatham House will lead the Extractive Industries Initiative (EII) policy activities that include policy-level discussion and action, partner coordination, and strategy development, while PREVENT and the EIWG will lead the EII operational activities that include field testing and validating the assessment/mitigation tools. The efforts in Katanga will be mutually supportive, whereby Chatham House will lead policy activities and EIWG will take the lead in testing the tools.

In December 2012, (b)(6) and (b)(6) held several teleconferences with Chatham House to further the collaboration. Again, EIWG members reiterated the different streams of work: that Chatham House will lead the policy stream while the EIWG will lead the tool testing and both will work in Katanga. At the end of December, USAID shared with the EIWG the proposed scope of work for the Katanga effort that was prepared by ISOS. An EIWG meeting is planned for January 10, 2013 to discuss this scope of work. In addition, Chatham House will deliver the Meeting Summary for the November 2012 meeting to PREVENT, as well as scopes of work to cover their participation in the Prince Mahidol Award Conference in Bangkok in early 2013 and the Mining Indaba conference in Cape Town in February. PREVENT and the EIWG plan to participate in the Mining Indaba event in February to attend the meeting organized by AAIGM and Chatham House with the Australian mining companies operating in Katanga Province, and will scope out other possible opportunities to test the tool.

In early 2013, PREVENT and RESPOND will further explore and pursue other avenues for testing the tool. In addition, the EIWG has submitted an abstract to the International Association of Impact Assessments to discuss the tool at their annual conference in May 2013 in Calgary, Canada.

Communications

Reflecting the new funding from AusAID, PREVENT began developing newly designed templates for PowerPoint presentations, reports, fact sheets, and letterhead that reflect joint USAID–AusAID work in the four target countries. PREVENT materials funded solely by USAID were also rejuvenated to embody a consistent look and feel. A draft branding strategy was also developed for AusAID activities.

Using the new AusAID funds as a springboard, the communications team conducted a communication and knowledge management audit of the PREVENT Project as a precursor to developing a new communication and outreach strategy for the project. The findings of the audit enabled the strategic development of new products to describe and promote PREVENT to various audiences, including the upcoming Prince Mahidol Award Conference in Bangkok. New materials include an updated project fact sheet, and targeted fact sheets focused on the impact of culture, land use, and commerce in the work of the project.

During the latter part of the quarter, FHI 360 staff provided media outreach support and wrote press releases highlighting USAID/EPT's involvement in two significant activities: the publication of a series of articles on emerging infectious diseases in *The Lancet* at the end of November; and the Institute of Medicine's 25th anniversary meeting of the Forum on Microbial Threats in mid-December. As part of promoting these two activities, PREVENT contracted with Brodeur Partners to help drive visibility for USAID/EPT via Twitter and an op-ed piece. The latter was not ultimately pursued. PREVENT staff also provided on-site social media support during the IOM briefing.

CONGO BASIN REGIONAL

Republic of Congo

Market Study - Tracking Changes from New Road Construction

PREVENT had planned to conduct a study along a new road being constructed from Brazzaville to Ouesso (and possibly further, through pristine areas, to Bangui) to determine the impacts on bush meat consumption and markets. This activity, however, has been put on hold because the primary research partner, Wildlife Conservation Society, is currently unable to operate in the area.

PREVENT, however, is prepared to assess, through a low-cost market monitoring system, the effect of this road expansion on the availability of key species of wildlife in markets – both along the road, and in Brazzaville – to improve understanding of the dynamics of trade in these key species and document the effects of changes in access. PREVENT has drafted a market monitoring protocol and action plan. The proposed study is considered a unique opportunity, and we are seeking other possible partners for the work.

Uganda

Human-Animal Exposure Study

(b)(6) PREVENT Technical Director, visited Uganda from October 25–31, 2012 to plan for the human-animal exposure study that will be carried out in Kisoro in early 2013. She met with FHI 360 researchers and potential consultants who are knowledgeable about the area and with PREDICT Uganda staff. It is clear that the research will require a lead investigator who speaks the local language and who is familiar with the area; PREVENT will recruit a consultant early in the second quarter. Research assistants will be recruited from Mbarara and Kabale; training will be held at the FHI 360 office in Kabale.

The principle that PREVENT follows in selecting areas for the study is that they should represent populations living in or potentially accessing areas where PREDICT is carrying out "Deep Forest" study sampling. In Uganda, that sampling is being carried out in the northern portion of the Bwindi impenetrable forest, in non-park areas in Kisoro District to the west and south of the forest, and near/in Kisoro town. PREVENT will thus concentrate the study in areas to the west and south of the forest and near/in Kisoro. For administrative convenience, we will limit the study to areas in Kisoro District (two other districts abut the forest, Kanungu to the north and Kabale to the east).

Adaptation of the protocol for the first phase of the study will be completed early in the second quarter of 2013. At that point it will be submitted for IRB review in both the U.S. and Uganda.

SOUTH AND SOUTHEAST ASIA REGIONAL

AusAID

The MoC with AusAID to expand PREVENT work in the key countries of the upper Greater Mekong Sub-region began in the early part of this quarter and will allow expanded activities in Burma/Myanmar, Cambodia, Lao PDR, and Vietnam.

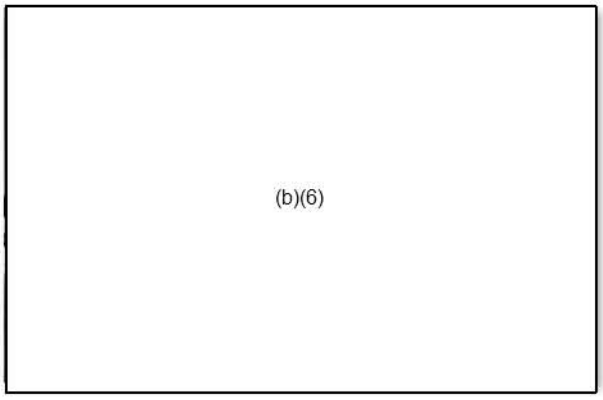
Bangladesh

Nipah Virus Intervention

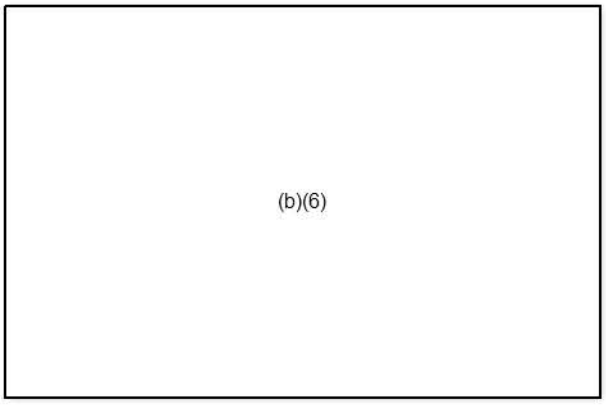
At the request of Bangladesh Ministry of Health officials, PREVENT put on hold its originally proposed risk-reduction approach aimed at reducing the transmission of Nipah virus (NiV). The original approach hinged on encouraging sap harvesters to use skirts (called "banas") on date palm trees to prevent bats from contaminating the sap, and encouraging consumers to drink only sap from protected trees. Instead, the MoH officials requested that icddr,b and PREVENT first test the effectiveness of a risk-avoidance approach during the NiV 2012–2013 harvesting season: that is, discouraging people from drinking sap altogether. Depending on the results of this approach, a risk-reduction intervention may be tested during the 2013–2014 season.

To comply with the request, this risk-avoidance approach will be tested in 306 villages in the district of Rajbari during the sap-collection season. One-hundred and twenty villages in the Kushtia district will be used as a control population.

To accommodate this change, the PREVENT-icddr,b team prepared and amended the protocol and revised instruments; these were submitted for and received IRB approval.



PREVENT's BCC Advisor, (b)(6) travelled to Bangladesh to work with icddr,b to finalize the intervention. During his trip (b)(6) trained the iccdr,b team of trainers on interpersonal communication and public speaking skills.



The icddr,b team of trainers went on to train 60 meeting coordinators and facilitators from VPKA, the local NGO that will be carrying out the intervention, using the revised curriculum and training manuals.

The PREVENT team also worked on revising the communication materials for the intervention.



A two-minute public service announcement (PSA), a poster, and a calendar were tested among the target audience and have been finalized for use in the intervention.



The PSA was launched on December 26, 2012 and the NGO began the IPC intervention on December 30, 2012.

The baseline survey to help gauge the impact of the intervention was carried out from November 23 to December 11, 2012. (b)(6) PREVENT Technical Director, visited Dhaka in October to help finalize the instrument for the survey.

While in Bangladesh, (b)(6) and (b)(6) met with the United Nations Food and Agriculture Organization (FAO) and UNICEF to discuss potential collaborating efforts, and briefed (b)(6) and (b)(6) of USAID/Bangladesh on the progress of the research study plans. One potential collaboration project with FAO involves improving practices at a slaughtering facility in Khulna. An initial proposal has been developed and is being fine-tuned; it will be presented to USAID for implementation in 2013.

(b)(6)

PREVENT and FAO are also working on developing proposals for BCC activities among vendors and consumers for the lumber and building material and biosecurity projects.

Meetings

On December 2–3, PREVENT participated in the USAID EPT Partners meeting in Dhaka to discuss the progress on collaboration and coordination efforts among EPT partners. Represented organizations included USAID, FAO, EcoHealth Alliance, icddr,b, DLS Bangladesh, World Health Organization, PREVENT, and PREDICT.

Burma/Myanmar

First Mission

Burma/Myanmar was added to the PREVENT list of priority countries with the expanded AusAID support. Following a mission conducted by USAID's regional health advisor, based at RDMA/Bangkok, to introduce the PREVENT project to the Myanmar Government officials, a follow-up mission by PREVENT, USAID, AusAID and FAO was fielded in the second week of December 2012.

During this Mission, PREVENT was introduced to the concerned national and state-level ministers and DGs: the Union (national-level) Minister for Livestock and Fisheries, three Directors General from this Ministry, the Union Minister of Health, and the Deputy Minister and the Director General of the Department of Medical Science. The combined mission also met with the newly expanded Mandalay Region (state) government, including the Minister for Agriculture and Livestock and the Minister for Social Affairs.

The newly expanded State and Regional governments are eager to engage and deliver services. Areas where they would welcome support include: training in communication skills for officials who work with farmer groups and market managers. In addition, because of recent increases in the number of publications and media outlets, media training for officials – as well as an introduction to the "one health" concept for journalists – would be timely.

(b)(6)

The Mission visited a government-created poultry production zone near Monywa, in the Sagaing Region, and met with farmers there. The Mission also visited both a duck-raising operation and a live bird processing company in Mandalay City.

Initially, PREVENT will respond to a forthcoming invitation from FAO to provide technical assistance, with an initial focus on strengthening capacity for response to highly pathogenic avian influenza. To do this, PREVENT will draw on earlier work conducted under the AI.COMM, AI-BCC, and MID-BCC projects. Other activities that PREVENT may take on eventually include social monitoring and community-based epidemiology. The geographic focus of PREVENT activities will be Mandalay and Sagaing, two geographic regions with a high concentration of poultry production.

Cambodia

Human–Animal Exposure Research

Starting in May 2012, PREVENT and PREDICT (Wildlife Conservation Society) began implementing "human-animal interface surveys" in Cambodia. The purpose of the studies was to collect information about meat consumption and associated hunting and butchering from all households in selected villages to determine how the potential risk associated with these activities is distributed among the population. Wild animals of priority interest include rodents, bats, and primates; and domestic animals of interest include chickens, ducks, pigs, dogs, and cats. The surveys are carried out in conjunction with PREDICT's animal surveillance study visits to villages.

Initially, the team planned to begin implementation in Preah Vihear and Mondulkiri provinces. However, data collection was changed from Preah Vihear to Banteay Meanchey due to the limited accessibility of targeted villages because of heavy rains, an outbreak of chikungunya, and other logistical complications that arose at the time the survey was to begin in Preah Vihear. The team began implementing the baseline in Preah Vihear in the first week of December 2012.

In each of the selected provinces, three villages were purposefully selected to be surveyed. As part of the baseline research, teams interviewed all female heads of household in each village: 92 in Mondulkiri and 117 in Banteay Meanchey.

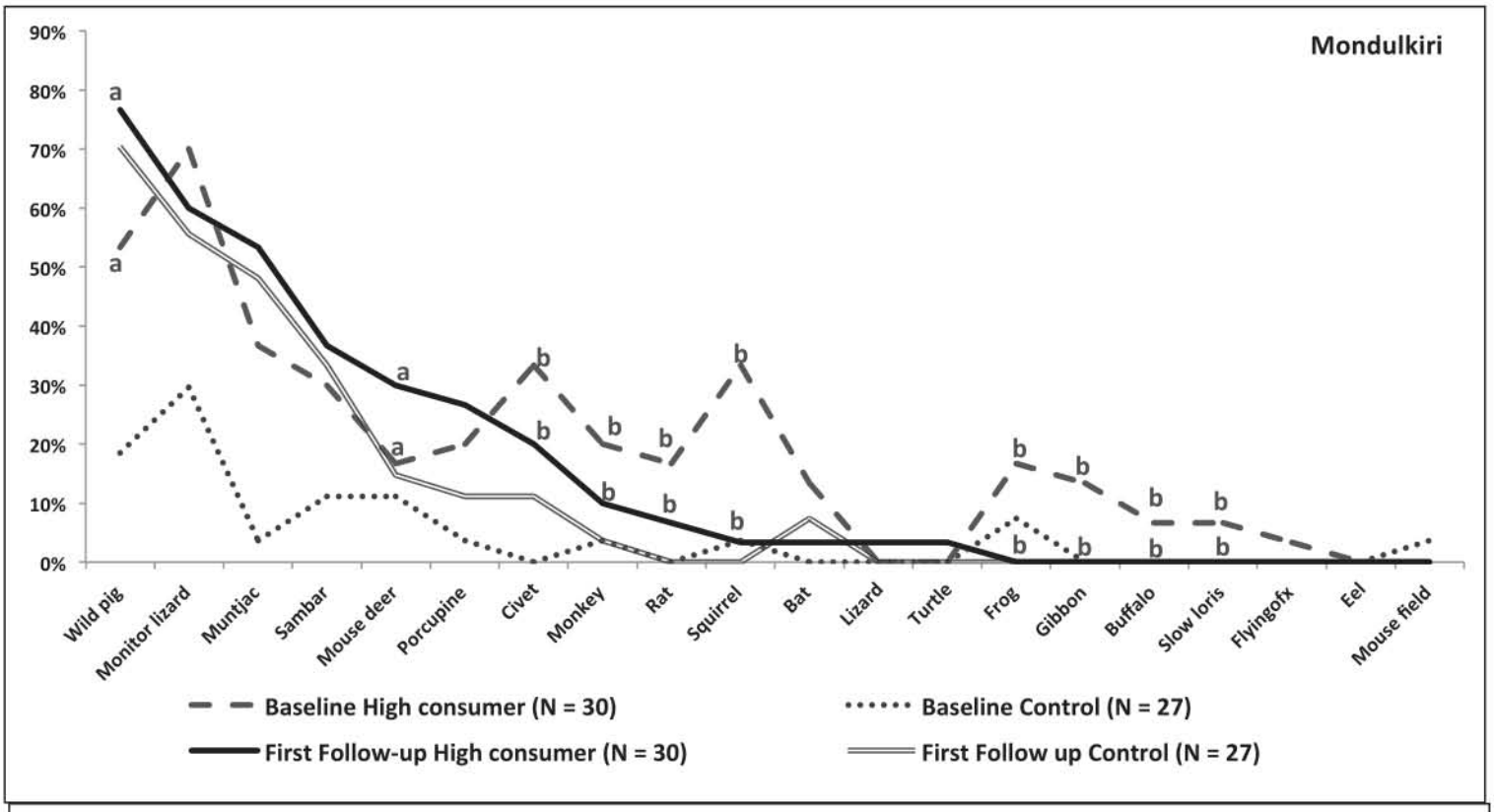
To understand how contact with animals might vary by season, the team will carry out quarterly follow-up surveys of a subset of 20 households in each village: the 10 that reported consuming the greatest number of wild animals in the previous month during the baseline; and a comparison group, selected randomly from the other remaining households in the village that agreed to be contacted again. The first follow-up survey in Mondulkiri was implemented in August 2012, and the second in November 2012; the first follow-up survey in Banteay Meanchey occurred in October 2012. A report of the baseline survey in Mondulkiri and Banteay Meanchey is currently in final draft form and will be circulated as soon as it is finalized. (b)(6) Senior Research Advisor, completed preliminary analysis of the first follow-up surveys in Mondulkiri and Banteay Meanchey. Part of the preliminary analysis can be found below.

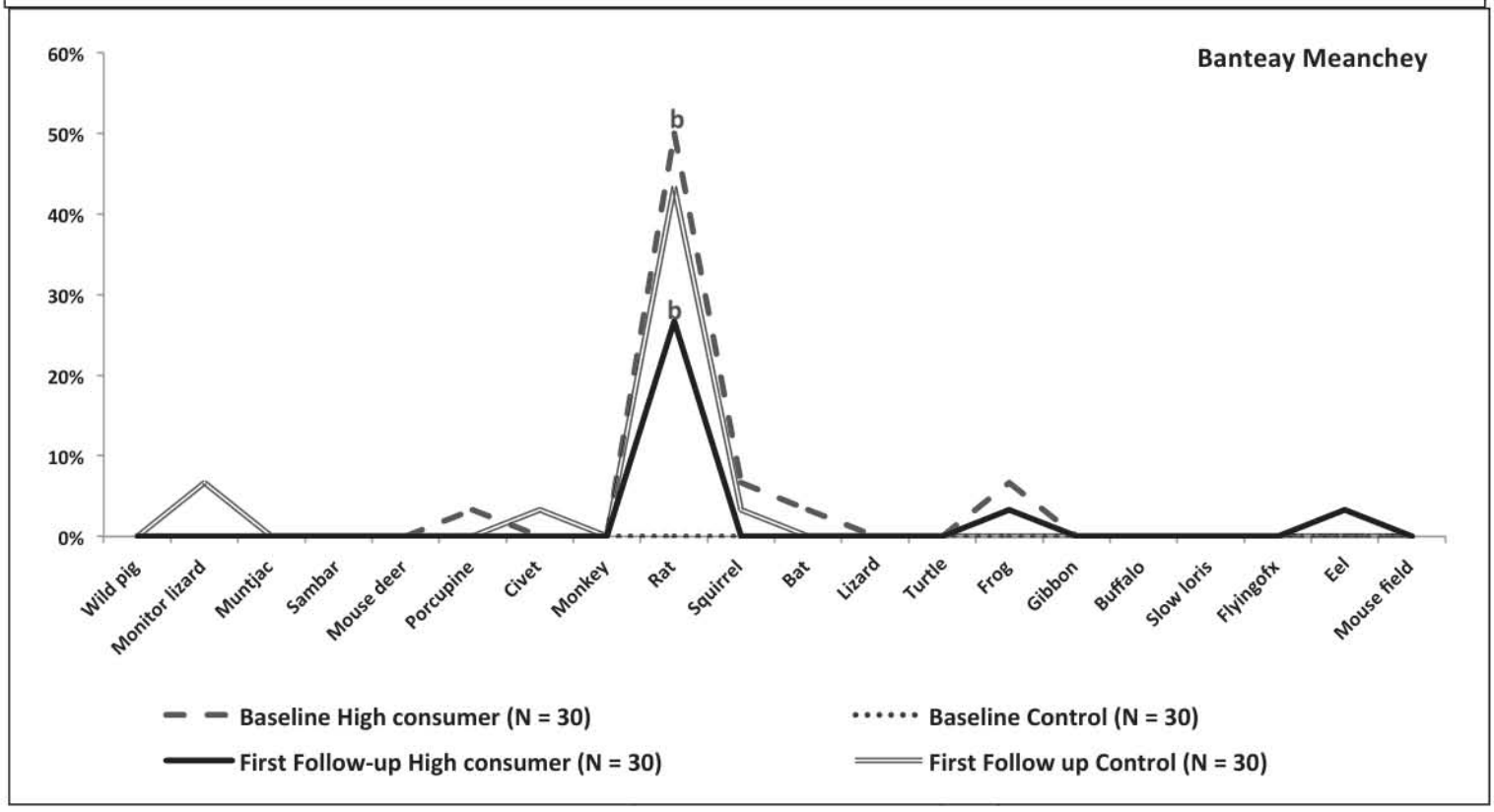
Consumption of Wild Animal Meats

Among high consumers of wild animal meats between May and August 2012 in Mondulkiri, there was a significant increase in consumption of wild pig (from 53% to 77%) and mouse deer (from 17% to 30%), and a significant decrease in consumption of civet (from 33% to 20%), monkey (from 20% to 10%), rat (from 17% to 7%), squirrel (from 33% to 3%), frog (from 17% to 0%), gibbon (13% to 0%), buffalo (from 7% to 0%), and slow loris (from 7% to 0%).

In Banteay Meanchey, consumption of rat meats significantly decreased from 50% to 27% between July and October 2012 among high consumers of wild animal meats. It is worth noting a higher consumption of rat meats (43%) among the comparison group compared to only (27%) among high consumers of wild animal meats during the first follow-up survey in Banteay Meanchey.

Figure 1: Evolution of wild animal meats consumption in between baseline and follow-up survey in Mondulkiri and Banteay Meanchey provinces

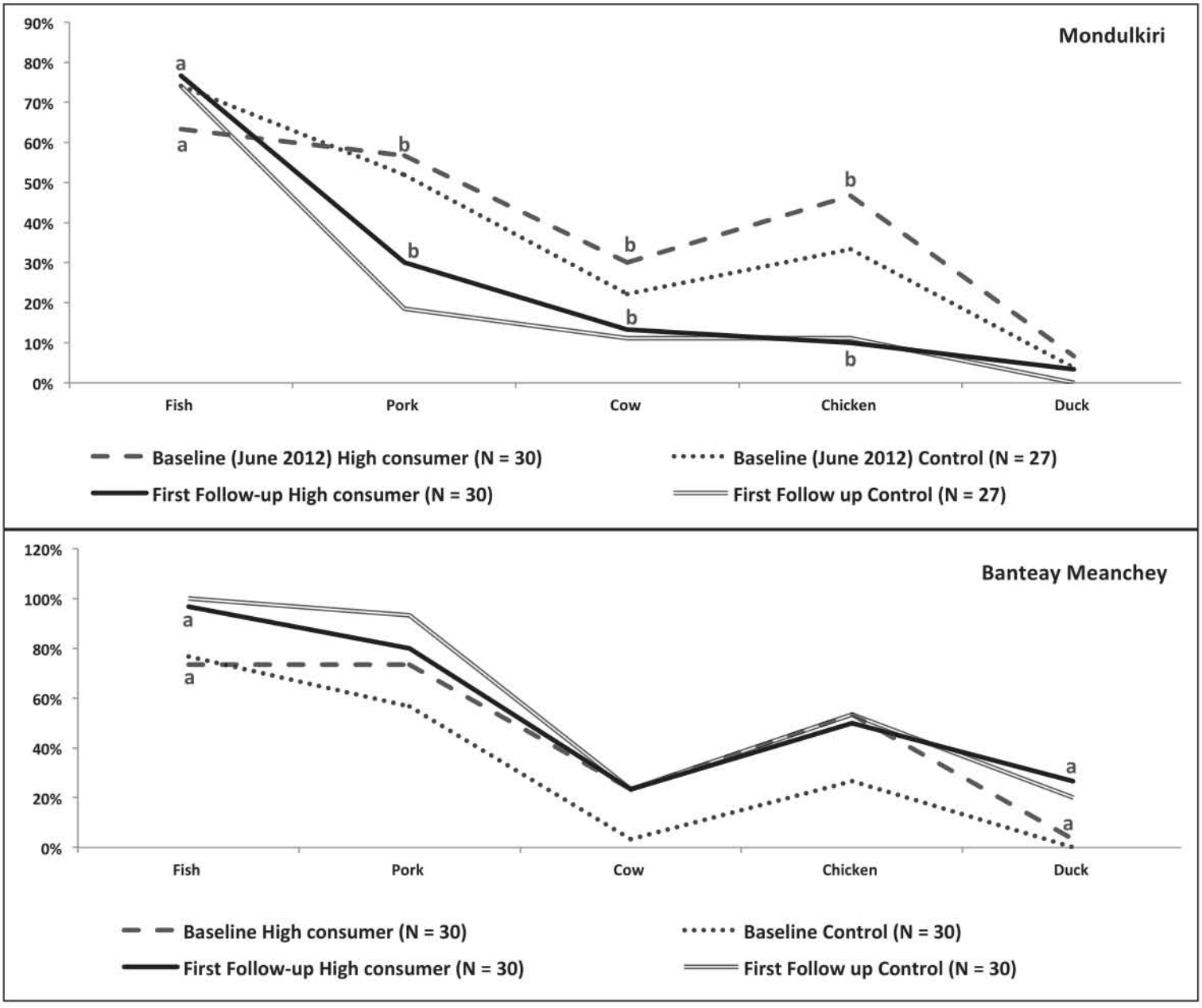




Consumption of Domestic Animal Meats

Results reveal a significant increase in consumption of fish (from 63% to 77%), and significant decreases in consumption of pork (from 57% to 30%), chicken (from 47% to 10%), and cow (from 30% to 13%) among high consumers of wild animal meats in between the baseline and follow-up surveys. In Banteay Meanchey, a significant increase in the consumption of fish (from 73% to 97%) and duck (from 3% to 27%) was observed in between the baseline and follow-up surveys. Interestingly, during the follow-up survey in Mondulkiri, consumption of fish, pork, cow, and duck meats was slightly higher among high consumers of wild animal meats compared to the comparison group. Conversely, in Banteay Meanchey, consumption of fish, pork, cow, and chicken was slightly lower among the high consumers of wild animal meats.

Figure 2: Evolution of domestic animal meats consumption in between baseline and follow-up survey in Mondulkiri and Banteay Meanchey provinces



[a] Chi² Mantel-Haenszel Tests for differences for increased consumption between baseline and first follow-up surveys
[b] Chi² Mantel-Haenszel Tests for differences for decreased consumption between baseline and first follow-up surveys

Indonesia

PREVENT determined that it will be working with PREDICT in North Sulawesi. To support preparatory work, PREVENT posted a job opening for staff in Sulawesi. While initial response was limited, the posting was extended and placed in publications with a wider reach, especially in Sulawesi. This resulted in a better response. Interviews and hiring for the position are projected for the coming quarter. PREVENT is still awaiting word from PREDICT regarding plans for research in Sulawesi.

Lao PDR

Meetings

PREVENT participated in the EPT quarterly meeting held on October 10, 2012 at the National Animal Health Centre (NAHC) and supported by IDENTIFY/FAO. The meeting was Co-Chaired by (b)(6)

(b)(6)

(b)(6) made a brief presentation highlighting the following research activities: 1) the literature review of wildlife studies in Lao PDR; 2) a descriptive study documenting wildlife and biosecurity conditions in markets where PREDICT is sampling (i.e., a convenience, rather than representative sample); and 3) formative research on the human-wildlife interface in Lao PDR. Participants at the meeting included partners from GOL agencies (NEIDCO, Ministry of Health, Ministry of Agriculture and Forestry (MAF), NAHC, and NCLE), and other EPT partners including PREDICT, RESPOND, IDENTIFY/WHO, and USAID/RDMA.

(b)(6) FHI 360 Country Coordinator, presented a progress report on PREVENT activities from July to September, and plans for the upcoming year. These include conducting cognitive interviews to pretest and finalize the human-animal interface study questionnaire, and then implementing the survey in Bolikhamxay; conducting participatory action research on peoples' interaction with bats to identify possible changes in practices that could reduce risk then behavior trials of those practices; and piloting a systems approach to address the risk of spillover in markets. An additional activity being discussed is developing and pretesting a comprehensive biosecurity monitoring checklist; PREVENT will do so only if we identify a group (government or NGO) that regularly visits markets and is willing to implement biosecurity monitoring. (b)(6) followed up this possibility with no success.

One result of the PREDICT and PREVENT presentations at the EPT meeting is that (b)(6) USAID EPT Coordinator, requested that the projects work together to prepare a brief for (b)(6) on the results of the market study and PREDICT sampling in markets. PREVENT and PREDICT have drafted the brief, which will be presented at the Laos EPT quarterly meeting in Vientiane in January.

PREVENT was also invited to join a briefing with (b)(6), USAID/RDMA Mission Director, on December 5, 2012 at NEIDCO. (b)(6) Lao PDR Country Coordinator, presented an update on PREVENT together with EPT Partners and their GOL counterparts.

PREVENT hosted Technical Working Group meetings on November 8 and December 13 at the FHI 360 offices. These technical meetings are regularly held as an avenue to share and discuss pressing issues that concern the EPT partners – PREVENT, IDENTIFY, and PREDICT.

Human-Animal Exposure Study

In April 2012, PREVENT conducted a formative study on human-animal exposure in Lao PDR in two provinces: Bolikhamxay and Attapeu. In Bolikhamxay, two groups (Hmong and Lao communities) were selected near the Theun

Hinboun Power Company (THPC) dam extension reservoir. In Attapeu, Lao communities near the Attapeu provincial capital (Attapeu town), and a Brao ethnic community near an area known for heavy logging were selected.

In October and November 2012, PREVENT conducted a cognitive pre-test of the human animal exposure survey instrument among Lao and Hmong populations in villages within Bolikhamxay province of Lao PDR. The cognitive pre-test aims to assess the validity and comprehensibility of key items in the questionnaire validate and finalize the instrument that will be used for the full-scale human-animal survey. PREVENT will implement the human-animal exposure quantitative survey in Lao and Hmong communities in Khamkeuth district in Bolikhamxay province in February and April 2013.

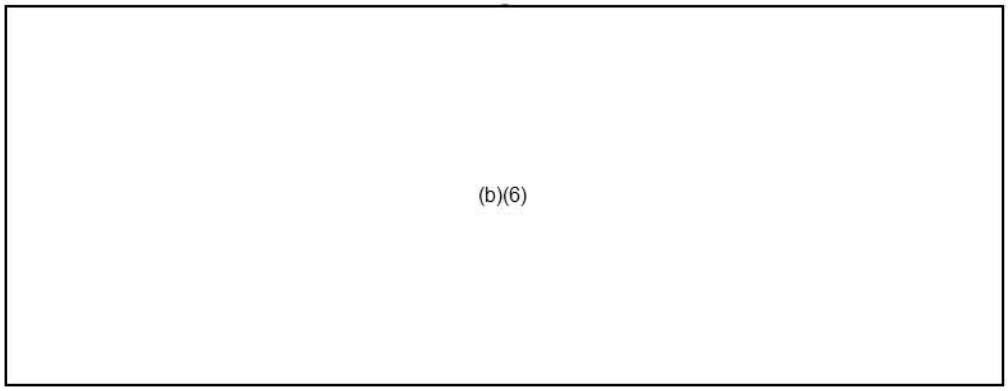
The pre-test employed cognitive interviewing, the main purpose of which is to explore how questions translated into Lao and Hmong are processed and understood by people to ensure that we gather valid and accurate information. In addition, a few key informant interviews were conducted to answer outstanding questions from the formative research.

Rapid Asia, a research consulting firm based in Bangkok, was contracted by FHI 360 to provide all of the Hmong and Lao researchers needed to conduct the study. This implementation of a cognitive pre-test in Laos included three distinct activities:

- Forging collaborations with local partners including staff from the Department of Disease Control (DDC) of the Ministry of Health (MOH) to inform them of upcoming PREVENT activities and the current cognitive pre-test within Bolikhamxay province, as well as to ask for their assistance in the field. Staff from federal, provincial, and district offices assisted during the implementation of the study and contributed to the successful completion of the work.
- Training of research staff in Vientiane on all aspects of the study, including background on PREVENT, interviewing techniques, ethical guidelines, and sampling and logistical procedures. While there were some hiccups related to the availability of research staff for the entire field portion of the study, training was completed successfully.
- Field work in Bolikhamxay Province (villages of Hmong and Lao): Cognitive pre-tests in Hmong were conducted in the first week of field work and the pre-tests in Lao were conducted in the second week. In total, 40 cognitive interviews (19 women and 21 men) and three key informant interviews were conducted.

Currently, PREVENT is in the process of obtaining transcription and translation of the recordings from the interviews so that they can be analyzed. Findings will be used to refine the human-animal exposure instrument before it is fielded among the two communities (Lao and Hmong in Bolikhamxay province) in February 2013.

Photos: Training of Research Staff



Photos: Training of Research Staff

(b)(6)

Photo: A town serving as a study site



Photos: Study Villages



Photos: Study Villages



Photos: Interview locations



Photos: Market Scenes at District Town



Photos: Market Scenes at District Town





Malaysia

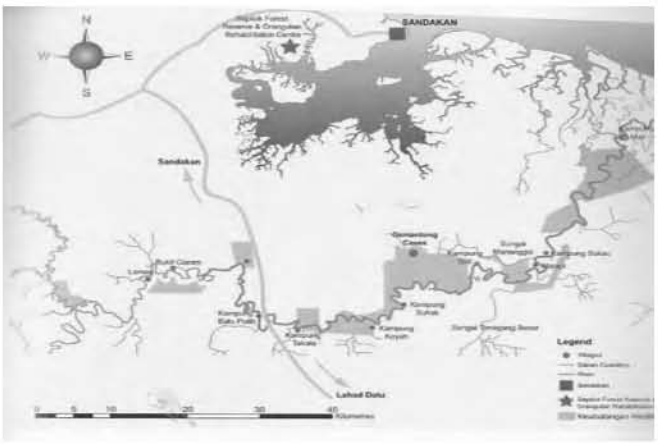
Deep Forest Human-Animal Exposure Study

PREVENT staff went to Malaysia in October 2012 to start-up the upcoming Deep Forest Human-Animal Exposure Study, which will be conducted in collaboration with PREDICT partner, EcoHealth Alliance. During the trip, EcoHealth staff showed PREVENT staff around potential study sites in Kinabatangan district in Sabah state to get an in-depth understanding of the geography and the local population. In addition, PREDICT and PREVENT staff met with staff from the Sabha Wildlife Department and Sabah Department of Health to discuss the study and explore next steps and future collaboration. Finally, PREVENT staff met with potential research consultants who could be contracted to implement the study.

Following the site visits, the team arrived at some preliminary conclusions, including the most feasible research question that could be explored in this setting: examining the patterns of human-animal interactions in the lower Kinabatangan area by exploring how people utilize the different landscapes. They also tentatively decided on potential study populations: 1) village inhabitants along the Kinabatangan River who are mostly from Orang Sungai (native inhabitants of the area); and 2) large-scale plantation workers who are mainly migrants from Indonesia. At present, PREVENT is in the process of obtaining demographic statistics on the lower Kinabatangan area in order to finalize the Human-Animal Exposure Study protocol for ethical review submission.

Maps: State of Sabah on the island of Borneo and Lower Kinabatangan area in Sabah





Photos: Genting 3000, A Palm Oil Plantation









Photos: Family Plantations and Oil Palm Fruit





Thailand

Participatory Action Research on Rodents

PREVENT is developing a protocol for submission to the FHI 360 and Thailand IRBs for a Participatory Action Research (PAR) study on rodents in Thailand. PAR is a systematic qualitative research approach in which researchers work with community members to solve a problem or understand an area of concern for the community. PAR also includes time for community "restitution": in other words, presentation of the results to the community and collective problem solving about ways that the situation can be improved. This study will aim to gain a better understanding of how people perceive rodents, and to obtain detailed information about how they interact with them, including methods they use to deter rodents from entering their houses, contaminating food, etc. and the perceived effectiveness of those methods.

We expect to submit the protocol and prepare for implementation during the next quarter.

Vietnam

Descriptive Analysis of Cross-border Rat Trade

PREVENT is developing a protocol for submission to the FHI 360, Vietnam, and Cambodia IRBs for a cross-border rat trade study.

Wildlife Farms Biosecurity Assessment

PREVENT engaged a biosecurity consultant, (b)(6) to: 1) assist in developing and finalizing a wildlife farm biosecurity assessment tool; 2) share the draft tool with a group of experts, including interested representatives of the Biosecurity Working Group (BWG), Department of Livestock Production (DLP), Vietnam Administration of Forestry (VAF), Department of Animal Health (DAH) and other key stakeholders; 3) present the draft tool and engage key experts in discussion of the tool at a meeting dedicated to discussing the importance of wildlife farms and disease emergence in Vietnam; and 4) support the pre-test of the biosecurity assessment tool.

Based on the data provided by Vietnam Administration of Forestry (in the table below), (b)(6) conducted a quick assessment of wildlife farm data and found that 88% of wildlife farms in the Mekong region raise four main species: crocodile, python, porcupine, and wild boar.



From November 26-30, the PREVENT Vietnam Program Coordinator, (b)(6) in collaboration with VAF and MARD, conducted biosecurity scoping in six wildlife farms in three provinces of Mekong region. The scoping activity found that biosecurity standards were variable and generally low, and that there is significant potential for disease transmission and propagation on the wildlife farms visited.

The scoping revealed the following about farming of specific species:

- Macaque farms: Animals are produced for medical research but recent tightening of export conditions has excluded the small farms from the market (several very large farms continue to farm and export macaques).
- Porcupine farms: There has been a collapse in porcupine prices since 2010 (from 15-20 M dg/breeding pair to 2-3 M dg/pair) and it takes 1.5-2 years to raise a porcupine to market weight (10kg). Farmers are seeking alternative income streams or strategies to reduce costs, hoping that as production volume drops prices may recover.

The farm visits yielded a useful amount of information and generated considerable interest within VAF for future strategy. Based on the field observation, (b)(6) developed a biosecurity assessment tool and shared it with relevant stakeholders for comments. The tools will be discussed and finalized during PREVENT's expert meeting on strengthening wildlife farm biosecurity in the next quarter.

Through primary advocacy work, PREVENT contributed to raising awareness on the important issues related to regulating and managing wildlife farms in Vietnam. It also identified potential policy development opportunities for PREVENT and other EPT and non-EPT partners related to wildlife farming in Vietnam.

Meetings

(b)(6) PREVENT Vietnam Program Coordinator, participated in the regular meeting of the One Health Communication Network, organized by PAHI under MARD. The main objectives of the meeting were to: 1) review last quarter's work on avian influenza and emerging infectious diseases communication activities and upcoming activities of OHCG members; 2) discuss and develop the plan for a Policy Forum on Risk Communication on Public Health Emergencies; and 3) discuss the plan for the development of AIPED communication framework. The participants of the workshop included representatives from Government of Vietnam agencies, including the Department of Animal Health (DAH), Department of Livestock Protection (DLP), National Agriculture and Fishery Extension Center (NAFEC), the Partnership of Avian and Human Influenza (PAHI) under the Ministry of Agriculture and Rural Development (MARD), and Department of Health Prevention under the Ministry of Health; U.N. organizations (e.g., FAO and WHO); and the Avian and Pandemic Influenza Initiative project (APII). The PREVENT Program Coordinator provided an update on project activities (e.g., the wildlife farm study and rodent trade study) at the meeting.

In a visit to Vietnam on October 22–24, 2012, PREVENT Technical Director (b)(6) held meetings with various partners. She gave a brief presentation about PREVENT and met with (b)(6) Senior Infectious Diseases Specialist, (b)(6) Infectious Diseases Specialist, and (b)(6), Management Specialist, USAID Mission in Vietnam, to discuss the PREVENT/EPT Vietnam work plan.

(b)(6) also met with the FHI 360 Vietnam Country Director (b)(6) and (b)(6) Project Manager, to discuss FY2013 planned activities and discussed the Vietnam IRB submission process with the FHI 360 clinical research team.

(b)(6) also met with Country Director of the Wildlife Conservation Society in Vietnam, (b)(6) about the wildlife farm biosecurity assessment and opportunities for collaboration between PREVENT and PREDICT. (b)(6) and (b)(6) also visited (b)(6)

On November 20, (b)(6) participated in the regular USAID API Partnership Meeting organized by USAID that presented: 1) updates on USAID API partners program activities; 2) updates on the EPT Plus Program and other EPT programs; 3) policy and advocacy events, which are opportunities for coordination/collaboration between EPT and the API program; and 4) updates on API PMP data collection status, issues. and next steps. The participants included representatives from FAO, WHO, API, PAHI, IDENTIFY, PREVENT, EPT Plus, and USAID.

At the meeting, (b)(6) presented an update on PREVENT's wildlife farming biosecurity activity. (b)(6) (b)(6) FAO Regional Bangkok Office, presented areas for collaboration with EPT Partners, especially for PREVENT, and clearly indicated that PREVENT could easily apply the lessons learned from improving poultry biosecurity to its work on developing biosecurity for wildlife farming (including mapping, registration, biosecurity standards, and risk analysis).

During his trip to Vietnam, (b)(6) biosecurity consultant, had a brief meeting with the USAID Country Mission on December 11. He provided a briefing on the PREVENT approach to wildlife farm risk reduction, updated the Mission on the farm survey design (including development of the biosecurity assessment tool), and presented future PREVENT wildlife farm activities, such as pre-testing and implementing the tool.

PREVENT

Emerging Pandemic Threats

Quarterly Report
January 1– March 31, 2013

Submitted To
The United States Agency for International Development (USAID) and
the Australian Agency for International Development (AusAID)

12 April, 2013

USAID FROM THE AMERICAN PEOPLE

Australian AID

fhi360 THE SCIENCE OF IMPROVING LIVES

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I. Introduction and Highlights

This document describes PREVENT's activities during the period from January 1, 2013 through March 31, 2013. The contents are organized to reflect PREVENT's systematic investigation of the *human-animal interface* using a framework for emergence that examines three drivers:

1. Social customs/preferences, norms ("Culture");
2. Market system and trade ("Commerce"); and
3. Land-use change.

During the January 1 – March 31, 2013 time period, PREVENT:

- Launched the human-animal exposure survey in Laos after training both Lao and Hmong researchers and collaborated with PREDICT to implement quantitative follow-up surveys in Mondulkiri and in Banteay Meanchey provinces in Cambodia.
- Prepared a group of protocols for submission to Institutional Review Boards, including: developing a protocol on the cross-border rat trade between Cambodia and Vietnam for submission to the FHI 360, Vietnam, and Cambodia IRBs; finalizing a protocol on a Participatory Rapid Appraisal study on human interaction with peridomestic rodents in Thailand for submission to the FHI 360 and Thailand IRBs; and finalizing research protocols for human-animal exposure studies in the PREDICT Deep Forest study areas, where PREDICT partners are currently sampling wildlife for viruses.
- In Burma/Myanmar (funded entirely by the AusAID cooperative agreement), held consultative meetings and a workshop with Government agencies and FAO, and conducted field visits to the Yangon poultry production zone (PPZ) and selected townships to observe poultry production activities and hold discussions with stakeholders, including: poultry producers, township vets, community animal health workers, Women's Affairs Committee members, and members of the Myanmar Livestock Federation.
- Hired a country coordinator in Indonesia to kick off research activities in the country, including market-scoping research in Sulawesi.
- Responded to continued outbreaks of avian influenza in Cambodia by training provincial/district and community health and agriculture frontline workers and community leaders, including clinicians, pharmacists and pharmacy clerks, to help improve early detection and response in poultry as well as getting more village-level involvement of people in preventing the consumption of sick and dead poultry.
- Continued to test a risk avoidance approach to prevent transmission of Nipah virus in Bangladesh. With local partner icddr,b, PREVENT tested interventions in 306 villages during the recent date palm sap harvest. Inventions included two TV public service announcements (PSA), a poster and a calendar discouraging consumption of raw sap because it may have been contaminated by fruit bats, the pathogen's natural host. To amplify the impact of the behavior change messages on the ground and monitor the intervention's progress, PREVENT worked with icddr,b and a local NGO's staff to reinforce the desired behavior in the target villages.
- Co-organized with the Vietnam Administration of Forestry an expert consultation meeting on "Strengthening Wildlife Farm Biosecurity and Supporting the Development of Good Wildlife Farm Production Practices." The meeting convened key stakeholders to discuss the current conditions of wildlife farming in Vietnam and the way forward. PREVENT presented plans for conducting a wildlife farm biosecurity assessment and gathered feedback from stakeholders on an assessment tool.

- Attended the Mining Indaba meeting in Cape Town, South Africa, the premier annual gathering of mining industry experts and stakeholders, to pursue discussions with participants on best practices for preventing zoonotic disease emergence and improving worker and community health. PREVENT also solicited feedback from the industry on two tools -- *Audit Checklist for an Operating Facility,* and *Proposed Supplemental Guidance to the IFC's Introduction to Health Impact Assessments* – and assessed and validated them via interviews in Uganda. In addition, PREVENT prepared subcontracts to work with Chatham House and ISOS on extractive industry issues.
- Attended the 2013 Prince Mahidol Award Conference in Bangkok, Thailand, where project staff led two sessions, served as rapporteurs, and funded tens of attendees. The conference also served as an opportunity to launch new fact sheets on PREVENT that reflected the addition of AusAID as a funder as well as PREVENT's focus on three key drivers of human behavior—culture, commerce, and land use changes—that increase the risk of exposure to emerging zoonotic diseases. PREVENT also drafted a branding implementation and marking plan (BMP) for AusAID's review and approval.

II. Major Programmatic Activities and Results

A. Social Customs/Preferences, Norms ("Culture")

Culture, as a key driver of conditions that favor the emergence and spread of infectious disease, include the learned attitudes and behaviors that affect how people, pets, livestock and wildlife interact. Work by PREVENT during the past quarter to identify and distinguish high-risk behavior and practices that most commonly result in risky contact between humans and animals include the following activities:

1. Research

a. Formative research

i. General Human-Animal Exposure(Uganda and Malaysia)

Research protocols for the human-animal exposure studies in Uganda and Malaysia studies were refined during the quarter. The studies will be conducted in collaboration with PREDICT partners who are currently sampling wildlife for viruses in the selected locations. Experiences from past human-animal exposure studies, conducted in Laos and Thailand, were used to inform the protocol and instruments. The protocols, which include both formative and survey components, will be submitted for scientific review and IRB approval (both international and local) in early April.

ii. Peridomestic Rodents (Thailand)

To date, much of the focus on rodent control and risks posed by rodents in Southeast Asia has been on economic losses and food insecurity as a result of crop destruction. However, rodents are carriers and reservoirs of many bacterial and viral pathogens (e.g., leptospirosis, plague, typhus, hantavirus and Lassa fever virus. Along with bats and non-human primates, rodents are one of the three types of animals that have been most frequently implicated in the transmissions of infectious diseases that have had severe impact on humans. Not well documented are risk behaviors surrounding rodent-human interaction, as well as community perspectives and strategies to mitigate these risks. To be successful, any intervention strategy must be informed by the perspective, knowledge, skills and resources of a given community.

A series of Participatory Rapid Appraisals involving select communities will be conducted in several countries in Southeast Asia, beginning with Thailand. These studies will utilize community knowledge to identify feasible, acceptable strategies to mitigate these risks in each particular country. The relevance, acceptability, and feasibility of risk mitigation strategies identified through the studies will then be tested in behavioral trials.

The protocol to support the first Participatory Rapid Appraisal in Thailand was finalized for submission to FHI 360 and Thailand IRBs. It will be conducted with men, women, and children in the Muang District, and either the Ban Had or Mancha Khiri Districts of Khon Kaen Province. Current plans are to conduct the research from May through July 2013.

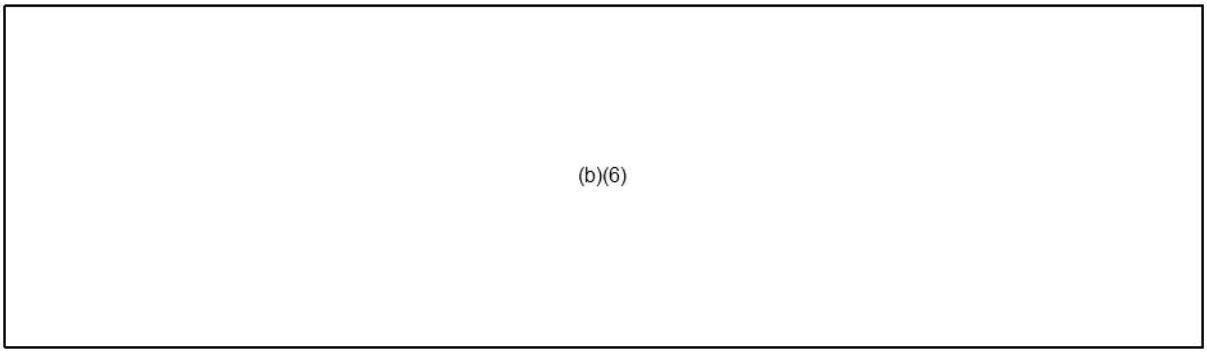
b. Surveys

i. Lao PDR

Work in Lao PDR to quantify human exposure to wildlife and domestic animals likely to carry infectious disease viruses gained momentum this quarter. First, the survey instruments were refined and finalized using information obtained from the cognitive pretest conducted in November 2012.

Principal Investigator (b)(6) arrived in Laos at the end of January to prepare and launch a survey to be conducted in 29 villages (15 Lao communities and 14 Hmong communities) in the Kamkheut District of Bolikhamsay Province. The Lao country team helped to finalize recruitment of

field interviewers, supervisors, and data encoders. During February, these 22 individuals were trained on the content and use of the research tools. The field interviewers were trained in two teams—the Hmong Team (12 participants) and the Lao Team (10 participants). A separate Hmong language training was also conducted to ensure the accuracy of the reading and writing skills of the Hmong team, as Hmong is not a commonly written language, even among native speakers.

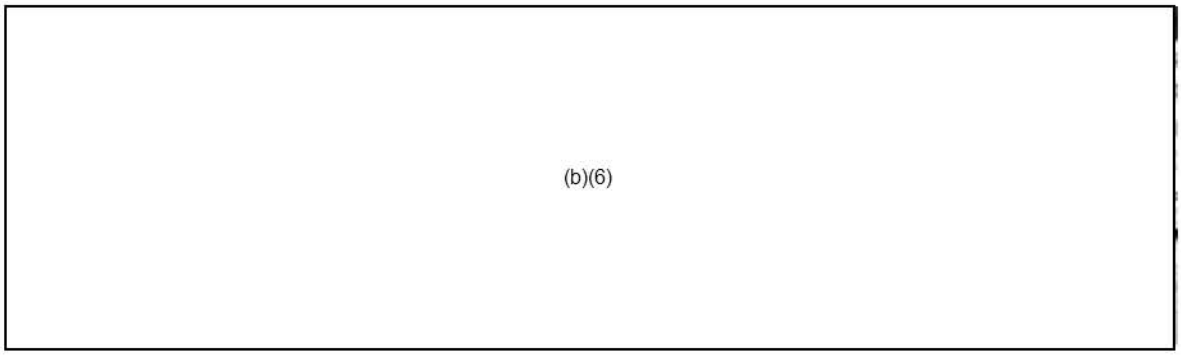


Research participants during their training in Vientiane from February 6 to March 8.

Data collection in the field was conducted from March 10 to April 1. (b)(6) was joined by FHI 360 training consultant (b)(6) and the following representatives from the government: (b)(6) from the Communicable Diseases Control Department of MOH and (b)(6) of the Lao Front. (b)(6) from the Provincial Health Office of Bolikhamsay and (b)(6) (b)(6) from the Infectious Disease Prevention Unit, District Health Office of Khamkeut, met the research teams in the field. In total, the research teams completed 977 interviews (481 Lao; 496 Hmong).



From left to right: Crossing the river to reach the villages. Typical houses in a village. A mix of Lao and Hmong households, which posed a challenge in sampling.



From left to right: Getting approval from local authorities. Mapping sample households in consultation with village representatives. Data encoding after daily interviews.

A USAID Mission team from RDMA Bangkok— (b)(6) (b)(6) and (b)(6) (b)(6) joined by of the Department of Communicable Diseases Control of MOH, visited the site during data collection, interacted with the research team, and observed conditions of the field activities.

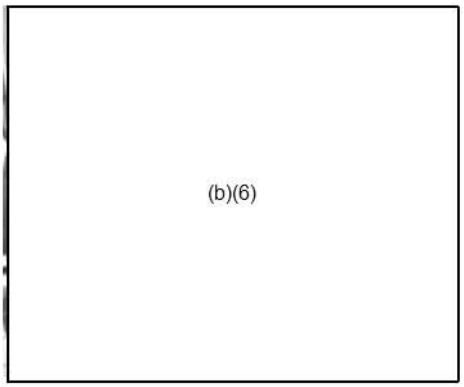


Photo: (b)(6) *team speaking with the interviewers*

ii. Cambodia

During this quarter, PREVENT collaborated with PREDICT/Wildlife Conservation Society (WCS) to implement the third and last trimester quantitative follow-up human-animal exposure study in Mondulkiri and in Banteay Meanchey Provinces in Cambodia.

The first trimester study was launched in May and June 2012, when PREVENT collaborated with PREDICT/WSC in Mondulkiri and in Banteay Meanchey Provinces in Cambodia. In each province, the qualitative research team conducted six focus group discussions among adult men and women, three key informant interviews, and 10 individual interviews in three forest villages. This qualitative research focused on learning which wild animals people could identify, which they were most exposed to, sensitivities about talking about animals, and hunting practices. For the quantitative research, the team interviewed senior women in all households in three other villages about animals raised and consumed, as well as about some hunting-related activities. The results of quantitative survey data collected through a brief household questionnaire served as the baseline. They were used to identify two groups of households from among those who agreed to be contacted during the follow up surveys: the 10 households who consumed the greatest number of animals in the previous month, and 10 randomly selected from the remainder of the sample. These 20 households were invited to participate in PREDICT's animal sampling study and a quarterly follow-up survey about their domestic animals and consumption of meat. In December 2012, PREDICT, in collaboration with PREVENT, implemented the baseline quantitative survey in Preah Vihear Province.

2. Interventions

a. Individual/community

i. Bangladesh Nipah Intervention

At the request of IEDCR (Institute of Epidemiology, Disease Control and Research) in Bangladesh, PREVENT and local partner icddr,b tested a multi-component intervention in 306 villages to try to pre-empt transmission of Nipah virus (NiV) infection during the recent date palm sap harvest in Bangladesh. Fruit bats, the natural hosts for the virus, roost in date palm trees and, while trying to drink the sap, foul the collected juice with their saliva or urine. Drinking the raw sap, the most common source of the pathogen, is common during the winter season, especially in rural areas. Changing an aspect of this behavior was identified as key to reducing exposure to the virus. Behavior change communication strategies were implemented to discourage people from drinking raw date palm sap.

PREVENT's Communication Advisor, (b)(6) travelled to Bangladesh to work with icddr,b and the Voluntary Paribar Kalyan Association (VPKA), a local NGO, on the intervention.

The intervention was conducted in the district of Rajbari during January and February 2013. VPKA held meetings with 281 opinion leaders and convened 302 community meetings, covering a total of 306 rural villages. Media conveying core messages developed by our team included two TV public service announcements (PSA), a poster and a calendar. To amplify the impact of the behavior change messages on the ground and also monitor the intervention's progress, PREVENT worked with icddr,b who trained 60 meeting coordinators and facilitators from VPKA to work in the target villages to reinforce the behavior required to consume sap safely. According to the initial intervention report, more than 52,000 people attended the community meetings.

(b)(6)

More than 5,600 opinion leaders were part of the audience that learned about and became part of the intervention.

At a mid-term debriefing in Pangsha, Rajbari, the facilitators discussed lessons learned and ways to improve the intervention. Because the intervention recommends that people avoid drinking raw date palm sap, gachhis (sap harvesters) are being advised to use it to produce more molasses. Because the virus is killed during production by boiling, molasses does not transmit Nipah.

In activities not related to Nipah, but rather to preventing and controlling outbreaks of avian influenza, (b)(6) (b)(6) also met with the United Nations Food and Agriculture Organization (FAO) and UNICEF to discuss collaborating on improving practices at a slaughtering facility in Khulna. The proposal has been presented to USAID for implementation in 2013. PREVENT and FAO are also working on developing proposals for BCC activities among vendors and consumers for a live bird markets program that FAO will be implementing in 18 markets throughout Bangladesh.

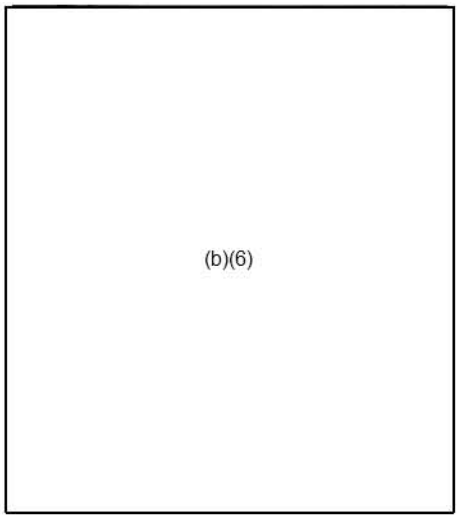
b. Training

i. Avian Influenza Outbreak Response Cambodia

From January through March 2013, Cambodia recorded nine human cases and eight deaths from avian influenza infection. To help respond to the government's concerns over these deaths, the USAID Mission in Cambodia requested that PREVENT provide technical assistance related to avian influenza outbreak prevention and risk communication.

(b)(6), Country Coordinator for Laos, and (b)(6), Senior Behavior Change Communication Advisor, arrived in Cambodia at the end of February 2013 to initiate planning with USAID, the Ministry of Agriculture, Ministry of Forestry and Fisheries (MAFF), and Ministry of Health (MOH). (b)(6) (b)(6) met with (b)(6) Nop of USAID Cambodia to gather some insights on the country's outbreak situation and other partners' responses to date, particularly by FAO and WHO. She presented a draft plan to continue training provincial/district and community frontline workers, which was started by PREVENT in 2012.

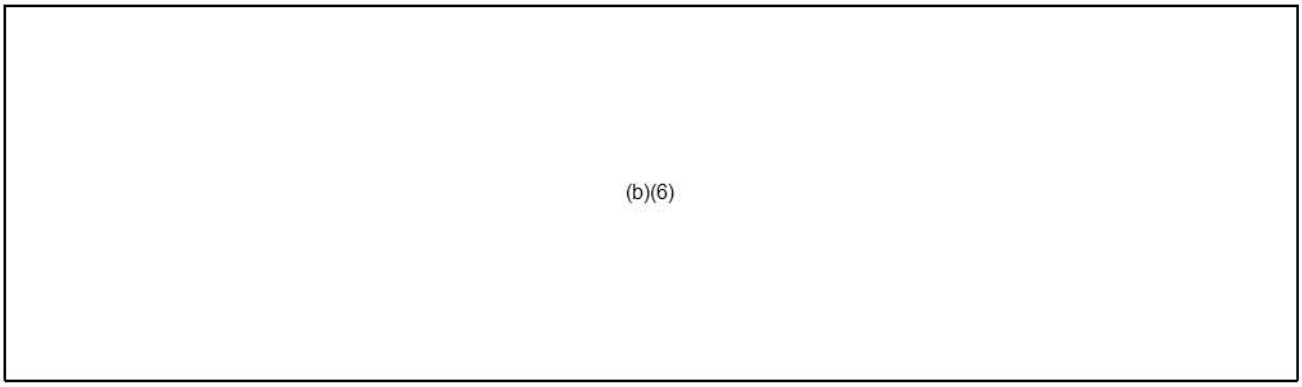
(b)(6) and (b)(6) met with officers of the MAFF and FAO and attended a debriefing by an FAO-commissioned team (comprised of an epidemiologist, economist/value chain expert, and communications expert) to look at improving early detection and response to outbreaks in poultry as well as getting more village-level involvement of people in preventing the consumption of sick and dead poultry.



PREVENT's draft training plan was accepted by the two ministries. The plan included ten districts in Takeo, eight districts in Kampot Province, nine districts in Kandal Province, and eight districts in Kampong Speu Province. In every province, PREVENT will support and train 10 provincial trainers and train and mobilize 100 district/community frontline agricultural and health workers. PREVENT also agreed to orient at least 30 private clinicians and pharmacists or pharmacy clerks.

In collaboration with the MoH, MAFF and the Cambodian Red Cross, PREVENT managed the provincial training, which was geared to improve the interpersonal communication skills of frontline workers to encourage the community to report sick and dying poultry and to bring sick family members directly to the hospital if they had recent contact with sick or dead poultry. PREVENT conducted refresher training courses with five master trainers who were trained in 2012. These master trainers were then dispatched to the previously mentioned four high-risk provinces and trained a total of 44 provincial trainers.

Ultimately, this training benefited a total of 412 frontline workers, who are mostly district and community veterinarians, district and community health care workers, community leaders, and volunteers. In addition, across all four provinces, a total of 105 private clinicians, pharmacists/pharmacy owners and clerks were also trained on the messages.



During all of the trainings, PREVENT strengthened the training and interpersonal communication skills of the trainers to deliver and reinforce to deliver two key messages: (1) report to authorities all sick or dead poultry; (2) if a family member has been in contact with poultry, get this person immediately to a hospital or health center to seek treatment.

Three training teams were created for simultaneously deployment in three provinces. Each team, along with a PREVENT master trainer, went to different provinces (Takeo, Kampot, and Kampong Speu) from March 18-22, 2013 to conduct two-day training-of-trainers sessions on interpersonal communication skills related to avian influenza; a training for volunteer "frontline agents" at district levels; and an orientation for private clinicians, pharmacists, and pharmacy clerks. The last set of training was held at the border of Vietnam and Kandal Province from March 25-29.

ii. Burma/Myanmar Activities

PREVENT activities in Burma/Myanmar, funded entirely by the AusAID cooperative agreement, are initially focused on the provision of technical support to the USAID-funded avian influenza activities of FAO. Following the joint USAID/AusAID/FAO/PREVENT mission to the country in December 2012, PREVENT sent a technical consultant, (b)(6) to Burma/Myanmar to initiate this work with the Livestock Breeding and Veterinary Department (LBVD) of the Ministry of Livestock and Fisheries. The mission took place from 25 March through 3 April 2013. The objectives of this mission were:

- To organize and facilitate a FAO-PREVENT Consultative Workshop with the LBVD in Nay Pyi Taw (NPT) on March 28, 2013; and
- To conduct a field visit to the Yangon poultry production zone (PPZ) and selected townships to observe poultry production activities and hold discussions with stakeholders, including: poultry producers, township vets, community animal health workers, Women's Affairs Committee members, and members of the Myanmar Livestock Federation.

The workshop, opened by the Minister of Livestock and Fisheries, was intended to achieve the following objectives:

- Arrive at a common understanding of the highly pathogenic avian influenza (HPAI) situation and program in Myanmar;
- Understand the types of assistance that FAO-PREVENT can provide;
- Understand risk communication and the key target audiences in the Myanmar HPAI environment;
- Identify needs to mobilize target audiences for risk reduction in the HPAI program; and
- Identify and agree on general activities to be undertaken with FAO-PREVENT support.

The workshop featured both technical presentations and breakout work sessions. The breakout work reached the following recommendations:

Target Group	Desired Behavior	Activity
Backyard Poultry Farmers 1,2	Report abnormal poultry deaths	Training; IEC information; peer education
Poultry Collectors and Dealers 1,2,3	Not to sell or buy dead or sick birds; report to LBVD	Awareness campaign
Consumers, Housewives 1,2	Do not buy chickens with abnormal skin color; improved cooking practices	Awareness campaign; entertainment education
Local Authorities – expanded to Township Admin Committee - 1	Mobilize all stakeholders	Orientations
Small, medium commercial poultry farmers + labor 2,3	Early reporting, movement control, disinfection, sanitation, personal hygiene (improved biosecurity)	Peer education, involvement of cooperatives or trade organizations
CAHW 3	Report dead/sick birds to LBVD	Incentives, monthly meetings, sharing of reports
Private sector, gov't vets 3	Share information on HPAI	Monthly meetings
Suppliers of farmers	Observe biosecurity when entering farms	Orientations
Media	Share information	Orientations

The consultative workshop also established the priorities for a Plan of Action, including a primary focus on the Mandalay and Sagaing Regions. The key activities that are to be featured include:

- Training of vets and community animal health workers;
- Orientations for poultry producers;
- Orientations for local authorities (Township Administrative Committee);
- Awareness-raising campaign on food hygiene and HPAI for housewives and consumers; and
- Media orientations.

A more detailed plan of action will be developed for consideration in the coming quarter. There were 28 participants at the workshop: officials from LBVD in NPT (17), Yangon (4), Sagaing (1), and Mandalay (1); and five representatives from FAO, including from the regional office.

The field visit to the Yangon poultry production zones included group discussions with township veterinary officers and community animal health workers in Teikkyi and Hlegu townships of Yangon. These townships included 462 and 167 villages, respectively. Following the group discussions, visits to both medium-sized commercial poultry farms in Teikkyi, and two other poultry farms in Hlegu were conducted. Additional meetings were held with key para-statal NGOs, particularly with the Myanmar Women's Federation and the Myanmar Livestock Association. These local organizations have both structure and extensive membership to provide crucial partnerships for effective interventions. The detailed report of the findings will contribute to the plan of action under development.

B. Market Systems and Trade ("Commerce")

Commerce, as the key driver of conditions that favor potential spillover and spread of wildlife or livestock pathogens, include both local and international market systems for key priority wildlife species – bats, rodents, and non-human primates – and domestic animals – including poultry, pigs, and other livestock. Work by PREVENT during the past quarter to identify and distinguish risky contact, such as in markets and supply chains where large numbers of people and domestic animals come in contact with potentially infectious wild animals, includes:

1. Vietnam Wildlife farms Biosecurity Assessment and Meeting

The Vietnam Administration of Forestry (VNFOREST) and PREVENT co-organized an expert consultation meeting, held January 25, 2013, in Ho Chi Minh City (HCMC), on "Strengthening Wildlife Farm Biosecurity and Supporting the Development of Good Wildlife Farm Production Practices."

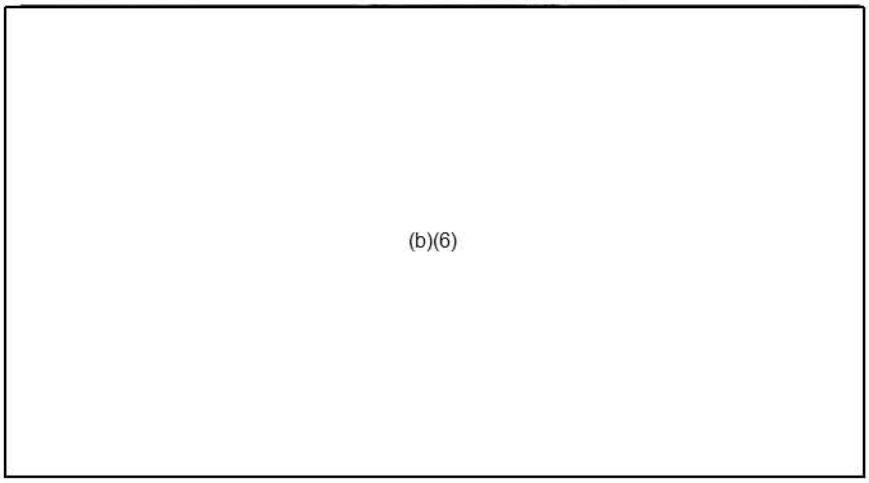
The purpose of the workshop was to convene key stakeholders to discuss the current conditions of wildlife farming in Vietnam and the way forward. Specific objectives of the meeting were to:

- Introduce the Government of Vietnam's new policy direction on wildlife management;
- Present PREVENT's plans for a wildlife farm biosecurity assessment (a first step in developing policies and regulations to improve biosecurity); and
- Gather feedback from key stakeholders to improve the biosecurity assessment approach and tools.

The meeting began with a global overview on wildlife farming and included presentations on the current activities of the key government departments and non-governmental stakeholders. Plans for PREVENT's wildlife farm biosecurity assessment in southern Vietnam were presented, and participants broke into groups to review and provide comments on the draft biosecurity assessment tool.

The meeting provided a platform for the Government of Vietnam to announce plans to review policies relating to wildlife farm management. It also provided an opportunity for the 60 stakeholders attending – from Government agencies, international and local NGOs, universities and institutions – to improve awareness of wildlife farming issues, including risks from zoonotic diseases, conservation issues, and challenges and constraints facing wildlife farms and regulators in Vietnam.

Strengthening Wildlife Farm Biosecurity and Supporting the Development of Good Wildlife Farm Production Practices Meeting Participants



One outcome of the meeting: PREVENT and VNFOREST were able to obtain updated data on the location and species of registered wildlife farms at village level in eight provinces in the Mekong Delta Region of Vietnam, including: An Giang, Bac Lieu, Binh Duong, Binh Phuoc, Ca Mau, Dong Nai, Tay Ninh and HCMC. This data will guide the sampling framework for the biosecurity assessment, which is planned for later in 2013.

PREVENT revised the biosecurity assessment tool based on the feedback provided by meeting participants. On March 6, 2013, PREVENT convened a small group of experts identified at the January 25 meeting to review the tool and provide advice to further improve the tool. The assessment tool will be pretested and further revisions will be made as needed. After the tool is finalized it will be implemented at farms that raise wildlife mammals, particularly those with a minimum number of at least one of the key

species: primates, rodents, bats, and civets. The results of the study will provide input for developing regulations and identify areas that may benefit from capacity building. In addition, the tool can provide a template for biosecurity assessments of other types of farmed wildlife.

During the next quarter, PREVENT plans to submit the wildlife farm biosecurity assessment research protocol to the FHI 360 and Vietnam IRBs.

2. Cross-Border Rat Trade Research

PREVENT continued to work on a protocol for submission to FHI 360, Vietnam, and Cambodia IRBs for a cross-border rat trade study. The goal of this study is to produce a descriptive analysis of the cross-border rat trade in the Mekong Delta region of Vietnam and adjacent provinces of Cambodia to identify potentially risky practices and situations the rat trade may pose to animal and human health. The specific study objectives include to:

1. Document the scope and structure of the rat trade between Southern Vietnam and Cambodia;
2. Identify the various types of rats and rat products in the market chain (local names, descriptions, and biological identification, if possible); and
3. Document specific practices and situations that could potentially result in risky exposure to rats.

C. Land-Use Change

PREVENT has identified land-use change, especially large-scale activities such as extractive industry activities in previously pristine areas, as the third key driver of conditions that favor emergence of infectious disease. Unintended consequences of the resulting influx of people and infrastructure development include disruptions to the ecosystem and an increase in interaction between wild animals and people and their livestock and pets. Work by PREVENT during the past quarter to better understand both behavior and practices that might increase the potential that dangerous pathogens will jump from animals to humans in such settings include the following:

1. Extractive Industry Working Group (EIWG)

PREVENT continues to host regular meetings of the EIWG. This quarter, the Group reviewed a White Paper written by RESPOND and discussed revising and submitting it for publication under the Group's authorship. Several members of the EIWG are collaborating on a revised outline and on identifying publication opportunities.

Mining Indaba, Cape Town, South Africa. In February, PREVENT and RESPOND representatives attended Mining Indaba, the premier annual gathering of industry experts, stakeholders, financiers, and decision-makers. PREVENT issued purchase orders to support the participation of Chatham House and ISOS in the conference and a concomitant Australian-Africa Mining Industry Group (AAMIG) meeting on EID issues.

In general, sessions focused on industry-wide challenges and opportunities were not germane to EPT. However, one keynote speech by AngloGold Ashanti Ltd (b)(6) acknowledged the importance of social capital and urged the industry to invest in the communities where they work. Also noteworthy were industry discussions about coordinating activities to ensure that infrastructure hubs support links to main corridors to stem duplication.

At a February 6, 2013 meeting organized with the help of AAMIG (b)(6) 38 members of the AAMIG joined representatives from USAID and PREVENT to explore best practices for preventing zoonotic disease emergence and improving worker and community health. In his presentation, (b)(6) (b)(6) of Chatham House outlined key EID issues and plans for a USAID-supported pilot project in the Katanga Province, DRC. Several attendees expressed interest in participating. EI tools and brochures were disseminated to meeting attendees.

Among the wide range of conference exhibitors, most salient for EPT were service companies—those that manage worker camps, provide food services, deliver medical services (for example, International SOS), or conduct environmental impact assessments. Many of them were quite interested in EIWG materials; some suggested that protecting against EIDs could be a competitive advantage in proposals/bids. Many of these companies were attentive to EPT issues and positively disposed to the brochures and tools, even though they were already implementing a range of suggested EID mitigations.

2. Tool Development and Testing

In January, to coincide with Mining Indaba, the tools – *Audit Checklist for an Operating Facility,* and *Proposed Supplemental Guidance to the IFC's Introduction to Health Impact Assessments* – were also posted on the home page of **www.PREVENTproject.org** to facilitate feedback by industry representatives and consultants.

In the coming quarter, the Audit and Planning tools will be tested with four mining companies in the Katanga region of the Democratic Republic of Congo (DRC). In addition, PREVENT and RESPOND project officers will present the tools at the International Association of Impact Assessments annual conference in May 2013 in Calgary, Canada.

a. Uganda

In February, to follow-up on initial meetings in Uganda last quarter (b)(6) (PREVENT) and (b)(6) (b)(6) (RESPOND) returned to the country to assess and validate the draft Planning and Audit tools by conducting in-person interviews to obtain more robust feedback about specific mitigation efforts. The interviews were structured using feedback forms jointly developed by PREVENT and RESPOND.

(b)(6) and (b)(6) accompanied by a colleague from PREDICT and an in-country RESPOND officer, visited a timber company and a mine site to meet with relevant staff to evaluate the strengths, weaknesses, and feasibility of using the tools, and to identify entry points to integrate these tools into existing systems. In addition, they met with members of the Ugandan Environmental Practitioners Association and the Uganda Wildlife Authority to present the tools and gather feedback.

The team reached the following conclusions following the assessments at the two EI sites and discussions with other groups:

1. **The audit tool is useful** for identifying vulnerabilities to zoonotic disease transmission at operating facilities. The testing team identified vulnerabilities and helped respondents think about strengthening areas that could be problematic if an outbreak occurred.
2. **Companies that have functional environmental, health, and safety management systems would be able to adopt relevant portions of the audit tool more easily than those that do not.**
3. **Companies working in areas where outbreaks occur are interested in using the tools.**
4. **The test identified some new mitigation approaches that could be incorporated into both the audit and planning tool.** The timber company mentioned bat mitigation measures such as translucent roofing panels that discourage bats from roosting indoors. This mitigation approach was new to us.

5. **The Uganda Association of Impact Assessment suggested additional sections to include in the tools** and offered to help compile some of the information.
6. **Integrating the planning tools into Environmental and Social Impact Assessments would be very useful.** The Association would like to see elements of these tools incorporated into existing guidelines.

b. Democratic Republic of Congo (Katanga)

KDRC project planning, initiated during the Mining Indaba conference, benefitted from the presence of principle stakeholders: (b)(6) and (b)(6) of Chatham House; (b)(6) and (b)(6) from ISOS; and (b)(6) of USAID, PREVENT and RESPOND.

In meetings conducted over two half-days and chaired by (b)(6), participants got to know each other better and coalesce into a team. (b)(6) described USAID's goals and objectives, as well as funding restrictions and project implementation guidelines. Her participation was critical to achieving a shared vision of the activities and the intended results. The participants also defined roles and responsibilities for the Katanga DRC project.

At the Mining Indaba meeting, the team discussed the project's anticipated three phases:

- Phase 1 is planning.
- Phase 2 has three parts:
  - Testing and adapting the tools;
  - Identifying the possibility for an alert system built into the existing government system;
  - Mining company client survey.
- Phase 3 is reporting the results and planning whether and how the Chatham House Infectious Disease Risk Assessment and Management (IDRAM) initiative continues.

In March, at a follow-up meeting, representatives from USAID, ISOS and Chatham House further refined the KDRC project plan: dropping Phase 2b (alert system) and substituting an exercise to map the resources for responding to a disease outbreak of unknown origin was inserted.

Additional activities mentioned and under consideration include a vulnerabilities workshop with stakeholders in Katanga province and an exercise using a viral hemorrhagic outbreak incident case study.

PREVENT has reviewed the project proposals from Chatham House and ISOS, provided comments to USAID and expects to issue subcontracts to both organizations to proceed with identified activities in April 2013.

III. Knowledge Generation and Information Sharing

A. Meetings

1. Prince Mahidol Award Conference (PMAC)

Several PREVENT staff members attended this year's Prince Mahidol Award Conference (PMAC) in Bangkok Activities included moderating and/or participating in panels; serving as rapporteurs; developing a news release and informational materials for the USAID exhibit booth; setting up and manning the booth, and disassembling the displays; and promoting sessions in which USAID/EPT staff were involved, either as speakers, moderators or planners. Outreach was targeted to

PMAC is an annual international conference focusing on policy-related health issues of global significance. The conference is hosted by the Prince Mahidol Award Foundation, the Thai Ministry of Public Health, Mahidol University and other global partners, including USAID, the Rockefeller Foundation, World Health Organization, and the Japan International Cooperation Agency. This year's conference, held 31 January to 2 February 2013 at the Centara Grand & Bangkok Convention Center, focused on "A World United Against Disease: Cross-Sectoral Solutions."

both mainstream international newswires and a pre-established media contacts list and social media outlets. See Annex C for copy of press release.

PREVENT Technical (b)(6) organized and with (b)(6) (icddr,b), moderated a panel entitled *"Enhancing One Health: To Cultures, Add Culture."* PREVENT staff also played a major role in planning and implementing the session entitled *"Going Viral: #Strategic Public Communication to Affect Practices and Livelihood."* and served as rapporteurs for several other PMAC panels.

PREVENT staff supported several of the PMAC sessions in which EPT staff were involved, and promoted the speakers via Twitter and other social media channels. These included the closing session that featured USAID Assistant Administrator for Global Health Ariel Pablos-Mendez, MD, as well as sessions led by:

- (b)(6)

Several knowledge products incorporating learning from the PMAC sessions are currently under development.

2. Vietnam One Health Conference

Ministry of Agriculture and Rural Development (MARD), in cooperation with Ministry of Health and other national and international agencies, is organizing a Vietnam National One Health conference in early April 2013. The conference objectives are: (i) to promote the application of a One Health approach to address zoonotic diseases and non-zoonotic diseases impacting food security, food safety and livelihoods with national leaders, senior officials and experts; (ii) to consider how the ongoing national One Health programs and activities in Vietnam fit into the larger context of the global movement towards a One Health approach; and (iii) to identify a key set of next steps and a timeline to support the Government of Vietnam in establishing a One Health road map and action plan including discussion of resourcing requirements.

Starting in January 2013, the PAHI Secretariat under MARD established an informal working group to prepare for the conference. PREVENT is a contributing member of the working group, and (b)(6) (b)(6) Vietnam Program Coordinator, participated in several activities in support of the conference. This included providing input on the meeting concept note and agenda, organizing potential meeting chair/co-chairs, and identifying key agencies/personnel to participate. Additionally, PREVENT contributed to development of a One Health stakeholder mapping exercise, under the guidance of PAHI, which will be presented at the conference.

3. Lao PDR Coordination Meetings

PREVENT participated in the EPT quarterly meeting held on 22 January at the National Center and Laboratory Epidemiology (NCLE) of the Ministry of Health.

PREVENT Laos hosted the EPT technical working group meeting on 18 Jan. In attendance were (b)(6) (b)(6) of USAID Laos, (b)(6) of WCS, (b)(6) of FAO, and (b)(6) (b)(6) of PREVENT. The group discussed operational issues that concern collaboration from each organization. The main agenda during this meeting was the planned field visit to project sites by (b)((b)(6) and (b)(6)

B. Knowledge Products

As PREVENT's work evolves, an ongoing task is to raise its profile among key audiences. Our communication strategy dictates that every "place" we communicate – whether in print, at trainings or events or online – should inform, educate and reinforce the project's contributions to tackling emerging infectious disease threats. The following highlights this quarter's efforts to do this.

1. Global One Health Core Competencies

In February 2013, the Global One Health Core Competencies (OHCC) Working Group coordinated by the RESPOND Project completed their guidance document on One Health Core Competencies Domains. PREVENT staff member (b)(6) was an active member of the OHCC Working Group that spent nearly two years in the conceptualization, testing, and production of this document. This guidance document can be used and adapted globally based on local context to help train future One Health professionals.

2. Social Science and Medicine special issue

Two abstracts that PREVENT submitted for inclusion in a special issue of *Social Science and Medicine* on "One World-One Health" were accepted. The project has been asked to prepare and submit two papers for peer review:

- Integrating Social Science and One Health to Inform a Study of the Human-Animal Interface (b)(6) and (b)(6)
- Using a One Health Approach to Identify and Address Risk and Implement Feasible Interventions to Control Avian Influenza in Lao PDR ((b)(6)

3. Project Identity/Branding

PREVENT revised its brand on a range of materials – from fact sheets and banners to the website www.PREVENTproject.org – in time for the 2013 Prince Mahidol Award Conference in Bangkok, Thailand. The crisp, more consistent graphic identity incorporates new funder AusAID along with USAID. *(See report cover.)*

For AusAID's review and approval, this quarter we also drafted a branding implementation and marking plan (BMP) that complements our USAID BMP and incorporates PREVENT's refreshed identity elements.

4. Traditional Communication

We developed a series of fact sheets to reinforce PREVENT's focus on three key drivers of human behavior – culture, commerce, and land use changes – that increase the risk of exposure to emerging zoonotic diseases. The fact sheets disseminated at the Prince Mahidol Conference and Mining Indaba and posted on www.PREVENTproject.org included: 1) *About Us*; 2) *Culture and Emerging Infectious Disease*; 3) *Commerce and Emerging Infectious Diseases*; 4) *Land Use Change and Emerging Infectious Diseases;* and 5) *Using Emerging Technologies to Fight Infectious Diseases*. (See Annex A.)

In addition, PREVENT (b)(6) developed a *"State of the Project"* presentation for a USAID meeting in March (See Annex B).

5. Online and Social Media Development

The project's website was revised to reflect changes made to other new materials (such as the fact sheets): the revised www.PREVENTproject.org aims to:

- acknowledge and promote AusAID as a funder, in addition to USAID
- enhance partners' and other stakeholders' access to PREVENT research, tools, and other materials,
- serve as "the" go-to resource for timely, useful information, and best practices related to PREVENT's work, and
- provide public visibility for PREVENT, the EPT project and its donors.

We also enhanced the website's functionality by adding:

- multimedia capability (e.g., audio, video, etc.),
- social media (Twitter),
- preview and printer-friendly page/download versions,
- metadata (Google organic search) to enhance ranking in organic Web searches,
- Google Analytics to measure traffic, usage, etc., and
- design and navigation to comply with Section 508 requirements for USG-funded websites

As noted elsewhere, the site offers access to fact sheets, reports, tools, and a range of resources used in trainings.

Because of its ability to spread news quickly and build likeminded communities, PREVENT staff Tweeted from the Prince Mahidol conference and continues to re-Tweet relevant EPT-related information as appropriate.

IV. Program Expansion

A. Additional Countries

1. Burma

The initial activities of PREVENT in Burma/Myanmar have been conducted under the auspices of FAO and in collaboration with the Ministry of Livestock and Fisheries. It is the intention of FHI 360 to pursue a Letter of Agreement (LOA) / Memorandum of Understanding (MOU) with the Government of Myanmar so that PREVENT may conduct additional work under its own clearances. During the joint USAID / AusAID / PREVENT mission to the country in December 2012, it was suggested that PREVENT pursue such an arrangement with the Ministry of Health, as the primary focus of PREVENT work concerns human health and behavior. A draft LOA is under preparation.

2. Indonesia

After an extended period of recruitment, the PREVENT Project has recruited (b)(6) as the PREVENT country project coordinator to be based in Manado, Sulawesi. The administrative procedures to bring (b)(6) onboard were just being finalized as the quarter drew to a close. PREVENT (b)(6) and (b)(6) for Indonesia, will travel to Jakarta and Manado in April to develop a detailed work plan together with (b)(6) (b)(6) Initial work in Sulawesi will focus on market scoping, as reports indicate significant amounts of pertinent wildlife are routinely sold in local markets for consumption in this part of the country.

PREVENT

Emerging Pandemic Threats

Quarterly Report
April 1– June 30, 2013

Submitted To
The United States Agency for International Development (USAID) and
the Australian Agency for International Development (AusAID)

15 July, 2013

USAID FROM THE AMERICAN PEOPLE

Australian AID

fhi360 THE SCIENCE OF IMPROVING LIVES

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Annexes

I. Inventory of AI Products for Adaptation

I. Introduction and Highlights

This document describes PREVENT's activities during the period from April 1, 2013 through June 30, 2013. The contents are organized to reflect PREVENT's systematic investigation of the *human-animal interface* using a framework for emergence that examines three drivers:

1. Social customs/preferences, norms ("Culture");
2. Market system and trade ("Commerce"); and
3. Land-use change.

During April 1, 2013 through June 30, 2013 time period, PREVENT staff:

- Began start-up activities in Burma/Myanmar, including developing a Plan of Action (POA) and corresponding work plan for PREVENT. The objective of the POA is to strengthen the capacity of local officials, veterinarians and community animal health workers, poultry farmers, and media to reduce the risk of avian influenza. The POA and a memorandum of understanding are being processed by the Myanmar government.

- Officially launched work in Indonesia, including training staff in administration and logistics, defining the program scope and work plan, and participating in the EPT Indonesia Planning Meeting. Project staff also visited EPT partners and organizations implementing market-based programs in Indonesia to prepare for three main activities: 1) characterizing markets in main urban centers; 2) describing the bat value chain; and 3) characterizing human-bat interaction at key points in the value chain and identify ways to reduce risk.

- Conducted an assessment of materials developed for H5N1 avian influenza and H1N1 pandemic influenza to determine which ones could be most easily adapted and disseminated if H7N9 outbreaks continue during the next influenza season, and/or if the situation with the novel coronavirus (MERS-CoV: Middle Eastern Respiratory Syndrome) spreads. (b)(6) attended the "Technical and Policy Discussion on the Prevention and Control of Avian Influenza A (H7N9) in Asia" in Bangkok June 24-25 and contributed to a slide show of communication materials developed for H5N1 that could be updated to address H7N9.

- Attended the EPT regional planning meeting in Bangkok (June 18-19) as well as the country planning meetings for Vietnam (June 13-14) and Indonesia (June 21-22).

- Completed a risk-avoidance approach in Rajbari, Bangladesh aimed at discouraging people from drinking raw date palm sap to prevent nipah virus. A mid-term survey on the approach was conducted, and results are encouraging.

- Began a Participatory Rapid Appraisal on peridomestic rodents in Thailand. The study utilizes community knowledge to identify feasible, acceptable, and sustainable strategies to mitigate the risk of exposure.

- Developed a *Human-Animal-Interface Framework* to describe the relationship between different transmission routes and human activities. This framework will hopefully inform the design and implementation of interventions to reduce the risk of transmission of emerging infectious diseases. Also began analysis of results of a quantitative survey in Laos to assess human exposure to different animals, quantify the risk of emerging infectious diseases, and identify populations or subgroups with particularly high rates of exposure. Along with PREDICT (Wildlife Conservation Society), began implementing a human-animal-interface baseline survey in Mondulkiri and Banteay Meanchey provinces in Cambodia.

- Received approval on research protocols for human-animal exposure studies in Uganda and Malaysia from FHI 360's Protection of Human Subjects Committee. The studies will be

conducted in collaboration with PREDICT partners who are currently sampling wildlife for viruses in the selected locations.

- Continued work on the Cross-Border Rodent Trade Study in Vietnam, which has been modified into smaller, more manageable pieces that will allow for quicker results, starting with examining rat trade dealers.

- Continued to plan the first phase of the Vietnam Wildlife Farms Biosecurity Assessment, and met with stakeholders to discuss cooperation and garner regional support. PREVENT also helped convene the first meeting of the W*ildlife Farm Biosecurity Task Force* under the Biosecurity Working Group in Vietnam.

- Moved forward on the Katanga-DRC project on extractive industries along with ISOS, but awaiting the dissipation of civil unrest in Katanga before continuing. Also continued to work with the Extractive Industries Working Group on the EI white paper and attended the *International Association of Impact Assessment* meeting in Calgary to connect with stakeholders.

II. Major Programmatic Activities and Results

A. Social Customs/Preferences, Norms ("Culture")

Culture, as a key driver of conditions that favor the emergence and spread of infectious disease, includes the learned attitudes and behaviors that affect how people, pets, livestock and wildlife interact. Work by PREVENT during the past quarter to identify and distinguish high-risk behavior and practices that most commonly result in risky contact between humans and animals includes the following activities.

1. Research

a. Formative Research

i. General Human-Animal Exposure (Uganda and Malaysia)

Research protocols for the human-animal exposure studies in Uganda and Malaysia were submitted for scientific review and human subjects ethical review with FHI 360's Protection of Human Subjects Committee (PHSC); both protocols received expedited approvals. Experiences from past human-animal exposure studies conducted in Laos and Thailand were used to inform the protocol and instruments. The protocols include both formative and survey components, which will be conducted in two phases, respectively. The studies will be conducted in collaboration with PREDICT partners who are currently sampling wildlife for viruses in the selected locations.

In Uganda, a local principal investigator, (b)(6) was hired to lead the formative component (first phase) of the human-animal exposure study. (b)(6) is a medical anthropologist with extensive experience with the methodology, content area, and the local context. During this period, instruments and consent forms were translated into local languages (Kifumbira and Rukiga) and the protocol will be submitted for local Institutional Review Board (IRB) review during the next quarter. Approval from the Uganda local IRB is expected during the same quarter. As soon as approval is obtained, PREVENT plans to implement the formative study.

In Malaysia, the FHI 360-approved protocol was submitted to the Sabah Wildlife Department and Department of Public Health; approvals to continue the studies were obtained. PREVENT is currently in the process of commissioning the translation of instruments and consent forms into Bahasa Malaysia. As soon as these documents are translated in the next quarter, PREVENT plans to submit the protocol for local IRB review. PREVENT also plans to solicit for local researchers during the next quarter.

ii. Peridomestic Rodents Study (Thailand)

To date, much of the focus on rodent control and risks posed by rodents in Southeast Asia has been on economic losses and food insecurity as a result of crop destruction. However, rodents are carriers and reservoirs of many bacterial and viral pathogens (e.g., leptospirosis, plague, typhus, hantavirus, and Lassa fever virus). Along with bats and non-human primates, rodents are one of the three types of animals that have been most frequently implicated in the transmission of infectious diseases that have had severe impact on humans. Risk behaviors surrounding rodent-human interaction, as well as community perspectives and strategies to mitigate these risks, are not well-documented. To be successful, any intervention strategy must be informed by the perspective, knowledge, skills, and resources of a given community.

A series of Participatory Rapid Appraisals will be conducted in several countries in Southeast Asia, beginning with Thailand. These studies will utilize community knowledge to identify feasible, acceptable, and sustainable strategies to mitigate the risk of exposure in each particular country. The relevance, acceptability, and feasibility of risk mitigation strategies identified through the studies will then be tested in behavioral trials.

Principal Investigator, (b)(6) arrived in Thailand at the beginning of June to prepare and launch the first Participatory Rapid Appraisal focused on peridomestic rodents. The study will be conducted with men, women, and children in the Muang and Mancha Khiri Districts of Khon Kaen Province. The protocol for this study was approved by the FHI 360 Protection of Human Subjects Committee (PHSC) and the Khon Kaen University Ethical Committee in Thailand (KKU EC). (b)(6) (b)(6) along with local investigator, (b)(6) trained 17 researchers in a qualitative researcher training from June 9-19, 2013 in Khon Kaen, Thailand. The training focused on study objectives, qualitative research methods, research ethics, and implementation of study tools, and included three full days of field practice in a pre-test setting similar to the research sites. (b)(6) (b)(6) from the FHI 360 North Carolina office also attended the training. Following the training, 11 of the 17 researchers were hired to be part of the research team for the study implementation based on their performance during the training (two facilitators, one key informant interviewer, three note-takers, two transcribers, two translators, and one interpreter). Data collection, supervised by (b)(6) and (b)(6) began at the first of the four study sites on June 29, 2013. It is expected that data collection will be completed by mid-August 2013.

b. Surveys

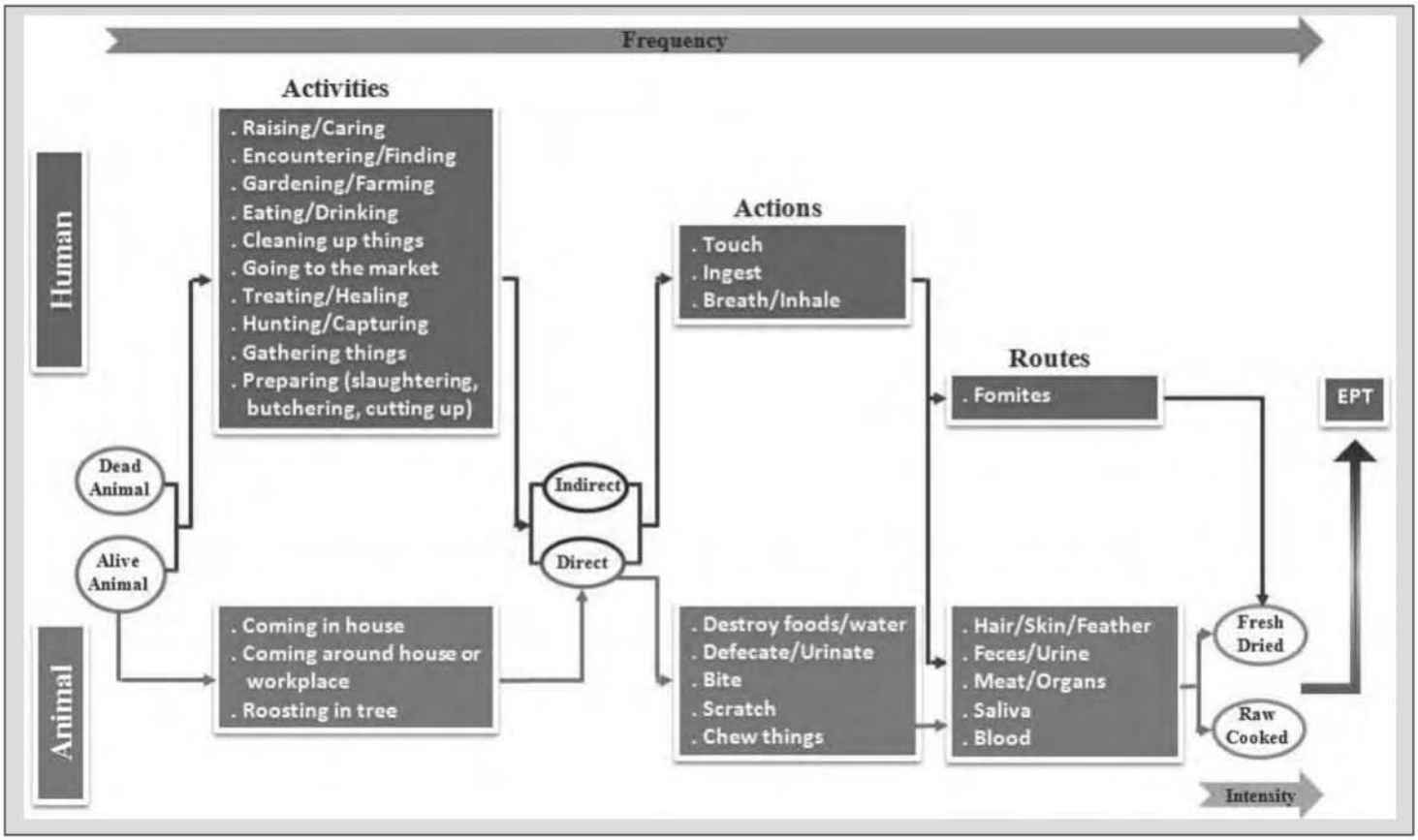
i. Laos

To assess human exposure to animal diseases in Laos, PREVENT began implementing a survey in Khamkeut District, Bolikhamxay Province, Laos from February to April 2013. The human-animal exposure study aimed to provide estimated rates of human exposure to different animals, quantify the risk of emerging infectious diseases, and identify populations or subgroups with particularly high rates of exposure. During this quarter, (b)(6), PREVENT Senior Technical Advisor, began analysis of results of the quantitative survey. In designing the quantitative instruments and methods for this survey, PREVENT took great care to assess the effect of gender and age on exposure to animals, as we hypothesize that men and women have different types or rates of exposure related to

specific gender roles in the society. In each study community, adult women, adult men, boys, and girls were interviewed by both male and female interviewers.

PREVENT developed a Human-Animal-Interface framework to describe the relationship between different transmission routes and human activities (see Box 1). Under the framework, the opportunities for transmission depend on how people interact with animals. The type of exposure can be conditioned by the type of animal and the location in which interactions occur, which are in turn related to human activities. The study quantifies specific types of human exposure to animals (that occur in different locations and in association with different specific human activities) defined by specific transmission routes. What is measured is the frequency of exposure to animals and, to a certain extent, and intensity of exposure (e.g., consumption of cooked animal blood is probably less risky than consumption of raw animal blood). Results of the study will be presented and discussed with EPT partners during a national results dissemination workshop in July 2013 in Laos. Results will help inform the design and implementation of interventions to reduce the risk of transmission of emerging infectious diseases.

Box 1: Human-Animal Interface Assessment Framework



ii. Cambodia

PREVENT and PREDICT (Wildlife Conservation Society) began implementing the human-animal-interface baseline survey in Mondulkiri and Banteay Meanchey provinces in May 2012. The baseline survey began in Preah Vihear in December 2012. To understand how contact with animals might vary by season, the team carried out quarterly follow-up surveys. From August 2012 to April 2013, the team implemented different follow-up surveys in Mondulkiri and Banteay Meanchey successfully. The first follow-up survey in Preah Vihear was implemented in late March 2013. A report of the baseline survey in Mondulkiri and Banteay Meanchey is being drafted and will be circulated as soon as it is finalized. PREVENT Senior Technical Advisor (b)(6) (b)(6) in collaboration with WCS, will analyze the Mondulikiri and Banteay Meanchey follow-up data during the next quarter.

2. Interventions

a. Individual/Community

i. Bangladesh Nipah Intervention

During this quarter, icddr,b and PREVENT conducted a risk-avoidance approach in Rajbari, Bangladesh, aimed at discouraging people from drinking raw date palm sap. To track the effectiveness of this initial behavior change communication (BCC) intervention, a mid-term survey was conducted during May and June 2013. Although the results can only be considered directional, these early results provide encouraging indications that the intervention is successful.

Reported overall raw date palm sap consumption dropped from 42.5% during the previous harvest season to 15.3% in 2013. Among males, it dropped from 48.9% to 13.3%, and among females it dropped from 36.2% to 17.3%. A 12% increase in knowledge about Nipah virus and an 8% decrease in raw date palm sap availability were the main reasons for the reduction in raw date palm sap consumption.

In terms of results from our communication effort, 28% of respondents heard about Nipah from the TV PSA, 22.6% from the posters, and18.6% from community meetings.

(b)(6)

This risk-avoidance BCC effort will continue during the 2013-2014 sap-collection season and final results will be ready by mid-2014. Based on these early results, icddr,b has also authorized the implementation of a parallel risk reduction approach, utilizing a *bana* (cover) to protect the raw date palm sap during collection. This is planned to take place in Faridpur, Bangladesh.

During May-June, PREVENT's BCC Advisor, (b)(6) travelled to Bangladesh to work with icddr,b on the planning of these Nipah virus interventions. While in Bangladesh, (b)(6) attended a workshop on the results of a live bird market intervention conducted by UNICEF. He also attended an EPT partners meeting in preparation for a July meeting with USAID in Dhaka.

(b)(6) also visited Bangladesh and, along with and (b)(6) met with the United Nations Food and Agriculture Organization (FAO) and UNICEF to discuss collaborating efforts on a BCC activity among vendors and consumers in several live bird markets where FAO is working throughout Bangladesh. As a result, an initial draft of a suggested work plan was prepared and it is being submitted to USAID.

(b)(6) and (b)(6), PREVENT Laos, joined (b)(6), PREVENT Indonesia, and (b)(6) AI/EPT Program Officer, USAID Indonesia, on a trip to visit three Healthy Market Initiative markets recommended by SAFE: Pasar Cipanas, Pasar Sukanegara, and Pasar Rajapolah in West Java, Indonesia.

During their visit, the team observed the partnership and collaboration between central and local governments, private sector organizations, NGOs, service providers, community groups and other stakeholders to improve wet and live bird market conditions and create awareness among vendors and market managers of the benefits of complying with poultry biosecurity recommendations, not just in terms of avian influenza prevention but also in terms of increased profits from consumers' preference for cleaner markets. This visit provided some lessons learned that could form the basis for similar approach in Bangladesh and other Asian countries.



A poultry vendor chats with a produce vendor in Pasar Cipanas market in West Java, Indonesia (left)

(b)(6)

(b)(6) *PREVENT Indonesia, talks to Red Cross volunteer at Pasar Rajapolah market in West Java, Indonesia (right)*

B. Market Systems and Trade ("Commerce")

Commerce, as the key driver of conditions that favor potential spillover and spread of wildlife or livestock pathogens, include both local and international market systems for key priority wildlife species (bats, rodents, and non-human primates) and domestic animals (including poultry, pigs, and other livestock). Work by PREVENT during the past quarter to identify and distinguish risky contact, such as in markets and supply chains where large numbers of people and domestic animals come in contact with potentially infectious wild animals, includes the following:

1. *Vietnam Wildlife Farms Biosecurity Assessment*

During this quarter important issues were raised regarding Phase I of PREVENT's planned biosecurity assessment. Due to incomplete and outdated wildlife farm registration lists, Phase I of the study was initially planned as a survey to document the type and number of animals at select farms. The information from Phase I would be used as the basis of the biosecurity assessment sample. At the request of the Vietnam Forestry Administration (VNForest), however, Phase I of the study will now consist of a full wildlife farm registration update. During the next quarter, VNForest, the Department of Livestock Production (DLP), FAO, and PREVENT will work together to begin the wildlife farm registration update. The information gathered during the update will be used as the sampling frame for PREVENT's biosecurity assessment of wildlife farms raising key species: rodents, civets, primates, and wild boars.

a. *Meeting with Regional Officials from VNForest and CITES*

On June 4, 2013, (b)(6) met with (b)(6) of VNForest for Region 3, and (b)(6) of the South for CITES, to discuss cooperation and garner regional support for PREVENT's wildlife farm biosecurity assessment. (b)(6) was appointed by VNForest as PREVENT's focal point of contact for the wildlife farm biosecurity assessment. Two key issues were uncovered during the meeting: unclear management of wildlife farms at the regional level and incomplete wildlife farm registration lists. Addressing these issues will delay implementation of the biosecurity assessment by about six months, but we anticipate acquiring an improved list from which to draw the study sample.

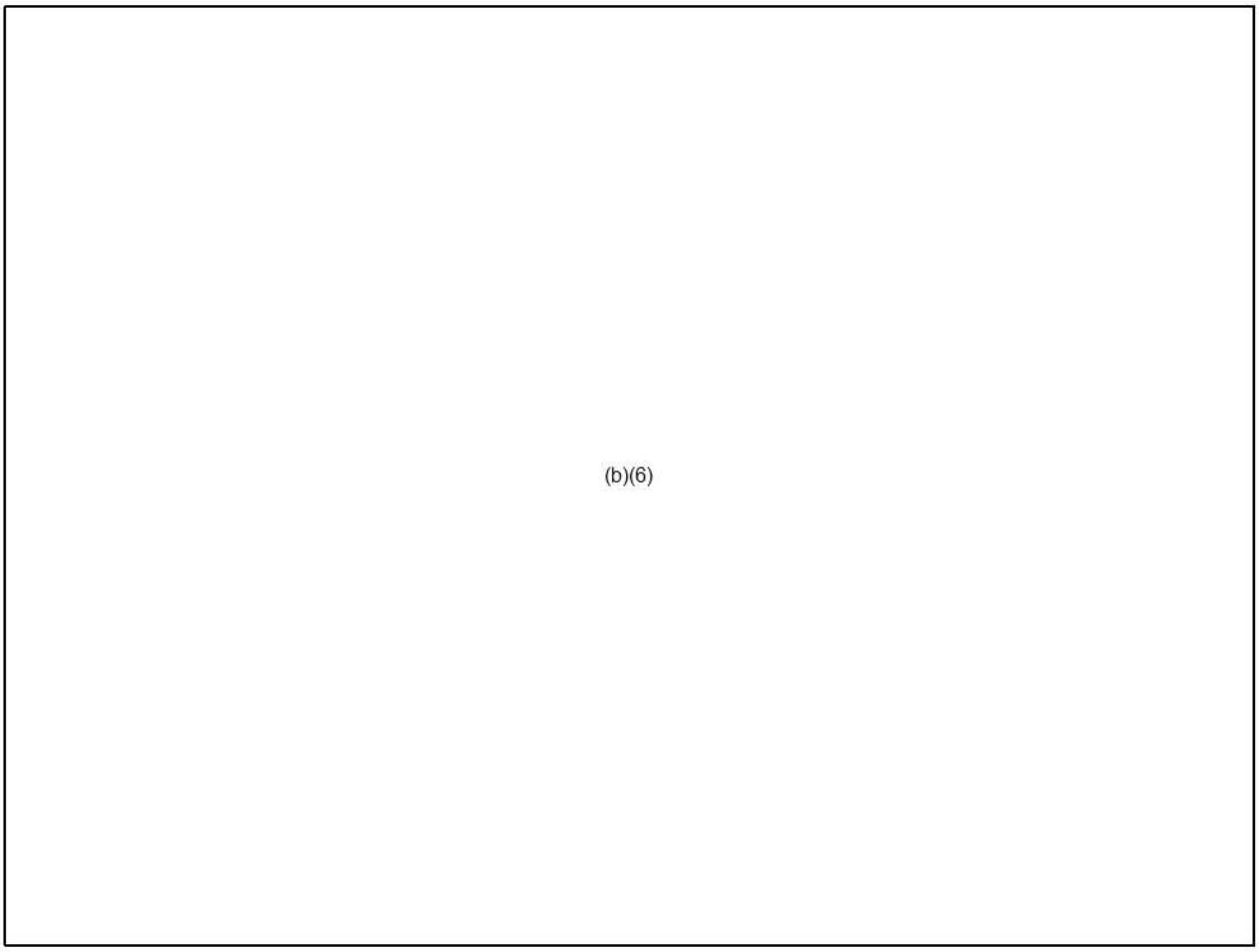
(b)(6) and (b)(6) agreed that management of wildlife farming is unclear at the regional and provincial levels. At the national level, CITES is in charge of wildlife farming and works closely with PREVENT. However, CITES does not have authority within the provinces. Therefore, at the regional level no department is charged with managing wildlife farms. PREVENT will work with both CITES and VNForest at the national level to gain approval for work at the regional and provincial levels.

PREVENT collaborated closely with VNForest to obtain lists of registered wildlife farms in Forestry Region 3 (which includes 22 provinces of southern Vietnam). The intent was to use these lists as the sampling frame for the wildlife farms biosecurity assessment. (b)(6) and (b)(6) contend and PREVENT agrees that the current registration lists are outdated and incomplete. Because PREVENT's intention is to use the lists as a sampling frame for the study, it is in the interest of all three parties to first update the wildlife farm registration data. A follow-up meeting was held June 17, 2012 to determine the feasibility of this request.

At the follow-up meeting, PREVENT T (b)(6) and (b)(6) (b)(6) of CITES, Representative for VNForest, met to discuss the recent proposal to update the wildlife farm registration lists. (b)(6) informed (b)(6) that PREVENT and FAO are interested in supporting the update. Although the details of the collaboration are in the early stages of planning, the hope is that data collection will be complete within six months.

First meeting of the Wildlife Farm Biosecurity Task Force under the Biosecurity Working Group

On June 11, PREVENT, in collaboration with the Department of Livestock Production and FAO, organized the first meeting of the *Wildlife Farming Subgroup* of the *Biosecurity Working Group*. The meeting addressed the assignment of wildlife farming management responsibilities promulgated in Document No. 318/BNN-TCLN, dated 25/01/2013 by the Minister of Agriculture and Rural Development. The objectives of the meeting were to: 1) develop terms of reference for the subgroup; 2) develop a coordination mechanism; and 3) identify priority focus working areas for the subgroup. The participants included representatives from the Department of Livestock Production; Department of Animal Health; the CITES office; FAO; National Institute of Animal Husbandry; Vietnam One Health University Network; USAID-funded projects such as PREVENT, PREDICT, and RESPOND; international wildlife protection organizations such as WCS, TRAFFIC, and International Livestock Research Institute (ILRI); and zoos in Hanoi.



Wildlife Farm Biosecurity Working Group's First Task Force meeting

b. National Conference on One Health

PREVENT also participated in the National Conference on One Health, jointly hosted by the Ministry of Agriculture and Rural Development in cooperation with the Ministry of Health, on April 4-5. (b)(6) (b)(6) Vietnam Program Coordinator, presented PREVENT's Wildlife Farm Biosecurity Assessment activity. His presentation introduced the EPT Program and PREVENT project, the rationale for the wildlife farm biosecurity assessment, the study instruments, and anticipated results. Over 250 participants attended the two-day conference, and represented Government of Vietnam ministries, international agencies, and research organizations.

2. Cross-Border Rat Trade Research

Since the last quarter, the Cross-Border Rodent Trade Study has been modified into smaller, more manageable pieces that will allow for quicker results. As a first step, an exploratory, qualitative study with rat trade dealers in Vietnam will be implemented. The study will profile rat trade dealers, describe the rat trade, and provide information to design a more in-depth study on rat traders' practices and situations that may put them at potential risk of zoonosis from rats.

PREVENT is working closely with Department of Animal Health (DAH) provincial officials to obtain permits required by local authorities to study the rat trade. Although national permits have been obtained by PREVENT, additional permission is required by the provinces. On June 4, 2013 (b)(6) met

with (b)(6) and (b)(6) of the DAH in Ho Chi Minh City to discuss procedures for obtaining permits from provincial authorities of the Peoples Committee. The permitting process will vary by province, but all provinces will require that the permit outline all activities, locations, personnel, and dates of implementation. In addition, the DAH suggests five approval letters that PREVENT should seek and obtain prior to data collection. DAH emphasized their support of PREVENT's studies of the rodent trade and offered to assist in obtaining all necessary permits.

(b)(6) and (b)(6) offered to help identify key informants about the rat trade. They also proposed using DAH Market Veterinary officers to collect information on the quantity of rats in markets. DAH veterinarians visit district- and/or commune-level markets on a daily basis and could collect information on the quantity of rats present according to PREVENT's guidelines. Discussions between PREVENT and DAH on this activity will continue during the next quarter. (b)(6) was appointed as PREVENT's focal point to support implementation of the rodent trade study and to report progress to DAH in Hanoi.

3. Laos Market Working Group

PREVENT hosted and facilitated the Market Working Group meeting and planning session on June 5, 2013. This meeting was designed to: revisit the national market guidelines; discuss the role of the Market Working Group and challenges associated with the implementation of market guidelines; review the role of the Surveillance Rapid Response Team and reporting system and how it can utilize the market monitoring tool; and draw recommendations how to move forward with market monitoring initiatives under the leadership of provincial/district authorities.

Organized by the Department of Communicable Diseases and Control, the meeting was attended by 15 government representatives from Vientiane Capital Agriculture and Forestry; the Vientiane Capital Health Office; the Bureaus of Food and Drug, Industry and Commerce, and Livestock and Fisheries; and the National Center for Laboratory and Epidemiology, Hygiene and Promotion, and Water and Sanitation.

The meeting concluded that the clear involvement of committees from central offices like MAFF, MOH, Trade and Commerce, the Ministry of Environment (wildlife, waste management), Public Works and Transport. At the provincial/district level, the meeting underscored the involvement of the governor's office, environment police, market authority, health departments, agriculture departments, zone development and the village chief.

The meeting participants agreed on the need to focus on dialogue and advocacy to engage local leadership to implement relevant local laws; to prioritize activities that will involve relevant local staff doing surveillance and certification; and to make use of the results of the market observation study to educate local leaders of the situation of markets in their locality.

(b)(6)

Participants brainstorm on sustainable options how market monitoring can be mainstreamed in the work of the surveillance and response team

C. Land-Use Change

PREVENT has identified land-use change, especially large-scale activities such as extractive industry activities in previously pristine areas, as the third key driver of conditions that favor emergence of infectious disease. Unintended consequences of the resulting influx of people and infrastructure development include disruptions to the ecosystem and an increase in interaction between wild animals and people and their livestock and pets. Work by PREVENT during the past quarter to better understand both behavior and practices that might increase the potential that dangerous pathogens will jump from animals to humans in such settings include the following:

1. Extractive Industry Working Group (EIWG)

PREVENT continues to host the Extractive Industries Working Group (EIWG) meetings, although only one phone call was held during the quarter (in April). The group decided to wait until the after the International SOS (ISOS) trip to Katanga to have another call. Several EIWG members discussed how to revise the white paper on extractive industries so it would be appropriate for publication. RESPOND prepared a new shortened draft of the white paper and PREVENT provided substantive comments on this in preparation for sharing it with the larger working group.

Tool Development and Testing

a. Democratic Republic of Congo (Katanga)

In mid-May USAID, ISOS and Chatham House representatives held a "Steering Committee" meeting by phone. USAID was somewhat taken aback by the lack of program clarity expressed by the other members of the team despite the project proposal and the clarifications made during the Cape Town meeting in February. (b)(6) of PREVENT and (b)(6) of RESPOND discussed the issues at length with (b)(6) from ISOS and facilitated a conference call with (b)(6) from USAID who explained again the challenges of working with the U.S. government. (b)(6) agreed to specify further the proposed activities and to develop a timeline in an effort to increase the project's efficiency. PREVENT agreed to change the scope of work for the activity so the full project is included in the sub-agreement to relieve the concern that the whole program had not been approved and signed.

The KDRC project plan was just being finalized and visits to companies were being planned when civil unrest in Katanga erupted and derailed the timing. ISOS is now discussing alternate locations and putting KDRC activities on hold to see whether the civil unrest will diminish in the next few months. PREVENT is prepared to issue a fixed-price contract to ISOS once a new project plan is in place.

b. Uganda

Additional tool testing activities in Uganda are on hold as we wait for the Katanga DRC project to advance. The team is collecting all feedback from reviewers and respondents which will be incorporated into a final version of the tools in the next fiscal year.

2. Scientific Conferences and Papers

International Association of Impact Assessment

PREVENT co-authored the presentation paper and attended the IAIA meeting in Calgary in May 2013. (b)(6) presented the concept of emerging infectious diseases and the associated tools that the EIWG has developed. Although it was the last session on the last day, over 40 people were present and engaged. In particular, participants who conduct health impact assessments were interested in the presentation and the tools. Several people from Worley Parsons, a consulting firm, promised to review

the tools and give feedback, as they saw the usefulness of these tools. Over the course of the week, (b)(6) (b)(6) and (b)(6) sought out others involved in impact assessment and provided copies of the tools and requested feedback. (b)(6) responded with sensible and thought-provoking comments before he returned to the UK.

The networking opportunities were quite good. It was apparent that the IAIA is a conference that is very well attended by multilateral banks. Many people attended from the World Bank, the International Finance Corporation, the Inter-American Development Bank, and the Asian Development Bank. We made several good connections with different people. (b)(6) presented the tools to (b)(6), who is currently heading up the Policy, QA, and KM of Environment, Social and Governance Department at the IFC. He mentioned that extractive industries and emerging infectious diseases might be introduced to IFC and the World Bank at a future IFC brown bag presentation.

Articles and Papers

EcoHealth Alliance developed an editorial on extractive industry and emerging infectious diseases. USAID recommended that this be opened up to other members of the EIWG. PREVENT provided detailed comments on the editorial itself and presented a revised version of the paper.

RESPOND wrote a paper on bat control measures, which PREVENT read and provided extensive comments. RESPOND held a meeting with Bat Conservation International, which is planning a similar paper, along with (b)(6) from the EcoHealth Alliance.

In a meeting with USAID, we discussed developing a roadmap or framework that looks at where we are with extractive industry and helps chart the way forward over the life of the project and beyond.

Chatham House

PREVENT issued a cost-reimbursable contract to Chatham House to support their participation in the KDRC project. While the project is on hold pending civil unrest in the area, USAID has suggested that Chatham House continue to develop the monitoring tools and other activities while the KDRC project is on hold so the team can move quickly once a new location is identified. A revised SOW, approved by USAID, has been provided for guidance.

Under a distinct PREVENT subcontract, USAID requested Chatham House to organize a one-day high-level meeting of strategic international partners on June 11, 2013 in London to discuss the latest threats to Global Health Security, including the (A)H7N9 influenza and the MERS-CoV. This meeting followed a USG Cabinet-level meeting that placed these emergent viral threats onto the agenda of a USG policy focus on Global Health Security. This meeting also raised emergent viral threats to the national security agenda. The USAID appreciation of the PREVENT support to the partner meeting at Chatham House was acknowledged at the EPT Asia Regional Planning Meeting.

Other Extractive Industry Activities

(b)(6) attended a film screening of *Heart of Iron* sponsored by the USAID-funded Africa Biodiversity Collaborative Group (ABCG). The event highlighted a MOU signing between the World Bank and WWF and shared a new film that has been made to inform governments and extractive industry of the possible ecosystem changes and consequences of land use change. While it offered a strong point of view, it was not clear what is needed to mitigate the loss of biodiversity and ecosystem changes.

ABCG also hosted a meeting in mid-June on biodiversity in Kinshasa, DRC, for conservation and extractive industry groups. (b)(6) contacted the meeting organizers; she and (b)(6) arranged for (b)(6) from RESPOND to present the EIWG tools to the meeting. The extractive industries present included Anglo Gold, Tenke Funugrume, and Kilo Gold. Participants were receptive and representatives from World Resources Institute and USAID/CARPE expressed interested in collaborating.

III. Knowledge Generation and Information Sharing

A. Meetings

(b)(6) and (b)(6) participated in the EPT regional planning meeting in Bangkok (June 18-19) as well as the country planning meetings for Vietnam (June 13-14) and Indonesia (June 21-22), where they were joined by the respective country coordinators, (b)(6) and (b)(6) Additional details are below.

1. Work Planning Meetings

EPT/Vietnam FY14 Work Planning Meeting

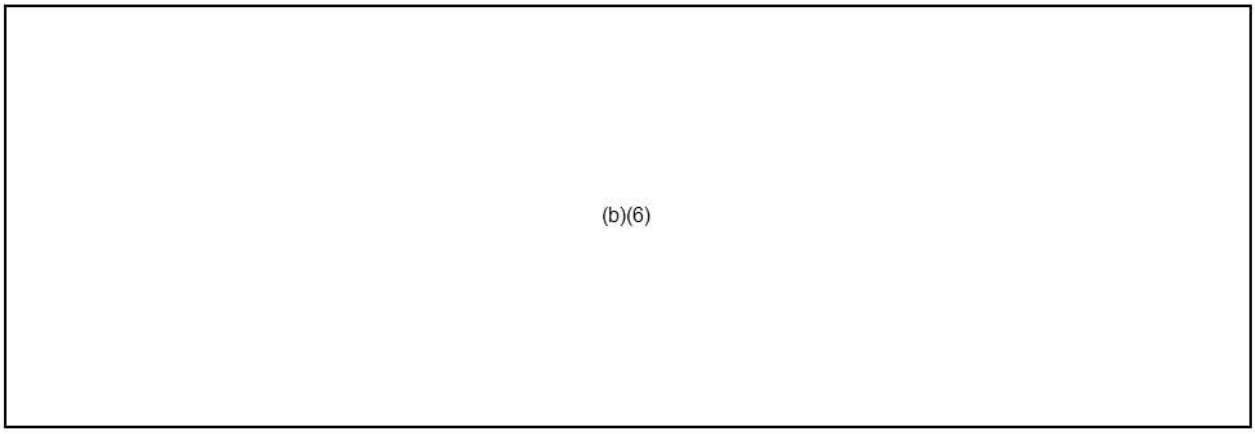
On June 13 and 14 USAID Vietnam held their annual work planning meeting for Year 5 (October 1, 2013-September 30, 2014) of the EPT Program in Vietnam. (b)(6) PREVENT Project Director, (b)(6) PREVENT (b)(6), and (b)(6) PREVENT Program Coordinator, attended as well as representatives from IDENTIFY, PREDICT, and RESPOND. On the second day, GOV partners representing MARD attended, including DAH, DLP, VNForest, and Ministry of Health. The objectives of the meeting were to: 1) review current work plans; 2) introduce Year 5 activities and expected deliverables; 3) identify opportunities to harmonize activities across projects; and 4) identify cooperation and participation opportunities with non-EPT partners. In Year 5, pending approval from USAID and AusAID, PREVENT will continue focus on four activities:

1. *Rodent trade between Vietnam and Cambodia*: Multiple studies will identify the structure and scope of the rat trade, and practices and situations that may contribute to disease emergence, with the ultimate goal of developing a risk reduction strategy.
2. *Wildlife Farms Biosecurity Assessment*: PREVENT will conduct baseline of biosecurity at registered wildlife farms with key species. The information will be used to support the Government of Vietnam in strengthening registration of wildlife farms and will identify strategies to improve farmer biosecurity/good production practices for development and implementation.
3. *Support Biosecurity Working Group Task Force on Wildlife Farm Biosecurity* in collaboration with FAO and DLP.
4. Continue as active and supporting member of the *One Health Communication Network*.

EPT Asia Regional Meeting in Bangkok

PREVENT participated in the EPT Asia Regional Meeting held in Bangkok, Thailand on June 18-19, 2013. PREVENT representatives were (b)(6) Country Coordinator for Lao PDR, PREVENT (b)(6) and PREVENT Project Director (b)(6) Partners and participants shared their understanding of expectations and plans for the final year of the EPT program; provided suggestions for refining proposed final-year EPT partner work plans; and presented their ideas from the field with regard to the sustainability of emerging pandemic threats efforts.

(b)(6) was one of the panelists in a session that discussed the use of data for decision making. Over the years, USAID's EPT and AI programs have generated a significant amount of data (e.g., value chain analyses, epidemiological and genetic studies). The panel addressed the question of whether and how these data have been assisting with actions geared towards mitigation and preparedness.



Indonesia FY14 Work Planning Meeting

(b)(6) and (b)(6) together with PREVENT Country Project Coordinator, (b)(6) attended the EPT Indonesia Work Plan meeting for PREVENT on June 21-22, 2013 in Jakarta. They provided a preview of planned activities for FY14, including:

- Characterizing markets in 10 urban centers;
- Describing the bat value chain and characterize human-bat interaction at a minimum of two points in the value chain: capture and market preparation;
- Building on PREVENT market studies in Cameroon and Laos and draw on lessons learned from the SAFE project; and
- Producing information about key elements of market biosecurity and vendor practices, and monitor the types/numbers of key animals in markets in 10 locations in North Sulawesi.

(b)(6) also provided a presentation about PREVENT's approach to risk mapping, and summarized upcoming activities in Sulawesi.

2. EPT Partnership Meetings

Vietnam

On April 19, 2013, (b)(6) attended an EPT Partnership Meeting organized by USAID in Hanoi. (b)(6) provided an update on PREVENT's activities and discussed future activities and cooperation with EPT partners. The participants of the meeting included the USAID Vietnam team and EPT partners IDENTIFY (FAO and WHO) and PREDICT (WCS). As discussed at the meeting, in the next quarter, PREVENT will continue to: cooperate with VNForest and CITES on the wildlife farming biosecurity assessment activity; cooperate with DAH to coordinate and facilitate the field work of rodent trade; and cooperate with DLP and Food and FAO to support the extension of the Biosecurity Working Group to include a task force on wildlife farming.

Laos

PREVENT participated in the EPT partners' quarterly meeting on April 30, 2013, which was organized by NEIDCO through the Department of Communicable Diseases Control of the Ministry of Health. NEIDCO (b)(6) chaired the meeting with (b)(6) USAID representative in Lao PDR, as co-chair. During the meeting, PREVENT presented its plan to extend technical assistance to the Lao government in reviewing its regular market monitoring needs and possibly revising the current market monitoring checklist (which covers only poultry) so that it becomes a general market monitoring checklist that covers other domestic animals and wildlife. This plan stemmed from a policy brief prepared by PREVENT in collaboration with PREDICT which pointed out the poor biosecurity of markets observed

in a study. PREVENT also expressed its plan to look for opportunities to pilot market working group initiatives that will be sustainable over the long-term.

PREVENT participated in the EPT planning meeting organized by NEIDCO on May 30, 2013. The Department of Animal Health and Livestock (IDENTIFY) and FHI 360 (PREVENT) hosted the meeting. Partners from four EPT components in-country and regional representatives from OIE, FAO, AusAID and USAID were present. The meeting was aimed at presenting project plans for FY14 based on expected results of each component present.

Strategy/Policy Meetings

Technical/Policy Meeting on H7N9 Avian Influenza

(b)(6) attended the "Technical and Policy Discussion on the Prevention and Control of Avian Influenza A (H7N9) in Asia," held in Bangkok, Thailand June 24-25. The first day of the meeting was devoted to a situation update and presentations on lessons learned with regard to targeting animal (poultry) surveillance, controlling the spread in animals, monitoring for the virus in wild birds, improving detection in humans, and communication. (b)(6) PREVENT AOTR, co-wrote the communication presentation with (b)(6) from FAO; PREVENT provided a slide show of communication materials developed for H5N1 that could be updated to cover H7N9 which was shown in a central area throughout the day. The first day closed with presentations from WHO, FAO and OIE of current technical recommendations and guidelines for monitoring and controlling H7N9 in humans and animals. It is clear that if H7N9 returns (as most expect it will) a major challenge will be detecting it, as it is not pathogenic for poultry; chickens are infected but not diseased. There was also reassuring information about the virus with regard to lack of evidence for human-to-human spread.

The second day of the meeting built on the first; participants from different countries were asked to consider the most likely scenarios for detecting H7N9 in their country (unobserved in both poultry and humans; detected in poultry but not humans; detected in humans but not poultry; detected in both, with a low level of infections in humans; or detected in both with a high rate of infection in humans, suggesting person-to-person spread) and then asked to characterize response, considering what the main issues and challenges would be. Interestingly, most country groups decided that they would either not observe the disease or observe it first in poultry.

Then participants were asked to meet in clusters according to their presumed level of risk of introduction of H7N9 (e.g., countries bordering on areas of China that suffered the recent outbreaks are considered high risk). Each cluster was asked to discuss how they could improve surveillance and control; this portion of the exercise culminated in a presentation by each cluster of country and regional challenges. The meeting closed with a consideration of MERS.

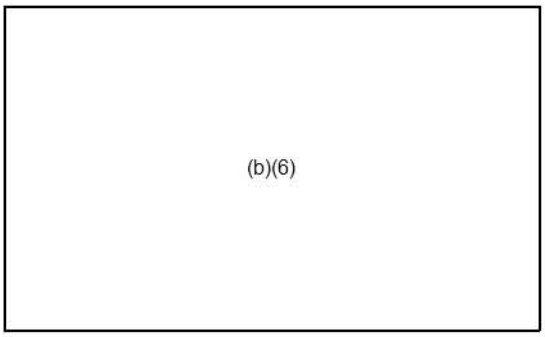
Cambodia

PREVENT participated in Cambodia's strategy formulation workshop held in Phnom Penh on June 24-27, 2013. The workshop was aimed at enhancing a strong collaboration and functional institutional arrangements between the Ministry of Health and the Ministry of Agriculture and Forestry to address the emergence of infectious diseases from animals including wildlife. Results of this workshop provided insights to government partners on what types of assistance they need to implement the strategy in the medium-term and long-term.

The meeting was facilitated by the USAID Mission in Cambodia with the help of an external consultant. The workshop served as venue to achieve agreement on: (1) process, format and content of the strategic plan for endorsement of the two relevant ministries; (2) institutional arrangements to manage and monitor the implementation of the activities proposed to advance the strategic plan in the short- and medium-term; (3) linkages of current public and animal health strategies and initiatives to the zoonotic diseases strategic plan, and on a set of activities to reinforce the existing synergies and linkages; (4) areas of collaboration

and priority diseases as established in the Zoonotic Diseases Strategic Framework of Cambodia; and (5) a work plan to commence a modest implementation of the strategy in January 2014.

From this workshop, PREVENT sees the opportunity to provide assistance to the government in pursuing Cambodia's one-year pilot avian influenza interventions in markets, mentoring/supervision of the previously trained trainers, and other communication-related needs of both ministries on H7N9 and rabies.



The participants of the EID strategy planning workshop

B. Knowledge Products

1. Traditional Communication

Due to the continued cases of H7N9 in China at the beginning of the quarter, USAID asked PREVENT to review materials developed under the AI.COMM, AI-BCC and MID-BCC projects to determine which ones could be most easily adapted to the emerging situation with H7N9. These included a variety of flyers, booklets, training materials, flip charts and other publications related to both H5N1 avian influenza and the H1N1 influenza pandemic. Per USAID guidance, materials that were considered to be most useful in terms of relevance to H7N9 fell into the following categories:

- Marketplace and vendor guidance on safe slaughtering, hygiene in markets, and safe transport
- Guides to culling, vaccination, and compensation of poultry
- Guides for health care workers and administrators on identifying, isolating and treating cases
- Guides for animal health workers
- Materials for the general public on hygiene, health-seeking behavior when certain symptoms are present, and basic practices around poultry.

The goal of this exercise was to have a "tool box" of materials that would be ready for relatively-quick adaptation and dissemination if H7N9 outbreaks continue during the next influenza season, and/or if the situation with the novel coronavirus (MERS-CoV: Middle Eastern Respiratory Syndrome) spreads. Annex 1 includes a table of materials that were deemed useful for adaptation.

PREVENT also searched for products that had already been developed to educate market vendors and the public about the importance of market closure/cleaning, and to educate market vendors and public about sampling/surveillance efforts. PREVENT staff contacted USDA and various researchers experienced in live market sampling and surveillance as part of this effort, and to determine best practices for inclusion in future products and initiatives.

During the quarter, PREVENT submitted three abstracts to the American Society for Tropical Medicine & Hygiene annual meeting:

- Comparative analysis of the social factors that influence exposure to zoonotic diseases in Southeast Asia;
- Characterizing Human Interactions with Peridomestic Rodents in Thailand: A Participatory Rapid Appraisal; and

- Who is at high risk of exposure to an emerging zoonotic disease? An approach to characterizing human-animal exposure in Hmong and Lao ethnic groups in Lao PDR

2. Online and Social Media Development

To facilitate access to previously developed materials that could be adapted to H7N9 avian influenza and MERS-CoV, PREVENT began creating a new section on its website, www.preventproject.org, to house and provide background on relevant products related to avian and pandemic influenzas prevention and control. This new section is expected to be complete in the early part of the next quarter.

PREVENT also continued to disseminate relevant information on emerging infectious diseases – particularly on H7N9 and MERS – via its Twitter account, and updated various online links to previously developed products on H5N1.

IV. Program Expansion

A. Start Up in Additional Countries

1. Indonesia

During this quarter, PREVENT officially launched its work in Indonesia, including training staff in administration and logistics, defining the program scope and work plan, and participating in the EPT Indonesia Planning Meeting.

Program Launch

After meeting with the FHI 360 office in Jakarta and some other partners, beginning in April 2013, PREVENT Indonesia Program Coordinator, (b)(6) met with some key stakeholders in Sulawesi Utara (North Sulawesi) Province, where this project will be focused.

In mid-April, (b)(6) and (b)(6) of PREVENT traveled to Indonesia to initiate the EPT PREVENT program with (b)(6) The program team met in Jakarta to participate in a series of meetings with the relevant country officials and donors. The team also visited the program site in North Sulawesi to scope markets for future activities. Key outcomes from the visit included:

- Participating in more than 15 meetings with USAID, Indonesian government officials, donors, and NGOs;
- Visiting markets in Manado in support of scoping exercises;
- Meeting with other EPT partners and organizations implementing market-based programs in Indonesia;
- Meeting with local project staff for operational and administrative planning; and
- Meeting with FHI 360 staff in Jakarta to discuss logistics and operations.

In Jakarta, the PREVENT Indonesia team met with key officials, including those listed in the table below.

Name	Jakarta Office/Organization
(b)(6)	USAID Jakarta Office
	Ministry of Health Office
	CDC Office
	Ministry of Agriculture FAO Office
	Faculty Of Public Health Universitas Indonesia USAID Prestasi Scholarship Program
	Minister for People Welfare/ National Commission of Zoonotic Control
	Minister of Forestry
	AUSAID/DAFF
	Eijkman Institute
	Bogor Agricultural University/Primate Research Center

Once the team arrived in Manado, meetings were held with government officials in north Sulawesi in addition to university faculty and other partners. These individuals are listed in the table below.

Name	Sulawesi Office/Organization
(b)(6)	Forestry Office North Sulawesi Province
	Livestock and Animal Health Office North Sulawesi Province
	Faculty of Livestock, Samratulangi University PREDICT N. Sulawesi
	Faculty of Public Health, Samratulangi University
	Health Office North Sulawesi Province
	Consultant (former WCS Coordinator)
	Head of Tangkoko National Reserve

During this visit, information about traditional market was gathered to gain an understanding about wildlife availability in markets in North Sulawesi. Several additional visits to those markets have been made in Tomohon Market, Bersehati Market, Airmadidi Market, and Langowan Market.



Figure 1 Frozen bats in Tomohon Market

Based on the meetings held, information shared about the context in north Sulawesi, and market visits, the PREVENT team finalized the scope of the project and developed a short-term budget and work plan.

PREVENT will conduct three main activities: 1) characterize markets in main urban centers; 2) describe the bat value chain; and 3) characterize human-bat interaction at key points in the value chain and identify ways to reduce risk.



Figure 2 Live bat butchering Bersehati Market

Later in May, (b)(6) and (b)(6) visited Indonesia to examine markets that were part of the SAFE Project in West Java Province and focused on community engagement to improve traditional markets. This visit provided some insights for the PREVENT Project, especially with regard to future activities in Indonesia.

In June, at the EPT Country Program Work Planning meeting, communication and coordination between PREDICT Indonesia and the Ministry of Health, Livestock & Agriculture, Forestry and Community Welfare continued. (b)(6) Project (b)(6) and (b)(6) attended the meeting. (b)(6) also worked with (b)(6) to provide technical assistance and training for program implementation and upcoming activities.

After the Country Meeting, (b)(6) traveled to Manado to meet and strengthen relationships with potential project partners at the provincial level, especially the university researchers, for implementing the market value chain analysis. In addition to meetings with the key partners, (b)(6) (b)(6) returned with significant details on the bat meat trade, including recent changes in the harvesting and handling of bats. Separate field notes are on file that will inform upcoming market scoping activities.

Upcoming Activities

PREVENT intends to conduct the following activities in FY2014:

- Characterize markets in 10 urban centers (*see map below*).
- Describe the bat value chain and characterize human-bat interaction at a minimum of two points in the value chain: capture and market preparation.
- Build on PREVENT market studies in Cameroon and Laos and draw on lessons learned from the SAFE project.
- Produce information about key elements of market biosecurity and vendor practices, and monitor the types/numbers of key animals in markets in 10 locations in North Sulawesi.

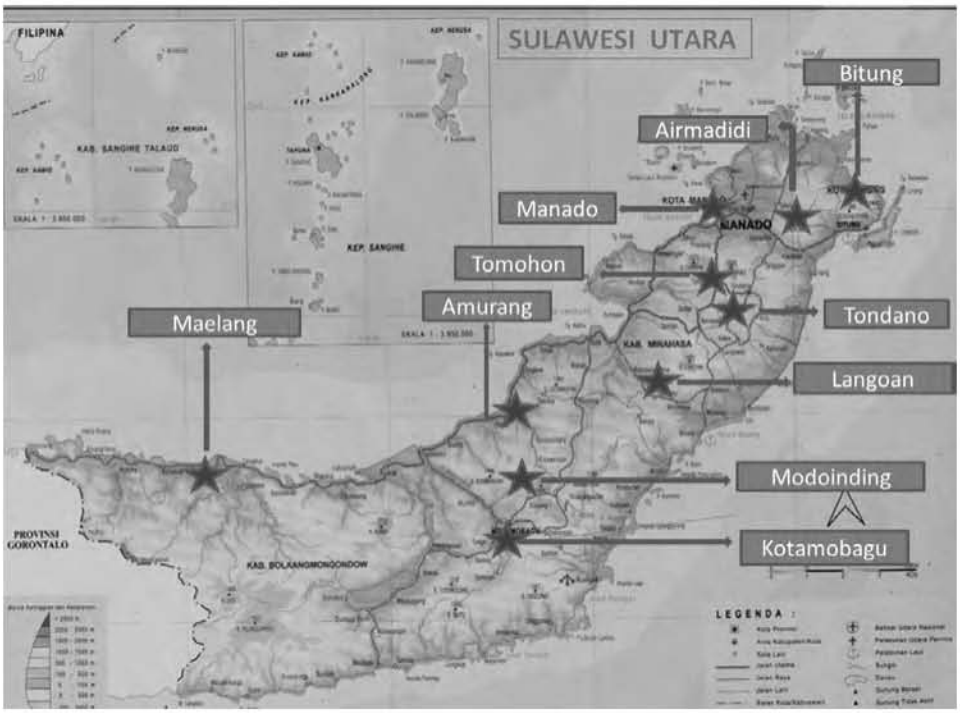




Figure 3 Bats at a supermarket in Manado



Figure 4 Bat cage and freshly killed bats in market



Figure 5 Freshly prepared bat carcasses in market

2. Burma

In April, FHI 360 developed a Plan of Action (POA) and corresponding work plan (WP) for PREVENT in Myanmar. The POA is based on activities identified as a result of the Consultative Workshop on Risk Communication that PREVENT organized on March 28, 2013, at the conference hall of the Livestock and Breeding Veterinary Department (LBVD), Ministry of Livestock and Fisheries, in the Myanmar capital city of NayPyiTaw. The workshop was attended by 20 officials from LBVD NayPyiTaw, Yangon, and Mandalay; three officials from the University of Veterinary Science; four officers from FAO Myanmar; and two consultants from PREVENT. The POA and work plan incorporates inputs from USAID-RDMA, the AusAID Regional Office in Bangkok, and Food and Agriculture Organization (FAO) Myanmar.

The objective of the POA is to strengthen the capacity in Myanmar to prevent and reduce the risk of Highly Pathogenic Avian Influenza (HPAI) in support of the HPAI program of FAO Myanmar. It aims to help achieve the goal of reducing and stopping the spread of H5N1 among poultry flocks, thus reducing the risk of contagion to other mammals and humans, and avoiding the possibility of a pandemic. The POA focuses on capacity building on HPAI and risk communication as priority activities to be undertaken for the first year for four key stakeholder groups: 1) local officials; 2) public and private veterinarians; community animal health workers; 3) small and medium scale poultry farmers; and 4) media. It proposes to cover the five target townships of FAO in the Mandalay Region: Madaya, Pyin Oo Lwin, Amarapura, Sintkaing, and Pyawbwe. A key strategy is mobilization of local NGOs – such as the Myanmar Veterinary Association, Myanmar Livestock Federation and Myanmar Women's Affairs Federation – to implement training activities in collaboration with LBVD. AusAID is providing supplemental funds for work in Myanmar, along with other key Mekong Region countries.

FHI 360 Communication Consultant (b)(6) conducted a field visit to Myanmar from May 8 to 14, 2013. Key results of her visit were:

1. FHI 360 presented the PREVENT Myanmar POA to USAID Burma officials – (b)(6), Office of Health Director, and (b)(6) Health Program Manager – on May 8, 2013 in Yangon. During this meeting, (b)(6) requested PREVENT to include H7N9 in the PREVENT Plan of Action for HPAI, noting that this request emanated from the Ministry of Health. He added that this is a great opportunity to conduct communication activities on H7N9 and grant MOH's request.

2. On May 9, 2013, (b)(6), FHI 360 Local Consultant (b)(6), and FAO Myanmar National Project Manager (b)(6), presented the POA to the LBVD Director General (b)(6) (b)(6) in NayPyiTaw. (b)(6) granted verbal approval to the POA and requested PREVENT to submit the POA along with a cover letter to the Minister of Livestock and Fisheries for formal approval.

On May 14, 2013, PREVENT ((b)(6) and (b)(6)) met with USAID-RDMA Office of Public Health ((b)(6) Regional Emerging Infectious Diseases Advisor; and (b)(6) Regional Animal Health Advisor), and (b)(6) Senior Regional Program Manager, AusAID in Bangkok. (b)(6) (b)(6) gave a debriefing of the key results of her field visit highlighted by the meetings with the LBVD Director and USAID Burma. Regarding incorporation of H7N9 in PREVENT activities, it was decided that since the knowledge base about the risk transmission of H7N9 is still limited, PREVENT needs to proceed with caution. Only relevant H7N9 information will be integrated in the training modules that will be developed for PREVENT.

On June 19, FHI 360 Regional Director (b)(6) sent a formal letter to the Minister of Livestock and Fisheries requesting approval of the PREVENT Myanmar POA and WP, and a corresponding Memorandum of Understanding. As of the end of June, the request for POA approval and the MOU is being processed by the Myanmar government. FHI 360 was informed that there will be an average delay of one month.

Annex I. Inventory of AI Products for Adaptation

Product (Title)	Messages	Use
Slaughtering/Marketplace/Transportation Materials		
Avian Influenza: Safe Slaughtering and Food Prep (in Burmese)	What is avian influenza; keep slaughtering area clean/disinfect; wash/disinfect tools, surfaces used to prepare poultry, properly dispose of waste, monitor your health and visit health facility if you have symptoms and tell them you were in contact with poultry	Created under MID-BCC project for use in Thai/Burma border areas.
Avian Influenza: How to Protect Yourself and Prevent Outbreaks if You Sell Poultry, Other Birds, or Eggs at the Marketplace	How does AI spread; protect yourself by washing hands, don't allow mingling of animals, sell/slaughter only healthy birds, slaughter away from consumers, follow food safety regs, properly dispose of waste and clean/disinfect properly, change clothing/footwear before going home, keep market birds separate from other animals at home; monitor your health and visit health facility if you have symptoms and tell them you were in contact with birds	Created under AI.COMM (2009) and adapted for use in Bangladesh, India, Nepal.
Avian Influenza: How to Protect Yourself When You Slaughter or Prepare Poultry at Home	How does AI spread; protect yourself by slaughtering/selling only healthy poultry, do not slaughter in the open/near people, avoid blood/mucous/droppings, wash/disinfect	Created under AI.COMM (2009) and adapted for use in Bangladesh, India, Nepal.

	surfaces/utensils, proper waste disposal, cook poultry properly, wash hands, separate raw and cooked meat, monitor health/visit health facility if you have symptoms	
Avian Influenza: How to Protect Yourself When You Slaughter or Prepare Poultry (for workers)	How does AI spread; sell/prepare only healthy poultry, slaughter away from open market, use slaughter methods that minimize blood, avoid touching blood/mucous/droppings, keep slaughter area clean, dispose of waste properly, cook poultry meat well, follow good hygiene when preparing poultry for eating, separate raw/cooked poultry, disinfect properly at end of day, monitor health and visit health facility if you have symptoms and tell them you were in contact with poultry	Created under AI.COMM (2009) and adapted for use in Bangladesh, India, Nepal.
Avian Influenza: How to Protect Yourself and Prevent Outbreaks When You Transport Birds	How does AI spread; avoid touching anything in contact with blood/mucous/droppings, wash your hands before/after touching birds, wash/disinfect vehicle properly, follow the law on legal/certified birds/poultry products, don't transport birds from active outbreak areas, monitor your health and visit health facility if you have symptoms and tell them you were in contact with poultry	Created under AI.COMM (2009) and adapted for use in Bangladesh, India, Nepal.

Government Officials		
Bird Culling for Avian (Bird) Influenza Containment: A Guide for Poultry Culling Supervisors	What to do before culling (prepare area, use PPE); culling procedures for small number of birds, culling for large number of birds; what to do after culling (disinfect, dispose of waste, PPE, burning/burying); recommended cleaning methods and disinfectants for various items/locations; what to do if you are burying items; what to do if you are burning items; monitor your health.	Produced by AI.COMM (2007), available in Arabic, English, French, Russian.
Avian Influenza Emergency Risk Communication Guide	Introduction and Part I: Avian Influenza Emergency Risk Communication Planning http://h1n1vax.aed.org/docs/avianriskguide_intro_part1.pdf Part II: Taking Action and Effectively Communicating during and Outbreak http://h1n1vax.aed.org/docs/avianriskguide_part2.pdf	
Bangladesh District and Upazilla Officers Training Guides	Trainer Notes for National Officers to Train District Officers on Avian Influenza (HPAI) Outbreaks Trainer Notes for District Officials to Train Upazilla Officers on Avian Influenza (HPAI) Outbreaks	Used in Bangladesh

	Workbook for Upazilla and District Officers (DRAFT) http://avianflu.aed.org/docs/AI_Bang_District.pdf	
Bringing the Community Together to Plan for Disease Outbreaks and Other Emergencies: A Step-by-Step Guide for Community Leaders	http://avianflu.aed.org/docs/AI.COMM_Together_June09.pdf	Was used in Yemen and Pakistan
Media		
Reporting on Pandemic Influenza: An Orientation for the Media	http://h1n1vax.aed.org/docs/AED_media_workshop_July09_DRAFT_6119.pdf	
AI Media Orientation Guide		
Vets/Animal Health Workers		
Veterinary and Human Health Workers - Interpersonal Skills Curriculum	http://avianflu.aed.org/docs/ipc/AED_IPC_FACI_3DAY_2.pdf http://avianflu.aed.org/docs/ipc/AED_IPC_PART_2.pdf	Developed under AI.COMM
Avian (Bird) Influenza: A Guide for People Who Supervise Poultry Vaccination	What to do before vaccinating (follow health official guidance, coordinate), wear PPE, what to do after you vaccinate (proper sharps disposal, proper cleaning/disinfection, discard PPE, burning/burial of contaminated items, recommended cleaning methods and	Produced by AI.COMM (2007), available in Arabic, English, French, Russian.

	disinfectants for various items/locations; what to do if you are burying items; what to do if you are burning items; monitor your health.	
Human Health Workers		
Avian (Bird) Influenza: A Guide for Health Care Workers	Background on AI transmission; standard and contact precautions (wash hands, use PPE), steps for handwashing, steps for putting on an N-95 mask; airborne precautions (masks, separate sick people); routine hygiene precautions (sharps handling/disposal, cleaning patient care areas, cleaning patient care equipment; monitor your health.	Produced by AI.COMM (2007), available in Arabic, English, French, Russian.
Avian (Bird) Influenza: A Guide for Health Care Administrators	All health facilities should follow standard and contact precautions, airborne precautions, routine hygienic precautions; proper use of PPE; providing visual alerts and guidance to patients; early identification and reporting of possible cases of AI; when to consider AI (symptoms); list of resources on diagnostics, lab tests, transport/handling of specimens; monitor your health.	Produced by AI.COMM (2007), available in Arabic, English, French, Russian.
Pandemic Influenza Counseling Cards for Health Workers and Volunteers		Developed in 2009 under AI.COMM. Available in English, Arabic, Asamese, Bangla, French, Garo, Hindi, Khasi, Portuguese, Russian, Sindhi, Spanish, Swahili, Urdu

H1N1 Products		
Back of the Jeep Half-Day Training on Novel H1N1 Influenza Virus (goes with influenza flyers and flip charts listed below)	Quick training on how to use materials developed for H1N1 pandemic (flip chart, counseling cards, flyers); how to distribute materials; what people should know about H1N1 and how to prevent it.	Developed by H2P/AED during 2009 H1N1 pandemic. Available in English, Hindi, Spanish
Pandemic Influenza Care Flyer	http://h1n1vax.aed.org/nonpharmaceutical/	Developed by H2P/AED during 2009 H1N1 pandemic. Available in English, Asamese, Bangla, Garo, Khasi, Russian, Sindhi, Spanish, Swahili, Thai, Urdu
Pandemic Influenza Flip Chart	http://h1n1vax.aed.org/nonpharmaceutical/	Developed by H2P/AED during 2009 H1N1 pandemic. Available in English, Urdu, French, Hindi, Russian, Sindhi, Spanish, Swahili, Thai
Pandemic Influenza Symptoms Flyer	http://h1n1vax.aed.org/nonpharmaceutical/	Developed by H2P/AED during 2009 H1N1 pandemic. Available in English, Asamese, Bangla, Garo, Hindi, Khasi, Russian, Sindhi, Swahili, Urdu
Poultry Farmers		
Let's Prevent AI and Other Poultry Diseases (flip chart, in Burmese and Lao)	What is AI, how transmitted; prevent AI by cleaning, separating animals; keep poultry healthy by feeding, vaccinating; what to do with sick/dead birds, proper disposal; what happens during an outbreak (culling/disinfection, compensation, surveillance, movement control,	Created under MID-BCC project for use in Thai/Burma border areas. Similar version available in Lao.

	informing public), protect yourself with proper hygiene, distancing; where to go if you need info; what to do if you feel sick.	
Avian (Bird) Influenza - How to Protect Yourself and Your Animals: A Guide for Farmers	What is AI and how it spreads; protect animals by fencing, separating, cleaning/disinfecting, washing footwear, tires, etc.; protect family with hygiene, proper cooking, cleaning/disinfection; what to do if you find dead/sick birds; monitor your health.	Produced by AI.COMM (2007), available in Arabic, English, French, Russian. Adapted in countries including Laos, Cambodia, Vietnam, Indonesia.
Avian (Bird) Influenza - What to Do During an Outbreak: A Guide for Farmers	How to recognize the signs of HPAI; what to do if you find large numbers of dead/sick birds; what to do while waiting for authorities to come; monitor your health.	Produced by AI.COMM (2007), available in Arabic, English, French, & Russian. Adapted in countries including Laos, Cambodia, Vietnam, Indonesia.

PREVENT

Emerging Pandemic Threats

Quarterly Report
July 1– September 30, 2013

Submitted To
The United States Agency for International Development (USAID) and
the Australian Agency for International Development (AusAID)

14 October, 2013

USAID FROM THE AMERICAN PEOPLE

Australian AID

fhi360 THE SCIENCE OF IMPROVING LIVES

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I. Introduction and Highlights

This document describes PREVENT's activities during the period from July 1, 2013 through September 30, 2013. The contents are organized to reflect PREVENT's systematic investigation of the *human-animal interface* using a framework for emergence that examines three drivers:

1. Social customs/preferences, norms ("Culture");
2. Market system and trade ("Commerce"); and
3. Land-use change.

During the July 1 – September 30, 2013 time period, PREVENT:

- Began the first of a series of Participatory Rapid Appraisals that will use community knowledge to identify feasible and acceptable strategies to mitigate the risk of disease exposure in each particular country. The first PRA was conducted in the Muang and Mancha Khiri Districts of Khon Kaen Province in Thailand to examine human interaction with peridomestic rodents.

- Held a research dissemination workshop in Lao PDR and presented key findings from the Laos human-animal exposure quantitative household survey that was conducted in March-April 2013 in Khamkeuth District, Bolikhamxay Province in Lao PDR; a secondary literature review of available resources in Lao PDR that document human exposure to wildlife, particularly to primates, rodents, bats, and civets; and to assess the risk borne by such exposure in terms of emerging zoonoses with pandemic potential; formative research on animal-human exposure, which was the basis for developing the questionnaires for the human-animal exposure quantitative survey in two sites in Bolikhamxay province; and a market observation study in 44 markets in Laos, which showed evidence of risk from animal contact.

- Presented options for technical assistance to the Lao PDR government to improve biosecurity in markets, including assisting provincial and district governments in monitoring market biosecurity and in achieving improved biosecurity actions that are acceptable, doable and practical within the context of markets in Lao PDR (e.g., using a market monitoring checklist).

- Initiating the formative phase of its human-animal study in Uganda by training researchers and launching field activities at the end of the quarter.

- Visited the Republic of Congo to conduct market scoping activities and prepare for upcoming quantitative and qualitative studies in several markets in ROC (Brazzaville and Dolisie) to determine the potential risks related to wild animal meats.

- Conducted a rapid market scoping activity of locations in North Sulawesi, Indonesia, where bats, rodents, and other wild animals are sold.

- Continued preparing for the Human-Animal Exposure Study in the lower Kinabatangan Area in Sabah, Malaysia.

- Planned for the implementation of Phase II of the Nipah virus (NiV) behavior change communication intervention in Bangladesh: a risk avoidance and a risk reduction approach in the districts of Rajbari and Faridpur to help reduce the incidence of NiV cases.

- Continued preparatory work with FAO to conduct activities in live bird markets in Bangladesh, and to begin a Wildlife Farms Biosecurity Assessment in Vietnam, as well as a cross-border assessment of the rat trade between Vietnam and Cambodia.

- Continued to prepare for activities in Burma/Myanmar via a Letter of Agreement between the MLFRD and FHI 360 for implementation of activities.

- Attended remaining work planning meetings in Dhaka, Bangladesh, and Kampala, Uganda, and submitted the PREVENT work plan for FY 2014.

- Created a communication strategy for addressing continuing outbreaks of Middle Eastern Respiratory Virus (MERS-CoV), particularly in light of the upcoming Hajj pilgrimage to Saudi Arabia.

II. Major Programmatic Activities and Results

A. Social Customs/Preferences, Norms ("Culture")

Culture, as a key driver of conditions that favor the emergence and spread of infectious disease, includes the learned attitudes and behaviors that affect how people, pets, livestock and wildlife interact. Work by PREVENT during the past quarter to identify and distinguish high-risk behavior and practices that most commonly result in risky contact between humans and animals includes the following activities:

1. Research

a. Formative research

i. General Human-Animal Exposure (Uganda and Malaysia)

Uganda

In Uganda, PREVENT initiated the formative phase of the human-animal study by training researchers. PREVENT plans to conduct the human–animal exposure study in locations including and immediately bordering the PREDICT sites in Kisoro district with Bakgia and Bafumbira people in their respective languages. The two study areas in Kisoro district are:

- Agricultural areas near the Bwindi Impenetrable Forest (intermediate zone), and
- In and near Kisoro Town Council (disturbed zone).

Because people do not live in the pristine zone (Bwindi Impenetrable Forest), the PREVENT study will not be located there. The following is a description of some of the major activities during this period:

Research ethics

The formative research required ethical approval from an international and local body. PREVENT had received approval from FHI 360's Protection of Human Subjects Committee and still needed to get local approval. During this period, PREVENT submitted a local IRB application to the Makerere University and received approval after addressing questions raised by the committee. Subsequently, PREVENT also received approval from the Uganda National Council of Science and Technology and the President's office to proceed with the study.

Training of research assistants

(b)(6) (PREVENT Scientist), with support from (b)(6) (local PI), (b)(6) (field Supervisor), and (b)(6) (field supervisor) trained 17 research assistants. Three individuals from the One Health Research Institute (funded by the EPT partner program RESPOND) also attended the training for part or all of its duration; the Institute facilitates the practical training of selected individuals in the area of One Health.

The training was 10 days long, between July 29 and August 9, 2013 (five days in Kampala and five days in Kisoro town). The training covered several topics essential to implementation of the study:

- Overview of the rationale, design, and methods of the study;
- Understanding ethical principle and proper implementation of ethical guidelines;
- Understanding the principles of qualitative research and developing the necessary skills;
- Understanding the goals and rationale of each of the tools to be used in the research and developing the skills for quality implementation; and
- Developing other necessary skills including appropriate ways to enter the community, transcriptions, and data entry.

The training was conducted in a very interactive manner, focusing on a thorough understanding of research principles. Training included three days of in-field practice: one day in Kampala and two days in Kisoro district. In addition to developing the knowledge and skill sets to implement the study, the team finalized various components of the research utilizing the local knowledge of the researchers and experiences during the training:

- Feasible and appropriate (for the research) recruitment criteria and strategies
- Best ways to enter the communities
- Best ways to implement some of the research tools
- Translation issues – i.e., the most accurate words to use

Finally, based on language skills (Rukiga and Kifumbira) and performance assessments of the participants over the 10 days of training, 12 trainees were selected as facilitators, note takers or data entry persons. All accepted the invitation to participate. Since IRB approval took longer than anticipated, research assistants received a four-day refresher course at the end of September 2013. Field activities started on September 26 at the Bwindi site.

Coordinating with PREDICT

PREVENT representative, (b)(6) and (b)(6) (local PI) met with (b)(6) PREDICT Project Uganda country coordinator. The three provided project updates and coordinated on sites for the two studies. PREDICT provided PREVENT with a list of villages where they have been conducting surveys so that PREVENT could avoid them and minimize bias.

Human-Animal Exposure Study in the lower Kinabatangan Area, Sabah, Malaysia

In Malaysia, PREVENT has taken important steps towards implementing the human-animal exposure in Kinabatangan District, Sabah State during this quarter. The study will be conducted among inhabitants of villages in Lower Kinabatangan River Basin and migrant workers living and working in palm oil plantations along the river.

The study required ethical approval from an international and local body. PREVENT had received approval from FHI 360's Protection of Human Subjects Committee. During this period, PREVENT hired vendors to translate and back translate consent forms and formative instruments into Malay. The study protocol and the translated documents were submitted for local IRB review and received approval from the Institute of Health Behavioral Research (IHBR) of the Ministry of Health's National Institute of Health

(NIH). Final approval from Malaysia Medical Research Ethics Committee (MREC) is expected to proceed with the study.

In the meantime, PREVENT also issued solicitations for a local principal investigator (PI) and received two submissions. Review for these submissions as well as plans to interview candidates and talk to references is under way. Early in the next quarter, PREVENT plans to hire a local PI and start taking steps to field the formative phase of the study. Research assistants will be hired and stakeholder meetings will be held to develop relationships with the community and to gain approval to enter their community. Stakeholders include representatives from local and state government departments, community members in villages to be surveyed, plantation owners, as well as migrant workers. Pending final IRB approval, PREVENT plans to train researchers and start fielding the study by the end of the next quarter.

ii. Peridomestic Rodents (Thailand)

To date, much of the focus on rodent control and risks posed by rodents in Southeast Asia has been on economic losses and food insecurity as a result of crop destruction. However, rodents are carriers and reservoirs of many bacterial and viral pathogens (e.g., leptospirosis, plague, typhus, hantavirus and Lassa fever virus). Along with bats and non-human primates, rodents are one of the three types of animals that have been most frequently implicated in the transmission of infectious diseases that have had severe impact on humans. Risk behaviors surrounding rodent-human interaction, as well as community perspectives and strategies to mitigate these risks, are not well-documented. To be successful, any intervention strategy must be informed by the perspective, knowledge, skills, and resources of a given community.

A series of Participatory Rapid Appraisals will be conducted in several countries in Southeast Asia, beginning with Thailand. These studies will utilize community knowledge to identify feasible and acceptable strategies to mitigate the risk of exposure in each particular country. The relevance, acceptability, and feasibility of risk mitigation strategies identified through the studies will then be tested in behavioral trials.

The first Participatory Rapid Appraisal was conducted with men, women, and children in the Muang and Mancha Khiri Districts of Khon Kaen Province. Data was collected from June through August 2013. Transcription and translation of data into English was completed in September 2013. (b)(6) (b)(6) and two consultants are now in the process of cleaning and checking translations. Coding of the data will begin in October 2013, and analysis of the data will begin in November 2013. Principal Investigator, (b)(6) will present preliminary findings from the study at the American Society of Tropical Medicine conference in Washington, DC in November 2013 and at the Joint International Tropical Medicine Meeting in Bangkok, Thailand in December 2013.

iii. Republic of Congo

In ROC, Brazzaville is major city where a lot of wildlife is purchased and consumed. A 2008 study of consumers in Brazzaville indicated that 89% purchased and ate bush meat -- particularly ungulates, primates and rodents. Bush meats are an important part of the population's diet and their major source of animal protein, and are almost always sold or bought in market places. To characterize markets as locations where people are exposed to the risk of zoonotic infections, PREVENT will undertake both quantitative and qualitative studies in several markets in ROC (Brazzaville, n=8; Dolisie, n ~ 4) where wild animals are sold live or freshly dead, whole or in pieces.

Initially, PREVENT had planned to conduct market scoping in Ouesso rather than Dolisie. However, after discussion with different key partners and some transportation-related issues, it became evident that a trip to Ouesso was not feasible at the time PREVENT Senior (b)(6) visited. Indeed, the period of his visit to Ouesso coincided with preparations for Independence Day events, when many residents would be travelling and most markets in Ouesso would be closing. Instead, PREVENT's key partners recommended choosing Dolisie, a city halfway between Brazzaville and Pointe Noire, near animal preserves, and likely to be a source of bush meat for both cities.

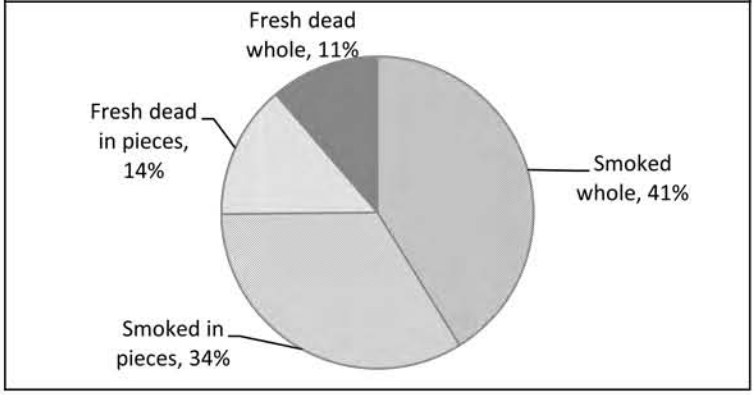
During his visit to Congo Brazzaville for survey preparation and implementation planning, (b)((b)(6) contacted and briefed 14 key government representatives and stakeholders from six different ministries, the United Nations Food and Agriculture Organization, and the World Health Organization. Technical discussions focused on the market management system, the bush meat trade, hygiene and biosecurity practices, national animal health projects and initiatives, and the local IRB process in ROC. (b)(6) also briefed (b)(6) the Economic Advisor at the U.S. Embassy in ROC, on PREVENT's mandate, objectives, and approaches, and specifically on the market study in Congo Brazzaville.

On his way back, (b)(6) stopped at Liege and Gembloux Universities in Belgium and organized a two-day technical meeting with five representatives from the Tropical Veterinary Institute, the Forest Resources and Natural Habitat Management Unit, and the Forest Laboratory. The Belgian team had conducted a market survey at 21 municipal markets (in 2008) and a food consumption survey (2006) in Brazzaville. The technical discussions focused on market monitoring approaches and methods, particularly DNA analysis using Reverse Transcription Polymerase Chain Reaction (RT-PCR) and animal morphologic analysis for animal species identification. The Belgian team expressed their interest in collaborating with PREVENT in implementation of the market study, and will seek funds to recruit a PhD (Belgian) or Masters (Belgian or Congolese) student (s) to be involved in supervisory activities related to the study in early January 2014. They also offered to technically and financially support the collection of animal samples in the markets, as well as the analysis of animal samples using RT-PCR.

During (b)(6) market scoping activity in Brazzaville, he visited all markets at least two times during different days of the week. There were a total of 27 markets in Brazzaville, of which 16 (59%) sell bush meat. One is a permanent night market where freshly dead whole or in-pieces monkey meats were sold. Among those markets selling bush meat, eight potentially have live or freshly dead meat. Interestingly, no market sells live domestic animals. It was reported that animal husbandry activities were abandoned or declined following the turmoil from the civil war. At the same time, domestic animals -- predominantly frozen chicken imported from Europe and beef from South Africa -- were sold in the markets. Within the 16 markets that sell wildlife, a total of 63 of bush meat vendors were counted: 27 men (43%) and 36 women (57%).

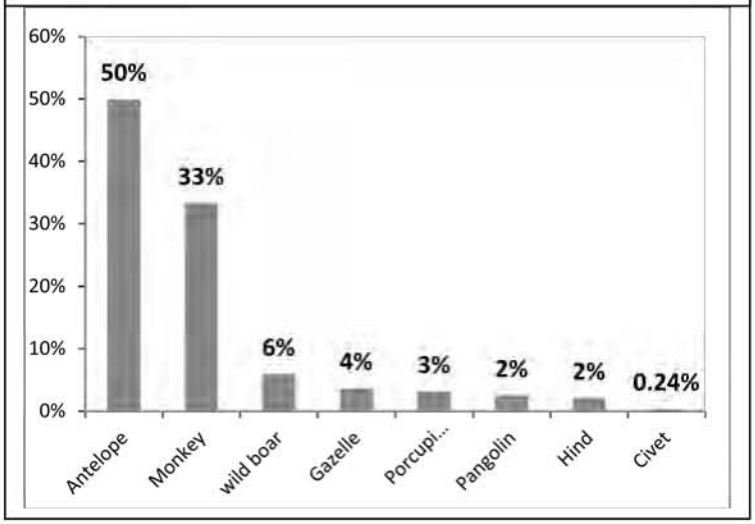
Within the 16 markets, most bush meat (75%) was sold smoked (41% whole and 34% in pieces), while 25% was sold freshly dead (14% in pieces and 11% whole) (see Figure 1).

Figure 1: Percentage of smoked and fresh animal meats sold in the 16 markets of Brazzaville.



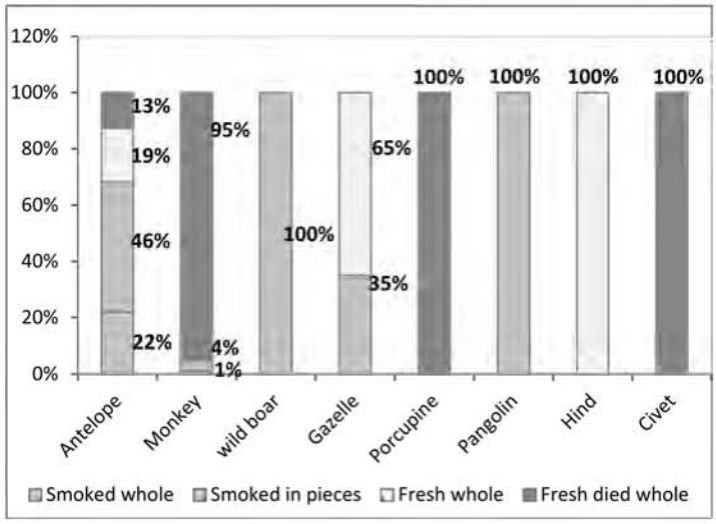
An average of 1,041kg of wild mammals was per sold per day at the 16 markets. The main wild mammal meats sold (according to the average quantity in kg sold per day) were antelope (50%), monkey (33%), wild boar (6%), gazelle (4%), porcupine (3%), pangolin (2%), hind (2%), and civet (< 1%) (see Figure 2).

Figure 2: Percentage (according to the average quantity in kg sold per day) of animal species sold in the 16 markets of Brazzaville



All porcupine and civet meats were sold freshly dead and whole. Among the monkey meats sold, 95% were sold freshly dead and whole, 4% were dried and in-pieces, and 1% were smoked and whole. Almost all ungulate meats were sold smoked and whole or in pieces (see Figure 3).

Figure 3: Percentage of animal species sold fresh or smoked in the 16 markets of Brazzaville.



The duration that animal meats stay in the market is likely a key predictor of the risk of zoonosis transmission. PREVENT has also tested a method for estimating the duration that each animal product stays at the night market. (b)(6) conducted two observations during one day. The first one took place from 17:30PM to 18:30PM and the second one from 21:30PM to 22:30PM. During each observation, he counted the total number of bush meat sellers, the total number of bush meats displayed in the stall or "under" the stalls (usually kept and piled in wheelbarrows near the stall). He also discussed with vendors if additional quantities of animals were delivered in between the two observations. The results showed that 62% of monkey meats stayed in the market for one and a half hours, and 38% for three and a half hours. No porcupine meats were sold during the observation; 47% of porcupine meats stayed in the market for two hours and 53% for three and a half hours.

In addition, results indicated very poor hygiene conditions: there was either dirty tap water or a complete lack of water in the sections where bush meats were sold. Regarding biosecurity practices, the use of protection such as gloves, aprons, and boots by sellers or those who cut bush meats was very low.

b. Surveys

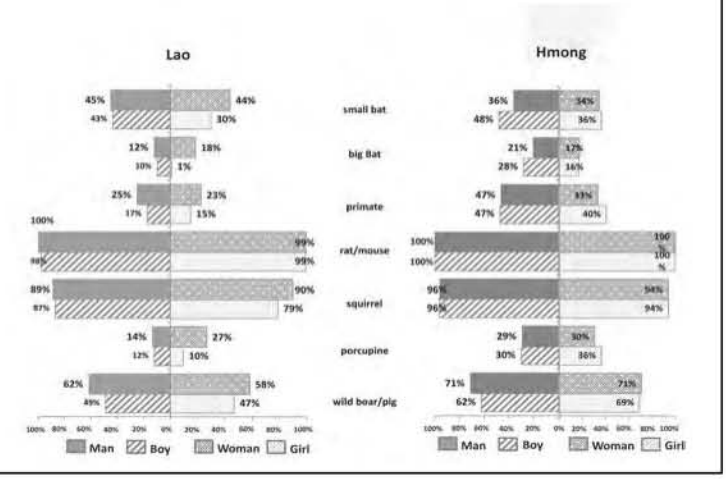
i. Lao PDR

On July 18, 2013, PREVENT, in collaboration with NEIDCO hosted a one-day research dissemination forum to share the findings from four field studies; highlight the implications of the research findings to the government so they can better take action; and encourage continued knowledge sharing and sustained cooperation among partners and stakeholders. The meeting was attended by more than 40 government representatives from four main ministries: health, agriculture, trade and industry, and environment/wildlife and natural resources.

At the forum, (b)(6) presented key findings from the Laos human-animal exposure quantitative household survey that was conducted in March-April 2013 in Khamkeuth District, Bolikhamxay Province in Lao PDR. Key findings include the following:

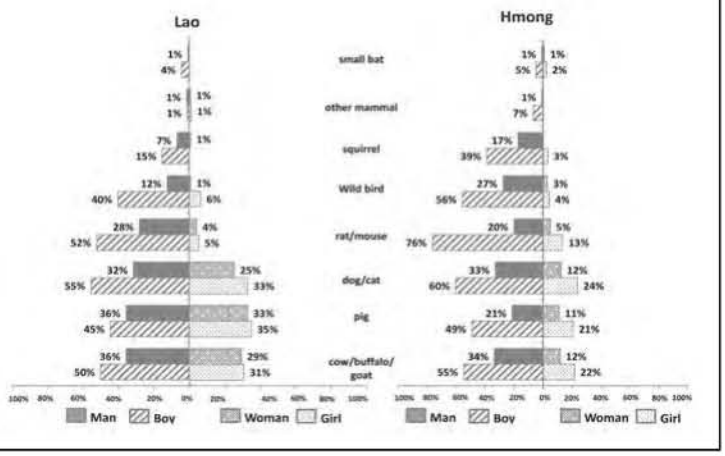
There is nearly universal exposure to domestic animals and rodents by all -- Both Lao and Hmong, male and female, adults and children. Although Lao and Hmong participants reported having similar exposure with small bats, Hmong children reported having more contact with big bats than Lao children. Hmong reported having more contact with primates than Lao. No gender difference was found in contact with primates among both Lao and Hmong participants. In addition, Hmong participants reported more exposure to porcupines and wild boar/pig. (See Figure1.)

Figure 1: Overall exposure to wild animals



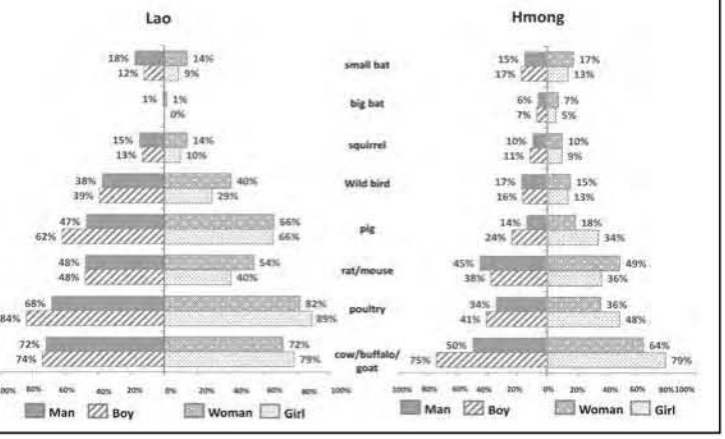
Both Lao and Hmong children (boys and girls) are more exposed to wild animal bites/scratches than adults. Hmong boys (39%) reported more contact with squirrel, wild bird, and rat/mouse bites and scratches than Hmong adults (men 17%, women 0%) and Hmong girls (3%), and than Lao adults and children (men 15%, women and girls 15% or less). Lao and Hmong children reported similar contact with dogs/cats, pigs, and cow/buffalo/goats. (See Figure 2.)

Figure 2: Being bitten or scratched while raising or hunting



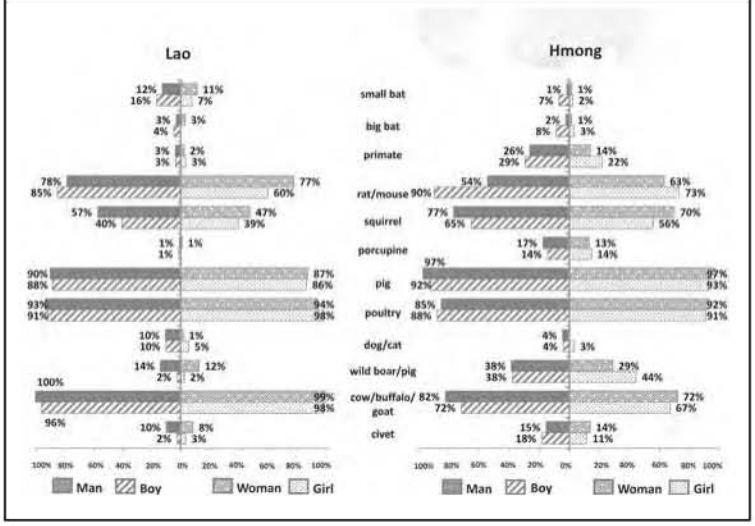
Contact with animal feces (domestic and wild) is an important route of exposure for everyone. Children reported higher contact with cow/buffalo/goat feces and poultry than adults, while adults reported more contact with rat/mouse feces. Lao reported more contact with pig and wild bird feces than Hmong. Lao and Hmong reported having similar contact with small-bat feces. In addition, Lao had higher exposure to wild bird feces than Hmong. Although Hmong adults had more exposure to rats/mice than poultry, Hmong children had more exposure to poultry than rats/mice. (See Figure 3.)

Figure 3: Contact with animal feces (use feces as fertilizer, or finding feces in foods)



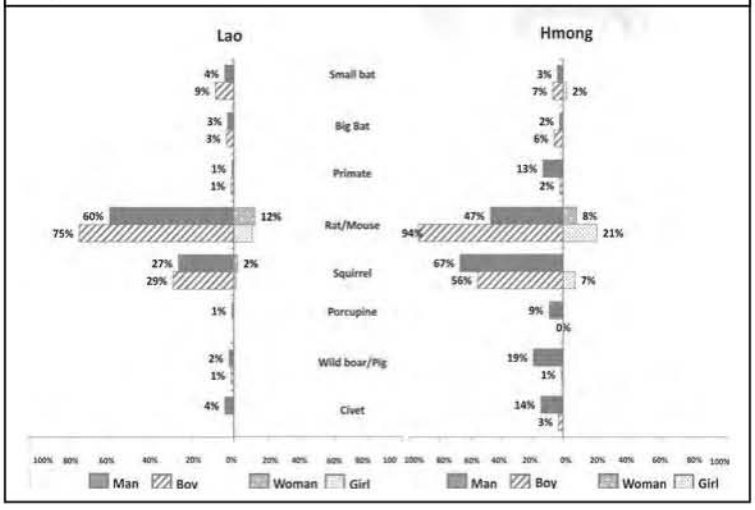
Rodents are an important part of the diet for both Lao and Hmong. More than 60% reported consuming rodents. Primates (more than 20% of Hmong vs. 3% of Lao reported consuming primates) and wild boar/pig (more than 30% Hmong vs.14% of Lao reported consuming wild boar) have an important place in Hmong diet. Conversely, Lao reported having more contact with small bats than Hmong (e.g., about 11% of Lao adults vs.1% of Hmong adults). Hmong girls (44%) reported consuming more wild boar/pig than Hmong women (29%). Hmong reported more contact with civets than Lao. Hmong (more than 14%) reported consuming more porcupines than Lao (1%). (See Figure 4.)

Figure 4: Animals consumed



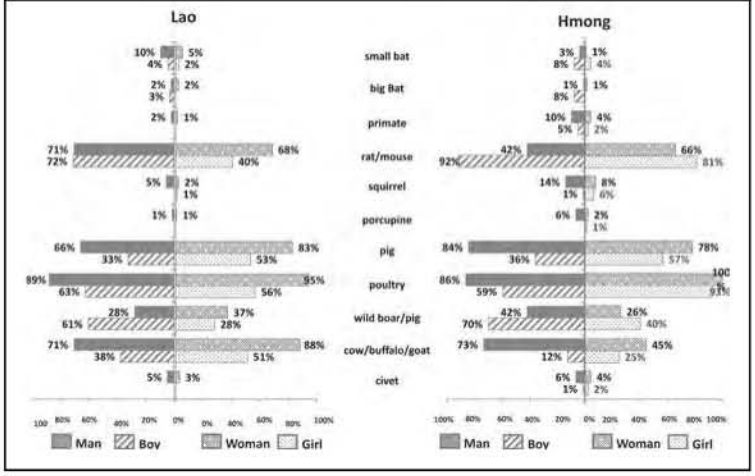
Hunting puts men and boys at higher exposure with animals than women. Overall, men and boys reported higher contact with rodents, primates, wild boar/pigs (especially men) than women and girls (higher for Hmong than Lao). Hmong men reported having more contact with primates, porcupines, wild boar/pigs, and civets than Lao men and boys and Hmong boys. In addition, Hmong men are more exposed to primates, wild boar/pigs, and civets than Hmong boys and Lao men and boys while hunting animals. Although men hunt more large animals (e.g., primates, wild boars), boys hunt more small animals (e.g., rats, bats). (See Figure 5.)

Figure 5: Animals hunted



Women and girls are just as exposed as men and boys during slaughter, butchering, and preparation of either wild or domestic animals. (See Figure 6)

Figure 6: Animals prepared



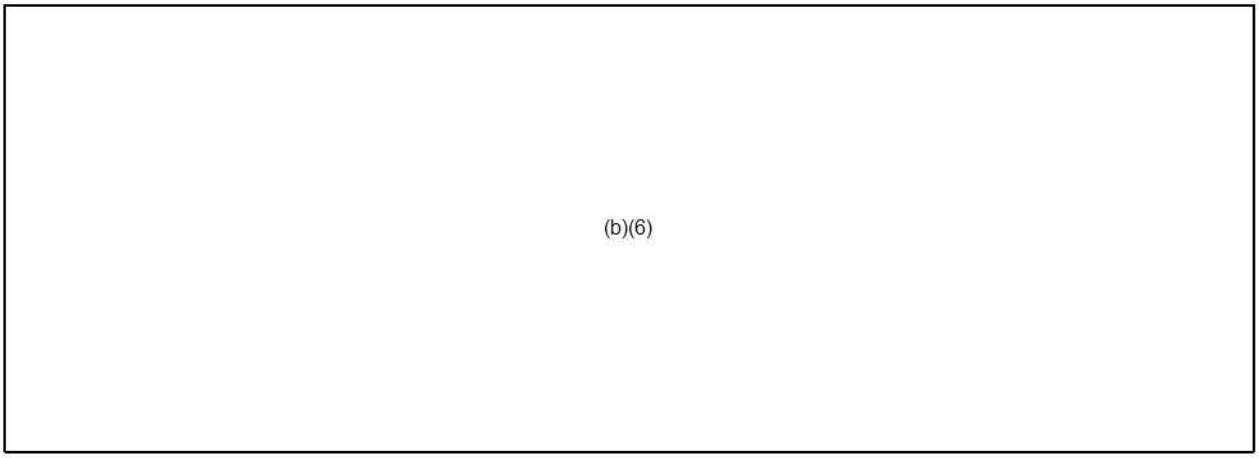
2. Interventions

a. Individual/Community

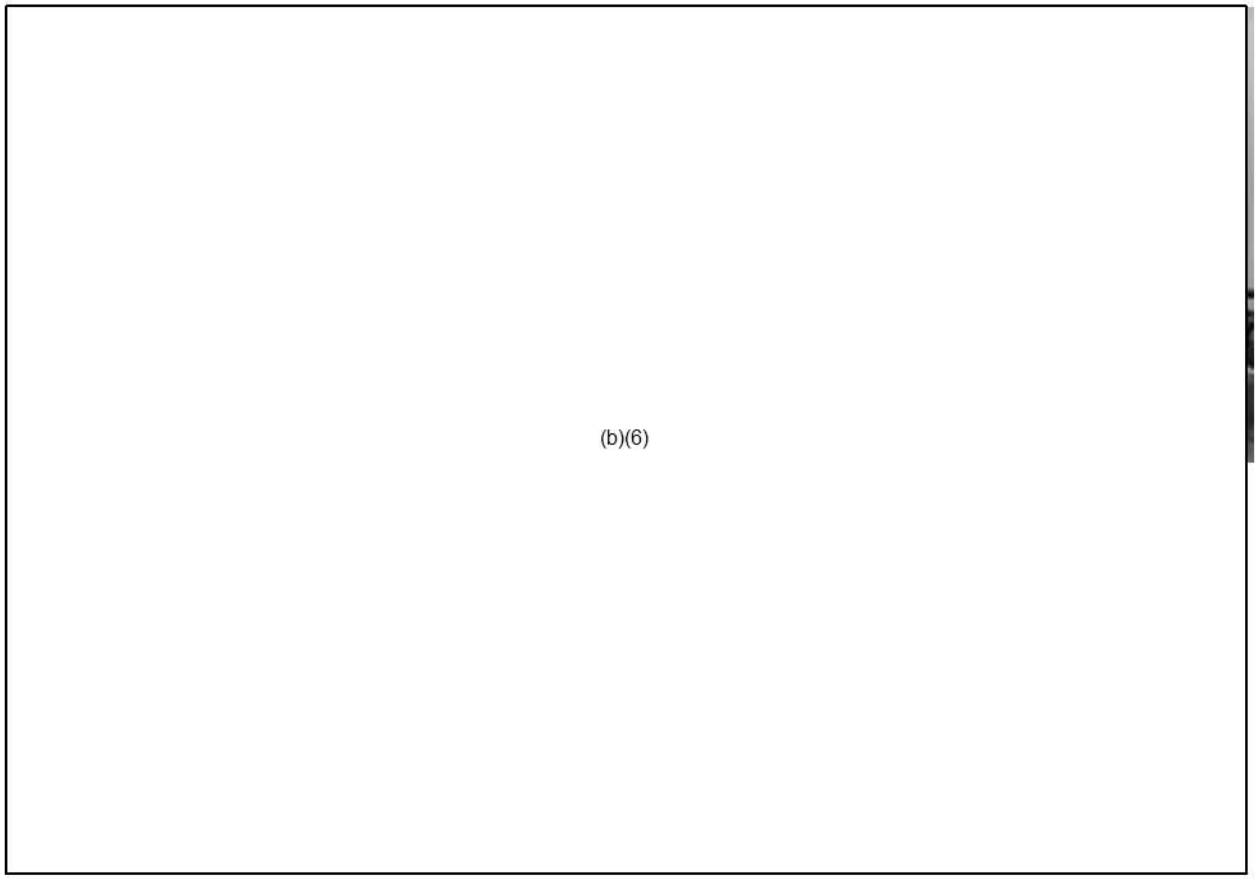
i. Bangladesh Nipah Intervention

PREVENT (b)(6) and PREVENT Communication Specialist (b)(6) (b)(6) participated in planning sessions with iccdr,b personnel to prepare for the implementation of Phase II of the Nipah virus (NiV) behavior change communication intervention. Phase II consists of an avoidance and a risk reduction approach in the districts of Rajbari and Faridpur to help reduce the incidence of NiV cases.

On July 18, 2013 (b)(6) and (b)(6) attended and made presentations as part of a "Workshop on Communication Message Development to Prevent Nipah Transmission Through Date Palm Sap in Bangladesh," organized by icddr,b and EIDCR. During the workshop the participants agreed on the official messages to be disseminated as part of the NiV risk reduction intervention that will take place in Faridpur district during the upcoming sap collection season.



NiV Communication Workshop



(b)(6) held several follow-up meetings with government officials from EIDCR to discuss the results of the NiV Communication Workshop, implementation plans for the NiV intervention, and an approval process for the materials and logistics involved during the upcoming sap collection season.

During his trip, (b)(6) along with icddr,b personnel, traveled to the Faridpur district several times to identify NGOs that could work as partners on the NiV intervention in the district. During their visits, the team identified and interviewed TV operators in the area. Some potential logistical issues where identified and a recommendation to expand the intervention area to adjacent villages while reducing the number of villages in the original intervention area was approved by the team in charge of the NiV intervention.



Elephant toll – During one of the visits to the Faridpur area, the team encountered this child and his elephant in the middle of the road. They make a living by charging a toll to cars that pass by them, otherwise the child will guide the elephant in the way of those who do not pay. The back leg of the elephant shows the results of one of those incidents.

On August 19, 2013 (b)(6) and the icddr,b team made a presentation to the four Faridpur NGOs interested in submitting bids for the upcoming NiV intervention. During this presentation, the team explained the logistics of the Rajbari intervention that took place during the previous sap collection season and clarified doubts regarding the upcoming Faridpur intervention.

(b)(6)

(b)(6) also had several meetings with FAO personnel to agree on the markets and on an initial action plan for the upcoming live bird markets (LBMs) intervention for the 2014 FY. The initial work plan concentrates on the six new markets where FAO will be conducting renovations and a BCC intervention. Those markets are located in Chittagong, Naoagon, Natore, Jhenaidah, Sylhet and Comilla.

In preparation for the intervention, (b)(6) and the icddr,b team worked with Unitrend, the communication company in charge of producing the NiV materials, in the revision and development of the communication materials to be used in the upcoming NiV interventions. These materials are in the process of being pre-tested with consumers in the intervention area.

(b)(6)



A TV public service announcement featuring the use of a bana (skirt) to prevent bats from contaminating date palm sap is one of the communication materials tested



"To Protect Your Family From Nipah Disease Do Not Drink Raw Date Palm Sap, If You Do, Drink Bana Protected Sap"

Official message featured in this NiV prevention poster

ii. Burma/Myanmar

During this quarter, PREVENT Myanmar followed up to the government response to FHI 360's June 19, 2013 letter to the Minister of Livestock, Fisheries and Rural Development (MLFRD) requesting approval of the PREVENT Myanmar Plan of Action and work plan, and a corresponding Memorandum of Understanding for the Plan's implementation. In mid-September, the MLFRD's Livestock Breeding and Veterinary Department (LBVD) informed the Country Coordinator to move ahead with preparing the draft of a Letter of Agreement (LOA) between the MLFRD and FHI 360 for implementation of activities the first year of PREVENT. The Director for Administrative Division of LBVD sent a sample LOA by email on September 14 that was signed between LBVD and another implementing partner. PREVENT prepared a draft of the PREVENT Myanmar LOA and sent it to LBVD and FAO for comments on September 26. As of end September, FHI 360 is awaiting comments on the LOA draft in order to finalize it. The LOA is expected to be approved and signed in October 2013. The PREVENT work plan timeline has been re-scheduled for October 2013 to September 2014.

3. Meetings

a. Laos

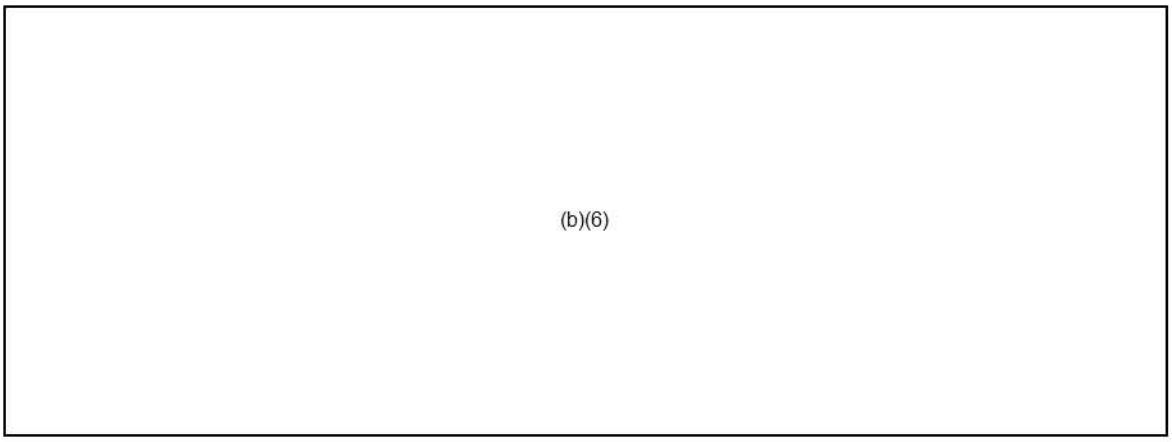
In addition to the animal-human exposure quantitative survey noted earlier, PREVENT staff also used the opportunity of the July 2013 Research Dissemination Forum to present the highlights of the following activities:

(1) A secondary literature review of available resources in Lao PDR that document human exposure to wildlife, particularly to primates, rodents, bats, and civets; and to assess the risk borne by such exposure in terms of emerging zoonoses with pandemic potential. The review showed that while wildlife exposure to humans has been extensively investigated, mainly by wildlife and nature conservation agencies, the opposite (i.e., exposure to wildlife) has been hardly documented.

(2) Formative research on animal-human exposure, which was the basis for developing the questionnaires for the human-animal exposure quantitative survey in two sites in Bolikhamxay province; and

(3) A market observation study in 44 markets in Laos, which showed evidence of risk from animal contact.

The study confirmed that small wild animals are commonly sold in the market: rodents, bats, non-human primates, and civets are sold alive and freshly dead. The study revealed that market biosecurity in general is poor. This situation heightens concern about the potential health risks posed to humans and livestock in certain markets in Lao PDR, and led to PREVENT beginning to provide technical assistance to select local governments/districts to monitor market biosecurity.



As a result of the research dissemination forum, PREVENT proposed to conduct a Participatory Rapid Appraisal of approaches to reduce human exposure to bats and rodents. It is hoped that this appraisal will provide a basic framework for bat/rodent risk mitigation strategies, as well as expand knowledge and understanding of the local context surrounding human contact with bats and rodents. This basic research is needed to develop feasible, acceptable, and effective interventions.

B. Market Systems and Trade ("Commerce")

Commerce, as the key driver of conditions that favor potential spillover and spread of wildlife or livestock pathogens, include both local and international market systems for key priority wildlife species—bats, rodents, and non-human primates—and domestic animals—including poultry, pigs, and other livestock. Work by PREVENT during the past quarter to identify and distinguish risky contact, such as in markets and supply chains where large numbers of people and domestic animals come in contact with potentially infectious wild animals, includes the following.

1. Research

a. Vietnam Wildlife Farms Biosecurity Assessment and Meeting

As a first step in strengthening wildlife farm management, a pilot national wildlife farm registration census will be undertaken by the Government of Vietnam (GOV), supported by PREVENT in partnership with the Food and Agriculture Organization of the United Nations (FAO). At registered and unregistered farms, the pilot study will collect information on: 1) the type and number of domestic and wild species; 2) the location of the farm, using both addresses and GPS coordinates; and 3) the name and contact information of each farm owner. Results from the census will be used as a sampling frame for the Wildlife Farm Biosecurity Assessment.

The evolution of this activity last quarter required that this quarter a partnership be developed with FAO, which will oversee the implementation of the census and new approvals to be sought at all levels of government: FAO can supplement government salaries; under USAID regulations, PREVENT cannot. In addition, FAO is ideally situated to be able to collaborate with GOV in following up on the results of the pilot. (b)(6) and (b)(6) met with FAO to work out the details of a working agreement and budget between the two organizations on September 9, 2013. A working agreement and budget approved by FHI 360 contracts office is with FAO for approval.

Next quarter, pending the working agreement is signed by FAO and government approvals are obtained the census will begin in 11 target provinces and HCMC within Forestry Region III in the Southern Vietnam. In addition, PREVENT will begin recruitment for research staff for the wildlife farm biosecurity assessment next quarter.

Registration data collected to plan for the wildlife farm biosecurity assessment had only been collected for Region III. To better understand the national distribution of wildlife farms, PREVENT met with VNForest officials from Region I & II this quarter. From July 31 – August 2, 2013, (b)(6) PREVENT Program Coordinator, and (b)(6) of CITES, visited Vietnam Administration of Forestry (VNForest) Regional Offices I & II (North and Central) to learn about wildlife farming in their regions. According to the data reported by regional offices, there are a total of 2,909,724 wild animals with 5,831 registered farms in the Northern Region, and 98,533 animals with 1,030 registered farms in Central Region of Vietnam. Data on the types of animals available may be forthcoming.

b. Cross-Border Rat Trade Research (Vietnam)

During this quarter, PREVENT, in collaboration with Department of Animal Health (DAH) in the South, identified the types and numbers of the markets in the Mekong Delta Region for conducting the rat price and quantity monitoring study proposed by DAH last quarter.

From September 11-13, 2013 , (b)(6) PREVENT Program Coordinator and (b)(6) (b)(6) of DAH office in the South, accompanied Senior Program Officer, (b)(6) from HQ to work with DAH in Can Tho to determine the feasibility of the proposed price and quantity monitoring study.

In Can Tho, the team met with: (i) Leaders of DAH in Can Tho province to discuss on support for the rodent trade studies, and (ii) DAH Veterinary officers from the District and Commune to discuss the approach and instrument for data collection to implement the price and quantity monitoring study. PREVENT in collaboration with DAH determined it is feasible to implement the rat trade quantity and price through the mobile SMS system in selected provinces in the South of Vietnam.

c. Market Scoping in Indonesia

Changes in human demographics, behaviors, and land use, among other factors, contribute to the emergence of new diseases by bringing people into closer and more frequent contact with pathogens from animals and plants. Because behaviors are at the center of all of these dynamics, PREVENT applies a social and behavior change communication approach to develop and introduce interventions to prevent the emergence and spread of zoonotic diseases. PREVENT launched activities in Sulawesi Utara (North Sulawesi) due to the high rate of rodent and bats consumption, a potentially risky behavior for disease emergence.

Specifically, the PREVENT program will focus on market locations where bats, rodents, and other wild animals are sold. Markets that sell wild animals may expose human populations to emerging diseases. PREVENT is examining both the demand and supply sides of trade in wild animals and wild animal meat.

As a first step in understanding the supply side of the equation, PREVENT Country Coordinator (b)(6) (b)(6) conducted a rapid market scoping of 24 markets in urban and peri-urban areas of 10 towns. A market scoping is a quick, one-time visit to a market to obtain information about the number of vendors, availability of wildlife and domestic animals/meat for sale, and basic observational information about market biosecurity. Information collected during the market scoping will be used to plan for and execute the planned market monitoring activity.

The market scoping ended on the last day of this quarter, thus limiting time for analysis for this report. However, a summary of some interesting findings are provided below and will be confirmed and expanded in a market scoping summary report in the next quarter.

The markets visited as part of the market scoping range significantly in size, from 30 vendors to over 600. In nearly all markets it was common to find bats, rats, wild pigs, dogs, and domestic animals on a daily

basis. It is rare for a market to sell primates on a daily basis but many markets had the option to pre-order primates. In some towns, such as Tondano, and Modoinding, wildlife was available in the urban markets; however, the peri-urban markets often did not have wildlife. In personal conversations, we found that hunters make direct sales to end consumers in these places, keeping wildlife out of the village market. Markets in Tomohon, Langowan, Modoinding, and Manado had a significant number of bats for sale (further examination of the number of bats by market will be available next quarter).

Despite having scheduled cleaning at most markets, nearly all markets had visible blood, entrails, and standing water on the ground. The availability of running water and access to water by vendors varied between the markets. Although it appears that some markets practice zoning, it was not widely practiced by the markets visited during the scoping.

Often wildlife vendors sell multiple species of animals (wildlife or domestic) or other food products such as fruit and vegetables. Examples of such combinations recorded were bats and wild or domestic pigs, bats and rats, and bats and fruit. Animals were sold in many different forms including smoked, frozen, live, in parts, and whole freshly dead.

Prices varied by market; an in-depth examination of price data will be available next quarter. Most markets sold bats and rats by the animal while wild pig and primates seem to be more commonly sold by the kilogram or part.

In planning for the market characterization study, it is important to note that many of the markets are managed by government officials. Cell phone service is available with a “good or excellent” signal at nearly all markets, making SMS data reporting during the market characterization a viable option. In all markets the majority of wildlife vendors were male.

In addition to market scoping, PREVENT also will work in North Sulawesi, Indonesia to describe the bat value chain; and characterize human-bat interaction at key points in the value chain to help identify ways to reduce risk.

Photos from the market scoping activities are on the following pages.



This vendor in Modoinding Market specializes in selling four species of bats. The vendor sells between 800 and 1,000 every day the market is open.



A butchering section seen during the market scoping at Langowan Baru market



Langowan Baru Market's Wild Animal Meat Section



Modoinding Market: Medium size bats were only available for sale in one market during scoping visits.



Bat, rat, and wild pig sold in combination at a vendor table in Amurang Market



Typical transport vehicle in North Sulawesi for wild/domestic animals, both live and dead



Snake, Wild Pig, and Wild Cow (Anoa, Bubalus Quarlesi) on one vendor table in Modoinding Market



This is the common type of floor in the wild meat sections of most markets; this photo is from Modoinding Market



The live domestic and sometimes wild animal market at Ibolian Market



Transaction between vendor and customer

2. Interventions

a. Laos Biosecure Markets Activities

PREVENT in collaboration with PREDICT/Wildlife Conservation Society conducted market observation research in 44 markets in Lao PDR. Findings from the market study revealed that market biosecurity is generally poor. Based on results from the study, PREVENT presented the government and other stakeholders with a list of implications relevant to the high-risk of transmission from emerging zoonotic diseases. The risk comes from both domestic animals (poultry) and wildlife.

Based on the government's and WHO guidelines for poultry market biosecurity developed in 2008, PREVENT will provide technical assistance to assist provincial and district governments in monitoring market biosecurity and in achieving improved biosecurity actions that are acceptable, doable and practical within the context of markets in Lao PDR.

PREVENT's technical assistance will focus on assisting local/district market stakeholders in using a market monitoring checklist. The checklist will be formulated in harmony with existing WHO market guidelines and Trade and Industry's market decrees.

In August 2013, PREVENT staff met with government partners to review a draft monitoring checklist for improved market biosecurity. The monitoring checklist was updated from the previous version to cover main market elements, such as zoning and hygiene, and expanded to include all animals/meat sold in markets instead of only poultry. From the meetings and visits to two markets, a revised draft of the checklist was shared with stakeholders, including the Provincial Health Department of Vientiane Capital, for review and comment.

To plan for the next steps in the market monitoring activity, a stakeholder engagement meeting is being planned for the week of October 7 in Vientiane Capital and Vang Vieng Province.

Also during this month, PREVENT researcher (b)(6) went to Laos to assist the government in fine tuning the market monitoring checklist that was previously used by the government under its avian influenza program. As part of PREVENT's work plan for FY14, the project will provide assistance in helping market administrators and other market stakeholders in sustaining market biosecurity.



Dead monkey sold in one of the markets in Lao PDR along with other forest products.

C. Land-Use Change

PREVENT has identified land-use change, especially large-scale activities such as extractive industry activities in previously pristine areas, as the third key driver of conditions that favor emergence of infectious disease. Unintended consequences of the resulting influx of people and infrastructure development include disruptions to the ecosystem and an increase in interaction between wild animals and people and their livestock and pets. Work by PREVENT during the past quarter to better understand both behavior and practices that might increase the potential that dangerous pathogens will jump from animals to humans in such settings include the following:

1. Extractive Industry Working Group (EIWG)

This quarter was slow for extractive industry activities. An update phone call with the Extractive Industries Working Group (EIWG) was held in August.

2. Tool Development and Testing

Although we planned to test the tools in the DRC in collaboration with International SOS and Chatham House, the security situation in the Katanga Province prevented any group from pursuing this activity. RESPOND has talked with Metabiota, which is working with one mining company in Orientale province, DRC. We will pursue this avenue early in FY14.

USAID's (b)(6) and RESPOND's (b)(6) attended the Houston Health Forum, which consisted of members of the oil and gas community. Results from networking with different stakeholders may offer potential new sites that could be explored.

In September 2013, (b)(6) from the IFC responded and PREVENT's (b)(6) will pursue this link to set up a meeting with IFC for PREVENT, RESPOND and USAID in early FY14.

Articles and Papers

At the request of USAID, PREVENT and RESPOND put together a list of presentations and publications that have been prepared and disseminated. PREVENT also put together an Extractive Industry Brief that highlights the EI objectives for the coming year and outlines the proposed activities.

We have begun developing a roadmap or framework that looks at where we are with extractive industry and helps chart the way forward over the life of the project and beyond. This will continue over the next quarter.

Katanga Democratic Republic of Congo (KDRC) Project

The security situation in Katanga is still insecure and all signs indicate that this will not be a viable area for a project. ISOS has told USAID that it is looking for a different area. ISOS also is discussing how to engage the Africa-Australia Mining Information Group (AAMIG) in finding a different location.

Chatham House

All the staff working on the extractive industry activity at Chatham House have left the organization. Chatham House is discussing with USAID and FHI 360 the nature of their continuing relationship.

III. Knowledge Generation and Information Sharing

A. Meetings

1. Work Planning Meetings

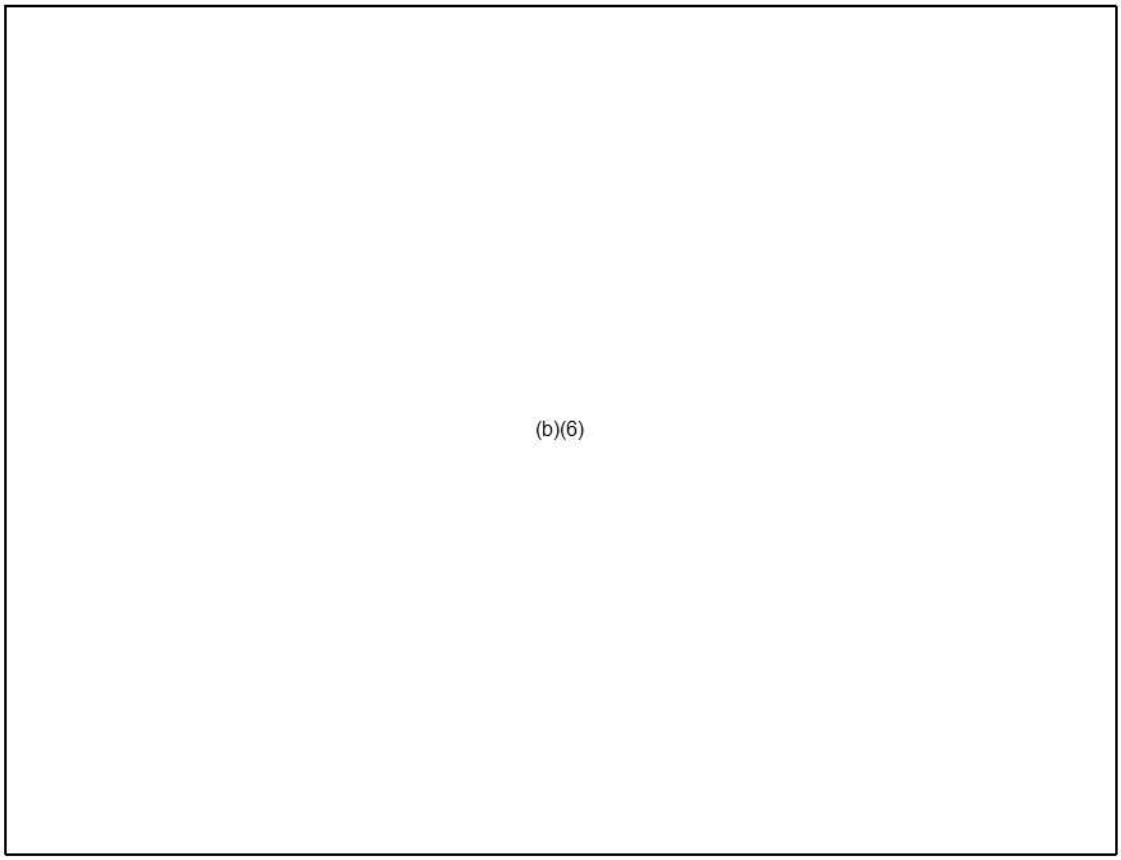
Africa Region

On July 10-12, 2013, (b)(6) and (b)(6) represented PREVENT at the EPT Africa Regional Planning Meeting, in Kampala, Uganda. The objective of the meeting was to exchange updates on achieving end of program deliverables, to share information among partners on proposed final-year work plans to achieve deliverables, and to brainstorm on how to better integrate emerging pandemic threats activities within existing host-country platforms. The results were a shared understanding of expectations and plans for the final year of the EPT program, exchange of suggestions for refining proposed final-year EPT partner work plans, and a collection of ideas from the field with regards to sustainability of emerging pandemic threats efforts.

The meeting began with a briefing by USAID on the fifth year of the EPT program, including: available funding, planned deliverables and focus of final year activities, winding down or close-out activities, and a review of the latest regarding the MERS/CoV investigations.

(b)(6)

On the second day, (b)(6) participated in a panel discussion on Data for Decision Making that focused on key data-related questions and how to strengthen access to and use of data among all stakeholders.



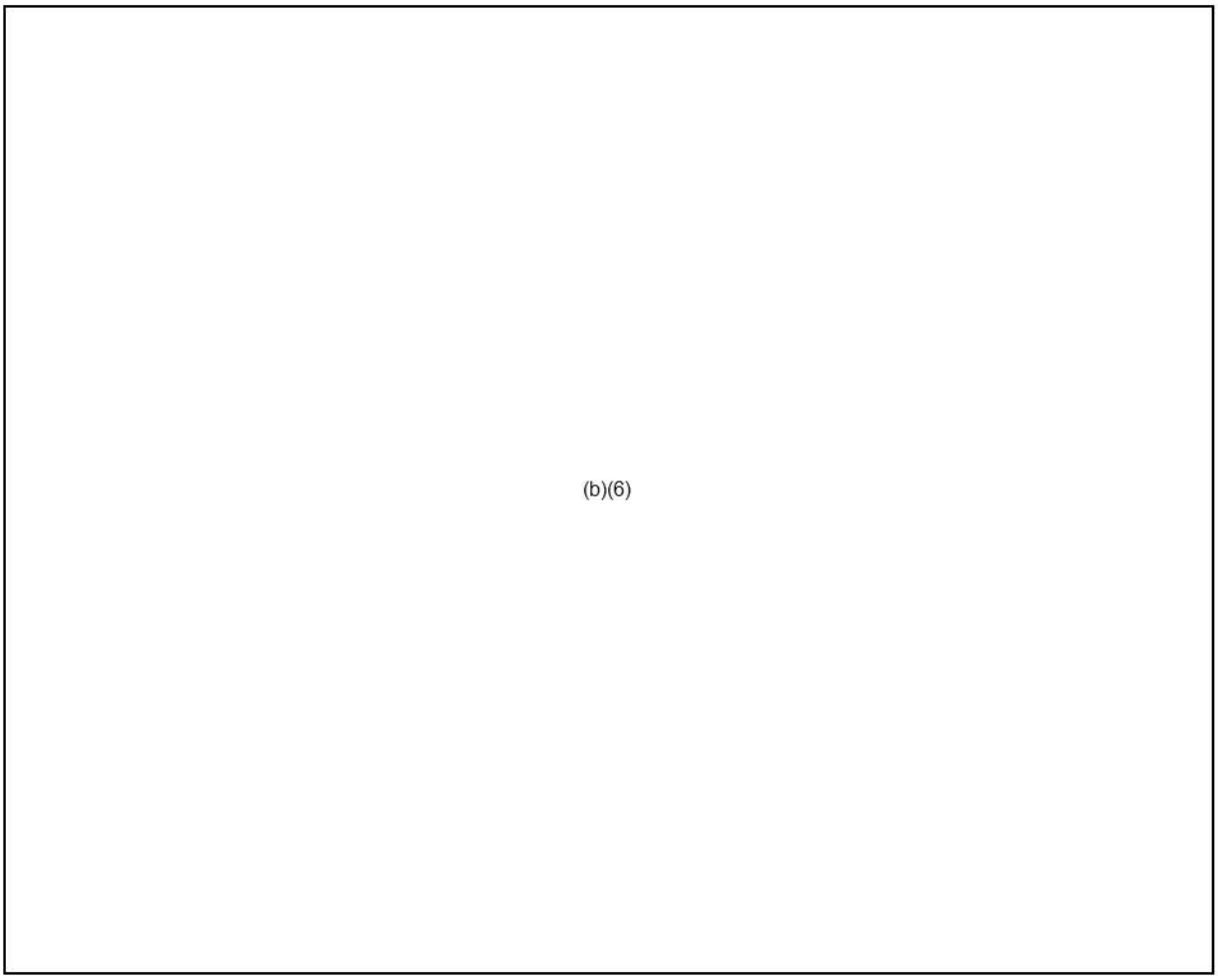
Bangladesh

On July13-14, 2013, PREVENT Project Director (b)(6) (b)(6) represented PREVENT at an USAID EPT partners meeting in Dhaka. The objective of the meeting was to build on already initiated/established coordination and collaboration efforts among EPT partners in Bangladesh to improve and sustain future activities and to brainstorm on how to better integrate emerging pandemic threats activities within existing platforms (e.g., One Health, AI technical committee and laboratory networks) in Bangladesh, especially in light of the H7N9 influenza threat.

(b)(6) made a presentation as part of a panel that discussed "A Model For Controlling An Emerging Threat in Bangladesh: The Case Of Nipah Virus," showcasing scientific research that lead to identifying bats as the cause of NiV, and the results of the initial NiV BCC intervention that took place in January 2013.

(b)(6) made a presentation as part of a panel that discussed "LBM Development and Rest Days as Strategies for Controlling Diseases, Enhancing Food Safety and Promoting Business. The panel was composed of FAO personnel partnering with PREVENT in an upcoming LBM intervention in Bangladesh.

The PREVENT team also participated in panel discussions regarding future EPT activities in Bangladesh.



Laos

PREVENT presented its proposed work plan for FY 2014 to USAID, government partners, and EPT projects. It was provisionally approved.

2. EPT Meetings

On August 19, 2013, PREVENT participated in the USAID EPT (emerging pandemic threats) planning meeting hosted by the National Emerging Infectious Diseases Coordination Office (NEIDCO). (b)(6) (b)(6) concurrently the (b)(6) of NEIDCO and the Department of Communicable Diseases Control of the Ministry of Health and (b)(6) of USAID co-chaired the meeting. The meeting provided each USAID EPT component the opportunity to present their accomplishments as planned in FY13 and proposed activities in FY14 which is the last leg of USAID support.

3. Other Meetings

Cambodia

(b)(6) visited Cambodia to discuss activities for the coming year, including possible collaboration with Institut Pasteur. They have identified a group of guano farmers, villagers who create roosts to attract bats, then harvest the guano. This is a potentially risky activity; Nipah virus has been detected in bats in Cambodia, and recently a beta-coronavirus was isolated from bat guano in Thailand. Researchers from the Institut Pasteur also noted that farmers may tap date palm trees for sap; depending on the method used, the raw sap may be contaminated by bats – this is the major natural source of Nipah virus infection in Bangladesh. PREVENT is having discussions with Institut Pasteur about carrying out a qualitative investigation to improve understanding of guano farmers' risks and identify opportunities for interventions to reduce those risks. Further examination of the size of the population at risk will be conducted prior to research commencing.

Vietnam

On July 15, 2013, PREVENT participated in a technical discussion organized by the Partnership of Avian and Human Influenza Secretariat on options for enhancing emerging infectious diseases coordination, as well as discussing the preliminary findings from the recent mapping exercise of the One Health Mainstreaming and Linkages for AIPED 2011-2015.

On August 9, 2013, PREVENT participated in the USAID EPT Quarterly Partnership meeting organized by USAID Vietnam in Hanoi. The meeting was organized to: (i) update partners on ongoing and upcoming activities and opportunities for linkages and coordination; and (ii) update Year 5 work plan status. In Year 5, PREVENT will continue to focus on the rodent trade and wildlife farming of priority species.

Indonesia

PREVENT staff held several meetings in Manado, Indonesia during the quarter. These included meeting with:

- Severe Acute Respiratory Illness (SARI) Project staff in Bitung Hospital on their surveillance findings and to introduce staff from both projects to each other;
- CDC and Eijkman Institute on their activity in Manado and Bitung;
- USAID Washington staff (b)(6) who visited North Sulawesi in August to scope the area for the possible future activities that could relate to PREVENT;

PREVENT also helped USAID Jakarta with linking their information and contacts to their provincial-level counterparts, particularly in North Sulawesi.

Among other introductory meetings, PREVENT met with the following to discuss potential future activities of mutual interest:

- On July 9, with (b)(6) of Controllable and Uncontrollable Disease, and (b)(6) Secretary of the Director of the Health Office in North Sulawesi Province
- On July 15, with (b)(6) a former director of the Wildlife Conservation Society's bat project;
- On July 18, with (b)(6) of Forestry Office in North Sulawesi Province
- On July 18, with the (b)(6) who is in charge of the all of the national parks/reserves in North Sulawesi Province.
- On August 6, with (b)(6), Special Staff of the Governor for Communication and PR
- On August 9, with (b)(6) of the Inspectorate Office in Bitung City in North Sulawesi Province, to discuss market scoping activities

B. Knowledge Products

1. Traditional Communication

MERS-CoV Communication

In August, PREVENT staff coordinated with USAID to discuss and compile a strategy for addressing continuing outbreaks of Middle Eastern Respiratory Virus (MERS-CoV), particularly in light of the upcoming Hajj pilgrimage to Saudi Arabia.

PREVENT compiled a communication strategy that would create templates for materials that governments or benevolent associations can adapt and give to pilgrims returning from Hajj or use to reach returning pilgrims to ensure that people potentially infected with MERS-CoV seek appropriate care quickly and are less likely to spread the virus to household members. The products created would include templates for information sheets/cards; posters to be displayed at disembarkation sites; and possibly radio or TV PSAs to be shown on airlines or at airports. The templates would be accompanied with a sheet suggesting opportunities for reaching pilgrims (e.g., in packets prepared for everyone who attends Hajj, as they are being transported to their countries, as they disembark, etc.).

Conference Outreach/Presentations

PREVENT submitted a proposal to conduct a symposium at the upcoming Joint International Tropical Medicine Meeting, to be held in Bangkok on Dec. 11-13. The proposal was accepted by the conference organizers, and the PREVENT symposium will include the following presentations by PREVENT research staff:

- Developing a Human-Animal Interface Framework to Help Reduce Transmission Risk of Emerging Infectious Diseases
- Human-Animal Interactions in Khon Kaen Province, Thailand
- The Human-Animal Interface in Bolikhamxay Province, Laos
- Human Exposure to Peridomestic Rodents in Khon Kaen, Thailand: Results from a Participatory Rapid Appraisal

Several PREVENT abstracts were accepted for oral and poster presentation at the American Society for Tropical Medicine and Hygiene annual meeting in November 2013 in Washington, DC. The presentations include:

- "Comparative analysis of the social factors that influence exposure to zoonotic diseases in Southeast Asia" (oral)
- "Who is at high risk of exposure to an emerging zoonotic disease? An innovative approach to characterizing human-animal exposure in Hmong and Lao ethnic groups in Lao PDR" (poster)
- "Characterizing Human Interactions with Peridomestic Rodents in Thailand: A Participatory Rapid Appraisal" (poster) (11/16)

Templates were created to facilitate these oral and poster presentations that reflect both USAID and AusAID branding.

Journal Articles

Two PREVENT abstracts were accepted for submission to a special *Social Science and Medicine* issue on One Health. They are articles on "Integrating Social Science and One Health to Inform a Study of the Human-Animal Interface" and "Using a One Health Approach to Identify and Address Risk and Implement Feasible Interventions to Control Avian Influenza in Lao PDR." Staff worked to submit these articles to SSM early in the next quarter.

PREVENT technical staff also compiled a list of potential publications that could be written based on ongoing and future research. This included taking an inventory of what PREVENT research has been completed (or is in process), determining how best to present the findings (e.g., in an article for a peer reviewed journal, a case study/research brief), and prioritizing these over the next year. This inventory will be submitted to USAID in the next quarter.

One Health BCC Modules

PREVENT also met with and offered input into the development of training modules on behavior change for use as part of a "One Health" compendium for capacity building that are being developed by EPT Partners.

2. Online and Social Media Development

To facilitate access to previously developed materials that could be adapted to H7N9 avian influenza and MERS-CoV, PREVENT finished a new section on its website, www.preventproject.org, to house and provide background on relevant products related to avian and pandemic influenzas prevention and control. The new section can be found here:

http://preventproject.org/communication-resources-for-pandemic-avian-influenza/

PREVENT also continued to disseminate relevant information on emerging infectious diseases – particularly on H7N9 and MERS – via its Twitter account. PREVENT staff attended – and sent out Twitter updates from two events in September 2013: the National Academy of Sciences' Sackler Colloquium on "The Science of Science Communication II; and the Institute of Medicine's Forum on Microbial Threats workshop on "The Influence of Global Environmental Change on Infectious Disease Dynamics."

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

WORK PLAN

OCTOBER 1, 2011 – SEPTEMBER 30, 2012

Submitted To
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

September 1, 2011

fhi360
THE SCIENCE OF IMPROVING LIVES

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I. BACKGROUND

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No. GHN-A-00-9-00002-00 under Leader Award (C-Change) No. GPO-A—07-00004-00 entitled "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

During the past year, PREVENT has been focusing on emerging pandemic threats (EPT) predominantly in the Congo and Mekong Basin areas; avian influenza in Bangladesh; Humanitarian Pandemic Preparedness H2P in the context of the "Towards a Safer World" initiative; and supporting the communication capacity of AFENET (African Field Epidemiology Network) in Uganda.

By the end of this five-year project (September 2014), PREVENT will have:

1. Designed a globally shared framework for preventing and mitigating EPT **(Project objective 1)**

2. Developed a solid, clearer evidence base for specific social and behavioral factors that affect risk of EPT:
   a. Characterized "high-risk" practices **(Project objective 2)**
   b. Identified "high-risk" groups **(Project objective 3)**

3. Developed and validated effective interventions **(Project objective 4)**

4. Implemented state-of-the-art behavior change activities among high-risk populations **(Project objective 5)**

5. Developed effective strategies for improving national, regional, and community level pandemic preparedness and response **(Project objective 6)**

Rationale for FY12 work plan

Developing interventions to reduce primary transmission of EPT

Primary transmission of EPT viruses requires human exposure to animal species that may carry viruses that can be transmitted to humans. Early in year 2, PREVENT produced a table summarizing "Opportunities for transmitting zoonotic infections to humans," keyed mainly to sources of exposure and possible transmission routes (see next page).

Opportunities for transmitting zoonotic infections to humans

Sources of exposure to zoonotic viruses	Examples	Possible transmission routes	Factors that increase opportunities	Factors that decrease opportunities	Underlying factors
Directly from animals					
Hunting and capturing wild animals (for home consumption, trade or pets) Butchering animals in wild, restaurants and homes	HIV, SIV, SFV AI, Ebola	▪ Contamination of wounds (which may be bites or scratches or e.g. insect bites) by blood/excreta/saliva ▪ Handling animals that have died from Ebola/AI	▪ Increased population (in-migrants) in or near wild areas (e.g., because of extractive industry) leading to increased contact in gardens and through hunting ▪ Increased commercial hunting to meet urban demand for bushmeat and pets	▪ Better enforcement of existing regulations (inspection of trains and logging trucks) ▪ Improved regulations ▪ Alternative sources of protein (e.g. frozen fish sold by itinerant vendors in Cameroon)	▪ Better access (logging roads, mining railroads) ▪ Improving standard of living ▪ Organized international trade in animals/meat ▪ Attitude of conspicuous consumption
Wild animals in markets	SARS documented AI	▪ Respiratory	▪ Demand for live wild animals	▪ Market regulation limiting live animals (e.g., Hong Kong)	▪ Improved transport (better roads) ▪ Preferences for very fresh meat; attitudes about purity of wild meat
Domestic animals, including pets	Rabies Ebola Reston Nipah Malaysia Hendra Australia AI H5N1 US monkeypox	▪ Bite (saliva) ▪ respiratory/contact	▪ Maintenance of susceptible population of animals (rabies Indonesia) ▪ Trade in exotic pets ▪ Shift in bat range (fires, habitat disruption from logging)	▪ Separation of orchards from piggeries ▪ Improved biosecurity of domestic animals	
Via contaminated food					
Wild food	Nipah Bangladesh documented; Ebola suggested (Leroy)	▪ Ingestion of food contaminated with saliva or feces	▪ Increased human exploitation of wild foods	▪ Protection of foods (e.g. *banas* in Bangladesh) ▪ Avoidance of foods partially eaten by animals	▪ Notion that bat-bitten fruits are preferable (sweeter)
Stored food	Hanta, Lassa	▪ Fecal contamination	▪ Poor construction of storage facilities	Improved construction; better design and better materials	▪ Improved access to concrete
Via contaminated environment					
Domestic environment	Hanta Lassa AI	▪ Fecal contamination (respiratory and fecal-oral/mucosal contact)	▪ House construction (dirt vs. concrete floors); tin vs. straw roofs	▪ Concrete floors in houses; improved roofs	▪ Improved access to concrete, tin roofs
Nondomestic environment	Marburg Nipah Bangladesh (presumed, some apparent association with climbing trees where bats roost)	▪ Inhalation of aerosolized excreta in caves ▪ Fecal- oral/mucosal contact (e.g., excreta on hands from climbing contaminated trees)	▪ Tourism to caves ▪ Artisanal mining in old underground mines ▪ Guano "farming"		▪ Attitude that fecal contamination is "normal"

PREVENT has simplified this framework to three "drivers of exposure"

1) Human exposure to animals during daily activities – at home or at work
2) Marketing of wild animal meat driven by economic needs of suppliers and urban demand
3) Extractive industry activities, which bring about land use changes that increase human-wildlife contact rates

The first two drivers summarize the "source of exposure" column. The third driver, extractive industry—logging, mining, oil and gas, hydropower, and large-scale agriculture—is a major cause of nearly all the "underlying factors" listed in the table's last column.

PREVENT's FY12 work is organized to measure key elements of these drivers and to develop interventions to address them. PREVENT proposes to work in twelve countries: five in Central Africa (Cameroon, Democratic Republic of Congo, Gabon, Republic of Congo, Uganda), five in Southeast Asia (Cambodia, Indonesia, Laos, Thailand, Vietnam); and Bangladesh in South Asia.

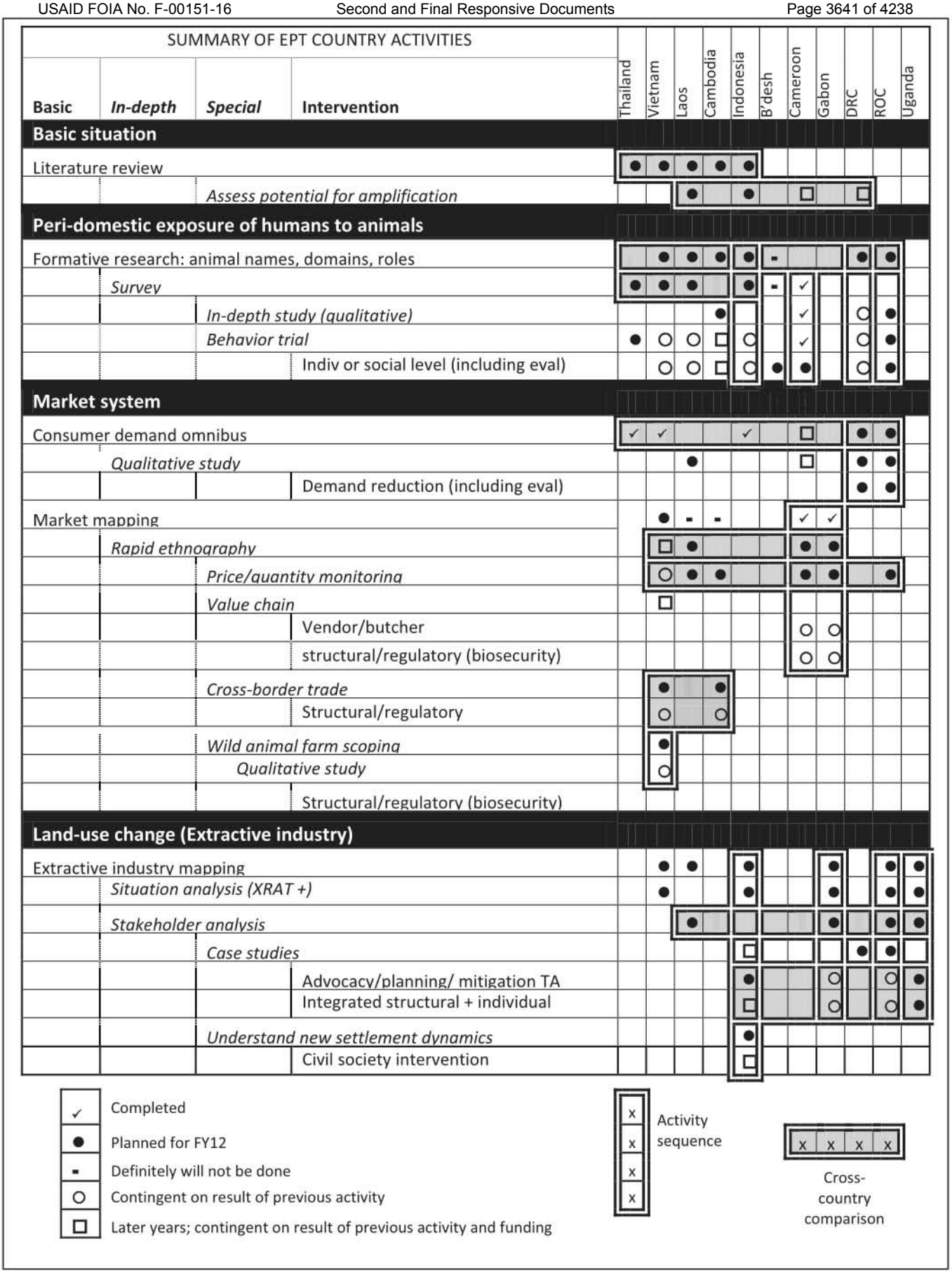
The grid shown on the next page summarizes PREVENT activities that have been completed and those proposed within these three driver categories. The grid highlights individual activities that will be carried out in multiple countries and activity sequences within countries leading from formative research to interventions.

PREVENT's agenda for better understanding these drivers and developing interventions is essentially global. Defining general principles to guide interventions will be best achieved by understanding how different aspects of identified problems play out and interact in specific situations in specific countries.

Cross-country comparisons. In general, PREVENT activities to develop a basic and more in-depth understanding of the situation - formative research on animal names, domains and roles; surveys about animal exposure and consumer demand for wild animal meat; and extractive industry mapping and stakeholder analysis will be carried out in multiple countries, with results compared across countries.

Activity sequences. The general pattern within each driver is to move from basic understanding to more in-depth assessment of factors important for designing interventions to develop and implement interventions. PREVENT plans to complete this sequence in at least three countries in each area. For example, interventions to reduce the risk of disease transmission through peri-domestic (home/work) exposure will be initiated in Bangladesh (Nipah), Cameroon (safer hunting & butchering), ROC (avoiding dead animals) and possibly in Philippines (Ebola Reston) and Indonesia (TBD) in the coming year.

Rapid market ethnographies will be carried out in Cameroon and Gabon. On the basis of the information gathered from these studies, PREVENT will decide whether a possible integrated intervention to improve market biosecurity and vendor practices would be a valuable contribution to the evidence base.


SUMMARY OF EPT COUNTRY ACTIVITIES
Basic
In-depth
Special
Intervention
Thailand
Vietnam
Laos
Cambodia
Indonesia
B'desh
Cameroon
Gabon
DRC
ROC
Uganda
Basic situation
Literature review
Assess potential for amplification
Peri-domestic exposure of humans to animals
Formative research: animal names, domains, roles
Survey
In-depth study (qualitative)
Behavior trial
Indiv or social level (including eval)
Market system
Consumer demand omnibus
Qualitative study
Demand reduction (including eval)
Market mapping
Rapid ethnography
Price/quantity monitoring
Value chain
Vendor/butcher
structural/regulatory (biosecurity)
Cross-border trade
Structural/regulatory
Wild animal farm scoping
Qualitative study
Structural/regulatory (biosecurity)
Land-use change (Extractive industry)
Extractive industry mapping
Situation analysis (XRAT +)
Stakeholder analysis
Case studies
Advocacy/planning/ mitigation TA
Integrated structural + individual
Understand new settlement dynamics
Civil society intervention
Completed
Planned for FY12
Definitely will not be done
Contingent on result of previous activity
Later years; contingent on result of previous activity and funding
Activity sequence
Cross-country comparison

In Cameroon, ROC, and Uganda and possibly in Indonesia PREVENT will go beyond mapping extractive industry sites to carry out a stakeholder and situation analysis, case studies of "positive deviant" industries if feasible, and begin advocacy and/or integrated interventions.

AFENET (African Field Epidemiology Network)

Under the USAID-funded AI.COMM Project, AED provided technical assistance in public affairs and communication to AFENET in 2008-09 to 1) further heighten the visibility of AFENET among critical decision-makers regarding avian and pandemic influenza prevention, response, and control; 2) continue to establish AFENET as the "go-to" organization for accurate and credible information on communicable disease, field epidemiology, and other related public health topics throughout Africa; and 3) strengthen AFENET's public affairs office and ability to conduct outreach on its technical activities and respond to requests for assistance.

Since late 2010, PREVENT has supported a public affairs officer and a senior communication advisor at AFENET Secretariat headquarters in Kampala. PREVENT has also worked with the Secretariat and Public Affairs Officer to redesign the AFENET website and populate it with current information about the organization's activities and accomplishments (http://datacraftsystems.com/AFENET/) with translations in French and Portuguese. The AFENET profile has been updated and made available on-line and in print and the quarterly report has also been modernized to reflect the design changes in the logo, branding look and website. The communication strategy was finalized and presented to members of the Board.

The role of field epidemiologists during an outbreak has evolved into something much more than that of a scientist in the field; they also serve as counselors, advocates, and medical practitioners in the communities where they work. To strengthen the ability of these professionals to fill all of those roles, as well as deal with critical stakeholders and media, PREVENT has conducted a series of training workshops on *Applied Communication* and *Risk Communication* for a selected field of epidemiologists from about 15 African countries from East and West Africa. Materials are posted on the http://prevent.aed.org web site and will also be linked to the new AFENET website. With the Secretariat we were able to provide technical support during the ebola virus outbreak in June 2011.

Institutionalizing the work that has gone before – in strategic planning and implementation, risk communication, media relations, and public outreach--will be the focus of Year 3 activities. They will also include introduction of an intranet through the website to connect all the members, give them easy access to new or current information about certain epidemiology issues, report back from the field using SMS or texting, share findings, and generally stay connected. Operating in French and English it will be a real-time connection to help them do their job better especially when they are outside of the office setting. PREVENT will also help AFENET begin a public-private partnership venture with Kenya Airways to support the organization's outbreak response mission.

Risk Communication

Risk Communication is of growing interest under PREVENT and its companion awards from USAID. FHI D360 will design several easily accessible tools that help governments, private sector, and civil society at national and community-levels plan and be prepared for a variety of different public health emergencies. Target audiences will include communicators, community health workers, and epidemiologists. The tools will be pre-tested among a variety of key stakeholders at country level, and include social impact games that can be accessed on the Web and/or downloaded on smartphones and smart devices. PREVENT will also work with WHO in developing a risk communication curriculum and tools for IHR and with RESPOND to assure risk communication is an integral part of the outbreak response agenda.

Towards a Safer World

During the past year, PREVENT has collaborated closely with WFP, UNSIC, and other TASW partners in conducting a major documentation initiative to glean lessons learned from pandemic preparedness since 2005 and how they may be applied to other disaster preparedness and response challenges in the future. TASW is culminating in a major review meeting in Rome on September 15-16, 2011. PREVENT has built the TASW website, supported public relations for the Rome meeting (through subawardee G6 Partners), organized the communication panel, and prepared the book that summarizes lessons learned from pandemic preparedness across 10 different sectors. Following the meeting, PREVENT will work with USAID and TASW partners to assess and document its results and develop plans for additional TASW activities that may be called for to continue momentum for global pandemic and disaster preparedness. At a minimum, PREVENT will continue to maintain the TASW website (as well as the H2P website).

II. NARRATIVE DESCRIPTION OF ACTIVITIES BY LINE OF WORK

REGIONAL – CONGO BASIN

LOW3: Outbreak response capacity building

3.2 Strengthen human and organizational capacity to improve outbreak response

Activity 3.2.1: Provide behavior change and communication support to WHO/AFRO. (Objective 4 and 6)

As WHO/AFRO and others develop a standard protocol for responding to outbreaks of unknown origin, PREVENT will ensure that staff have access to communication and behavior change expertise.

- **Subactivity 3.2.1.1:** PREVENT will support a communication and behavior change advisor to work primarily with WCS in Brazzaville. A portion of this advisor's time (20%) will be prioritized to work with WHO/AFRO as needed.

  - **Partners:** FHI D360, WHO/AFRO, RESPOND
  - **Expected results:** A standard protocol for outbreak response that incorporates state-of-the-art knowledge about risk communication (for response) and behavior change (for outbreak investigation) to specify risk factors.

Activity 3.2.2: Provide communication and public affairs support to AFENET

PREVENT has been working with AFENET since 2009, helping to develop a communication strategy; updating and revamping tools and materials, including its website, communication materials on possible health threats, portfolio and information on the organization and its members; and intensive workshops for field epidemiologists in *Applied Communication* and *Risk Communication* in both East and West Africa. Year 3 will build on this foundation work to complete the following activities.

- **Subactivity 3.2.2.1: Institutionalize risk communication training for field epidemiologists:** Based on a series of trainings and workshops, PREVENT's technical team has revised its *Risk Communication* and *Applied Communication* modules to fit the needs and skills of network partner field epidemiologists. It has also begun training of the Public Affairs staff on the modules and how to conduct the training. Refresher courses and up-dating communication with these members from both the Anglophone and Francophone countries will be a first step in institutionalizing these skills. A second group of trainees will be included this year with training being conducted by and with AFENET staff.

  - **Partners:** FHI D360, AFENET, Real Marketing, MADD (web designer)
  - **Expected Results:** Network of well-trained field epidemiologists in Anglophone and Francophone Africa that can effectively communicate critical information among key audiences in a risk/
    outbreak situation

- **Subactivity 3.2.2.2: Establish AFENET member programs as reputable among key stakeholders, e.g., MOH, media, donors, and general public:** Introducing and highlighting new skills and tools-- up-to-date and current website, dissemination of members' role in outbreaks and investigations, and rapid response through SMS and social media during investigations--positions member programs as reputable sources of information in field epidemiology. Equipping its member programs with these communication skills and inexpensive tools coupled with their demonstrated performance in planning and response will help to solidify AFENET's reputation as an important player in this field.

  - **Partners**: FHI D360, AFENET, Real Marketing, MADD
  - **Expected Results:** Network of well-trained field epidemiologists in Anglophone and Francophone Africa that can effectively communicate critical information among key audiences in a risk/outbreak situation

- **Subactivity 3.2.2.3: Develop a Risk Communication Template for responding to outbreaks:** To date a playbook of how to respond to an outbreak using strategic risk communication has not existed. It has been "catch as catch can," often without materials, process, or information available. The recent (June 2011) Ebola virus outbreak in Uganda illustrated that not only AFENET but the government of Uganda and the donor organizations were ill-prepared to agree on roles, how to fund activities, and what really to do. As an organization that contributes to the investigation and response to outbreaks and emergencies AFENET needs to have a template, be trained in it, and know how to respond effectively in communications. Work has started in the form of a plan but it needs to be finalized and incorporated into their work as well as receive buy-in from the appropriate authorities in the government, donors, and private sector.

  - **Partners**: FHI D360, AFENET, Real Marketing
  - **Expected Results**: Actors involved in outbreak response know their roles and responsibilities and trained in how to respond and react to risk situations along with other critical players

- **Subactivity 3.2.2.4: Institutionalize the *Applied Communication* and *Risk Communication* modules for AFENET member programs:** Communication in any form is taken for granted in outbreak investigation and response. And yet it is a critical tool to manage fear, reduce spread of a disease, and to advocate for change. Doctors and many other health professionals are not always good communicators, and it is equally an important skill set for field epidemiologists. We will work to strengthen the skills of the Public Affairs Office and member programs to provide the training using these modules so they offer the services that will enhance their members and their work.

  - **Partners**: FHI D360, AFENET
  - **Expected Results**: Critical component of field epidemiology work – communication competency in an outbreak of investigation situation

- **Subactivity 3.2.2.5: Re-design the AFENET external communication tools, i.e., website, and create an interconnectivity using web, social media to provide up to the minute information on new epidemiology data and reporting:** AFENET's website is outdated and has not been populated recently. As both the public face and a source of information for its members, it needs to be updated as well as become a critical source of information (current and accurate) for its members. Many African countries have jumped over legacy computer tools – desk top computers – and rely more on laptops and smart devices, whether smart phones, iPads, or BlackBerries, and the member field epidemiologists have expressed their interests in having access to current and new information using these new tools in the field for investigation and response. Our partner members are early adopters in technology and new technology is not an expensive investment. The website will have a public

purpose and a members-only section that can be accessed by smart devices and laptops; so if members need current information or to report findings by SMS or send pictures, they will have the platform to do it. It will be in both French and English and eventually in Portuguese.

- **Partners:** FHI D360, AFENET, MADD
- **Expected Results**: Access to newest information on treatment, diagnostics, and response during an investigation and outbreak

- **Subactivity 3.2.2.6: Establish working relationships with media (regional and national) to partner with in sharing correct information during an outbreak response or investigation:** When an outbreak or emergency happens is never a good time to begin to build credibility or trust with anyone, especially the media. By nature journalists are inquisitive and cynical which allows them to probe and ask difficult and accusatory questions. During an emergency the media recognizes its role in making sure correct and accurate information is disseminated and that it also is part of their role in society to perform this public service. However, they need to know who is credible and who to trust to provide accurate information before an emergency occurs. AFENET's Public Affairs Office has good relationships with the media in Uganda but it needs to build on that and expand it to other member programs' countries. PREVENT will help through supporting one-on-one meetings with journalists; press briefings and thought-leaders conferences; and inclusion of new information and data as it becomes available. The results will include help from the media in promoting preventive practices and in squelching rumors and misinformation.

  - **Partners:** FHI D360, AFENET, Real Marketing
  - **Expected Results**: Correct and accurate information consistently disseminated via print, broadcast, and new/social media related to public health issues and outbreaks

- **Subactivity 3.2.2.7: Engage the private sector as partner in outbreak response:** The public sector and donors do not have the resources to respond completely to every outbreak and emergency. The US and its FEMA budget discussion is a good example of how stretched any budget can be by a round of natural and man-made disasters. During the Ebola virus outbreak in Uganda one of the energy companies stepped forward and volunteered funding to run Public Service Announcements (PSA) as part of the response. More of this type of partnership needs to be established to expand the reach of information and allow badly needed resources (financial or equipment) to be applied to respond to an outbreak. A concept paper has been submitted to Kenya Air to discuss potential partnership. Other companies in the region and West Africa will also be targeted.

  - **Partners:** FHI D360, AFENET, Kenya Air, Energy Companies
  - **Expected Results**: Ease the pressure on public funds and resources to respond to any outbreak and establish long-term sustainable partnerships

- **Subactivity 3.2.2.8: Apply the *Risk Communication* and *Applied Communication* training to an outbreak investigation or response:** All the training, workshops, and materials need to be put to use; being able to effectively respond is the real indicator that PREVENT's capacity strengthening work with AFENET has been institutionalized and made operational. In the event of an outbreak in the region, PREVENT will work with AFENET to see that they effectively put the tools to use.

  - **Partners**: FHI D360, AFENET
  - **Expected Results**: Reduced fear, managed expectations, and dissemination of correct information

LOW4: Risk Reduction

4.2: Design risk reduction approaches

Activity 4.2.1: Develop an intervention to reduce demand for bushmeat as a source of protein in the greater Kinshasa-Brazzaville area. (Objectives 2 -4)

A recently published report of a large survey about consumption of bushmeat in Brazzaville[1] showed that individuals in 88 percent of households responded positively to the question "Do you currently eat bushmeat?" Affordability appears to be a factor in consumption: about 92 percent of current employees, 87 percent of retired or self-employed workers, and 84 percent of the unemployed responded positively. Most households obtained bushmeat from markets (85%), the rest received gifts from relatives (10%), or obtained it from other intermediaries (4%) or directly from hunters (less than 1%). Most (81%) reported substituting other foodstuffs when bushmeat shortages occurred in the markets; the remaining 19 percent reported finding other sources of bushmeat, including directly from hunters.

The most mentioned animals were artiodactyls (48%), rodents (28%), and primates (13%), although the researchers noted that about half of surveyed households said they would not consume gorilla or chimpanzee. About 68 percent of heads of household were concerned about food safety or the possibility of getting disease by consuming bushmeat, with 60 percent mentioning Ebola as a disease they feared. As elsewhere, an important reason for preferring bushmeat to farmed animal meat is that it is natural.

These results indicate the importance of urban bushmeat consumption and the market system; they also suggest possibilities for reducing consumption of at least some types of bushmeat.

- **Subactivity 4.2.1.1:** Field a small survey in Brazzaville to confirm level of bushmeat consumption observed in 2006 and survey consumers in Kinshasa to ascertain the level of bushmeat consumption (this information will constitute the baseline for evaluating the intervention). Carry out in-depth qualitative research in those cities on access to alternatives and willingness to consume alternatives, including factors such as motivations for eating bushmeat and taste preferences, to determine the best approach for persuading consumers to reduce bushmeat consumption, particularly of illegal and key species (primates, bats, rodents).

- **Subactivity 4.2.1.2:** Develop a social marketing campaign to reduce bushmeat consumption. This activity will include developing a social marketing strategy; identifying a local agency to design messages & materials for an intervention and pretesting the materials.

    - **Partners:** research agencies (tbd), University Marien Ngouabi, University of Kinshasa, possibly the University of Liege, if researchers involved in the 2006 study are still affiliated with the university.
    - **Expected results:** Standardized information about bushmeat consumption and consumer preferences in the greater Kinshasa-Brazzaville area and in-depth information about alternatives and consumer motivations. A demand reduction strategy and tested materials.

[1] Mbete RA et al. 2011 "Household bushmeat consumption in Brazzaville, the Republic of the Congo." *Tropical Conservation Science* 4(2):187-202

4.3: Implement risk reduction activities

Activity 4.3.1: Implement the social marketing campaign to reduce bushmeat consumption. (Objective 5)

This activity includes: buying media; launching the campaign; monitoring campaign reach and consumer reaction. A follow up survey to evaluate the intervention's effect will be carried out in FY 13 approximately one year after the surveys in Kinshasa and Brazzaville.

- **Partners:** FHI D360, agencies TBD
- **Expected results:** A demand reduction strategy and tested materials.

CAMEROON

LOW4: Risk Reduction

Safer hunting and butchering

In Cameroon, GVFInc has provided information about safe hunting practices (primarily actions to protect hunters and butchers from wild animal blood) to selected rural communities for just over ten years, while collecting blood samples from hunters and from the wildlife that they kill.

In FY11 PREVENT carried out a benchmark study to assess villagers' knowledge about risks associated with hunting and butchering wild animals and about ways to protect themselves. One part of the study involved a quantitative survey of all adults in two communities, one that had been exposed to the Healthy Hunter program and one that had not been exposed. The villages were small (about 45 adults from each village participated in the survey) and differed in some important respects; for example hunting was mentioned as the principal source of revenue by 64 percent of those interviewed in the village exposed to the Healthy Hunter program but only 13 percent of those interviewed in the non-exposed village. While most hunting is done by men, about half of both men and women butcher or cut up meat regularly.

Thirty-seven percent of adults in the village said they had attended the Healthy Hunter program during the past year; just over 80 percent of these were men. About 60 percent of those in the exposed villages (compared with 20-30% in the non-exposed villages) recognized key messages. Those in exposed villages tended to reported slightly better practices than those in the non-exposed villages:

If cut while butchering, would:	**Exposed**	**Non-exposed**
Continue to butcher/cut up when they cut themselves	**7%**	**13%**
Let someone else continue cutting/butchering	**15%**	**13%**
Wash and cover the wound	**22%**	**26%**
Practice of butchering if have a recent (unhealed) cut		
Just continue to butcher/cut	**15%**	**21%**
Let someone else do it	**34%**	**19%**
Cover the cut before continuing to butcher/cut	**38%**	**48%**
Eating fruit		
Have eaten fruit that animals have eaten/bit	**20%**	**29%**
Say they have gotten sick from eating such fruit	**13%**	**0**
Number of respondents	**46**	**44**

Following the benchmark study, PREVENT selected six key behaviors to test in behavior trials. Four are behaviors that were included in the Healthy Hunter education program, though the Healthy Hunter recommendations about hand washing were not as specific:

1) Protect skin while hunting (to avoid cuts and blood exposure)
2) Wrap raw wild animal meat after it is butchered by wrapping
3) Wash hands with soap and water
   - After touching animal blood or feces
   - Before preparing food
   - Before eating
   - After cutting yourself
4) Avoid handling wild animal meat when you have open sores

In addition, PREVENT tested two new behaviors

5) Avoid eating fruit touched/bitten by wild animals
6) Protect family from aerosols of wild animal feces (primarily rodent feces in the home).

Information from the behavior trials is being analyzed. In FY12, PREVENT will design an intervention, conduct a baseline, then implement the intervention based on the analysis of the behavior trials. PREVENT will select behaviors that are acceptable (that people chose to try) and sustainable (that people were able to perform over the trial period), and will develop an expanded health education approach that the team can implement when visiting villages to collect samples. One focus will be revising the approach to include women in educational sessions. The intervention will be implemented using a "stepped wedge" approach – i.e. will be rolled out to all villages in phases. This expanded "safer hunting and butchering" intervention will be evaluated. During the first phase, rollout villages that have not received the intervention will serve as controls for those that have.

4.2 Design approaches for risk reduction

Activity 4.2.1: Develop a safer hunting and butchering intervention strategy, produce and pretest materials, develop training. (Objective 4)

- **Subactivity 4.2.1.1:** Based on the results of the behavior trials, PREVENT will select four behaviors to promote. The project will develop and pretest inexpensive print materials (posters and handouts) in English and French. Working with the GVFInc implementation team, PREVENT will develop a set of new, participatory educational activities that the team can use in rotation to keep messages fresh, and specific guidelines and materials for training the team that reinforce adult learning competencies.

  - **Partners:** GVFInc, FHI D360, Care and Health Program[2], creative agency (tbd)
  - **Expected results:** materials and intervention tools for a safer hunting and butchering intervention

4.3 Implement risk reduction activities

Activity 4.3.1: Carry out the evaluation baseline and roll-out the safer hunting and butchering intervention. (Objective 5)

- **Subactivity 4.3.1.1:** Conduct baseline on knowledge, attitudes, and practices associated with wild animal contact, especially contact with blood and assess the level of human-wildlife contact.

[2] The Care and Health Program is a local Cameroonian NGO that has been a long-standing, 10-year collaborator of GVFInc. They will hire all field staff required to conduct activities, as well as oversee finances, logistics, and purchase of local supplies and equipment.

- **Subactivity 4.3.1.2:** Roll-out the intervention in roughly half the villages: three of the five GVFInc areas. Train team members in new approaches and materials, launch the intervention. Carry out quality control checks.

  - **Partners:** GVFInc, FHI D360, Care and Health Program, research organizations (tbd)
  - **Expected results:** A validated behavior change intervention for high-risk communities, including pilot testing and monitoring of rollout and evaluation indicators and instruments.

Reducing the risk of transmission in markets

Cameroon is a central African country where demand for bushmeat among urban populations is high. It is obtained from commercial hunters and by purchasing "extra" bushmeat sold by subsistence hunters.

During FY11, PREVENT mapped markets in southern Cameroon, from the border with Gabon to Mbalmayo, on the road to Yaoundé. The team visited markets with more than five vendors, and noted basic market characteristics, the number of vendors selling wild and domestic animal meat of different types, the number of butchers, whether cooked wild animal meat was sold. From this frame, PREVENT has selected a variety of markets where it will carry out a rapid ethnographic study: markets in rural villages, small market towns, and midsized towns, especially those located at the intersection of roads that are conduits for trade with neighboring countries. The protocol for this study has been developed and pretested in an area east of Yaoundé. It involves observing the market several times a day over 7 days in a 2-week period, with particular attention to biosecurity and "flow" of wild animal meat during the day; observing vendors and butchers; conducting key informant interviews with the market manager, vendors, butchers, and cleaners; and brief exit interviews with shoppers.

2.2 Interface characterization

Activity 2.2.1: Ascertain characteristics of selected markets in southern Cameroon. (Objectives 2-3)

- **Subactivity 2.2.1.1:** Conduct rapid ethnography in several different types of markets in southern Cameroon to ascertain biosecurity, understand the daily flow of wild animal meat; the perceptions, behavior and motivations of sellers and buyers; the relation of buyers to other buyers and the market owner/manager; and the process of market governance.

- **Subactivity 2.2.1.2:** Monitor quantities and prices of selected types of wild and domestic animal meat sold for a period of at least eight months in markets in/around one rural town and, if feasible, in the capital city.

  - **Partners:** FHI D360, GVFInc, market association,
  - **Expected results:** Improved understanding of market conditions

4.2 Design approaches for risk reduction

Activity 4.2.2: Develop an agreed-on integrated (structural and behavior change) intervention for reducing the potential for disease transmission through improved market biosecurity. (Objective 4)

- **Subactivity 4.2.2.1:** Develop possible strategies for integrated interventions to reduce transmission risks. (For example, to increase market biosecurity, PREVENT might support structural interventions such as improving market drainage, or waste disposal, or access to water and then pair the structural

improvement with promotion of a related health behavior such as handwashing or cleaning butchering implements and surfaces with soap. Pretest ideas with market managers and market associations. Offer a competitive matching grant to one or two markets that can provide some local funding.

- **Subactivity 4.2.2.2:** Work with stakeholders of the market(s) selected for the intervention to develop a plan and timeline for an integrated intervention. Provide oversight. Develop a relevant health promotion strategy; develop and pretest materials.

We anticipate that implementation will occur in FY13; change will be evaluated at 1, 3 and 6 months after implementation.

- **Partners:** FHI D360, GVFInc, market association, local government
- **Expected results:** A short list of possible interventions to reduce the risk of transmission both directly and indirectly; strategy, plan and materials for intervention in a competitively selected market.

DEMOCRATIC REPUBLIC OF CONGO

LOW3: Outbreak Investigation

3.2 Strengthen human and organization capacity to improve outbreak response

Activity 3.2.1: Participate in evaluating the RESPOND community reporting activity, with specific responsibility for the intervention's communication aspect. (Objective 6)

RESPOND, through INCEF, is carrying out health education and community outreach in about 30 villages in the USAID-CARPE Salonga-Lukenie-Sankuru Landscape using materials about monkeypox and other diseases previously developed by INCEF. (RESPOND FY12 DRC Subactivity 3.4.1 WC). As this activity involves health education, PREVENT will provide input on the evaluation protocol.

- **Subactivity 3.2.1.1:** Provide input to RESPOND on the protocol evaluating the RESPOND community reporting activity; review and comment on INCEF materials from a communication perspective.

  - **Partners:** FHI D360, RESPOND, INCEF (indirect)
  - **Expected results:** Evaluation of community-level reporting that includes an assessment of communication aspects of the intervention

LOW4: Risk Reduction

4.2 Design approaches for risk reduction

Extractive industry

Activity 4.2.1: Case study of the Tenke Fungurume mine. (Objective 2 and 3)

PREVENT is interested in accumulating case studies of "positive deviant" companies. Tenke Fungurume is a open-pit cobalt-copper mine in DRC's Katanga Province run by Freeport McMoran Copper and Gold, a US-based mining company. The mine began full production in 2009; it currently has more than 3,000 fulltime employees and 2,000 contractors. Its community efforts include clean water and sanitation, malaria, and HIV/AIDS programs and partnerships with USAID and Trust Merchants Bank in a microcredit program for small and medium enterprises. Company documents indicate that it discourages artisanal miners working in the concession area and states a commitment to mitigating possible deleterious effects on biodiversity. The company has a good reputation; a possible entry point to a case study is its partnership with USAID-funded project that supports HIV/AIDS prevention.

- **Partners:** FHI D360
- **Expected results:** Case study of a mine with a good reputation

Monkeypox

Activity 4.2.2: Develop an intervention to reduce the risk of primary transmission of monkeypox. (Objective 4)

Monkeypox virus causes a serious smallpox-like illness in humans; most cases have been detected in central Africa, particularly in DRC. The incidence of monkeypox has been increasing recently, almost certainly in large part because of the diminishing proportion of the population that has ever received smallpox vaccination, which protects against monkeypox. Although serologic evidence of the virus has been detected in non-human primates, rodents, and squirrels and virus has been isolated from a squirrel from DRC, neither the definitive animal host nor the source of infection have been identified.

This does not negate the possibility of effective interventions, if epidemiologists have sufficient information about the person-place-time-activity characteristics of those who have recently acquired the virus. PREVENT will review state-of the-art knowledge about these factors, based on the published literature (and unpublished literature that researchers are willing to share) and informed opinion.

- **Subactivity 4.2.2.1: Summarize state-of-the-art knowledge about behavioral risk factors for monkeypox.** PREVENT will review the published (and accessible unpublished) literature and carry out iterative polling of expert opinion.

If the outcome of activity 4.2.2.1 indicates no consensus about risk behaviors, or if the risky situations/activities on which consensus is obtained are too broadly defined to be amenable to interventions, PREVENT will work with CDC and other partners to carry out more intensive formative research to identify more specific risky situations/activities using participatory appraisal methods and other qualitative approaches (4.2.2.2).

- **Subactivity 4.2.2.2: Rapid formative research to establish animal nomenclature and classifications, and to clarify perceived roles and sensitivities.** Different groups of people, even those living quite near each other, may use different names for animals and perceive them differently – e.g., cute or pest, source of food or untouchable totem. Understanding these subtleties from the outset will improve the quality of subsequent research and the potential effect of a communication intervention.

If the outcome of activity 4.2.2.1 indicates consensus on groups at risk, locations/times of risk and/or behaviors that are particularly risky, PREVENT will skip subactivity 4.2.2.2 and develop an intervention to reduce risk by reducing participation in these situations/activities. In both cases, PREVENT will begin with rapid research to determine local names for animals, understand how they are classified and what people perceive as their roles.

- **Subactivity 4.2.2.3 (contingent on results of 4.2.2.1): In-depth formative research to specify risky situations/activities.** If results of 4.2.2.1 are too nonspecific to point to implementable interventions, PREVENT will use participatory appraisal and other qualitative methods to learn more about situations/activities that put groups at risk.

- **Subactivity 4.2.2.4: Behavior trials.** We expect that 4.2.2.1 or 4.2.2.3 will produce a short list of possible behavior changes that could reduce risk. PREVENT will use the behavior trial approach to prioritize possible changes in practice that could be promoted. To initiate a behavior trial a facilitator approaches a typical person, finds common ground in an agreed-on specific goal (for example "keeping hands clean from animal excreta"), and interactively discusses different ways to achieve the goal. The next step is to agree on a change that the person will try to make, help them imagine what they will need to accomplish the change, and reassure them that variations (particularly improvements to make things easier) are appreciated. They agree on a length of time the person will try the new practice – which will depend on the frequency of possible practice (10 days is long enough for a daily behavior). After that time the facilitator visits the person again and debriefs them: asks what the person was able to do (how frequently, how consistently, whether different ways of achieving the

goal were tried), what made it easy or difficult, what benefits or negative consequences were obtained, whether they talked about it with family, friends or neighbors and whether they intend to continue.

Depending on the number of possible approaches to achieving the goal, an enrollment of 20-40 people is usually sufficient to provide a good idea of the acceptability and feasibility of different approaches as well as of incentives and disincentives for making the changes.

- **Subactivity 4.2.2.5: Strategy development (including developing and pretesting materials and approaches and identifying outcome measures).** The behavior trials will provide evidence for deciding which focus behaviors and message points to target – perceived benefits to highlight, other positive consequences, early obstacles to encourage people to persevere through, ways to make the change easier. The strategy will also identify key audiences (those whose behavior should change and those who influence them) and how to reach them. PREVENT will develop and pretest any materials needed and will define specific outcome measures.

In FY13 PREVENT will work with CDC to implement and evaluate the intervention.

- **Partners:** FHI D360, CDC, possibly GVFInc sub
- **Expected results:** Summary of the state of knowledge of behavioral risk factors; improved understanding of risk factors (4.2.2.3), key behaviors to change identified, potential intervention designed.

See also Congo Regional Activities 4.2.1 and 4.3.1

GABON

Reducing the risk of disease transmission in markets

Like Cameroon, Gabon's demand for bushmeat among urban populations is high; but Gabon's animal populations are less depleted than Cameroon's

During FY11, PREVENT mapped markets in northern Gabon, from the border with Cameroon to Oyem, on the road to Libreville. As in Cameroon, the team visited markets with more than five vendors and noted basic market characteristics, the number of vendors selling wild and domestic animal meat of different types, the number of butchers, and whether cooked wild animal meat was sold. From this frame, PREVENT will select markets in rural villages, small market towns, midsized towns, especially those located at the intersection of roads that are conduits for trade with neighboring countries, to carry out rapid ethnographic study. The impression of those who carried out the mapping is that large animals are more prevalent in Gabonese markets.

This study will be carried out after the Cameroon mapping study has been completed. It will use the same basic protocol, revised to include lessons learned during the Cameroon study. It will include observing markets, with particular attention to biosecurity and "flow" of wild animal meat during the day, observing vendors and butchers, conducting key informant interviews with the market manager, vendors, butchers and cleaners, and conducting brief exit interviews with shoppers.

LOW2: Risk determination

2.2 Interface characterization

Activity 2.2.1 Ascertain characteristics of selected markets in northern Gabon. (Objectives 2 and 3)

- **Subactivity 2.2.1.1:** Conduct rapid ethnography in several different types of markets in northern Gabon to ascertain biosecurity, understand the daily flow of wild animal meat; the perceptions, behavior and motivations of sellers & buyers; the relation of buyers to other buyers and the market owner/manager; and the process of market governance.

- **Subactivity 2.2.1.2 (contingent):** If the price/quantity monitoring effort in Cameroon (Cameroon subactivity 2.2.1.2) seems to be producing reliable information, PREVENT may select a market not far from the Gabon-Cameroon border and monitor quantities and prices of selected types of wild and domestic animal meat sold for a period of at least 6 months, attempting to relate any observed fluctuations with those observed in Cameroon.

    - **Partners:** FHI D360, GVFInc/CIRMF, market association, local government
    - **Expected results:** Improved understanding of market conditions

Extractive industry

Gabon is a country with a large and increasing investment in extractive industry (logging, mining, hydropower); it has been selected as the initial site for implementing the X-RAT tool, currently being developed by PREDICT and the Extractive Industries (EI) working group (see Global activities).

LOW2: Risk determination

2.2: Interface characterization

Activity 2.2.2 Extractive industry mapping and situation analysis. (Objectives 2 and 3)

- **Subactivity 2.2.2.1:** Extractive industry mapping and situation analysis. As in other countries, PREVENT will develop a map of current and planned extractive industry sites (mining, oil and gas, logging, hydropower). In addition, as Gabon has recently hired an international firm to develop a comprehensive infrastructure plan, if possible the map will indicate other types of anticipated land use change that might have significant effects on biodiversity – transportation, particularly roads; new settlements; large-scale agriculture; electrification). PREVENT will also collect information about the status of these projects, including national and international support and opposition, planned length of concessions, anticipated timing and anticipated associated changes in population size/density.

  - **Partners:** FHI D360, Extractive Industry Working Group, PREDICT, RESPOND
  - **Expected results:** Map of extractive industry sites and status in Gabon; description of their status.

LOW4: Risk reduction

4.2 Design approaches for risk reduction

Activity 4.2.1 Develop an advocacy intervention focused on extractive industry. (Objective 4)

- **Subactivity 4.2.1.1:** Stakeholder analysis. PREDICT will implement XRAT, which will cover the standard topics that a stakeholder analysis would cover with representatives of industry. PREVENT will support PREDICT in this endeavor and will conduct key informant interviews with national and local government leaders living in selected areas that have been or are likely to be affected to ascertain their knowledge about EPT viruses, their level of concern about them, their perceptions of the value of reducing risk of outbreaks, the actions that industry/government are currently taking, and their ideas about what actions they could take to positively affect factors that increase the risk of transmission. We will also poll and interview populations living in those areas, both inside and outside industry camps.

- **Subactivity 4.2.1.2:** Work with PREDICT and the EI working group to follow up on the XRAT application. Carry out case studies of "positive deviant" industry sites. Based on results of the analysis, advocate to extractive industry, national and local government representatives and other relevant stakeholders about possible mitigation approaches. If it seems feasible, begin planning an integrated intervention.

- **Subactivity 4.2.1.3:** Support and participate in regional Extractive Industry Conference in Northern Gabon. WWF is organizing a conference that will involve extractive industry in the Belinga region of Gabon. PREVENT as part of the EI working group will develop a presentation on mitigation opportunities to reduce human-wildlife contact and network with extractive industry, NGO and government representatives also present at the conference.

- **Partners:** FHI D360, Extractive Industry Working Group, PREDICT, RESPOND, WWF, extractive industry, local advocacy groups (tbd), research organizations (tbd), local government
- **Expected results:** Information about stakeholders' knowledge, attitudes and values related to human-wildlife interactions and other factors that might increase the risk of transmission of EPT viruses; industry current practices and willingness to implement additional changes to mitigate risk. Relationships with extractive industry and government officials that can be built over time to advocate for mitigation activities to reduce disease potential related to human-wildlife contact.

REPUBLIC OF CONGO

LOW4: Risk Reduction

Background. The Republic of Congo (ROC) is particularly rich in animal species; it has the world's highest densities of gorillas and is home to more than 400 species of animals. Much of the country is covered in forest, home to hunter-gatherer communities who rely on bushmeat – duikers, monkeys, bush pigs and other mammals.

PREVENT will partner with Wildlife Conservation Society (WCS), which has worked in ROC for about 20 years. WCS is also the PREDICT lead in ROC. WCS and PREVENT have agreed that a PREVENT behavior change and communication technical advisor person will be situated at WCS (see activity 0.1.1).

One possible focus for a BC/C intervention is changing communities' practices with regard to animals found dead. Hunters typically respond to dead animals as a bonanza of free protein. Unfortunately, some proportion of these animals have died from infections such as Ebola and can infect hunters and those who prepare food (handling carcasses of dead animals has been implicated as the infection source for index cases in several Ebola outbreaks). WCS has an ongoing program to encourage people to report gorilla carcasses they find, which they then sample for disease.

Rather than collect carcasses for eating, both WCS and PREVENT would like people to report them and leave them in situ for WCS to collect and examine. If acceptable and feasible, PREVENT would also like to discourage handling and eating of all found carcasses; a behavior that may be difficult to change, given the low protein availability. One more acceptable alternative might be to discourage consumption of found carcasses when more than one is seen within a given area/time period.

0 Project Administration

Activity 0.1.1: Behavior change and communications support for WCS and WHO/AFRO.

In recent years WCS has conducted community health activities using comic books and other materials to help motivate behavior change. Building on this foundation, PREVENT will locate a behavior change/communication advisor in the WCS/ROC office who will build staff behavior change and communication capacity and apply them to areas of mutual interest, for example, changing people's response to dead animals (see next activity description). This advisor will also provide communication and behavior change support to WHO/AFRO (up to 20% LOE; see Regional – Congo Basin activity 3.2.1) as staff there develop a standard protocol for responding to unknown outbreaks (including early risk communication and investigation).

- **Partners:** FHI D360, WCS, WHO/AFRO, coordinate with RESPOND
- **Expected results:** Improved competencies of WCS staff related to behavior change, materials development, and health education. Communication and behavior change elements incorporated in the WHO/AFRO-developed standard protocol.

LOW 2: Risk determination

2.2 Interface characterization

Activity 2.2.1: Formative research on animal names, domains, and roles and on reasons for reporting/non-reporting dead animals and factors that might inhibit collecting and consuming them in areas where WCS has implemented the gorilla reporting system. (Objectives 2 and 3)

The behaviors that PREVENT and WCS want to promote are simple: refrain from touching dead animals and instead report them to WCS. We need to understand perceived and actual incentives and barriers to practicing these behaviors. It will also help to understand the larger context of how animals are recognized and classified and to understand their perceived roles in society.

- **Partners:** FHI D360, WCS
- **Expected results:** Improved understanding of reporting/nonreporting behavior and reasons for eating animals found dead.

LOW 4: Risk reduction

4.2: Design approaches for risk reduction

Activity 4.2.1: Develop an intervention to improve dead gorilla reporting (and possibly other dead animals) and to get residents to refrain from handling and consuming these dead animals. (**Objective 4**)

- **Subactivity 4.2.1.1:** Develop a strategic approach with villagers and WCS field staff using a participatory workshop format. Present findings from the formative study and discuss intervention options.

- **Subactivity 4.2.1.2:** Conduct trial of possible approaches. PREVENT will use the behavior trials technique (more fully described in DRC subactivity 4.2.2.4) to assess the effectiveness of different approaches.

  - **Partners:** FHI D360, WCS
  - **Expected results:** Short list of tested approaches to improve reporting and reduce consumption of dead animals. Improved WCS staff competencies in behavior trials.

4.3: Implement risk reduction activities

Activity 4.3.1: Implement a health education activity to improve reporting and reduce handling of and eating dead animals. PREVENT will finalize, pretest and produce required materials, train team members in new approaches and materials; and roll-out the intervention. (Objective 5)

PREVENT will assess the intervention's effectiveness by documenting the number of dead animal reports and consumption of animals found dead reports and comparing these with past reports and reports from areas not exposed to health education program. PREVENT recognizes that this is a "soft" evaluation.

- **Partners:** FHI D360, WCS
- **Expected results:** Implementation of an intervention to improve reporting and reduce consumption of dead animals. Improved WCS staff competencies in behavior change, materials development, and health education.

Extractive industry

Currently about 90 percent of ROC's export income comes from oil, mainly obtained offshore. ROC is working to diversify its revenue sources: the Zanaga iron mine is nearing production and potash mining is scheduled to restart in 2012. In addition, various companies are exploring copper, lead, zinc, iron, magnesium, gold, and diamond deposits.[3] WCS works in the Zanaga region (about 250 km from Brazzaville).

Logging is also important. About half the country's forests are suitable for timber exploitation; Forest Monitor reports that "37 percent of the total forest area of Congo was held in concessions and this has increased rapidly since 1996."[4] WCS works with the CIB logging company to reduce the pressures on gorillas, elephants, and other endangered wildlife in four timber concessions and to control the trade in bush meat. This collaborative project is called PROGEPP: the "Project for Ecosystem Management in the Nouabalé-Ndoki Periphery Area." Given the impact that logging and other intensive activities can have on increasing access to hunting and exposure to animal-based pathogens in new as well as old operations, expanding disease mitigation activities to other logging companies (at least three other major companies work in ROC) could help control exposure by reducing commercial bush meat hunting in logging areas.

LOW2: Risk determination

2.2: Interface characterization

Activity 2.2.2: Extractive industry mapping and situation analysis. (Objectives 2 and 3)

- **Subactivity 2.2.2.1:** Extractive industry mapping and situation analysis. As in other countries, PREVENT will develop a map of current and planned extractive industry sites (logging concessions, mining, and hydropower and oil/gas if relevant) and associated road and railroad development and new settlements. PREVENT will also collect information about the status of these projects, including national and international support and opposition, planned length of concessions, anticipated timing, and anticipated associated changes in population size/density.

    - **Partners:** FHI D360, WCS, Extractive Industry Working Group
    - **Expected results:** Map of extractive industry sites and status in ROC; description of their status.

LOW4: Risk reduction

4.2 Design approaches for risk reduction

Activity 4.2.2 Develop an advocacy intervention focused on extractive industry. (Objective 4)

- **Subactivity 4.2.2.1: Stakeholder analysis**. PREVENT will conduct key informant interviews with national and local government leaders living in selected areas that have been or are likely to be affected by extractive industry (for example near Zanaga) to ascertain their knowledge about EPT viruses, their level of concern about them, their perceptions of the value of reducing outbreak risk,

[3] USGS 2009 Mineral Yearbook. http://minerals.usgs.gov/minerals/pubs/country/2009/myb3-2009-cf.pdf accessed August 20, 2011.
[4] Forest Monitor country profile, Congo Brazzaville http://www.forestsmonitor.org/en/reports/540539/549939

actions that industry and government currently take, and ideas about actions that could positively affect factors that increase transmission risk. We will also poll and interview populations living in areas inside and outside industry camps.

- **Subactivity 4.2.2.2:** Case study of a logging intervention. PREVENT will conduct a full case study of WCS' PROGEPP intervention, with particular attention on factors that have made it successful and aspects that might motivate other companies to participate.

- **Subactivity 4.2.2.3:** Develop an implementation strategy for advocacy to other logging companies about this intervention. Consider possible improvements to improve activities at the current site as well as how to introduce the intervention to another site.

  - **Partners:** FHI D360, WCS, CIB and other logging companies.

  - **Expected results:** Information about stakeholders' knowledge, attitudes and values related to human-wildlife interactions and other factors that might increase the risk of transmission of EPT viruses; industry current practices and willingness to implement additional changes to mitigate risk.. A case study of a successful intervention. An advocacy strategy.

4.3: Implement risk reduction activities

Activity 4.3.2: Develop advocacy materials and advocate to other logging companies operating in ROC on ways to mitigate disease transmission. **(Objective 5)**

- **Subactivity 4.3.2.1:** Develop and produce necessary advocacy materials/activities. Pretesting mockups/approaches.

- **Subactivity 4.3.2.2:** Advocate to other logging companies and to the national government to include disease transmission mitigation efforts in all existing and new sites.

  - **Partners:** FHI D360, WCS, CIB and other logging companies, materials production houses (tbd)
  - **Expected results:** Materials and advocacy approach to mitigate disease transmission. Logging companies and possibly other extractive industry companies consider and possibly adopt measures to mitigate disease transmission. Government includes disease transmission mitigation into policies and regulations for extractive industry contracts and concessions.

Markets

Bushmeat is the main source of protein for rural ROC residents. A recently published survey (carried out in 2006) found that 88 percent of Brazzaville households reported regularly consuming bushmeat, mainly obtained from markets.

PREVENT is confirming the prevalence of bushmeat consumption in Brazzaville and will develop and implement an intervention to reduce consumption, particularly of nonhuman primates and species most frequently implicated in transmitting EPT diseases. These activities are described in the Congo Basin regional activities section (4.2.1 and 4.3.1), as they will be carried out in both Brazzaville and Kinshasa.

In FY12 PREVENT will also introduce quantity/price monitoring of bushmeat in markets both in and outside Brazzaville.

LOW2: Risk determination

2.2: Interface characterization

Activity 2.2.3: Monitoring the price and quantity of bushmeat available in selected markets. (Objectives 2 and 3)

WCS carries out regular sampling in markets. As in Southeast Asia, PREVENT proposes that the sampling team use a standardized form developed by PREVENT (FHI D360 and WCS) to record that price and quantity of bushmeat available in markets on the day they visit for sampling. In addition, PREVENT will possibly train a market reporter to collect data systematically during the period between the sampling visits. Results will be examined for patterns of seasonal and other fluctuations in price and quantity.

- **Partners:** FHI D360, WCS
- **Expected results:** Information about fluctuations in availability and price of bushmeat in selected markets.

UGANDA

Project Administration

Activity 0.1: Establish PREVENT presence.

- **Subactivity 0.1.1:** Meet with the Mission and potential partners (WWF and others), obtain Mission agreement, solidify identification of locales and plan activities with local partners.

- **Subactivity 0.1.2:** Hire local staff/consultant and settle them in RESPOND office.

    - **Partners:** FHI D360, coordinate with RESPOND
    - **Expected results**: In-country oversight of an extractive industry intervention

LOW4: Risk Reduction

4.2: Design approaches for risk reduction

Activity 4.2.1: Develop a multi-level intervention to reduce EPT exposure among workers and populations living near the oilfields in the upper Albertine Rift. (Objectives 2-5)

Since 2006, significant oil reserves (estimated at more than 2.5 billion barrels) have been identified in the upper Albertine Rift Valley, which contains Murchison Falls National Park. As of March 2011, 33 of the 44 licensed exploration wells are located in wildlife reserve areas. Exploration activities have already resulted in changes that have the potential to affect disease emergence: roads, infrastructure, and health services have improved. Oil production is expected to begin soon.

PREVENT proposes to explore developing an integrated intervention to reduce human-exposure to wildlife among populations living in and migrating to the area. The intervention would combine "structural" industry actions to reduce human-wildlife contact – for example, ensuring a non-wildlife source of protein, constructing worker houses and/or food storage to exclude rodents and bats, instituting effective waste-management procedures – with health promotion to workers and nearby populations focusing on related individual practices, such as making sure that own food is stored properly and reminding their neighbors to do the same.

The project intends to carry out formative research with stakeholders –oil company management, national and local government staff, people already living in the area, and those working at the site – to inform the development of an intervention plan.

- **Subactivity 4.2.1.1:** Stakeholder analysis. Conduct key informant interviews with national and local government and upper management of the oil companies to ascertain their knowledge about EPT viruses, their level of concern about them, their perceptions of the value of reducing risk of outbreaks, the actions that industry/government are currently taking and their ideas about what actions they could take to positively affect factors that increase the risk of transmission.

- **Subactivity 4.2.1.2:** Conduct formative research on human exposure to wildlife in the upper Albertine rift, paying particular attention to key species (rodents, bats, primates).

1. Use qualitative (PAR) and ethnographic methods to observe and document the bat-human interface and additional dimensions of bat importance (e.g., cultural/spiritual aspects), in addition to food among local populations and workers.

2. Conduct baseline on knowledge of risks related to attitudes and practices associated with wild animal blood and contact, and assess level of contact and demand for wild animal meat.

- **Subactivity 4.2.1.3:** Develop a short list of possible combinations of structural/operational and health promotion activities.

- **Subactivity 4.2.1.4:** Based on results of the stakeholder analysis, advocate to oil industry (Tullow oil and companies holding sub-licenses), local government near sites, other relevant stakeholders regarding structural and process changes that could mitigate risk. Obtain buy-in.

- **Subactivity 4.2.1.5:** Develop and test a multilevel intervention strategy.

    1. Develop a multilevel intervention strategy that explicitly defines behavioral objectives, actors, and audiences in local communities and in the oil company administration; identifies motivational factors and barriers to action; and involves behavior change and communication approaches that address those factors and that can be implemented at scale.

    2. Identify a local creative agency to design intervention messages and materials, which may include:
        a. Illustrations or video targeted to specific audiences
        b. Simple messages that incorporate desired benefits

    3. Carry out and evaluate a pilot intervention (may not be initiated until FY13).

    - **Partners:** FHI D360, oil industry, local civil society/advocacy groups (tbd), research organizations (tbd), local government
    - **Expected results:** Information about stakeholders' knowledge, attitudes and values related to human-wildlife interactions and other factors that might increase the risk of transmission of EPT viruses; industry current practices and willingness to implement additional changes to mitigate risk; pilot test of a multi-level intervention for high-risk communities involved in extractive industry.

REGIONAL – SOUTHEAST ASIA

CAMBODIA

The Royal Government of Cambodia (RGC) will build on past highly pathogenic avian influenza work to address emerging infectious diseases. During the Zoonotic Diseases Technical Planning Workshop, May 2011, RGC identified the country's priority zoonotic diseases: avian influenza, rabies, anthrax, leptospirosis, brucellosis, salmonellosis, TB, nipah, and unknown zoonotic diseases. This list of priority diseases is reviewed periodically. PREVENT will support RGC's activity area seven, "Conduct research on zoonotic diseases" through the activities proposed in the plan below.

Cambodia FY 11 Activities

PREVENT attended two workshops on emerging infectious diseases held in January 2011 and May 2011 to identify RGC resources and needs to develop and implement a zoonotic disease national strategy. PREVENT also conducted an initial scoping visit to identify specific activities for FY 12.

Location
PREVENT will operate in six provinces: PREVENT will operate in six provinces: Kandal, Kompong Cham, Takeo, Prey Veng, Svay Rieng and Battambang. FHI D360 currently has offices in Phnom Penh, Kompancha (central), New Battambang, and Pyling.

Partnerships
PREVENT will work closely with RGC and identified partners: Ministry of Health (MOH), Ministry of Agriculture, Forestry and Fisheries (MAFF), National Veterinary Research Institute (NaVRI), FAO, Pasteur Institute (PI) and Wildlife Conservation Society (WCS).

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Literature review. (Objectives 2 and 3)

PREVENT will undertake a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Cambodia. The focus will be risky practices and behaviors that affect the disease transmission from wildlife to humans, social norms that support these or less risky practices, and the motivations and circumstances that support risky practices, with a focus on rodent, bat, and primate species.

- **Partners** – FHI D360, local consultant, institution (possibly a university partner)
- **Expected results** - Report that summarizes what is currently known about human exposure to wildlife in Cambodia.

Activity 2.2.2: Human-animal exposure –- Formative research. (Objectives 2 and 3)

PREVENT, with EcoHealth Alliance (PREDICT), is developing a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize them (as rats, wildlife or pests), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what risks, if any, people perceive that animals pose. PREVENT anticipates three research sites: an area in northwest Cambodia known for bat hunting and bat and rodent consumption (Battambang Province), and a community involved in cross-border trade of rodents to Vietnam (e.g., Kandal, Kompong Cham, Takeo, Prey Veng, and/or Svay Rieng Provinces) and an urban site.

- **Partners** – FHI D360, research firm
- **Expected results** – Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. , Guidance for adapting the human-animal exposure survey questionnaire.

Cross-border Rodent Trade

There is an active trade in rodents from southeast Cambodian communities (e.g., Kandal, Kompong Cham, Takeo, Prey Veng, and/or Svay Rieng Provinces)[5] to Vietnam where they are sold to markets in and around Ho Chi Minh City, Vietnam.[6] The rat trade high-season is from April to October and "rat sales, at the checkpoint of Vietnam's An Giang Province alone has reached about 50 tons."[7]

PREVENT will map markets in this area, monitor biosecurity practices, quantities and prices, and conduct formative research to quantify, over space and time, the extent of rodent trade between Cambodia and Vietnam, identify potential risks for EPT and possible interventions to mitigate risk.

Activity 2.2.3: Market mapping and monitoring of cross-border rodent trade. (Objectives 2 and 3)

- **Subactivity 2.2.3.1:** PREVENT will map markets using the protocol that has been developed and applied in Cameroon and Gabon and adapted for Southeast Asia.

- **Subactivity 2.2.3.2:** PREVENT will monitor market biosecurity, quantities of animals available and prices in eight of these markets over the course of one year. Activities will include:

  1. A tentative schedule of visits to eight markets will be finalized in consultation with RGC and local partners and market monitors will be selected.
  2. A two-day workshop in Phnom Penh to familiarize monitors with market monitoring forms, data collection and analysis protocols.
  3. Implementation of the monitoring through site visits. PREVENT will explore the possibility of using SMS to submit reports.
  4. Analysis of information on a rolling basis throughout the year.

[5] http://www.chinadaily.com.cn/world/2009-05/15/content_7781683.htm
[6] http://khmerization.blogspot.com/2009/05/50-tons-of-cambodian-rat-meat-exported.html
[7] http://www.chinadaily.com.cn/world/2009-05/15/content_7781683.htm

- **Partners** – FHI D360, local consultants, potentially PREDICT (WCS)
- **Expected results** – Spatial and temporal map of price and quantity of key wild species of rodents and bats as well as additional wildlife found in markets in Cambodia. Monitoring information for eight of these markets along the Cambodia-Vietnam border; estimates of the quantity of rodents/meat traded and exposure of individuals to rodents.

Activity 2.2.4: Qualitative research to understand cross-border rodent trade. (Objectives 2 and 3)

PREVENT will carry out rapid qualitative research in selected Cambodian communities involved in cross-border rodent trade research to understand how much of the population is involved, trace sources and routes by which rodents (and comparison foods) get to market and their destinations; identify different actors in the chain: collectors, transporters, consolidators, processors, brokers, and institutional buyers, if relevant. Interview those who participate in the rodent trade to determine how important the trade is as a source of income, evaluate trader willingness to adopt income substitutes and ascertain perceived advantages and barriers of switching to substitutes. Assess traders appreciation (or not) of the risks identified in the market mapping and monitoring activity (2.2.3), and the potential for risk mitigation.

- **Partners** – FHI D360, consultants, PREDICT (WCS), other research organization (tbd)
- **Expected results** – Actors in rodent trade identified. Report on rat meat trade as a source of income and perceived advantages and barriers of switching to substitutes. Understanding key communities and subpopulations engaged in rodent cross-border trade. Identification of potential interventions to decrease risk; recommendations for regulatory, structural and/or behavior change interventions to reduce the risk of EPT from cross-border rodent trade.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Develop intervention strategy to reduce human-animal exposure and/or the risk of transmission of EPT. (Objective 4)

Based on results of activities 2.2.1-2.2.4 to characterize the interface between humans and animals PREVENT will first identify higher risk groups and factors that contribute to the risk, and then will begin to develop an intervention strategy to reduce risky human exposure to animals. This year the project expects to identify specific practices that increase or decrease risk, and to test the feasibility of changing them through behavior trials.

- **Partners** – FHI D360, TBD
- **Expected results** - Specific validated strategies to reduce risk, including definition of the key population(s) (which might be individuals or organizations or policymakers), the desired action(s), factors which might be barriers or incentives, and ways to reach the key population(s). Assessment, through behavior trials, of the feasibility and sustainability of approaches

INDONESIA

Indonesia's diverse flora and fauna, spread over a great expanse of islands, are matched by a diversity of culture. During the past decade Indonesia has addressed emerging diseases such as avian influenza A H5N1, Pandemic influenza AH1N1, severe acute respiratory syndrome (SARS) and re-emerging and drug-resistant diseases.[8]

PREVENT - FY11 activities completed

In March 2011 PREVENT commissioned a telephone survey about wild animal consumption, through an omnibus mechanism, fielded in major urban and peri-urban areas of Indonesia, Malaysia, Thailand, and Vietnam. Results indicated that few urban Indonesian respondents spontaneously mentioned any wild animal they had eaten in the last year, with the highest proportion, 7percent mentioning eels. When asked about specific animals no more than 1 percent of Indonesian respondents reported eating any of the animals of interest; bats, rodents (rats, squirrels, mice) and non-human primates.

Corresponding with these low wildlife consumption patterns, most survey respondents in Indonesia agreed with the corresponding attitudinal statements "People can get sick from eating wild animal meat" and "It can be dangerous to have contact with the blood of a wild animal". Further, in urban Indonesia people on average disagreed with the statements "I eat more wild animal meat than I did five years ago", "Many people I know eat wild animal meat", and "Wild animal meat tastes better than domestic animal meat". As seen in some other Asian urban centers (the Indonesian average scores on all five attitude statements were similar to those of both Malaysia and Thailand; the results from Vietnam were the reverse), urban Indonesians indicate a reduction in wildlife consumption.

PREVENT would like to understand the wildlife consumption and food preferences in more rural Indonesian populations living closer to forested areas. PREVENT will build on the omnibus findings when formulating the human-animal exposure formative research to address populations specific nomenclature for wildlife and address the variety of ways Indonesians are exposed to wildlife.

PREVENT - FY12 planned activities

The diversity of Indonesia's flora, fauna and cultures and the expanse of the archipelago (17,508 islands of which 6,000 are inhabited[9]) make it necessary to narrow PREVENT's focus in initial year of activity.

PREVENT will begin activities in the forested areas of Kalimantan and North Sulawesi. In Kalimantan the biodiversity of wildlife, continued human-wildlife interaction and the presence of extractive industry represent an opportunity for EPT transmission. Kalimantan also offers the opportunity to collaborate with several potential partners working in environment and health. The North Sulawesi population has a high rate of rodent and bats consumption—a potentially risky behavior for disease emergence. As PREVENT implements activities, the project will examine and realign the geographic focus as needed.

[8] Coker, Richard J, Benjamin M Hunter, James W Rudge, Mraco Liverani, and Piya Hanvoravonghai. *Emerging infectious diseases in southeast Asia: regional challenges to control.* Lancet Vol 377, February 12, 2011.
[9] https://www.cia.gov/library/publications/the-world-factbook/geos/id.html

Partnerships

PREVENT anticipates working with key stakeholders throughout the project's life including: Government of Indonesia (e.g. MENKOKESRA, KOMNAS Zoonosis, DEPKES (Ministry of Health), Ministry of Forestry, Ministry of Agriculture, and Ministry of Environment), universities (Indonesia Institute of Sciences- LIPI), University of Indonesia School of Public Health, and Primate Research Center Bogor Agricultural University), extractive industry partners, relevant NGOs (Indonesian Red Cross- PMI), Muhammadiyah and World Wildlife Fund (WWF), research agencies (TBD), and marketing agencies (TBD) as well as PREDICT and RESPOND.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Literature review. (Objectives 2 and 3)

PREVENT will undertake a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Indonesia. The focus will be risky practices and behaviors that affect disease transmission from wildlife to humans, social norms that support these or less risky practices, and motivations and circumstances that support risky practices, with a focus on rodents, bats, and primate species.

- **Partners** – FHI D360, local consultant, institution (potentially a University partner)
- **Expected results** - Report that summarizes what is known about human exposure to wildlife in Indonesia.

Activity 2.2.2: Human-animal exposure – formative research. (Objectives 2 and 3)

PREVENT, with EcoHealth Alliance (PREDICT), is developing a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize them (as rats, wildlife or pests), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what risks, if any, people perceive that animals pose. PREVENT anticipates conducting this formative research in a series of five areas that range from a pristine ecologic environment to an urban setting.

- **Partners** — FHI D360, research firm, university partnership (i.e. University of Indonesia School of Public Health)
- **Expected results** – Information about animal names, how animals are categorized, their roles, types of human-animal contact and perceived risk. Guidance for adapting the human-animal exposure survey questionnaire

Activity 2.2.3: Human-animal exposure – survey. (Objectives 2 and 3)

With input from EcoHealth Alliance, PREVENT is developing a standard survey protocol to quantify the type, frequency and intensity of exposure of humans to animals that are potential sources of EPT. This survey will help PREVENT and others identify which subgroups of the population are at highest risk of EPT.

In FY12 PREVENT is rolling out the survey in southeast Asia. Using the results of formative research (subactivity 2.2.4), PREVENT will adapt the questionnaire for Lao PDR, then conduct the survey in selected sites.

- **Partners** – FHI D360, research firm (tbd)
- **Expected results** – Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.

Activity 2.2.4: Assessment of the potential for amplification. (Objective 3)

A pandemic requires both emergence (transmission of an animal disease to a human) and amplification (transmission from the index human case to a rapidly expanding number of people). If infected people do not come in contact with a sufficiently large number of uninfected people when they can transmit an infection, the disease will rapidly die out. To ensure that PREVENT focuses on emergence in areas/populations that have true pandemic potential. PREVENT will assess the potential of a disease to spread from a remote area to a dense urban setting using an approach similar to the "small-world" study carried out by Stanley Milgram[10].

People living in selected remote areas will be given a package and asked to get it to a provincial town center by giving it to someone who may give it to someone else, etc., recording the location and date/time of each handover. Comparing the time and number of people the package passes through to reach the town with periods of infectivity of different viruses will indicate the potential for an emerging pathogen to spread from the rural to more urban, densely populated areas.

- **Partners** - FHI D360, TBD
- **Expected results**– Indication of potential for amplification, enabling prioritization of focus areas.

Activity 2.2.5: Extractive industry situation analysis. (Objectives 2 and 3)

Land use change is a critical factor affecting human – wildlife contact. Extractive industries in particular – mining, oil/gas, logging, but also hydropower, and even intensive agriculture - change the dynamics between human and animal populations, for example, by removing the karst formations of limestone from the landscape that serve as a habitat for bats, a key PREVENT species. PREVENT leads the EPT program's extractive industries working group that includes members from PREDICT, RESPOND, and USAID. The group is helping to develop a tool to assess industry risks for disease transmission and suggest possible mitigation activities. In addition, PREVENT is developing a stakeholder analysis tool to understand positions and information sources and influences of policy makers, industry, and local civil society groups.

Indonesia has a more developed extractive industries sector than other countries in Southeast Asia, and thus offers opportunities to identify current industry best practices for mitigating human-animal contact as well as additional possible mitigation approaches. PREVENT will:

1. Conduct a literature review/report on current practices and existing materials for improving practices that prevent or mitigate disease transmission
2. Meet with government (at various levels) to discuss current policies and regulations around extractive industry

[10] Milgram, S. 1967. "The Small World Problem." *Psychology Today* 1:61-67.

3. Map/scope extractive industries to determine which groups are working where and how developed the sites are
4. Visit one or several companies engaged in extractive industry to assess current risk reduction practices
5. If possible, carry out at least two case studies of selected model industry sites to learn more about best practices

- **Partners** – FHI D360, extractive industry (e.g., Freeport Indonesia), relevant ministries
- **Expected results**– Report of best practices and suggested strategy for working with industry.

Activity 2.2.6: Investigation of changes in settlement patterns. (Objectives 2 and 3)

New settlements in and near pristine environments, whether from in-migration to extractive industry sites, refugee camps, or settlements resulting from transmigration policies, affect the size and density of human and animal populations and the amount of forest fringe and thus are important drivers of zoonotic disease emergence.

Since the early 20th century the Indonesia government has been practicing transmigration to move residents in dense urban populations such as Java to less inhabited islands.[11] The Transmigration Program is well-documented and is at the interface of human populations and a pristine natural environment. This government program clears uninhabited lands on which to relocate families. PREVENT proposes conducting a literature review and interviewing people in key ministries to examine the effect of this program on human-wildlife exposure. PREVENT will focus its work in Kalimantan.

- **Partners** – FHI D360, Ministry of Manpower and Transmigration, Ministry of Environment, local consultant.
- **Expected results**– Possible TOR to assess the relationship between transmigration settlements and human-animal exposure.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Intervention to reduce human-animal exposure. (Objective 4)

Based on results of the human-animal exposure survey, PREVENT will first identify higher risk groups and risk factors, and then develop an intervention strategy to reduce risky human exposure to animals. PREVENT expects to identify specific practices that increase or decrease risk, and to test the feasibility of changing them through behavior trials in FY 12.

- **Partners** – FHI D360, KOMNAS Zoonosis, other TBD
- **Expected results** - Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations and/or policymakers), desired action(s), factors that might be barriers or incentives, and ways to reach identified key population(s).

11 http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/777331ddd0b6239c852567f5005ce5e2?OpenDocument&Click=

Activity 4.2.2: Develop advocacy strategy and materials for extractive industry. (Objective 4)

Based on the report about extractive industries best practices, PREVENT will develop a strategy to engage extractive industries in risk reduction activities. Specific activities will include:

1. Analyze information gathered at the global level on current industry risk reduction practices.
2. Conduct stakeholder analysis at national, provincial, and community levels related to sites of interest (model sites and those where EPT might carry out interventions).
3. Analyze potential barriers and motivations to implementing risk reduction practices.
4. Write an advocacy strategy and materials, possibly including guidelines documents for specific industries.

- **Partners** – FHI D360, TBD
- **Expected results** – Advocacy strategy and materials for extractive industry.

LAO PDR

In Southeast Asia, Lao PDR is the country with the most undisturbed landscape and remote populations. More than 80 percent of the population lives in rural areas; and for many, wild animal meat is an important source of protein. Continued human-wildlife interaction represents an opportunity for EPT transmission, while the reliance on wild animal meat poses the equally compelling challenge to ensure food security for the rural population. PREVENT will build on lessons learned in implementing a multi-sectoral national avian and human influenza strategy to develop interventions to reduce the likelihood of EPT transmission, while addressing the Government of Lao PDR's goals of food security, conservation, and poverty alleviation.

Lao PDR FY 11 Activities

PREVENT's EPT program received permission to conduct activities in July 2011. PREVENT conducted a scoping visit to meet with staff at the U.S. Embassy, key Lao PDR government agencies including the National Emerging Infectious Diseases Coordination Office (NEIDCO) and the National Agriculture and Forestry Research Institute (NAFRI) and potential partners and stakeholders such as WCS, National University and FAO to discuss areas of interest and to plan potential collaboration. We anticipate that WCS/Lao will be a key PREVENT partner in FY 12.

Location

Pending government approval, PREVENT will initiate work in seven provinces with important markets, subsistence hunting, and extractive industry concessions: Vientiane, Xieng Khouang, Houaphan, Bolikhamxay, Khammouane, Attapeu, and Champasak. Additional provinces for market monitoring and extractive industry – related activities may be requested as further information is obtained.

Partnerships

PREVENT will build on the strong previous collaboration between FHI D360 (formerly AED) and NEIDCO to ensure that activities are consistent with Government of Lao PDR goals. PREVENT anticipates working with key stakeholders throughout the project's life including: Government of Lao PDR (e.g. NEIDCO, the Center of Information and education for Health (CIEH), MOH Department of Hygiene and Prevention, provincial and district health units, agriculture and forestry offices in identified provinces, Lao Women's Union (LWU), Market Working Group, extractive industry partners, and research agencies (TBD), as well as EPT Program partners PREDICT and RESPOND.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Literature review. (Objectives 2 and 3)

PREVENT will undertake a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Lao PDR. The review will focus on risky practices and behaviors that affect the disease transmission from wildlife to humans, social norms that support these or less risky practices, and the motivations and circumstances that support risky practices, with a focus on rodents, bats and primate species.

- **Partners** – FHI D360, local consultant
- **Expected results** - Report that summarizes what is known about exposure of humans to wildlife in Lao PDR.

Activity 2.2.2: Ascertain characteristics of selected markets in PDR Lao (Objectives 2 and 3)

- **Subactivity 2.2.2.1**: Market monitoring. Bats and rodents are bought openly for consumption from identified markets in Lao PDR. Because bats and rodents harbor EPT viruses, PREVENT proposes concentrating on markets in areas where bats and rodents are consumed to determine potential risk posed by wildlife in markets.

  In partnership with WCS (PREDICT partner), PREVENT will monitor markets for biosecurity practices, and price and quantity patterns over one year. PREVENT will collect this information from markets where WCS samples wildlife (including key species of bats and rodents). Market monitoring activities will include:

  1. A two-day workshop in Vientiane to familiarize monitors with market monitoring forms, data collection and analysis protocols
  2. Systemic, periodic collection of biosecurity, price and quantity information from markets.
  3. A tentative schedule of market visits will be finalized in consultation with the Government of Lao PDR, WCS and local partners. It will initially include markets in seven provinces: Vientiane, Xieng Khouang, Houaphan, Bolikhamxay, Khammouane, Attapeu, and Champasak.
  4. Analyze information collected on a rolling basis during the year.

- **Subactivity 2.2.2.2**: Rapid ethnography. PREVENT will conduct a rapid ethnography in several different types of markets to understand the daily flow of wild animal meat; the perceptions, behavior and motivations of sellers & buyers; the relation of buyers to other buyers and the market owner/manager; and the process of market governance.

  - **Partners** – FHI D360, WCS (PREDICT)
  - **Expected results** – Spatial and temporal map of price and quantity of key wild species - rodents, bats, and additional wildlife found in markets in Lao PDR. Information about market biosecurity and deeper understanding of sellers and buyers. Recommended market interventions to reduce the risk of human-animal exposure to EPT viruses in markets.

Activity 2.2.3: Consumer demand/Peri-domestic exposure scoping. (Objectives 2 and 3)

PREVENT will work in seven of the sixteen provinces in Lao PDR this year, leaving nine provinces unaddressed. To provide some insight into exposure to wildlife in these provinces PREVENT proposes working with the Lao Women's Union network to collect information from all provinces about consumption of wildlife (particularly rodents, bats and primates) and peri-domestic exposure to wildlife. LWU is present in all provinces and almost all districts and villages. They claim 1,000,000 members from about 10,000 villages. The final form of the inquiry is still being determined, but it is likely to be a simple set of normative questions about availability of wildlife in local markets, whether people in the area consume certain species and how frequently (categories, ranging from never and rarely/on special occasions to "main protein"), and about animals that are encountered in the home, in farms and in the forest that can be disseminated and collected through the hierarchical structure of the LWU. This information will form the basis for considering where PREVENT will work. Depending on the outcome and value of this activity, it may be considered as a future monitoring tool.

- **Partners** – FHI D360, Lao Women's Union
- **Expected results** – Standardized normative information about consumption and peri-domestic exposure of humans to key wild animals. PREVENT will use this information to guide decisions about possible in-depth qualitative follow-up activities and interventions.

Activity 2.2.4: Human-animal exposure – formative research. (Objectives 2 and 3)

PREVENT, with EcoHealth Alliance (PREDICT), is developing a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what risks, if any, people perceive that animals pose. PREVENT anticipates conducting the research in three sites such as an area near an extractive industry site, a place with high rodent and bat consumption (Khammouane), and a subsistence hunting area (Houaphan). However, selection of formative research sites will be further determined based on the outcome of subactivities 2.2.1 – 2.2.3.

- **Partners** – FHI D360, research firm (tbd)
- **Expected results** – Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. Guidance for adapting the human-animal exposure survey questionnaire

Activity 2.2.5: Human-animal exposure – survey. (Objectives 2 and 3)

With input from EcoHealth Alliance, PREVENT is developing a standard survey protocol to quantify the type, frequency and intensity of exposure of humans to animals that are potential sources of EPT. This survey will help PREVENT and others identify which subgroups of the population are at highest risk of EPT.

In FY12 PREVENT is rolling out the survey in southeast Asia. Using the results of formative research (subactivity 2.2.4), PREVENT will adapt the questionnaire for Lao PDR, and then conduct the survey in selected sites.

- **Partners** – FHI D360, research firm (tbd)
- **Expected results** – Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.

Activity 2.2.6: Assessing the potential for disease amplification. (Objective 3)

A pandemic requires both emergence (transmission of an animal disease to a human) and amplification (transmission from the index human case to a rapidly expanding number of people). If infected people do not come in contact with a sufficiently large number of uninfected people when they can transmit an infection, the disease will rapidly die out. To ensure that PREVENT focuses on emergence in areas/populations that have true pandemic potential,. PREVENT will assess the potential of a disease to spread from a remote area to a dense urban setting using an approach similar to the "small-world" study carried out by Stanley Milgram[12] .

People living in selected remote areas will be given a package and asked to get it to a provincial town center by giving it to someone who may give it to someone else, etc., recording the location and date/time of each handover. Comparing the time and number of people the package passes through to reach the town with periods of infectivity of different viruses will indicate the potential for an emerging pathogen to spread from the rural to more urban, densely populated areas.

- **Partners** – FHI D360, WCS
- **Expected results** – Indication of potential for amplification, enabling prioritization of focus areas.

Activity 2.2.7: Extractive industry mapping. (Objective 2 and 3)

Land use change is a critical factor affecting human – wildlife exposure. Extractive industries in particular – mining, oil/gas, logging, but also hydropower, and even intensive agriculture, change the dynamics between human and animal populations, for example, by attracting large numbers of in-migrating workers to a formerly sparsely inhabited area, or creating roads to facilitate export of extracted products that also facilitate commercial hunters' access to formerly pristine forest. PREVENT is leading an EPT Program extractive industries working group that includes members from PREDICT and RESPOND as well as USAID. The group is participating in the development of a tool for assessing industry risks and current practices and suggesting possible mitigation activities. In addition, PREVENT is developing a stakeholder analysis tool for understanding the positions and sources of information and influence of policymakers, industry, and local civil society groups, which will be applied in Lao PDR.

Laos is undergoing a boom in extractive industries; according to a recent report in the International Herald Tribune, the government is currently holding discussions with more than five mining companies and has plans to build 70 hydroelectric dams. PREVENT will:

1. Map/ extractive industries to determine which groups are working where and how developed the sites are.
2. Meet with government (at various levels) to discuss current policies and regulations around extractive industry.
3. Visit one or several companies engaged in extractive industry to assess current risk reduction practices.

- **Partners** – FHI D360, extractive industry, relevant ministries, WCS (PREDICT)
- **Expected results** – Report of Lao PDR extractive industry players, interests, political climate, incentives, and barriers.

[12] Milgram, S. 1967. "The Small World Problem." *Psychology Today* 1:61-67.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Intervention to reduce human-animal exposure. (Objective 4)

Based on results of the human-animal exposure survey, PREVENT will first identify higher risk groups and risk factors, and then develop an intervention strategy to reduce risky human exposure to animals. PREVENT expects to identify specific practices that increase or decrease risk, and to test the feasibility of changing them through behavior trials in FY 12.

- **Partners** – FHI D360, tbd
- **Expected results** - Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations and/or policymakers), desired action(s), factors that might be barriers or incentives, and ways to reach identified key population(s).

Activity 4.2.2: Market monitoring structural/regulatory interventions. (Objective 4)

Based on market monitoring findings, PREVENT will develop an intervention strategy to reduce human exposure to animals. PREVENT expects to identify specific practices that increase or decrease risk, and to test the feasibility of changing them through behavior trials in FY 12.

- **Partners** – FHI D360, tbd
- **Expected results** - Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations, and/or policymakers), desired action(s), factors that might be barriers or incentives, and ways to reach identified key population(s).

Activity 4.2.4: Participation in and support for markets working group. (Objective 6)

The Lao Markets Working Group has expressed an interested in expanding their mandate to EID's and one health. PREVENT proposes participation in and supporting the markets working group in Lao; anticipating future collaboration when interventions for PREVENT are underway.

- **Partners** – FHI D360
- **Expected results**– Expansion of MWG to cover EID's and one health.

THAILAND

Thailand will serve as a regional platform for PREVENT. Regional research and communication staff will be based in Bangkok. Isaan, the northeastern region of Thailand, will continue to be the focal area for human-animal peri-domestic exposure research as this region has reported rodent consumption and language similarities with Lao PDR.

PREVENT - FY11 activities completed

In March 2011 PREVENT commissioned a survey about wild animal consumption, through an omnibus mechanism, fielded in major urban and peri-urban areas of Indonesia, Malaysia, Thailand, and Vietnam. Few respondents in Thailand spontaneously mentioned eating any wild animal in the past year, with the highest proportion (10%) mentioning wild pig. When asked about specific animals, 8 percent reported eating rats and 1 percent squirrel, with less than 1 percent reporting eating other animals of interest: bats, rodents (mice), and non-human primates.

Most survey respondents in Thailand agreed with the attitudinal statements: "People can get sick from eating wild animal meat;" and, "It can be dangerous to have contact with the blood of a wild animal". Further, they disagreed with the statements "I eat more wild animal meat than I did five years ago," "Many people I know eat wild animal meat," and "Wild animal meat tastes better than domestic animal meat." Those surveyed in urban and peri-urban areas of Malaysia and Indonesia responded similarly to the five attitude statements; however, Vietnamese responses were the reverse.

While urban consumption may be low, PREVENT would like to collect information about wildlife consumption and other types of exposure to wild animals from more rural populations living closer to forested areas. Such studies must include population-specific nomenclature for wildlife and address the different ways Thais are exposed to wildlife. PREVENT will build on the omnibus findings when formulating the human-animal peri-domestic exposure survey.

In July 2011 PREVENT pretested components of a toolkit for formative research on human exposure to animals at home and work (peri-domestic exposure). This pilot study assessed different qualitative approaches to learn the local names for different types of animals, how people categorize them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what risks, if any, people perceive that animals pose. During the pilot, PREVENT also assessed the effect of different ways of representing animals- including writing animal names on paper, drawing symbolic representation of animals, and/or photographs or drawings of animals. The pretest was held in Khon Khan, Thailand; results are currently being analyzed. These results, along with information from the omnibus survey, will be used to develop a questionnaire for a survey to quantify human exposure to wildlife. This survey will be pretested in the same area of Thailand.

Partnerships: Government of Thailand (National Park, Wildlife and Plant Conservation Department of Thailand (DNP), Mahidol University, research agencies (TBD), PREDICT, and RESPOND.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Literature review. (Objectives 2 and 3)

PREVENT will undertake a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Thailand. The focus will be risky practices and behaviors that affect the disease transmission from wildlife to humans, social norms that support these or less risky practices, and the motivations and circumstances that support risky practices, with a focus on rodent, bat, and primate species.

- **Partners** – FHI D360, local consultant, institution (potentially a University partner)
- **Expected results** - Report that summarizes what is known about human exposure to wildlife in Thailand.

Activity 2.2.2: Pre-test human-animal exposure survey. (Objectives 2 and 3)

During FY11, PREVENT pretested elements of a formative research toolkit for understanding human exposure to animals in Isaan. During FY12 PREVENT will pretest a survey approach for quantifying human exposure to animals in the same region. The survey will estimate contact rates between men and women and key animals. PREVENT will focus on animals particularly likely to carry EPT viruses (rodents, bats and primates), but will also ask about a few selected "control" domestic and wild animals.

- **Partners** – FHI D360, research consultant, research firm, PREDICT (EcoHealth Alliance)
- **Expected results** – Pretested survey questionnaire for human-animal exposure survey, to be implemented in Indonesia, Lao PDR, and Vietnam in FY 12. Estimated exposure rates of humans and key animals that will "ground-truth" PREDICT's geospatial models as well as inform potential interventions.

Activity 2.2.3: Technical assistance for DNP behavioral research. (Objective 6)

The National Park, Wildlife and Plant Conservation Department of Thailand (DNP) of the Royal Kingdom of Thailand's Ministry of Natural Resources and Environment (MNRE) conserves and protects national forests, wildlife, and flora of Thailand has expressed an interest in receiving PREVENT's help in building the behavioral research capacity of DNP staff in time for them to carry out behavioral research in FY 13. PREVENT proposes providing TA (up to 1.5 months of LOE).

- **Partners** - FHI D360, The National Park, Wildlife and Plant Conservation Department of Thailand (DNP)
- **Expected results** – Strengthened local capacity in behavioral research and input into Behavioral Research studies

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Emerging Infectious Disease (EID) Preparedness Forum.[13] (Objective 6)

The EID Preparedness Forum began in 2006 in response to avian and human influenza in Southeast Asia. In 2010 the forum expanded to include all EID's. Each month the forum hosts a meeting to share information on emerging and zoonotic diseases and to improve member coordination. The membership includes governments, non-governmental organizations, private sector, and academia. PREVENT will continue to support and participate in the EID Preparedness Forum in FY 12.

- **Partners** – RESPOND, FHI D360
- **Expected results** – Continued EID Forum knowledge sharing and coordinated preparation of EID events.

[13] http://www.eidforum.org/

VIETNAM

Vietnam is a country with high consumption of wild animal meat and use of wild animal-based medicines, although not everyone consumes wild animal meat. Drury's[14] dissertation research in Hanoi showed that only about half of the population reported consuming wild animal meat. in the past 12 months. Respondents who did consume it were very concerned about food quality; saying that they preferred wild meat because it is more "natural," echoing AI.COM findings that people preferred uncaged chickens because they were more "natural." Another clear factor enhancing the desirability of wild meat is its rarity; things costly to acquire are highly valued.

Demand for wildlife is partially met through wildlife farms. WCS has documented problems posed by wildlife farms, notably that some farms replenish their stock from wild animals. This raises the risk of introduction of disease, particularly if farms do not have good biosecurity. PREVENT will work with WCS to identify factors that would encourage or inhibit people from engaging in optimal practices at the wildlife farms.

Some of PREVENT key species—bats and primates—were not explicitly included in Drury's study, therefore PREVENT carried out a consumer demand survey that asked specific questions about these key species as well as general questions about eating wild animal meat. In this study 5.2 percent of respondents in Hanoi and 27.4 percent in Ho Chi Minh City reported eating rodents in the past year (see *FY11 activities completed,* below*)*. PREVENT has identified one area, the Takeo/An Giang border where there is cross-border trade in rodents from Cambodia to Vietnam; during FY12 PREVENT will examine this trade from both sides of the border.

Finally, PREVENT will also review ongoing and recent interventions to reduce demand for wild animal meat.

PREVENT - FY11 activities completed

In March 2011 PREVENT commissioned a telephone survey about wild animal consumption, through an omnibus mechanism, fielded in major urban and peri-urban areas of Indonesia, Malaysia, Thailand, and Vietnam. Interestingly, Vietnamese responses were quite different from the other three countries. In response to the unaided question: "Please tell me all of the types of wild animal meat that you or someone in your household ate since this time last year," very few respondents in Indonesia or Malaysia mentioned any animal (the highest proportion mentioning any specific animal was 7 percent for eels in Indonesia; 5 percent for deer in Malaysia). In Thailand 10 percent of respondents spontaneously mentioned wild pig; the animal also mentioned by the highest proportion of respondents in Vietnam (21%). Other animals mentioned spontaneously by more than 10 percent of respondents from Vietnam were cane rat (19%), frogs (18%), and snake (14%). Numbers for all these animals were even higher when looking just at Ho Chi Minh City respondents.

In response to closed-ended questions about animals of interest ("In the past year, did you or someone in your household eat the following animal: ____") Vietnam again had higher rates of positive responses than other countries. Twenty percent of respondents (27% of men and 14% of women) reported having eaten rat although fewer than 1 percent reported eating bats, monkeys, squirrels, or mice. As a comparison, in Thailand, 8 percent reported eating rats and 1 percent squirrel, with fewer than 1 percent

[14] RC Drury: Identifying and understanding consumers of wild animal products in Hanoi, Vietnam: Implications for Conservation Management. University College London, February 2009.

reporting eating other animals of interest. In Malaysia no more than 2 percent and in Indonesia no more than 1 percent of respondents reported eating any animal of interest.

Attitudes were also different in Vietnam compared with other countries. Respondents were asked to rate the extent of their agreement with different statements on a scale from 1 "strongly disagree" to 5 "strongly agree." Average ratings for respondents in Vietnam were consistently higher or lower ratings than averages for respondents from the other three countries, which are consistently similar to each other. On average, respondents in Vietnam were least likely to agree that contact with wild animal blood can be dangerous and least likely to agree that people can get sick from eating wild animals. On the other hand, Vietnamese were most likely to agree that wild animal meat tastes better than domestic, eat more wild animal meat than they did five years ago, and report that many people they know eat wild animal meat. Thus the results of the attitude questions are consistent with the higher rates of reported consumption of wild animal meat in Vietnam than in the other countries. PREVENT will build on the omnibus findings when formulating the peri-domestic exposure formative research.

Location

PREVENT will implement work in southern Vietnam, peri-urban and rural areas of Ho Chi Minh City (HCMC) and nine provinces; An Giang, Quang Ninh, Lam Dong, Long An, Tien Giang, Tay Ninh, Dong Thap, Dong Nai, and Khanh Hoa.

Partnerships

PREVENT anticipates working with key stakeholders throughout the project's life including: Government of Vietnam (e.g. Ministry of Agriculture and Rural Development (MARD), Department of Animal Health (DAH), relevant NGOs (World Wildlife Fund (WWF), research agencies (TBD), and Wildlife Conservation Society (WCS)/PREDICT and RESPOND.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Literature review. (Objectives 2 and 3)

PREVENT will undertake a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Vietnam. The focus will be risky practices and behaviors that affect disease transmission from wildlife to humans, social norms that support these or less risky practices, and the motivations and circumstances that support risky practices, with a focus on rodents, bats, and primate species.

- **Partners** – FHI D360, local consultant
- **Expected results** - Report summarizing what is known about human exposure to wildlife in Vietnam.

Activity 2.2.2: Human-animal exposure – formative research. (Objectives 2 and 3)

PREVENT, with EcoHealth Alliance (PREDICT), is developing a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what risks, if any, people perceive that animals pose. PREVENT anticipates conducting this formative research in three sites: 11) peri-urban area of HCMC (rodent and potential bat consumption), 2) in An Giang Province close to the border of Cambodia (cross-border rodent trade) 3) an rural area near the Vietnam – China border within Quang Ninh Province, selected because of its unique terrain, boasting many islands, rivers, and caves, a high density of wildlife farms and wildlife trade from Vietnam to China.

- **Partners** – FHI D360, research firm (tbd)
- **Expected results**– Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. , Guidance for adapting the human-animal exposure survey questionnaire

Activity 2.2.3: Human-animal exposure – survey. (Objectives 2 and 3)

In FY12 PREVENT is rolling out the survey in southeast Asia. Using the results of formative research (subactivity 2.2.4), PREVENT will adapt the questionnaire for Vietnam, then conduct the survey in selected sites.

- **Partners** – FHI D360, research firm (tbd)
- **Expected results** – Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.

Activity 2.2.4: Wildlife farms biosecurity assessment. (Objectives 2 and 3)

Theoretically, farmed wild animals should relieve pressure on wild animal populations. However, a 2009 study (WCS and Vietnam Department of Forestry) showed that nearly half of commercial wild animal farms surveyed in northern Vietnam regularly brought animals from the wild, and that the farms exacerbated, rather than alleviated, pressures on wild animals. Further, keeping multiple species of newly imported animals in a small area increases the risk of interspecies disease transmission, a situation analogous to wet markets.

PREVENT will work with WCS to explore different options for improving biosecurity practices at wildlife farms in Quang Ninh Province by documenting current practices. In partnership with WCS, PREVENT will monitor wildlife farms for biosecurity quantities and varieties of animals patterns over one year. PREVENT will collect data from wildlife farms where WCS sample wildlife (including key species of bats and rodents).

- **Partners** – FHI D360, Wildlife Conservation Society (PREDICT), local consultant
- **Expected results** – A description of husbandry/biosecurity practices at wildlife farms in Quang Ninh Province and identified best practices and the means and motivations for reducing potential

risks. Possible activities range from certifying and promoting responsible farms (if any) to publicizing the risks of obtaining animals from these farms.

Activity 2.2.5: Extractive industry- human-wildlife exposure . (Objectives 2 and 3)

Land use change is a critical factor affecting human – wildlife contact. Extractive industries in particular – mining, oil/gas, logging, but also hydropower, and even intensive agriculture - change the dynamics between human and animal populations, for example, by removing the karst formations of limestone from the landscape that serve as a habitat for bats, a key PREVENT species. PREVENT leads the EPT program's extractive industries working group that includes members from PREDICT, RESPOND, and USAID. The group is helping to develop a tool to assess industry risks for disease transmission and suggest possible mitigation activities. In addition, PREVENT is developing a stakeholder analysis tool to understand positions and information sources and influences of policy makers, industry, and local civil society groups.

Vietnam offers opportunities to identify current industry best practices for mitigating human-animal contact as well as additional possible mitigation approaches. PREVENT will:

1. Conduct a literature review/report on current industry practices and existing to improve practices to prevent disease transmission.
2. Meet with government (at various levels) to discuss current policies and regulations around extractive industry.
3. Map/scope extractive industries to determine which groups work where and how developed the sites are.
4. Visit one or several companies engaged in extractive industry to assess current risk reduction practices.

- **Partners** – FHI D360, extractive industry companies, relevant ministries, relevant NGOs (e.g. IUCN)
- **Expected results** – Report of best practices. Draft strategy for working with industry. Case studies if appropriate.

Activity 2.2.6: Rapid market mapping. (Objectives 2 and 3)

PREVENT will conduct a rapid survey of markets in specific locations to determine what wild animal meat are available. The project is particularly interested in markets where bats and rodents are sold, as these animals have not been the focus of much research to date. Identified markets will form the sampling frame for the market price/quantity monitoring and value chain study, (subactivity 2.2.7).

PREVENT will do rapid market mapping in southern Vietnam in three areas: 1) peri-urban and rural areas of HCMC (rodent and potential bat consumption), 2) in An Giang Province close to the border of Cambodia (cross-border rodent trade) where PREVENT will also map markets along the route from HCMC to the border, and 3) Khanh Hoa Province (where bats are commonly consumed). Specific activities will be to:

1. Map locations (GPS), sizes, frequency, and type of products, especially wild animals, sold in markets in the Mekong River Delta area of Vietnam (e.g. Ag Giang Province, Khanh Hoa Province, and peri-urban and rural areas of HCMC).
2. Map markets along the road, estimating their size (approximate number of sellers), ascertaining their frequency (daily or periodically and when), the type of food sold (vegetables, fish, domestic animals (live, whole carcasses, pieces), wild animals (live, whole carcasses, pieces), particularly rodents and

bats. For specific portions of the route, PREVENT will also collect information on the number of roadside sellers (active and potential), the amount, composition (truck, pickup, sedan, motorcycle, bicycle), and direction of traffic encountered, in particular vehicles carrying animals.

3. Map larger markets (tentatively, more than 30 vendors) and markets at important intersections. In these markets PREVENT will:
    a. Observe the structure (number of sellers; market layout (sections devoted to types of food and to cooked food stalls); biosecurity, obvious consolidators etc.
    b. Ascertain the primary sources and destinations of wild and domestic animals sold through low-key informal questioning, paying particular attention to rodents and bats and for comparison, chickens and pigs.
4. Observe procedures for checking imports/exports of animals at the Vietnam-Cambodia border.

- **Partners** –FHI D360, WCS (PREDICT), FAO, consultant, Market Management Department under the Ministry of Industry and Commerce, Department of Animal Health (market health inspector)

- **Expected results** – A report of findings, with annotated maps of routes traveled and sketches of market structure

Activity 2.2.7: Cross-border trade of rodents – market monitoring and value chain analysis (Linked to Cambodia Activity 2.2.4). (Objectives 2 and 3)

There is an active trade in rodents from southeast Cambodian communities (e.g., Kandal, Kompong Cham, Takeo, Prey Veng, and Svay Rieng Provinces)[15] to Vietnam where they are sold to markets in and around Ho Chi Minh City, Vietnam.[16] The rat trade high-season is from April to October and "rat sales, at the checkpoint of Vietnam's An Giang Province alone has reached about 50 tons."[17]

- **Subactivity 2.2.7.1:** In up to 8 markets identified by the mapping activity, PREVENT will monitor biosecurity practices, price, and quantity patterns over one year. Activities will include the following:

1. A tentative schedule of visits to eight markets will be finalized in consultation with RoV and local partners and market monitors will be selected.
2. A two-day workshop in Phnom Penh to familiarize monitors with market monitoring forms, data collection and analysis protocols.
3. Implementation of the monitoring through site visits. PREVENT will explore the possibility of using SMS to submit reports.
4. Analysis of information on a rolling basis throughout the year.

- **Subactivity 2.2.7.2**: PREVENT will carry out rapid qualitative research in selected Vietnamese communities involved in cross-border rodent trade research to understand how much of the population is involved, trace sources and routes by which rodents (and comparison foods) get to market and their destinations; identify different actors in the chain: collectors, transporters, consolidators, processors, brokers, and institutional buyers, if relevant. Interview those who participate in the rodent trade to determine how important the trade is as a source of income, evaluate trader willingness to adopt income substitutes and ascertain perceived advantages and barriers of switching to substitutes. Assess traders appreciation (or not) of the risks identified in the market mapping and monitoring activity (2.2.3), and the potential for risk mitigation.

[15] http://www.chinadaily.com.cn/world/2009-05/15/content_7781683.htm
[16] http://khmerization.blogspot.com/2009/05/50-tons-of-cambodian-rat-meat-exported.html
[17] http://www.chinadaily.com.cn/world/2009-05/15/content_7781683.htm

- **Partners** – FHI D360, local consultants, WCS (PREDICT)
- **Expected results**– Spatial and temporal map of price and quantity of key wild species of rodents and bats as well as additional wildlife found in markets in Vietnam along the Vietnam-Cambodia border. Actors in rodent trade identified. Report on rat meat trade as a source of income and perceived advantages and barriers of switching to substitutes. Understanding key communities and subpopulations engaged in rodent cross-border trade. Identification of potential interventions to decrease risk; recommendations for regulatory, structural and/or behavior change interventions to reduce the risk of EPT from cross-border rodent trade.

Activity 2.2.8: Stakeholder mapping – One Health. (Objectives 2 and 3)

Vietnam is a leader in bringing together public health and animal health professionals and ministries as part of a One Health initiative. PREVENT aims to assist in improving the cross-sectoral relationships of key ministry officials through a stakeholder mapping activity.

- **Partners** – FHI D360, relevant ministries, relevant NGOs, key private and public institutions
- **Expected results** – List of key stakeholders, improved understanding of their interests and factors which might promote or inhibit collaboration with other stakeholders to implement a One Health approach.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Interventions to reduce human-animal exposure and/or mitigate risk of transmission of EPT. (Objective 4)

Based on results of activities 2.2.1-2.2.8 to characterize the interface between humans and animals PREVENT will first identify higher risk groups and factors that contribute to the risk, then will begin to develop an intervention strategy to reduce risky human exposure to animals. This year the project expects to identify specific practices that increase or decrease risk, and to test the feasibility of changing them through behavior trials.

- **Partners** – FHI D360, WCS, other organizations tbd
- **Expected results** - Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations and/or policymakers), desired action(s), factors that motivate or hinder behavior change, and identified ways to reach key population(s).

Activity 4.2.2: Support AI BCC Working Group. (**Objective 6**)

The Vietnam AI BCC Working Group is expanding its mandate to cover all emerging infectious diseases. PREVENT will participate in AI BCC Working Group sessions and provide behavior change and communication technical assistance as requested. The working group will serve as a regular, formal platform for stakeholder engagement to coordinate and share knowledge about EID events in Vietnam.

- **Partners** – FHI D360, Working Group members
- **Expected results**– Coordinated activities and knowledge sharing among In-country EID stakeholders.

Activity 4.2.3: Review of communication interventions to reduce demand for wildlife. (Objective 4)

PREVENT will review communication interventions that aim to reduce consumption of wild animal products, including "A Matter of Attitude – Reducing Consumption of Wild Animal Products" (implemented in Hanoi) and similar interventions aimed at reducing consumption of wild animal products. A desktop review will identify the initial inventory of interventions.

- **Partners** – FHI D360, FAO (currently carrying out a regional review)
- **Expected results**–Successful consumer demand interventions identified for potential replication

REGIONAL ACTIVITIES SOUTH ASIA

BANGLADESH

South Asia is one of the "hottest" of hot spots for potential pandemics because of its large population and high population density. Most recently, Bangladesh suffered almost annual outbreaks of Nipah virus, and the potential for transmission of other viruses from bats, rodents, small mammals, and monkeys appears to be large. PREVENT will review and refine ICDDR,B's intervention to reduce primary transmission of Nipah through date palm sap.

Background of ICDDR,B – Nipah Research
The past decade has seen ten outbreaks of Nipah virus in Bangladesh. Bats (Pteropus gigantus in Bangladesh) are the animal host for Nipah; they shed virus through both their saliva and urine. Outbreaks of Nipah in Bangladesh have been traced to consumption of raw date palm sap, which can be contaminated by infected bats. About 50 percent of confirmed Nipah cases can be attributed to contact with an infected person; of the remaining cases, about half report having consumed raw date palm sap.

In 2007 a team of anthropologists at ICDDR,B conducted an exploratory study with date palm sap collectors (*gachhis*) to identify existing methods to prevent palm sap contamination. A broader public health team concluded that bamboo skirts, one of several locally practiced methods, might have potential to prevent bat access to date palm sap. The following year (2008) anthropologists conducted a pilot study in one village to understand the feasibility and acceptability of bamboo skirts in the community and veterinary experts examined the effectiveness of bamboo skirts to prevent bat access. That study indicated that bamboo skirts can be an effective physical barrier to interrupt bat access and protect sap and that gachhis and tree owners will accept bamboo skirts (*banas*).

In 2009 ICDDR,B carried out a small-scale pilot intervention in four villages (two with low-intensity and two with high-intensity interventions) that indicated people are willing to use the *banas*, at least for trees producing sap that is consumed raw. The pilot also showed that the "low-intensity" intervention worked as well as a "high-intensity" one: both involved community meetings, *banas*-making training sessions, and messages about the importance of drinking safe sap and the effectiveness of the bamboo skirt as a preventative method in keeping bats from the sap. However, researchers noted that an even lower intensity intervention will be needed to introduce the skirts at scale. Possibilities include materials like jute stalk, weed plant (dhoincha), polyethylene sheet and gunny bags – all materials used by some in the community. The researchers reported that these materials were cheaper, more available, less time-consuming and easier to use to make skirts than bamboo, so that multiple family members – men, women, and children – could make skirts.

In 2010, the veterinary team experimented with skirts made from different plant products and polyethylene and developed and tested the efficacy of four additional types of skirts: bamboo, dhoincha, jute stalk and polyethylene. All kept bats away from the collected sap. Moreover, people who used the skirts noted that using them produced higher quality sap. This immediate positive benefit of using the skirts is a possible message point for encouraging people to use them. At the same time the anthropologists piloted a larger-scale (in a sub-district) low-intensity community acceptability trial promoting bamboo skirts. The study found that 34 percent of gachhis and 16 percent of tree owners used bamboo skirts.

The team also found that bamboo skirts took about 90 minutes to make; whereas other materials took less time than bamboo. While skirts can last an entire season, given the number of trees that a sap collector may be tapping (in some cases, 150-200), he would need to start making skirts well before the season

starts or would have to buy them. An additional constraint may be the time needed to position the skirt and the time and additional effort needed to collect sap from jars protected by skirts.
One approach would be for *gachhis* to use the skirts only on trees from which sap is consumed raw. A possible barrier is that collectors may mix sap from different trees during transport. Thus, it would be necessary to differentiate sap from protected and from unprotected trees. However, the research team noticed during recent studies that some gachhis keep the sap from trees protected using the skirt barrier separate and they used only that sap for raw consumption.

ICDDR,B and PREVENT have agreed that the skirt intervention could benefit from a systematic behavior change examination. In addition, as interventions to date have been very small, PREVENT will help the team consider whether and how to tweak the intervention so that it can be implemented on a wide scale.

Partnerships

PREVENT anticipates working with key stakeholders over the project's life: Government of Bangladesh, ICDDR,B, and relevant local NGOs.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Scaling up Nipah intervention. (Objective 5)

PREVENT proposes working with ICDDR,B to review and refine their "skirts" intervention for reducing transmission of Nipah virus through date palm sap.

- **Subactivity 4.2.1.1:** Reanalysis of existing data to answer two key questions to help guide intervention design.

  1. Sustainability of practice: Do *gachhis* and tree owners continue to use *banas* the year following their introduction without further educational intervention or prompting?

     To answer this question, ICDDR, B will analyze data collected in five wards during the 2009-2010 and 2010-2011 seasons. They will identify how many sap harvesters and tree owners who used *banas* during the first season continued to use them the second season and ascertain the motivating factors for their specific behavior (questions about motivation were asked during the second season). The information obtained from this analysis will help ICDDR,B and PREVENT refine the long-term strategy for promoting *banas*. Information about "weak spots" will strengthen the initial introduction; analysis results will also indicate whether supplemental input is necessary after the first season and what topics to address.

  2. Assess whether choice of materials for skirts improves uptake. Does letting communities know that *banas* can be made from a variety of materials increase the proportion using *banas*? .

     Some materials from which banas can be made are easier to obtain, less time-consuming, more affordable or easier to work with than others. ICDDR,B will analyze survey and qualitative data collected a month after a "low-intensity" introduction of *banas* to communities that highlighted bamboo, polyethylene sheeting, jute, or *dhoincha* as possible materials (intervention carried out during the 2010-2011 season) and compare it with data collected after "low-intensity"

introductions of *banas* made of just one material in earlier seasons. The information obtained in this study will help ICDDR, B and PREVENT fine-tune how to introduce *banas* to communities.

- **Subactivity 4.2.1.2:** Develop a comprehensive intervention strategy and prepare for implementation.

ICDDR,B and PREVENT will make final decisions about different audiences (*gacchis*, tree owners, date palm sap consumers, government health officials), key behaviors for each audience (i.e., for *gacchis* who make the *banas* and tree owners who might pay for them, recommend a particular material or a variety of materials), and how the different audiences will be reached – options include community meetings convened by implementing NGOs, print materials, possibly radio and/or television. Materials and guides for training NGOs will be developed and tested.

In FY13, PREVENT will provide some support to ICDDR,B to scale up the intervention for implementation in one district (>1m people).

- **Partners** – FHI D360, ICDDR,B
- **Expected results** – Tested large-scale intervention to reduce transmission of Nipah.

GLOBAL ACTIVITIES

LOW 3: Outbreak Response Capacity Building

3.2 Strengthen human and organizational capacity to improve outbreak response

Activity 3.2.1: Strengthen global, regional, and national capacity in Risk Communication (related to PREVENT objective 4: "Develop, validate, and implement effective social, behavior change, and communication interventions").

- **Subactivity 3.2.1.1: Develop (adapt) and test training module on risk communication:** PREVENT will develop and test a training module on Risk Communication (as defined by WHO, i.e. to support country capacities in assessment, coordination, transparency, "listening" during outbreaks, evaluating communication, and developing an emergency communication plan.) The module will be based on and adapted from existing materials, including the *WHO Outbreak Communication Planning Guide* and the *PAHO/WHO Risk Communication for Public Health Emergencies Workshop Facilitator's Guide*. It will also draw on the *Applied Communication Skills* and *Risk Communication* training that AI.COMM/PREVENT has developed for FETP programs in Asia and Africa and other AI.COMM materials. The module will be designed so that it can be adapted for audiences that include communicators as well as health managers and epidemiologists, and for shorter and longer (1-3 days) programs. It will include 2-3 case studies based on actual disease outbreak situations (yellow fever, ebola). PREVENT will first conduct a pre-test of the materials in 2-3 countries and a training of trainers on the use of the materials. They will be translated into French.

  - **Partners:** FHI D360, WHO/IHR; RESPOND
  - **Expected Results**: Risk Communication module ready for pre-testing; pre-testing conducted in 2 countries and module finalized; senior training team trained

- **Subactivity 3.2.1.2: Develop and test social impact game as risk communication training tool:** PREVENT will design a social impact game for both community and national level pandemic planning. Targeted at key decision-makers from all sectors (e.g., government, business, civil society, faith-based and community leaders), the proposed four or five game series would be introduced as a tool in risk communication training sessions. Following training, it would allow them to participate in and contribute to the planning process when it is convenient for them. Easily accessible to them (through Smartphone, laptop, computer), it would also allow them to become part of a robust on-line community. Other games in the series could include capacity training for first responders, including health care workers; what is needed during a pandemic – food supplies, water, utilities, and people-power; and overall planning for emergency situations.

  - **Partners**: FHI D360, subcontractor in game development; EPT partners and local counterparts for testing
  - **Expected Results**: risk communication game tested and finalized; risk communication training enhanced by use of game in country training sessions

- **Subactivity 3.2.1.3: Provide technical assistance and training in risk communication in selected regions/countries:** Using the tools developed under the two subactivities above, PREVENT will provide technical assistance and training in risk communication to selected countries in Africa and Asia. We will coordinate with RESPOND in planning potential risk communication training workshops in Uganda and DRC, as well as technical assistance to WHO/AFRO through the policy

advisor that RESPOND is placing in Brazzaville. TA and training in Asia is outlined in the Indonesia and other Asia country program plans. With training materials and trainers ready, we will be able to respond to requests from USAID to provide risk communication TA on an emergency basis if and when outbreaks occur. We will also seek to identify opportunities to integrate the training curricula and/or materials into appropriate university settings in Africa, such as the University of Benin, where the School of Public Health has expressed interest.

- **Partners**: FHI D360, RESPOND; WHO/AFRO
- **Expected Results**: training conducted in 2-3 countries; capacity of training participants strengthened; effective risk communication response mounted in countries where outbreak have occurred and PREVENT's TA requested

- **Subactivity 3.2.1.4: Support risk communication capacity strengthening activities of WHO/IHR:** PREVENT will collaborate with WHO/IHR in developing (or adapting) 2-3 case studies that may be used in the training package IHR is developing to help countries achieve their basic capacity in risk communication by 2012. Resources permitting, we will also provide technical assistance to IHR in the development of their overall core risk communication curriculum, which will include distance learning combined with in-country mentoring (drawing on lessons from the on-line course that PAHO is successfully implementing). We may also be asked to co-facilitate risk communication training events with IHR in selected regions and countries. CDC is also supporting risk communication within IHR, so we will coordinate our efforts with those of CDC.

  - **Partners:** FHI D360, WHO/IHR; CDC; PAHO
  - **Expected Results**: case studies developed and tested; national risk communication strategies and capacities strengthened in countries where PREVENT and WHO provide TA and training

Activity 3.2.2: Support global partnerships dedicated to advocacy for and coordination of continued preparedness for pandemics and other disasters.

- **Subactivity 3.2.1.1: Provide communication support to the TASW conference in Rome:** TASW is an initiative led by the World Food Programme (WFP) and funded by USAID dedicated to identifying practical approaches for disaster preparedness, drawing on lessons learned over the past five years from preparations for recent pandemic threats. It builds on PREVENT and AI.COMM's earlier collaborations with the Humanitarian Pandemic Preparedness (H2P) initiative. PREVENT has collaborated closely with WFP and other TASW partners over the past year in planning for a major review meeting to be held in Rome on September 15-16. PREVENT has built the TASW website, supported public relations for the event (through subawardee G6 Partners), is organizing the communication panel, and
  preparing the book that summarizes lessons learned from pandemic preparedness across 10 different sectors.

  - **Partners**: FHI D360, WFP, UNSIC and other TASW partners; G6 (PREVENT subawardee)
  - **Expected Results**: book summarizing lessons from pandemic preparedness completed and distributed at Rome meeting; coverage of Rome event by disaster preparedness trade media; TASW website maintained and viewed widely by disaster community; key lessons on pandemic communication disseminated by communication panel.

- **Subactivity 3.2.1.2: Continue support to global pandemic and disaster preparedness initiatives:** Following the Rome meeting, PREVENT will work with USAID and TASW partners to assess and document the results of the meeting and develop plans for additional TASW activities that may be called for. At a minimum, PREVENT will continue to maintain the TASW website (as well as the H2P website).

  - **Partners**: FHI D360, TASW partners
  - **Expected Results**: global partnerships and attention to disaster preparedness enhanced through exposure to TASW website and other communication activities

LOW 4: Risk reduction

4.2: Design approaches for risk reduction

Extractive industry

Activity 4.2.1: Develop tools and guidance to mitigate disease transmission associated with extractive industry activities.

- **Subactivity 4.2.1.1:** Convene and lead the extractive industries working group with participation from PREDICT, RESPOND and USAID and others as appropriate.

- **Subactivity 4.2.1.2:** Commission four desk reviews (literature and key informants) to identify successful mitigation approaches to the major identified risks:

  1. Desk review to summarize state-of-the-art about techniques to mitigate rodent infestation.

  2. Desk review to summarize what is known about bat habitat and feeding preferences and how that information might/might not be translated into recommendations about trees to plant or avoid planting near houses and domestic animal enclosures.

  3. Desk review to summarize state-of-the-art mitigation for human-animal conflict, particularly conflict with EPT key species.

  4. Desk review to summarize state of knowledge about settlement patterns and civil society in camps and squatter settlements associated with extractive industry.

- **Subactivity 4.2.1.3:** Visit and examine current practices of mitigation activities applied by different extractive industry sectors (mining, oil/gas, forestry, hydropower). Conduct interviews of key informants from international banks, funding agencies, extractive industry associations and NGOs as appropriate. Identify how criteria for environmental impact assessments/statements were developed, how often they are revised and if certain criteria were considered but dismissed and why. In addition identify priorities and interests of other parties that are trying to adapt/revise assessments and statements.

- **Subactivity 4.2.1.4:** Based on information gathered in activities above (4.2.1.2, 4.2.1.3) develop a variety of tools, as appropriate, to be used alone or together that could include the following:

1. Mitigation section of the XRAT tool
2. Guidance for extractive industries to incorporate mitigation measures into current and future activities
3. Risk reduction approach (small doable actions)
4. Economic evaluation criteria tool

- **Partners**: FHI D360, EI working group
- **Expected results**: Definitive information about possible mitigation for rodents, bats and animals involved in human-animal conflict and civil society resources likely to be found in camps and squatter settlements. Draft mitigation tool(s).

Activity 4.2.2: Carry out case studies of three EI sites with an excellent reputation.

- **Subactivity 4.2.2.1**: Work with partner projects and the EI working group to identify and review examples of industry activities to mitigate effects on wildlife. Select those that seem likely to have a positive effect on human-wildlife contact rates; develop case studies of at least three of those selected.

  - **Partners**: FHI D360, EI working group
  - **Expected results**: Case studies of industry activities that might be replicated elsewhere; an improved understanding of industry knowledge and actions to prevent or mitigate EPT diseases.

Activity 4.2.3: Develop validated protocols for analyzing stakeholders related to a) extractive industry; b) a one-health approach to surveillance and response; c) marketing of wild animals, wild animal meat and products.

- **Subactivity 4.2.3.1:** Develop draft protocols.

- **Subactivity 4.2.3.2:** Test each protocol in one country. Revise and finalize.

  - **Partners :** FHI D360, EI working group
  - **Expected results:** Validated protocols for stakeholder analysis.

Activity 4.2.4: Develop a generic advocacy strategy and advocacy materials for extractive industry.

- **Subactivity 4.2.4.1:** Advocacy activities will be part of country activities in Gabon, ROC, and Uganda. PREVENT will review those tailored advocacy activities, abstract lessons learned about strategy and develop a generic set of advocacy materials/approaches. This "toolkit" will be tested in FY13.

  - **Partners :** FHI D360, EI working group
  - **Expected results:** Validated approaches and materials for advocacy to governments and the extractive industry about mitigating EPT.

Market system

Activity 4.2.5: Commission a white paper on lessons learned from drug regulation activities that can be applied to regulation of bush meat sales.

- **Partners :** FHI D360
- **Expected results:** Insights about best approaches for regulating bush meat sales.

III. IMPLEMENTATION PLAN

IMPLEMENTATION PLAN – REGIONAL AFRICA (AFENET)								
	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
	LOW 3: OUTBREAK INVESTIGATION – STRENGTHEN HUMAN AND ORGANIZATION CAPACITY TO IMPROVE OUTBREAK RESPONSE							
3.2.2.1	Institutionalize the risk communication training for field epidemiologist	FHI D360	Network of well-trained field epidemiologist in Anglophone and Francophone Africa that can communicate critical information among key audiences in a risk/outbreak situation	X		X		
3.2.2.2	Establish AFENET member programs as reputable among key stakeholders, e.g., MOH, media, donors, public	FHI D360		X	X	X	X	
3.2.2.3	Develop a risk communication framework for responding to outbreaks	FHI D360	Actors involved in outbreak response know their role and responsibility and trained in how to respond and react to risk situations along with other critical players	X	X	X	X	
3.2.2.4	Institutionalize the Applied Communication and Risk Communication training for AFENET member programs	FHI D360	Critical component of field epidemiology work – communication competency in an outbreak or investigation situation	X	X	X		
3.2.2.5	Re-design the AFENET external communication tools, i.e., website, and create an interconnectivity using web, social media to provide up to the minute information on new epidemiology data and reporting	FHI D360	Access to newest information on treatment, diagnostics, and response during an investigation and outbreak Communication materials ready	X	X	X	X	
3.2.2.6	Establish working relationships with media (regional and national) to partner with in sharing correct information during an outbreak response or investigation	FHI D360	Correct information consistently disseminated via print, broadcast, and new/social media related to public health issues and outbreaks	X	X	X	X	

IMPLEMENTATION PLAN – REGIONAL AFRICA (AFENET)								
	ACTIVITIES by LOW	**Who is Responsible?**	**EXPECTED RESULTS 1 Oct 2011– 30 September 2012**	**FY12 Q1 OCT-DEC 11**	**FY12 Q2 JAN-MAR 12**	**FY12 Q3 APR-JUN 12**	**FY12 Q4 JUL-SEP 12**	**Budget by LOW**
3.2.2.7	Engage the private sector as partner in outbreak response	AFENET FHI D360	Ease the pressure on public funds and resources to respond to an outbreak and establish long-term sustainable partnerships	X	X			
3.2.2.8	Apply their risk communication and Applied Communication training to an outbreak investigation or response	AFENET FHI D360	Reduced fear, managed expectations and dissemination of correct information	X	X	X	X	

IMPLEMENTATION PLAN – REGIONAL CONGO BASIN

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
LOW 3: OUTBREAK INVESTIGATION – STRENGTHEN HUMAN AND ORGANIZATION CAPACITY TO IMPROVE OUTBREAK RESPONSE								
3.2.1	Provide behavior change and communication support to WHO/AFRO (Objective 4 and 6)	FHI D360, WHO/AFRO	A standard protocol for outbreak response that incorporates state-of-the-art knowledge about risk communication (for response) and behavior change (for outbreak investigation) to specify risk factors.	X	X	X	X	
LOW 4: RISK REDUCTION – DESIGN RISK REDUCTION APPROACHES AND IMPLEMENT RISK REDUCTION ACTIVITIES								
4.2.1	Develop an intervention to reduce demand for bushmeat as a source of protein in the greater Kinshasa-Brazzaville area (Objectives 2-4)	FHI D360, Universities, research firm tbd, creative agencies tbd	Standardized information about bushmeat consumption and consumer preferences in the greater Kinshasa-Brazzaville area and in-depth information about alternatives and consumer motivations. A demand reduction strategy and tested materials.		X	X		
4.3.1	Implement a social marketing campaign to reduce bushmeat consumption. (Objective 5)	FHI D360, agencies tbd	A demand reduction strategy and tested materials.				X	

IMPLEMENTATION PLAN – CAMEROON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
LOW 2: RISK DETERMINATION								
2.2.1	Ascertain characteristics of selected markets in southern Cameroon (Objective 2 and 3)	FHI D360, GVFInc, CHP, market associations,	Improved understanding of market conditions	X				
2.2.2	Monitoring quantity and price of bushmeat available in Ebolowa and selected Yaounde markets. (Objective 2 and 3)	FHI D360, GVFInc, CHP	Understanding of temporal changes in quantity and price of bushmeat available in markets.		X	X	X	
LOW 4: RISK REDUCTION								
4.2.1	Develop a safer hunting and butchering intervention strategy, produce and pretest materials, develop training. (Objective4)	FHI D360, GVFInc, CHP, creative agency tbd	Materials and intervention tools for a safer hunting and butchering intervention	X				
4.2.2	Develop an agreed-on integrated (structural and behavior change) intervention for reducing the potential for disease transmission through improved market biosecurity (Objective 4)	FHI D360, GVFInc, creative agency, local government, market associations	A short list of possible interventions to reduce the risk of transmission both directly and indirectly. Plan and materials for an intervention in one competitively-selected market		X	X		
4.3.1	Carry out the evaluation baseline and roll-out the safer hunting and butchering intervention (Objective 5)	FHI D360, GVFInc, CHP, research organization tbd	A validated behavior change intervention for high-risk communities, including materials, intervention tools, including pilot testing and monitoring of rollout and evaluation indicators and instruments.		X			

IMPLEMENTATION PLAN – DEMOCRATIC REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
LOW 3: OUTBREAK INVESTIGATION – STRENGTHEN HUMAN AND ORGANIZATION CAPACITY TO IMPROVE OUTBREAK RESPONSE								
3.2.1	Participate in evaluating the RESPOND community reporting activity, with specific responsibility for the intervention's communication aspect (Objective 6)	RESPOND, FHI D360, INCEF	Evaluation of community-level reporting that includes an assessment of communication aspects of the intervention.	X	X			
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Case study of the Tenke Fungurume mine (Objective 2 and 3).	FHI D360, mining company	Case study of a mine with a good reputation		X			
4.2.2	Development an intervention to reduce the risk of primary transmission of monkeypox (Objective 4)	FHI D360, CDC	Summary of the state of knowledge of behavioral risk factors; improved understanding of risk factors, key behaviors to change identified, potential intervention designed.		X	X	X	

IMPLEMENTATION PLAN – GABON

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Ascertain characteristics of selected markets in northern Gabon (Objective 2 and 3)	FHI D360, GVFInc/, CIRMF, market associations, local government	Improved understanding of market conditions.		X			
2.2.2	Extractive industry mapping and situation analysis (Objective 2 and 3)	FHI D360, EI working group, PREDICT, RESPOND	Map of extractive industry sites and description of their status.		X[18]			
2.2.3	Monitoring quantity and price of bushmeat available in selected markets. (Objective 2 and 3)	FHI D360, GVFInc, CIRMF	Understanding of temporal changes in quantity and price of bushmeat available in markets.			X	X	
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Develop an advocacy intervention focused on extractive industry (Objective 4)	FHI D360, EI working group, PREDICT, RESPOND, WWF, industry, local advocacy groups, research organization tbd, local government	Information about stakeholders' knowledge, attitudes and values related to human-wildlife interactions and other factors that might increase the risk of transmission of EPT viruses; industry current practices and willingness to implement additional changes to mitigate risk; pilot test of a multi-level intervention for high-risk communities involved in extractive industry. Relationships with extractive industry and government officials that can be built over time to advocate for mitigation activities to reduce disease potential related to human-wildlife contact.			X		

[18] Timing depends on implementation of XRAT assessment

IMPLEMENTATION PLAN – REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
PROJECT ADMINISTRATION								
0.1.1	Behavior change and communications support for WCS and WHO/AFRO	FHI D360, WCS, WHO/AFRO	Improved competencies of WCS staff related to behavior change, materials development, and health education. Communication and behavior change elements incorporated in the WHO/AFRO-developed standard protocol.	X	X	X	X	
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Formative research on animal names, domains, and roles and on reasons for reporting/non-reporting dead animals and factors that might inhibit collecting and consuming them in areas where WCS has implemented the gorilla reporting system (Objective 2 and 3)	FHI D360, WCS	Improved understanding of reporting/nonreporting behavior and reasons for eating animals found dead.		X	X		
2.2.2	Extractive industry mapping and situation analysis (Objective 2 and 3)	FHI D360, WCS, EI working group, industry	Map of extractive industry sites and description of their status.		X			
2.2.3	Monitoring the price and quantity of bushmeat available in selected markets. (Objective 2 and 3)	FHI D360, WCS	Information about fluctuations in availability and price of bushmeat in selected markets.	X	X	X	X	
LOW 4: RISK REDUCTION –								
4.2.1	Develop a one-health intervention to improve reporting and reduce EPT transmission (Objective 4)	FHI D360, WCS	Short list of tested approaches to improve reporting and reduce consumption of dead animals; improved WCS staff competencies in behavior trials			X	X	

IMPLEMENTATION PLAN – REPUBLIC OF CONGO

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
4.2.2	Develop an advocacy intervention focused on extractive industry (Objective 4)	FHI D360, WCS, CIB and other logging companies	Information about stakeholders' knowledge attitudes and values. Industry current practices and willingness to change. A case study of a successful intervention. An advocacy strategy for replicating the intervention.			X	X	
4.3.1	Implement a health education activity to improve reporting and reduce handling of and eating dead animals. (Objective 5)	FHI D360, WCS	Approaches tested to improve reporting and reduce consumption of dead animals. Improved WCS staff competencies in behavior change, materials development, and health education.				X	
4.3.2	Develop advocacy materials and advocate to other logging companies operating in ROC on ways to mitigate disease transmission (Objective 5)	FHI D360, WCS, CIB and other logging companies	Materials and advocacy approach to mitigate disease transmission. Logging companies and possibly other extractive industry companies consider and possibly adopt measures to mitigate disease transmission. Government includes disease transmission mitigation into policies and regulations for extractive industry contracts and concessions.				X	

IMPLEMENTATION PLAN – UGANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
PROJECT ADMINISTRATION								
0.1	Establish PREVENT presence	FHI D360, RESPOND	In-country oversight of an extractive industry intervention	X	X	X	X	
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2	Develop a multi-level intervention to reduce EPT exposure among workers and populations living near the oilfields in the upper Albertine Rift (Objectives 2-5)	FHI D360, oil companies, local civil society/advocacy groups, research organization (tbd), local government	Information about stakeholders' knowledge, attitudes and values related to human-wildlife interactions and other factors that might increase the risk of transmission of EPT viruses; industry current practices and willingness to implement additional changes to mitigate risk; pilot test of a multi-level intervention for high-risk communities involved in extractive industry.	X	X	X	X	

IMPLEMENTATION PLAN – CAMBODIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12Q4 JUL-SEP 12	BUDGET BY LOW
LOW 2: RISK DETERMINATION– INTERFACE CHARACTERIZATION								
2.2.1	Literature review (Objective 2 and 3)	FHI D360, consultants	Report that provides an up-to-date summary of what is known about exposure of humans to wildlife in Cambodia.	X				
2.2.2	Human-animal exposure – formative research (Objective 2 and 3)	FHI D360, research organization (tbd)	Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. , Guidance for adapting the human-animal exposure survey questionnaire.	X	X			
2.2.3	Market mapping and monitoring of the cross-border rodent trade (Objective 2 and 3)	FHI D360, WCS	Spatial and temporal map of price and quantity of key wild species of rodents and bats as well as additional wildlife found in markets in Cambodia. Monitoring information for eight of these markets along the Cambodia-Vietnam border; estimates of the quantity of rodents/meat traded and exposure of individuals to rodents.		X	X	X	
2.2.4	Qualitative research to understand the cross-border rodent trade (Objective 2 and 3)	FHI D360, consultants, WCS, PREDICT, research organization (tbd)	Actors in rodent trade identified. Report on rat meat trade as a source of income and perceived advantages and barriers of switching to substitutes. Understanding key communities and subpopulations engaged in rodent cross-border trade. Identification of potential interventions to decrease risk; recommendations for regulatory, structural and/or behavior change interventions to reduce the risk of EPT from cross-border rodent trade.			X	X	
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Develop intervention strategy to reduce human-animal exposure (Objective 4)	FHI D360, (tbd)	Specific validated strategies to reduce risk, including definition of the key population(s) (which might be individuals or organizations or policymakers), the desired action(s), factors which might be barriers or incentives, and ways to reach the key population(s). Assessment, through behavior trials, of the feasibility and sustainability of approaches.				X	

IMPLEMENTATION PLAN – INDONESIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12Q4 JUL-SEP 12	BUDGET BY LOW
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Literature review (Objective 2 and 3)	FHI D360, local consultants, institutions	Report that provides an up-to-date summary of what is known about exposure of humans to wildlife in Indonesia.	X	X			
2.2.2	Human-animal exposure – formative research (Objective 2 and 3)	FHI D360, research firm (tbd), university partnership	Information about animal names, how animals are categorized, their roles, types of human-animal contact and perceived risk. , Guidance for adapting the human-animal exposure survey questionnaire	X	X			
2.2.3	Human-animal exposure – survey (Objective 2 and 3)	FHI D360, research firm (tbd)	Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.			X	X	
2.2.4	Study of the potential for amplification (Objective 3)	FHI D360,(tbd)	Indication of potential for amplification and enabling prioritization of focus areas.			X	X	
2.2.5	Extractive industry situation analysis (Objective 2 and 3)	FHI D360, industry, relevant ministries, NGOs	Map of extractive industry sites and description of their status.	X	X	X		
2.2.6	Investigation of changes in settlement patterns (Objective 2 and 3)	FHI D360, relevant ministries, consultant	Possible TOR to assess the relationship between transmigration settlements and human-animal exposure.		X	X		
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Develop intervention strategy to reduce human-animal exposure (Objective 4)	FHI D360, KOMNAS Zoonosis,(tbd)	Specific validated strategies to reduce risk, including defined key population(s) (individuals, and/or organizations, and/or policymakers), desired action(s), factors that might motivate or hinder behavior change, and ways to reach key population(s).				X	
4.2.2	Develop EI advocacy strategy and materials (Objective 4)	FHI D360, (tbd)	Advocacy strategy and materials for extractive industry.			X	X	

IMPLEMENTATION PLAN – LAO PDR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Literature review (Objective 2 and 3)	FHI D360, local consultants	Report that summarizes what is known about exposure of humans to wildlife in Lao PDR.	X	X			
2.2.2	Ascertain characteristics of selected markets in PDR Lao (Objective 2 and 3)	FHI D360, WCS (PREDICT)	Spatial and temporal map of price and quantity of key wild species - rodents, bats, and additional wildlife found in markets in Lao PDR. Information about market biosecurity and deeper understanding of sellers and buyers. Recommended market interventions to reduce the risk of human-animal exposure to EPT viruses in markets.	X	X	X	X	
2.2.3	Consumer demand/Peridomestic exposure scoping (Objective 2 and 3)	FHI D360, Lao women's union	Standardized normative information about consumption and peri-domestic exposure of humans to key wild animals. Information to guide decisions about possible in-depth qualitative follow-up activities and interventions.		X	X	X	
2.2.4	Human-animal Exposure – Formative Research (Objective 2 and 3)	FHI D360, research firm (tbd)	Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. Guidance for adapting the human-animal exposure survey questionnaire.	X	X			
2.2.5	Human-animal Exposure – Survey (Objective 2 and 3)	FHI D360, research firm (tbd)	Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.			X	X	
2.2.6	Assessment of the potential for disease amplification (Objective 3)	FHI D360, WCS	Indication of potential for amplification, enabling prioritization of focus areas.			X		
2.2.7	Extractive industry mapping (Objective 2 and 3)	FHI D360, WCS (PREDICT), ministries, industry	Report of Lao PDR extractive industry players, interests, political climate, incentives, and barriers.		X			

IMPLEMENTATION PLAN – LAO PDR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Intervention to reduce human-animal exposure (Objective 4)	FHI D360, (tbd)	Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations and/or policymakers), desired action(s), factors that might be barriers or incentives, and ways to reach identified key population(s).				X	
4.2.2	Market structural/regulatory interventions (Objective 4)	FHI D360, (tbd)	Specific validated strategies to reduce risk, including definition of the key population(s) (which might be individuals or organizations or policymakers), the desired action(s), factors which might be barriers or incentives, and ways to reach the key population(s).				X	
4.2.3	Participation in and support for Markets Working Group (Objective 6)	FHI D360	Expansion of MWG to cover EID's and One Health.	X	X	X	X	

IMPLEMENTATION PLAN – THAILAND

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Literature review (Objective 2 and 3)	FHI D360, local consultants, institutions	Report that summarizes what is known about human exposure to wildlife in Thailand.	X				
2.2.2	Pretest of the human-animal exposure survey instrument (Objective 2 and 3)	FHI D360, research organization (tbd), PREDICT (EcoHealth Alliance)	Pretested survey questionnaire for human-animal exposure survey, to be implemented in Indonesia, Lao PDR, and Vietnam in FY 12. Estimated exposure rates of humans and key animals that will "ground-truth" PREDICT's geospatial models as well as inform potential interventions.	X	X	X		
2.2.3	Technical assistance for DNP behavioral research (Objective 6)	FHI D360, DNP	Strengthened local capacity in behavioral research and input into behavioral research studies.	X	X	X	X	
LOW 4: RISK REDUCTION								
4.2.1	EID Preparedness Forum (Objective 6)	FHI D360, RESPOND	Continuation of EID Forum knowledge sharing and coordination in preparation for EID events	X	X	X	X	

IMPLEMENTATION PLAN – VIETNAM

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
LOW 2: RISK DETERMINATION – INTERFACE CHARACTERIZATION								
2.2.1	Literature review (Objective 2 and 3)	FHI D360, consultants	Report summarizing what is known about human exposure to wildlife in Vietnam.	X	X			
2.2.2	Human-animal exposure – formative research (Objective 2 and 3)	FHI D360, research firm (tbd)	Information about animal names, how they are categorized, their roles, types of human-animal contact and perceived risk. , Guidance for adapting the human-animal exposure survey questionnaire.	X	X			
2.2.3	Human-animal exposure – survey (Objective 2 and 3)	FHI D360, research firm (tbd)	Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.			X	X	
2.2.4	Wildlife farms biosecurity assessment (Objective 2 and 3)	FHI D360, local consultant	A description of husbandry/biosecurity practices at wildlife farms in Quang Ninh Province and identified best practices and the means and motivations for reducing potential risks.	X	X	X	X	
2.2.5	Extractive industry situation analysis (Objective 2 and 3)	FHI D360, local consultant, industry, relevant NGOs	Map of extractive industry sites and description of their status.	X	X	X		
2.2.6	Rapid market mapping (Objective 2 and 3)	FHI D360, WCS, FAO, consultants, Market Management Dept., relevant ministries	Annotated maps of routes traveled and sketches of market structure; information about availability of rodents, bats and other wild animal meat.	X	X			

IMPLEMENTATION PLAN – VIETNAM

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
2.2.7	Cross-border trade of rodents – Market monitoring and value chain analysis (Linked to Cambodia Sub-Activity 2.2.4) (Objective 2 and 3)	FHI D360, WCS, consultants	Spatial and temporal map of price and quantity of key wild species of rodents and bats as well as additional wildlife found in markets in Vietnam along the Vietnam-Cambodia border. Actors in rodent trade identified. Report on rat meat trade as a source of income and perceived advantages and barriers of switching to substitutes. Identification of potential interventions.		X	X	X	
2.2.8	Stakeholder mapping – One Health(Objective 2 and 3)	FHI D360, relevant ministries, NGOs, key public and private institutions	List of key stakeholders, improved understanding of their interests and factors which might promote or inhibit collaboration with other stakeholders to implement a One Health approach.			X		
LOW 4: RISK REDUCTION – DESIGN APPROACHES FOR RISK REDUCTION								
4.2.1	Develop intervention strategy to reduce human-animal exposure (Objective 4)	FHI D360, WCS,(tbd)	Specific validated strategies to reduce risk, including defined key population(s) (individuals and/or organizations and/or policymakers), desired action(s), factors that motivate or hinder behavior change, and identified ways to reach key population(s).			X	X	
4.2.2	Support AI BCC Working Group (Objective 6)	FHI D360	Coordinated activities and knowledge sharing among In-country EID stakeholders.	X	X	X	X	
4.2.3	Review of consumer interventions to reduce demand for wildlife (Objective 4)	FHI D360, FAO	Successful consumer demand interventions identified for potential replication.	X	X			

IMPLEMENTATION PLAN – SOUTHEAST ASIA – BANGLADESH

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	BUDGET BY LOW
LOW 4: RISK REDUCTION – IMPLEMENT RISK REDUCTION ACTIVITIES								
4.3.1	Provide technical assistance and support for ICDDR,B *banas* intervention. (Objective 5)	FHI D360	Tested large-scale intervention to reduce transmission of Nipah.	X	X			

IMPLEMENTATION PLAN - GLOBAL EPT (EXTRACTIVE INDUSTRY)

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12Q4 JUL-SEP 12	BUDGET BY LOW
LOW 4: RISK REDUCTION – IMPLEMENT RISK REDUCTION ACTIVITIES								
4.2.1	Develop the mitigation sections of XRAT	FHI D360	Definitive information about possible mitigation for rodents, bats and animals involved in human-animal conflict as well as civil society resources likely to be found in camps and squatter settlements – background for the mitigation sections of XRAT	X	X	X	X	
4.2.2	Carry out case studies of three EI sites with an excellent reputation	FHI D360	Case Studies of industry activities that might be replicated elsewhere; an improved understanding of industry knowledge and actions to prevent or mitigate EPT diseases		X	X	X	
4.2.3	Develop validated protocols for analysis of stakeholders related to a) extractive industry; b) a one-health approach to surveillance and response; c) marketing of wild animals, wild animal meat and products	FHI D360	Validated protocols for stakeholder analysis	X	X	X	X	
4.2.4	Develop a generic advocacy strategy and materials for advocacy about extractive industry	FHI D360	Validated approaches and materials for advocacy to governments and the extractive industry about mitigation of EPT	X	X	X		
4.2.5	Commission a white paper on lessons learned from drug regulation activities that can apply to regulation of bush meat sales	FHI D360			X			

IMPLEMENTATION PLAN – GLOBAL (RISK COM)

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12 Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
	LOW 3: Outbreak Response Capacity Building							
3.2.1.1	Develop (adapt) and test training module on risk communication (RC)	FHI D360	RC module developed and tested in 2 countries and TOT conducted	X	X	X	X	
3.2.1.2	Develop and test social impact game as risk communication training tool	FHI D360	RC game developed and tested in 2 countries	X	X	X	X	
3.2.1.3	Provide advocacy, technical assistance, and training in RC in selected regions/countries	FHI D360	RC training conducted in 2-3 countries; RC capacity strengthened in participating countries; RC course introduced in public health training curriculum			X	X	
3.2.1.4	Support risk communication capacity strengthening activities of WHO/IHR	FHI D360	Case studies for IHR RC training developed and tested; RC capacity strengthened in countries where IHR and PREVENT provide TA; national RC plans updated in selected countries			X	X	

IMPLEMENTATION PLAN – GLOBAL (TASW)

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY12Q1 OCT-DEC 11	FY12 Q2 JAN-MAR 12	FY12 Q3 APR-JUN 12	FY12 Q4 JUL-SEP 12	Budget by LOW
	LOW 3: Outbreak Response Capacity Building							
3.2.1.1	Provide communication support to TASW	FHI D360	Lessons from pandemic preparedness widely shared through TASW book, website, conference, and media coverage	X				
3.2.1.2	Continue support to global pandemic and disaster preparedness initiatives	FHI D360	Global partnerships strengthened and attention to disaster preparedness enhanced		X	X	X	

IV. PERFORMANCE MONITORING PLAN

Project Objective	Indicator	Data Source/ Collection Method	Frequency Of Data Collection	Responsible Party
1 Develop a validated BCC strategic framework	Use of the strategic framework or its elements in USAID/other partner presentations	Review of presentations	Annual	FHI D360
2 Characterize "high-risk" practices &	Number of countries where human exposure to wild animals has been quantified	Project documents	Annual	FHI D360
3 Identify "high risk" groups	Number of countries where urban consumer demand for wild animal meat has been assessed	Project documents	Annual	FHI D360
	Number of countries where PREVENT market scoping/ monitoring tool is being used	Project documents	Annual	FHI D360
	Number of countries where extractive industry mapping, situation and stakeholder analysis have been completed	Project documents	Annual	FHI D360
4 Develop and validate effective BCC interventions	Number of interventions developed through the behavior trial stage	Project documents	Annual	FHI D360
	Number of new interventions for which a pilot/small scale implementation shows at least a 10% increase in the focus behavior	Project documents; results of evaluation of pilot/small scale interventions	Annual	FHI D360
5 Implement state-of-the-art behavior change activities among high risk populations	Number of implementations of interventions at scale	Project documents	Annual	FHI D360
6 Develop effective strategies for improving national, regional, and community level pandemic preparedness and response	Number of people trained using PREVENT's risk communication modules Number of outbreaks for which the response included appropriate risk communication Number of visits to the H2P and TASW websites; number of downloads.	PREVENT, RESPOND and AFENET documents; Post-outbreak evaluation (RESPOND and PREVENT project reports; AFENET reports)	Annual Annual	FHI D360 FHI D360

V. MANAGEMENT PLAN

FHI D360 HQ provides the overall technical direction, program management, financial, and administrative oversight, and administrative support of PREVENT. (b)(6) (b)(6) manages the EPT component of the project; (b)(6) Project Director, manages the Risk Communication component; (b)(6) Senior Communication Officer, manages the AFENET activity; and (b)(6) Technical Manager, manages TASW. FHI D360 is also working closely with its sub-contractual partner Global Viral Forecasting, Inc. (GVFInc) at the global, regional, and country level to design and implement PREVENT/EPT strategies and activities. (b)(6) is the GVFInc Technical Director for work under PREVENT. (b)(6) is GVFInc's Director and serves as GVFInc's officer-in-charge to PREVENT.

For activities in south and southeast Asia, FHI D360's regional Asia office in Bangkok, Thailand provides procurement, logistics, and program support as needed to PREVENT activities in the region. FHI D360 also has country project offices that can provide limited logistical, financial, and administrative services to PREVENT activities (e.g., Bangladesh, Vietnam, Lao PDR). In the Congo Basin area, FHI D360 has supportive country project offices in Uganda and DRC. PREVENT's activities in Cameroon and Gabon will be supported by GVFInc's local presence in these countries; GVFInc has a long-standing presence and relationships with several local agencies in the region and therefore offers in-country value to provide country-specific on-site technical input, program management, and logistics.

At the global, regional, and country level, FHI D360 and GVFInc will collaborate and coordinate as appropriate with two of the EPT Program's CAs (PREDICT and RESPOND), and with CDC.

Partnerships at the regional/country level

Most PREVENT work in Cameroon and Gabon will be conducted through teamwork between FHI D360 and GVFInc and with local research and health agencies and authorities. The Care and Health Program (CHP) and Centre International de Recherches Médicales de Franceville (CIRMF) will work closely with PREVENT/EPT in Cameroon, and Gabon, respectively. Both of these organizations have been long-standing partners with GVFI. PREVENT will collaborate with WHO/AFRO on risk reduction and risk communication strategies. In the Republic of Congo, PREVENT's main implementing partner will be Wildlife Conservation Society. PREVENT is discussing collaboration with US CDC in DRC; other potential partners there include the University of Kinshasa and UCLA School of Public Health.

In Asia, PREVENT's main implementation partners are Wildlife Conservation Society in Vietnam, Lao and Cambodia and ICCDR,B in Bangladesh along with local research and health agencies and authorities. PREVENT is still developing partnerships in Indonesia.

Whenever possible in all regions and countries where it works, AED will subcontract research, graphic design, training, and other technical and program service needs to local agencies through a competitive procurement process.

Briefing and reporting

Briefings will be conducted as requested with USAID HQ, USAID missions, US Embassies and other US government agencies in-country or at the regional level. PREVENT will provide trip reports, interim and final reports and status and special reports as requested.

VII. TRAVEL PLAN EPT

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Cameroon				
Quantitative researcher	1	January 2012 - 2 weeks	Cameroon	Train interviewers for the safer hunter/butcher evaluation baseline C 4.3.1.1
BC Advisor	1	November 2012- 3 weeks	Cameroon	Develop and pretest materials for the safer hunter/butcher intervention C 4.2.1
GVFInc Program Manager	1	October 14-Nov 2, 2011	Cameroon	Market ethnography training and fielding C 2.2.1
BC Advisor	1	February 2012 - 2 weeks, 2012	Cameroon	Conduct materials development and pretesting for a market intervention C 4.2.2
GVFInc Program Manager	1	March 2012 - 2 weeks, 2012	Cameroon	Launch safe hunter plus implementation C 4.3.1.2
ROC Advisor	1	TBD 2012 - 16 days	ROC to Cameroon	Support WHO/AFRO REGC 0.1.1
DRC				
ROC Advisor	1	August 2012- 1 week	ROC to DRC (cross river)	Coordinate implementation of demand reduction regional activity AfR 4.3.1
ROC advisor + ROC research consultant	2	February 2012 - 2 weeks	ROC to DRC (cross river)	Participate in training for and beginning of consumer survey in DRC - REGC 4.2.1.1
Policy-Advocacy Advisor + EI consultant	2	February 2012 - 2 weeks	DRC	Conduct a case study of the Tenke Fungurume mine D 4.2.1.
Qualitative research consultant (Francophone)	1	March 2012 - 4 weeks	DRC	Conduct rapid formative research on monkeypox/animal contact. D 4.2.2.

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Research consultant (Qualit Francophone)	1	March 2012 - 4 weeks (2+2)	DRC/ROC*	Train and oversee qualitative research to develop a demand-reduction intervention REGC 4.2.1.1
BC Advisor	1	May 2012 - 3 weeks (2+1)	DRC/ROC*	Develop and pretest materials development for demand reduction intervention in Kinshasa/Brazza REGC 4.2.1.2
ROC Advisor	1	May 2012- 1 week	ROC to DRC (cross river)	Develop and pretest materials development for demand reduction intervention in Kinshasa REGC 4.2.1.2
ROC Advisor	1	September 2012 - 1 week	ROC to DRC (cross river)	Coordinate implementation of demand reduction regional activity REGC 4.3.1
Gabon				
GVFInc Program Manager	1	February 2012 - 3 weeks	Gabon	Train interviewers for and initiate market ethnography G 2.2.1
Policy-Advocacy Advisor + EI consultant	2	March 2012 - 2 weeks	Gabon	Conduct EI stakeholder mapping and situation analysis G.2.2.2.1
Policy-Advocacy Advisor + EI consultant	2	May 2012 - 2 weeks	Gabon	Develop an advocacy intervention G. 4.2.2.1
EI consultant + GVFInc CSO	2	TBD 2012 - 1 week	Gabon (possibly DRC)	Attend EI Workshop G 4.2.2.3
ROC				
BC Advisor	1	April 2012 - 3 weeks	ROC	Develop and pretest materials for a One Health intervention R 4.2.1
Francophone Researcher	1	January 2012 - 3 weeks	ROC	Train interviewers and initiate One Health formative research R 2.2.1
Consultant	1	July 2012 - 2 weeks	ROC	EI implementation R 4.2.2.2/4.2.2.3

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Policy-Advocacy Advisor + EI consultant	2	March 2012 -2 weeks	ROC	Conduct situation analysis of EI and stakeholder analysis R. 2.2.2
Graphic artist	1	May 2012 - 1 week	DRC to ROC (cross river)	Develop and pretest materials development for demand reduction intervention in Brazza REGC 4.2.1.2
Uganda				
Research Consultant+ qualitative researcher	2	January 2012 - 3 weeks	Uganda	Conduct formative research U 4.2.2.
BC Advisor	1	June 2012 - 3 weeks	Uganda	Develop and pretest materials for health promotion intervention U 4.2.5
Policy-Advocacy Advisor + EI consultant	2	November 2011 - 2 weeks	Uganda	Conduct a stakeholder analysis U 4.2.1.
ROC Advisor	1	TBD 2012 - 16 days	ROC to Uganda	Support WHO/AFRO REGC 0.1.1
Bangladesh				
Sr Implementation Advisor	1	January 2012 - 7 days	BKK-Dhaka	Support ICDDRB banas strategy development 4.2.1
Sr Implementation Advisor	1	October 2011- 7 days	BKK-Dhaka	Develop strategy to implement banas intervention on a large scale B 4.2.1
Cambodia				
Researcher/BKK	1	April 2012 - 2 weeks	BKK-Phnom Penh/other Cambodia	Set up cross-border trade price and quantity monitoring Cb 2.2.3
Researcher/BKK + regional research consultant	2	December 2011 - 2 weeks	BKK-Phnom Penh/other Cambodia	Carry out qualitative research on human-animal exposure Cb 2.2.2

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Researcher/BKK	1	January 2012 - 21 days	BKK-Phnom Penh/other Cambodia	Carry out qualitative research to understand cross-border trade Cb 2.2.4
Regional BCC Advisor + regional researcher/consultant	2	June 2012 - 25 days	BKK-Phnom Penh/other Cambodia	Develop and pretest materials for intervention to reduce human-animal exposure Cb 4.2.1
Regional BCC Advisor + regional researcher/consultant	2	March 2012 - 2 weeks	BKK-Phnom Penh/other Cambodia	Develop strategy for intervention to reduce human-animal exposure Cb 4.2.1
Indonesia				
Researcher + research consultant	2	April 2012 - 20 days	Kalimantan	Train interviewers and initiate human-animal exposure survey I 2.2.3
Policy-Advocacy Advisor + EI consultant	2	February 2012- 2 weeks	Kalimantan	Initiate EI scoping & situation analysis I 2.2.5
Regional BCC Advisor	1	July 2012 - 2weeks	BKK-Kalimantan	Develop and pretest materials for human-exposure intervention 4.2.1
Policy-Advocacy Advisor + EI consultant	2	May 2012 - 25 days	Kalimantan	Develop strategy and materials for an EI advocacy intervention I 4.2.2
Regional BCC advisor	1	November 2011 - 1 week	BKK- Bali	TEPHINET meeting (RISK COM)
Regional research advisor + consultant	2	November 2011 - 10 days	BKK-Kalimantan	Train researchers and initiate human-animal exposure formative research I 2.2.2
Regional BCC advisor	1	October 2011- 1 week	Indonesia	Finalize project locations, meet key stakeholders, identify coordinator
Lao PDR				
Policy-Advocacy Advisor	1	April 2012- 2 weeks	Vientiane	Develop intervention strategy (markets) L 4.2.2
Regional Policy-Advocacy Advisor	1	April 2012- 4 weeks	BKK-Vientiane	Develop intervention strategy (markets) L 4.2.2

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Regional BCC Advisor	1	August 2012- 2 weeks	BKK-Vientiane	Develop intervention strategy (human-animal exposure) L 4.2.1
Policy-Advocacy Advisor	1	July 2012 - 2 weeks	Vientiane	Develop intervention strategy (markets) L 4.2.2
Research consultant - behavior trials	1	June 2012 - 2 weeks	Vientiane	Develop intervention strategy (human-animal exposure) L 4.2.1
Researcher/BKK	1	March 2012 - 2 weeks	BKK-Vientiane	Initiate human-animal exposure - survey L 2.2.5
Policy-Advocacy Advisor + EI consultant	2	March 2012 - 2 weeks	Vientiane	EI scoping/mapping/situation analysis L 2.2.7
Research consultant	1	May 2012 - 18 days	BKK-Vientiane	Initiate study to assess potential for amplification L 2.2.6
Researcher/BKK	1	November 2011 - 2 weeks	BKK-Vientiane	train researchers and initiate human-animal exposure formative research L 2.2.4
Sr researcher - (qualitative)	1	September 2012 - 2 weeks	Vientiane	Develop intervention strategy (human-animal exposure) L 4.2.1
Thailand				
SE Asia Anchor	1	June 2012- 2 weeks	Bangkok	Planning meeting
Sr Research Consultant + Quantitative Researcher and Zo	2	November 2011 - 3 weeks	Bangkok	Pretest human-animal exposure survey T 2.2.2
Vietnam				
Researcher/BKK	1	April 2012 - 2 weeks	BKK-Hanoi/HCMC	Train interviewers and initiate human-animal exposure survey V 2.2.3
Regional BCC Advisor	1	April 2012 - 2 weeks	BKK-Hanoi	Conduct One Health stakeholder analysis V 2.2.8
Policy-Advocacy Advisor	1	April 2012- 2 weeks	Hanoi/HCMC	Conduct One Health stakeholder analysis V 2.2.8
Regional BCC Advisor	1	August 2012 - 1 week	BKK-Hanoi	Develop materials V 4.2.1

Name	N of People	Estimated travel dates	Destination country	Purpose of travel
Regional research consultant	1	January 2012 - 2 weeks	BKK-Hanoi	Train researchers and initiate human-animal exposure - formative research V 2.2.2
Policy-Advocacy Advisor + EI consultant	2	June 2012 - 2 weeks	Hanoi/HCMC	EI scoping/mapping/situation analysis V 2.2.5
SE Asia Anchor	1	June 2012 - 2 weeks	Hanoi	Work planning
SE Asia Anchor	1	November 2012- 2 weeks	HCMC/Hanoi	Initiate market monitoring V 2.2.2

PREVENT Travel for AFENET
October 1, 2011 – September 30, 2012

Q1: October – December 2011

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
(b)(6)	October 2011	Uganda	AFENET: Capacity Building of Public Affairs Person and on-going Public Affairs activities including new technologies training
Second Muse representative	October 2011	Uganda	Training of Field Epidemiologists for Social Media and new technologies as part of intra-connection of agency
12 Field Epidemiologist	October 2011	Uganda	Field epidemiologists to participate in new technologies training
(b)(6)	November 2011	Uganda	Operations and programming for public affairs
	December 2012	Tanzania	Refresher training of field epidemiologists – risk communication and applied communication

Q2: January – March 2012

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
(b)(6)	January 2012	Uganda	Capacity Building, assist in implementing work plan

Q3: April - June 2012

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
(b)(6)	April 2012	Uganda	Capacity building and implementation

PREVENT Travel for Risk Communication
October 1, 2011 – September 30, 2012

Q1: October – December 2011

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
(b)(6)	October 2011	Geneva	Consult with WHO/IHR on training module development
	November 2011	Lao	Pre-test Risk Communication materials
TBD	November 2011	ROC and DRC	Advocacy and Capacity Building in Risk Communication with WHO/AFRO
TBD	November 2011	Uganda	Advocacy and Capacity Building in Risk Communication
(b)(6)	November 2011	Uganda	Pre-test Risk Communication materials

Q2: January – March 2012

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
TBD	January 2012	TBD	Outbreak response (as needed)
TBD	January 2012	Benin	Introduce risk communication module to University of Benin
TBD	March 2012	Uganda	Launch risk communication module with stakeholders
(b)(6)	February 2012	Lao	Launch risk communication module with stakeholders

Q3: April - June 2012

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
TBD	April 2012	DRC	Launch risk communication module with stakeholders
TBD	April 2012	TBD	Outbreak response (as needed)

Q4: July – September 2012

Name of Traveler	Estimated travel dates	Destination Country	Purpose of travel
TBD	June 2012	TBD	Outbreak response (as needed)

VIII. BUDGET

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

WORK PLAN

FY13

OCTOBER 1, 2012 – 31 SEPTEMBER 2013

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: No. GPO-A-00-09-00002-00
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September 13, 2012

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I. BACKGROUND

On September 30, 2009, the U.S. Agency for International Development awarded AED the USAID Client Associate Award No. GHN-A-00-9-00002-00 under Leader Award (C-Change) No. GPO-A—07-00004-00 entitled "Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity," or PREVENT. The Project focuses on using behavior change and communication research, strategies, and interventions to prepare for, prevent, respond to, and control emerging pandemic threats and avian and pandemic influenzas. PREVENT, a cooperative agreement, is part of a larger new USAID program on Emerging Pandemic Threats (EPT Program).

On June 6, 2012, the U.S. Agency for International Development (USAID) and the Australian Agency for International Development (AusAID) signed a memorandum of cooperation (MoC) to help reduce the risk of emerging pandemic disease threats in the Mekong region of Southeast Asia. Under the MoC, AusAID is providing Aus$6 million to USAID's PREVENT project over three years. The Australian support emphasizes the support to PREVENT as a way to boost efficiency and effectiveness in combined actions to reduce the risk of emerging infectious disease. This co-funded work will focus on countries in the Greater Mekong Subregion, particularly Cambodia, Lao PDR, Vietnam, and Burma/Myanmar.

On August 7, 2012, the U.S. Agency for International Development (USAID) signed a one-year, no-cost extension of the PREVENT project through September 29, 2015.

During the past year, the PREVENT project has continued to develop a systematic framework of investigative research on social and behavioral correlates to transmission, as a means to characterize high-risk practices and to assist in the identification of high-risk population sub-sets where strategic behavior change communications will lead to reduced outbreaks and quicker control of spill-over events. The work has focused on the primary areas within key countries, primarily in the Congo and Mekong Basin areas. Work focused on both avian influenza and Nipah virus risks has increased in Bangladesh. And the PREVENT initiatives in extractive industries were launched.

Rationale for FY13 work plan

Developing interventions to reduce primary transmission of EPT

Primary transmission of EPT viruses requires human exposure to animal species that may carry viruses that can be transmitted to humans. Early in year two, PREVENT produced a table summarizing "Opportunities for transmitting zoonotic infections to humans," keyed mainly to sources of exposure and possible transmission routes (see next page).

DRAFT

Opportunities for transmitting zoonotic infections to humans

Sources of exposure to zoonotic viruses	Examples	Possible transmission routes	Factors that increase opportunities	Factors that decrease opportunities	Underlying factors
Directly from animals					
Hunting and capturing wild animals (for home consumption, trade or pets) Butchering animals in wild, restaurants and homes	HIV, SIV, SFV AI, Ebola	▪ Contamination of wounds (which may be bites or scratches or e.g. insect bites) by blood/excreta/saliva ▪ Handling animals that have died from Ebola/AI	▪ Increased population (in-migrants) in or near wild areas (e.g., because of extractive industry) leading to increased contact in gardens and through hunting ▪ Increased commercial hunting to meet urban demand for bushmeat and pets	▪ Better enforcement of existing regulations (inspection of trains and logging trucks) ▪ Improved regulations ▪ Alternative sources of protein (e.g. frozen fish sold by itinerant vendors in Cameroon)	▪ Better access (logging roads, mining railroads) ▪ Improving standard of living ▪ Organized international trade in animals/meat ▪ Attitude of conspicuous consumption
Wild animals in markets	SARS documented AI	▪ Respiratory	▪ Demand for live wild animals	▪ Market regulation limiting live animals (e.g., Hong Kong)	▪ Improved transport (better roads) ▪ Preferences for very fresh meat; attitudes about purity of wild meat
Domestic animals, including pets	Rabies Ebola Reston Nipah Malaysia Hendra Australia AI H5N1 US monkeypox	▪ Bite (saliva) ▪ respiratory/contact	▪ Maintenance of susceptible population of animals (rabies Indonesia) ▪ Trade in exotic pets ▪ Shift in bat range (fires, habitat disruption from logging)	▪ Separation of orchards from piggeries ▪ Improved biosecurity of domestic animals	
Via contaminated food					
Wild food	Nipah Bangladesh documented; Ebola suggested (Leroy)	▪ Ingestion of food contaminated with saliva or feces	▪ Increased human exploitation of wild foods	▪ Protection of foods (e.g. *banas* in Bangladesh) ▪ Avoidance of foods partially eaten by animals	▪ Notion that bat-bitten fruits are preferable (sweeter)
Stored food	Hanta, Lassa	▪ Fecal contamination	▪ Poor construction of storage facilities	Improved construction; better design and better materials	▪ Improved access to concrete
Via contaminated environment					
Domestic environment	Hanta Lassa AI	▪ Fecal contamination (respiratory and fecal-oral/mucosal contact)	▪ House construction (dirt vs. concrete floors); tin vs. straw roofs	▪ Concrete floors in houses; improved roofs	▪ Improved access to concrete, tin roofs
Nondomestic environment	Marburg Nipah Bangladesh (presumed, some apparent association with climbing trees where bats roost)	▪ Inhalation of aerosolized excreta in caves ▪ Fecal- oral/mucosal contact (e.g., excreta on hands from climbing contaminated trees)	▪ Tourism to caves ▪ Artisanal mining in old underground mines ▪ Guano "farming"		▪ Attitude that fecal contamination is "normal"

The PREVENT Project has four primary objectives:

1. Develop a strategic framework for risk reduction
2. Identify "high-risk" groups
3. Characterize “high-risk” behaviors and practices
4. Develop, validate and evaluate effective social, behavior change and communication strategies

The primary focus of the PREVENT project is to reduce high-risk human-animal contact that may lead to emergence of pandemic threats.

The three **drivers** of such contact are:

1. **Culture – Social preferences/customs, e.g.**
    - Individual: Meat - and food-handling customs
      Exposure to animal feces
    - Societal: Settlement patterns, housing construction
      Market structure and hygiene
1. **Commerce – Market system & trade**
    - Supply and demand for wild animal meat and products
2. **Land-use change (EI)**
    - Increasing settlements and scale of agriculture in/near wild animal habitat; increased transport to/from wild animal habitat
    - PREVENT focus: change resulting from extractive industry and infrastructure investments

The first two drivers summarize the “source of exposure” column. The third driver, extractive industry – logging, mining, oil and gas, hydropower, large-scale agriculture, and concomitant infrastructure investment – is a major cause of nearly all the “underlying factors” listed in the table’s last column.

PREVENT’s FY13 work is organized to measure key elements of these drivers and to develop interventions to address them. PREVENT proposes to work in twelve countries: three in Central Africa (Republic of Congo, Uganda, and possibly Gabon), seven in Southeast Asia (Cambodia, Indonesia, Laos, Malaysia, Burma/Myanmar, Thailand, Vietnam); and Bangladesh in South Asia.

The PREVENT deliverables for the FY13 year include:

- Produce an Extractive Industry “tool kit”: that includes assessment tools and mitigation strategies in addition to advocacy materials. This tool kit will be deployed provisionally in Uganda and possibly Gabon, and ready for roll out to other countries in which Extractive Industry activities may be fielded.

- Extractive Industry Strategy: A strategy for engaging the Extractive Industry corporate, finance and health policy sectors through high-level consultations toward adoption of common protocols for risk assessments and guidelines for risk mitigation adaptable to any stage of EI concession development. The EI “tool kit” may be expanded, rewritten or repackaged as an outcome of this activity.

- Wildlife Trade paper: A paper characterizing wild life trade (focusing initially on primates) routes, extent of the problem and potential solutions is finalized and ready to serve as a “guide” for prioritizing future investments targeting this area.

- Characterization of the Role of Markets in Disease Emergence and Spread: Studies will be completed in three countries and form the basis of an analysis that characterizes the factors within markets that potentially contribute to spillover and amplification as well as provide options for potential intervention strategies including better models for improving biosecurity.

- Characterization of "risk" at the Animal-Human interface: A more comprehensive understanding on the animal-human interface dynamics and those behaviors that may lead to transmission of zoonotic diseases.

- Tested BCC Strategies for Nipah risk mitigation: This will be based on a scale-up of Nipah BCC intervention in Bangladesh.

- A Cohesive BCC Strategy for EIDs: Drawing from the BCC lessons arising from the "cross the PIOET" exercise in Bangladesh (EPT, EPT plus, AI) – this could become a model for future country level BCC programming.

With a specific mandate to examine risks from EPT pathogens as yet unidentified, the PREVENT work is focused on multi-disciplinary research and communications work attentive to identified drivers.

PREVENT work in Asia will focus predominantly on the human-animal interface risks driven by culture and commerce. PREVENT work in Africa will focus primarily on those risks driven by large-scale land-use changes, including both extractive industries on site as well as from large-scale infrastructure investments undertaken in support of extractive investments.

Roads, railways, junctions, harbors and port facilities are among such investments. The first three are more likely as points of emergence, while the latter three as points of amplification. Any may function as either or both.

The culture and commerce driven contact between humans and animals in Africa is equally significant to that in Asia, albeit different. Nevertheless, until larger systemic questions are directly addressed, such as those of sufficient access to alternate protein sources, for example, focus on drivers emerging from large-scale land use change due to extractive industries and concomitant infrastructure investments will more likely achieve success within the EPT program life-cycle.

PREVENT's agenda for better understanding these drivers and developing interventions is global. Defining general principles to guide interventions will be best achieved by understanding how different aspects of identified problems play out and interact in specific situations in specific countries.

Cross-country comparisons. In general, PREVENT activities to develop a basic and more in-depth understanding of the situation – formative research on animal names, domains and roles; surveys about animal exposure and consumer demand for wild animal meat; and extractive industry mapping and stakeholder analysis will be carried out in multiple countries, with results compared across countries.

Activity sequences. The general pattern within each driver is to move from basic understanding to more in-depth assessment of factors important for designing interventions to develop and implement interventions. PREVENT plans to complete this sequence in at least three countries. For example, interventions to reduce the risk of disease transmission through peri-domestic (home/work) exposure will be initiated in Bangladesh (Nipah), Laos (market bio-security), and Indonesia (formative research) in the coming year.

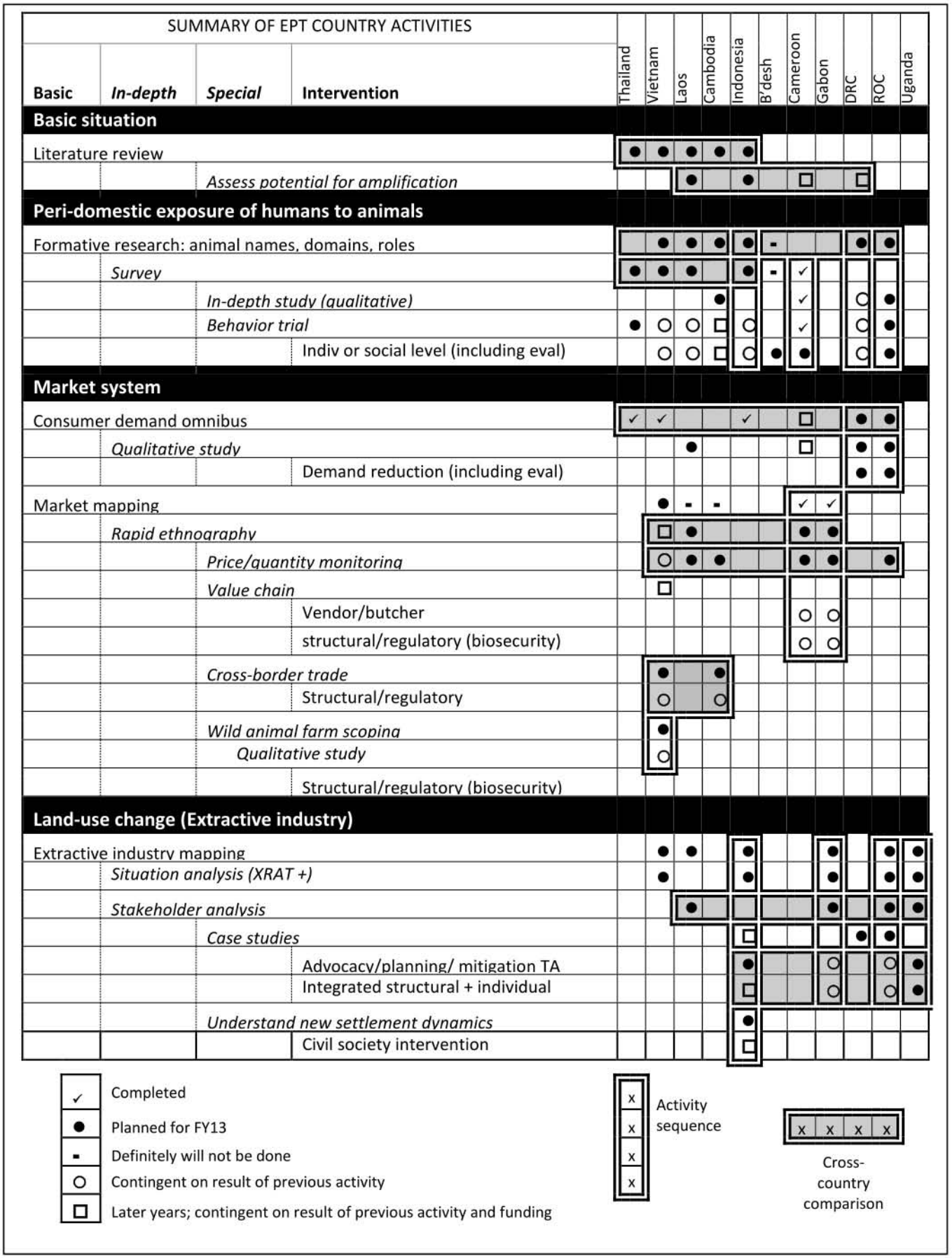
Rapid market ethnographies have been carried out in Cambodia, Laos and Vietnam. On the basis of the information gathered from these studies, PREVENT is developing an integrated intervention to improve market biosecurity and vendor practices.

Graphic Overview:

The grid shown on the next page summarizes PREVENT activities that have been completed and those proposed within these three driver categories. The grid highlights individual activities that will be carried out in multiple countries and activity sequences within countries leading from formative research to interventions.

[**GRID on next page TO BE UP-DATED**.]

DRAFT


SUMMARY OF EPT COUNTRY ACTIVITIES
Basic
In-depth
Special
Intervention
Thailand
Vietnam
Laos
Cambodia
Indonesia
B'desh
Cameroon
Gabon
DRC
ROC
Uganda
Basic situation
Literature review
Assess potential for amplification
Peri-domestic exposure of humans to animals
Formative research: animal names, domains, roles
Survey
In-depth study (qualitative)
Behavior trial
Indiv or social level (including eval)
Market system
Consumer demand omnibus
Qualitative study
Demand reduction (including eval)
Market mapping
Rapid ethnography
Price/quantity monitoring
Value chain
Vendor/butcher
structural/regulatory (biosecurity)
Cross-border trade
Structural/regulatory
Wild animal farm scoping
Qualitative study
Structural/regulatory (biosecurity)
Land-use change (Extractive industry)
Extractive industry mapping
Situation analysis (XRAT +)
Stakeholder analysis
Case studies
Advocacy/planning/ mitigation TA
Integrated structural + individual
Understand new settlement dynamics
Civil society intervention
Completed
Planned for FY13
Definitely will not be done
Contingent on result of previous activity
Later years; contingent on result of previous activity and funding
Activity sequence
Cross-country comparison

II. Narrative Description of Activities by LINE OF WORK

GLOBAL ACTIVITIES

Global activities include issues with implications beyond specific countries. This includes the global trade in wildlife and bush meat; the impacts of extractive industries and infrastructure investments on biodiversity and increased human-animal contact. Each of these is most often addressed within the context of country-level EPT programs. Yet some potential responses are being considered at policy levels with regional and global applications. These include:

LOW 2: **Wildlife trade**

This year PREVENT commissioned a paper taking an overall look at the international wildlife trade based on an analysis of CITES data. We learned that the database contains little information about rodents and bats - two of the types of animals of greatest interest from the point of view of emergence - and that trade patterns are very complex – countries may be intermediate or final destinations for wildlife and it's not clear whether the database itself clearly distinguishes (or is able to distinguish) to which category a particular animal belongs. PREVENT is still working with the graduate student to see if a very focused look at a few species of primates and a limited set of countries will provide results that are relevant to the question of emergence, but we are clear that other avenues must be explored.

Some of the fundamental questions:

- What priority should be given to different forms of traded animals – live animals, refrigerated, frozen or smoked carcasses and pieces of animals, medicines or other products made from wild animals?
- What priority should be given to legal vs illegal importations? What do we know about the relative volume of the legal and illegal trade of different types of animals? What is the absolute volume of trade in these animals?
- What are the most important routes? Are there countries that "launder" illegal animals, transforming them to legal?
- What are the links, if any, between wildlife and other kinds of illegal trafficking?

PREVENT proposes working with USAID to develop terms of reference for a consultative meeting involving 4-5 experts that focuses strictly on the emergence aspects of trade (in contrast to the conservation aspects). We hope to keep the meeting small and focused; it would result in a white paper covering what we know and do not know, presenting recommendations for next steps.

- **Partners** – FHI D360

- **Expected results** – white paper with recommendations

LOW 4: Extractive Industries

Extractive industries (mining, oil and gas, forestry, hydropower, and associated operations) involve activities identified as potential drivers of disease emergence. Activities like oil or mineral exploration, road or facility construction, and on-going operations cause environmental and social changes that can influence interactions between humans, domestic animals, and wildlife and lead to conditions favorable for the transmission of infectious diseases like Nipah virus, SARS, and Lassa fever.

In Year 3, the Extractive Industries Working Group (EIWG) developed tools for industry and government on zoonotic diseases of wildlife origin, targeting seamless integration of new content with existing procedures and methods. These tools will enhance the capability of national, regional, and local governments and industries to assess environmental and health risks and potential impacts, and to identify and implement prevention and mitigation measures at all stages of the process: planning, construction operations and decommissioning. In addition, the team has started to bring this issue to the attention of different extractive industries, specifically mining, timber, and oil/gas.

In Year 4, we plan to continue to highlight the importance of EPT in extractive industry contexts by identifying additional opportunities to share information and introduce EPT as a topic industry should address. Further, it is necessary to test the tools that are being developed in a few countries. PREVENT and other EIWG partners will take advantage of opportunities as they arise, building on existing relationships in the ROC and Uganda, and an interest in Cameroon and Gabon. In addition, PREVENT plans to build on relationships we have developed through participation in various conferences, workshops and other networking forums. We will also continue to explore and document the evidence base for mitigation as well as feed information about this process into a parallel activity by which we are attempting to engage high-level political commitment for EPT in the private and financial sectors as well as at the highest levels of government in various countries.

LOW 4: Risk reduction

4.2: Design approaches for risk reduction

Extractive industry

Activity 4.2.1: Extractive Industry Working Group Facilitation
Convene and lead the extractive industries working group with participation from PREDICT, RESPOND, Chatham House, USAID and others as appropriate.

- **Partners**: FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks
- **Expected results**: Continued sharing of experiences, tools, activities, etc.

Activity 4.2.2: Secure High level Policy Interest in Emerging Infectious Diseases among multinational actors, banks, and extractive industries through engagement with the Chatham House.
Chatham House is an internationally recognized think tank that will assist USAID to gather high-level and political actors to address EPT policy. Such engagement will move the political arena further with international finance and trade organizations, multilaterals such as the IFC and governments.

The Chatham House IDRAM initiative (Infectious Disease Risk Assessment and Management Initiative) is part of the PREVENT work stream, which builds on USAID's ongoing H5N1 avian influenza efforts to

develop effective risk management and communication responses to diseases of animal origin. The Chatham House has been contracted with the following deliverables:

- A detailed White Paper outlining current risks of emerging infectious disease outbreak associated with extraction industry and possible mitigation policy options.
- Identify and engage key Health Experts from major stakeholders in initial policy roundtables about these risks, and in particular at the animal-human interface.
- Based on Health Expert roundtables reviews, revise and expand the White Paper to provide the basis for high-level policy consultations in the successive phase.
- Develop and implement a fund-raising plan to educate key stakeholders within the extraction industry and among financiers through a series of round table events.
- Identify how the project plan will result in formulating a global strategy – involving national government stakeholders – to mitigate risks.

A contract for the White Paper has been signed with (b)(6) of EcoHealth Alliance. The date for the Health Experts Roundtable has been set for 7 November 2012 in London, and an initial list of invitees has been submitted for review.

Chatham House has not been successful in their search for outside funding, and they have indicated they will seek additional financial support from PREVENT/USAID for the activities following the health expert roundtables. A review of progress will be made following the 7 November 2012 event.

- **Partners:** FHI D360, Chatham House
- **Expected results**: A global engagement of key executives from the extractive industry related sectors in high-level policy consultations to reduce industrial related risks.

Activity 4.2.3: Implement an advocacy strategy and develop advocacy materials for extractive industry.

o **Subactivity 4.2.3.1:** Chatham House is developing links for high-level policy dialogue with extractive industry and national governments. PREVENT will participate in Chatham House activities. In addition, in coordination with country activities, PREVENT will tailor advocacy activities, abstract lessons learned about advocacy activities and test the advocacy materials and suggested approaches.

o **Subactivity 4.2.3.2**: Repackage tools for different audiences. Organizations have expressed interest in the education brochures developed in the previous year. PREVENT will work with the EIWG to repackage and translate the tools as appropriate. The initial set of materials will be to repackage the mining brochure as appropriate for an artisanal mining audience and translated into French, Spanish and/or Portuguese as appropriate.

- **Partners :**FHI D360, EI working group
- **Expected results:** Tested approaches and materials shared for advocacy to governments and the extractive industry about mitigating EPT.

o **Subactivity 4.2.3.3:** Promote EPT with different industry groups. Attend different forums to share EPT mitigation options and approaches. The team will discuss criteria for selection based on the opportunities that are identified. Level of participation will depend on funding and mutual agreement.

- **Partners**: FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks

- **Expected results**: Active engagement with at least one sector helping to promote EPT within the industry. Opportunities for engagement and advocacy identified within at least one industry group

Activity 4.2.4: Develop, test and implement tools and guidance to mitigate disease transmission associated with extractive industry activities.

Continuing from Year 3, this activity aims to build the evidence base, refine and test the tools with extractive industry and assist extractive industry partners use these tools.

o **Subactivity 4.2.4.1:** Commission 1-2 desk reviews to inform mitigation approaches. The following topics might be explored.

1. Techniques to mitigate rodent infestation.
2. Bat habitat and feeding preferences and how that information might/might not be translated into recommendations about trees to plant or avoid planting near houses and domestic animal enclosures.
3. Settlement patterns and civil society in camps and squatter settlements associated with extractive industry. This might include exploring different EI models such as fly-in/fly-out compared with settlement models.

- **Partners**: FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks
- **Expected results**: Additional literature to support mitigation activities promoted by the EID tools

o **Subactivity 4.2.4.2:** Test the Planning Tool and Audit Tool and make adjustments

1. Continue to share information and tools with industry groups
2. Revise tool based on feedback from industry groups, multilateral organizations such as IFC, and in consultation with Chatham House
3. Test and validate tools in different settings (for example, test planning tool with Geovic in Cameroon, possible opportunity in Gabon, engage Chatham House to discuss tool with ITTO and IFC)
4. Develop and test Decommissioning Tool

- **Partners**: FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks
- **Expected results**: Validated tools that have been used with industry in at least one sector

AFRICA REGIONAL – CONGO BASIN

In the Greater Congo Basin of Africa, the PREVENT project remains closely linked through partner projects to work regarding the two dominant exposure-related drivers of human-animal contact. The PREVENT work to develop interventions will focus on ways to work with extractive industries and the concomitant infrastructure investment activities in order to reduce key "underlying factors" that drive exposure and the emergence of EPT pathogens. Tools and audit packages have been prepared for testing in national context, and high-level policy dialogue events with industry and global health policy executives are scheduled.

With an overall reduced budget, execution of those program activities that focus on the significant consumer demand for bush meat taken from the most high-risk species have been put on hold. Equally, those research activities linked with Deep Forest studies, such as those proposed at sites of differing land use patterns located around the Bwindi Impenetrable Forest National Park in Southwest Uganda, or with long-term and/or migrant human settlements near or associated with oil company sites in the upper Albertine Rift Valley, will be approached in stages.

Such work increases our fundamental knowledge and evidence of potentials risks, and provides estimated exposure rates of humans to key animals in different locations that vary in basic ecology and in disturbance resulting from land use changes. These, in turn, provide additional input for PREDICT's geospatial models and inform potential interventions.

UGANDA

LOW 2
Activity 2.1: Uganda - Human-Animal Exposure Study

PREVENT has developed a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These surveys will quantify human exposure to wild animals particularly likely to carry zoonotic viruses – bats, rodents, and primates – as well as other types of wild and domestic animals (pigs and chickens) to which people are frequently exposed. In parallel, EcoHealth Alliance (PREDICT) is developing standard methods for quantifying large scale land changes hypothesized to be a factor in increased contact with animals; EcoHealth is planning to conduct active animal surveillance (to determine bio diversity) and sampling of specific wildlife (to determine viral ecology) in differing land use zones (Deep Forest Study). The PREVENT human-animal exposure surveys complemented by data from the Deep Forest Study will inform the design of interventions to reduce transmission of zoonoses, as well as improve prediction of "hotspots" for possible future disease.

In FY 2013, PREVENT anticipates conducting the human animal exposure study in Uganda in the following locations:

1 – Four (4) communities/groups near or at Deep Forest Study sites located around the Bwindi Impenetrable Forest National Park in Southwest Uganda (sites determined by PREDICT – UC Davis);

2 – Three (3) communities/groups that could be long term and migrant settlements in the upper Albertine Rift Valley, which contains Murchison Falls National Park, where significant oil reserves (estimated at more than 2.5 billion barrels) have been identified and where recently several licensed exploration wells (extractive industries) are located in wildlife reserve areas.

In each of the above locations, the following components of the human-animal exposure study are planned.

- **Subactivity 2.1.1: Implementation of formative study.** The human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize animals or the spaces they find them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what sensitivities, if any exist, with respect to interactions with animals that may impact how people report their exposure (e.g. ban on hunting). In order to develop local research capacity in this area (structured anthropologic tools applied to exploration of human animal interactions) and to help recruit individuals to conduct the study, PREVENT will conduct a workshop for up to 16 people. As part of the study practicum, these individuals may be involved in exploring and optimizing certain tools (e.g. pile sorting for literate and non-literate groups) that PREVENT has determined may need some modifications from previous studies.

  - **Partners:** FHI D360, UC Davis, research firm (tbd)
  - **Expected results**: Guidance for adapting the human-animal exposure survey questionnaire – including local animal names, categories of animals and spaces, roles of animals, types of human-animal contact and different sensitivities that need to be accounted for. In addition, the results will guide the interpretation of results from the human-animal exposure surveys.

LOW 4
Activity 4.2.2: Field Test the E.I. Planning Tool and Audit Tool and Adjustments

1. Share information and tools with industry groups
2. Revise tool based on feedback from industry groups, multilateral organizations such as IFC, and in consultation with Chatham House
3. Test and validate tools in different settings
4. Develop and field test Decommissioning Tool

- **Partners**: FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks
- **Expected results**: Validated tools that have been used with industry in at least one sector.

REPUBLIC OF CONGO

LOW 2: Risk Determination

Currently about 90 percent of ROC's export income comes from oil, mainly obtained offshore. ROC is working to diversify its revenue sources: the Zanaga iron mine is nearing production and potash mining is scheduled to restart in 2012. In addition, various companies are exploring copper, lead, zinc, iron, magnesium, gold, and diamond deposits.[1] WCS works in the Zanaga region (about 250 km from Brazzaville).

[1] USGS 2009 Mineral Yearbook. http://minerals.usgs.gov/minerals/pubs/country/2009/myb3-2009-cf.pdf accessed August 20, 2011.

Logging is also important. About half the country's forests are suitable for timber exploitation; Forest Monitor reports that "37 percent of the total forest area of Congo was held in concessions and this has increased rapidly since 1996."[2] WCS works with the CIB logging company to reduce the pressures on gorillas, elephants, and other endangered wildlife in four timber concessions and to control the trade in bush meat. This collaborative project is called PROGEPP: the "Project for Ecosystem Management in the Nouabalé-Ndoki Periphery Area." Given the impact that logging and other intensive activities can have on increasing access to hunting and exposure to animal-based pathogens in new as well as old operations, expanding disease mitigation activities to other logging companies (at least three other major companies work in ROC) could help control exposure by reducing commercial bush meat hunting in logging areas.

With each of these extractive-related economic developments, concomitant investments into infrastructure often open the pathways into and through large swaths of pristine forest. Incursions by people engaged in the cutting of new roadways, as well as those eager to claim new opportunities, mean that populations swell into these previously inaccessible areas. Demand for protein and few alternatives mean aggressive hunting for any wildlife to be found.

Bushmeat is the main source of protein for rural ROC residents. A recently published survey (carried out in 2006) found that 88 percent of Brazzaville households reported regularly consuming bushmeat, mainly obtained from markets.

A recently published report of a large (1050) household survey about consumption of wild animal meat in Brazzaville carried out by researchers from the University of Marien Ngouabi and University of Liege[3] showed that 88% of individuals surveyed responded positively to the question "Do you currently eat bushmeat?" Consumption varied by employment status of the heat of household, with about 92 percent of current employees, 87 percent of retired or self-employed workers responded positively to the above question, compared to only 84 percent of the unemployed. Eighty percent reported that the price of bushmeat was higher in recent years. However, data indicates that poor, urban respondents, though consuming wild animal meat less frequently, are still an important sector of consumers.

Most respondents obtained wild animal meat from markets (85%), the rest received it as gifts from relatives (10%), or obtained it from other intermediaries (4%) or directly from hunters (fewer than 1%). Most (81%) reported substituting other foodstuffs (the report does not specify what foodstuffs) when wild animal meat shortages occurred in the markets; the remaining 19 percent reported finding other sources of wild animal meat, including directly from hunters.

The animals cited most frequently as "currently eaten" were artiodactyls (48%), rodents (28% - mostly porcupine (16%) and cane rat (11%)), and primates (13%; monkey was 12%). The researchers noted that about half of surveyed households said they would not consume gorilla or chimpanzee. About 68 percent of heads of household were concerned about food safety or the possibility of getting disease by consuming wild animal meat, with 61 percent mentioning Ebola as a disease they feared. As elsewhere, an important reason for preferring to consume wild animal meat to farmed animal meat is that it is natural.

LOW 2: Risk Determination

2.1: Interface characterization

[2] Forest Monitor country profile, Congo Brazzaville http://www.forestsmonitor.org/en/reports/540539/549939
[3] Mbete RA et al. 2011 "Household wild animal meat consumption in Brazzaville, the Republic of the Congo." *Tropical Conservation Science* 4(2):187-202

Activity 2.1.1: ROC Market Monitoring

Road building and road improvement can have a profound impact on the potential for emergence of diseases both through their direct effects on ecology and on human access to previously difficult to reach areas. Roads are corridors for animal movement – for example for bats, as well as for domestic animals and pests that may accompany human migrants. Roads encourage human settlement and provide access for hunters both to reach hunting areas and to reach markets with wildlife to sell.

In ROC, the Chinese are building a road from Brazzaville to Ouesso (and possibly further, through pristine areas, to Bangui). The road will include several bridges replacing ferries (two not far from Brazzaville) thus shortening the journey between Brazzaville and Ouesso, that is, between a large city where a reported 89% of people have eaten bushmeat recently and the site of one of the largest wild animal/meat markets in the region. Construction has begun only recently; WCS estimates that the road will be completed in about two years.

This activity represents an opportunity to assess the effect of road improvement on the availability of key species of wildlife in markets both along the road and in Brazzaville and to improve our understanding of the dynamics of trade in these key species. For this first year, PREVENT proposes establishing a low-cost monitoring system; once basic patterns and trends are established, we will propose qualitative research to investigate specific aspects of the trade. We anticipate that PREDICT will increase its sampling along the road; the information collected by the monitoring system may help them focus their sampling efforts.

We will begin by mapping existing markets and investigating different approaches for ongoing reporting. One possibility is to task local monitors (school leavers or someone in the market) with filling out a fixed form, reporting the number of specific types of animals available at specific periods in the week and their prices. A second possibility is that the same monitors are tasked with responding a fixed number of times a week to specific questions (relayed by cellphone) about how many animals of a particular type are available in a specific period; with type of animal and period varied randomly. The second possibility allows for time sampling and, if feasible, may overcome the tendency of monitors to get in a reporting rut. Of course, if cell access is not reliable.

Results will be relayed to a coordinator who will maintain a simple running tabulation of the data; this person will also document each stage of road building (completion of bridges and major road segments; installation of detours around construction areas) and other external events (crackdown on selling primates for example) likely to affect either the flow of wildlife or our ability to report it. PREVENT staff based in Washington, D.C., will conduct the analysis for trends and differentials. We anticipate that road events that facilitate access will be accompanied by increased wildlife for sale in markets in Brazzaville and possibly along the road.

- **Partners**: FHI D360, WCS/ROC
- **Expected results**: Documentation of the effect of road building on trade in key species of wildlife

REGIONAL – SOUTHEAST ASIA

THE GREATER MEKONG SUB-REGION

AUSAID & USAID COLLABORATION

On June 6, 2012, the U.S. Agency for International Development (USAID) and the Australian Agency for International Development (AusAID) signed a memorandum of cooperation (MoC) to help reduce the risk of emerging pandemic disease threats in the Greater Mekong Sub-region (GMS) of Southeast Asia. Under the MoC, AusAID is providing up to Aus$ six million to USAID's PREVENT project over three years. To facilitate this, USAID signed a one-year, no-cost extension of the PREVENT project through September 29, 2015.

The MoC with AusAID reflects USAID's reform effort, USAID *FORWARD*, which includes a greater emphasis on collaboration and partnership with bilateral donors, multilateral, and international organizations to increase synergies and avoid duplication.

The AusAID support to PREVENT will help to boost the ability of people and organizations at the grassroots level to reduce the risk of transmission of dangerous pathogens from animals to humans by taking regulatory, managerial, social and behavioral actions. Work will focus on the countries in the GMS, including Cambodia, Lao PDR, Vietnam, and Burma/Myanmar.

The collaborative agreement between the US and Australian governments to support the work of the EPT program, and the specific focus of the PREVENT project, are a testament to the importance of efforts to impede emergence of novel viral pathogens. These low-probability, yet high-impact events can devastate if not rapidly stopped – or even prevented in the first place.

The EPT program looks beyond the scope of projects focused on avian influenzas, yet has grown from that base. The Australian government brings specific interests that include a strengthening of community-level engagements that were a hallmark of successful response to bird flu outbreaks in the GMS region. In response to the support from the Australian Government, the PREVENT project has expanded its focus to include activities that further strengthen core community-level AI responses, and that also strengthen community preparedness for emergent pathogen outbreaks beyond those of avian origin.

The AusAID support represents a direct collaboration with EPT/PREVENT. The specifics of each of these activities are outlined within the country plans below. USAID and AusAID have agreed to co-brand the activities of PREVENT in the selected GMS countries.

CAMBODIA

PREVENT will continue to support the Royal Government of Cambodia (RGC) activity area, "Conduct research on zoonotic diseases" through the activities proposed in the plan below. In addition PREVENT will build on completed research to develop strategies and interventions to reduce transmission of viruses that may represent emerging pandemic threats from animals to humans.

Cambodia FY12 Activities

Last year PREVENT carried out activities in Cambodia in coordination with PREDICT. Specifically, PREVENT and PREDICT worked together to conduct research in to Banteay Meanchey and Mondulkiri Province. PREVENT worked with PREDICT to carry out research in two forest protected areas of Cambodia where WCS will be testing samples from wild animal meat consumed by villagers. The research consists of two parts a survey and qualitative research.

A survey was used to obtain information about meat consumption and associated hunting and butchering from all households to understand how risk associated with these activities is distributed among the population. This was implemented in three villages in each province where WCS is carrying out sampling. The households identified as consuming the most wild animals in the previous month and a random sample of other households in the village will be invited to participate in a quarterly follow-up survey.

In addition, PREVENT carried out qualitative data collection in nearby similar villages using PREVENT's standard formative research package. These tools identified animal names and categories and any issues (such as regulations restricting hunting or associations of certain animals with sorcery) that may result in over- or under-reporting of certain exposures; determined patterns in seasonal and daily routines of people to assess possible locations and times of exposure to animals and to identify significant differences between sub-groups (e.g., men and women) that might have implications for risk.

In addition, in these villages PREVENT carried out focus groups on hunting, butchering and perception of the associated risks to find out who hunts and why (food, income, manage pests), what health problems people associate with their domestic animals and the wild animals they hunt and/or butcher, and what they do, if anything, to reduce risks associated with hunting and butchering.

PREVENT and PREDICT also worked together on the rat trade in southern Cambodia. PREVENT conducted a rapid market mapping activity in southern Vietnam to better understand the extent of the rat trade in Mekong Delta region. The rapid study revealed the extensive importation of rats from Cambodia to Vietnam. Meanwhile, PREDICT uncovered villages in Cambodia's Kandal Province that were involved in herding and catching rats for the trade. PREVENT conducted a rapid market mapping of the rat trade within Cambodia, and PREDICT conducted sampling of rats specimens. The team began the exploratory visit in Takeo, Prey Veng and Svay Rieng Province, and then continued to Kandal province to join the PREDICT team, who were there sampling rodents.

During the exploratory visit, the PREVENT team recorded observations on important aspects of trade, including the locations of villages actively involved; actors involved in catching, selling and trading rats; and rough estimates on the availability and volume of rats traded. PREVENT visited 38 places along the border areas between Cambodia and Vietnam, including five district markets, 13 Khmer/Vietnamese villages, five collection stores, and 15 checkpoints at the border.

Preliminary observations in Cambodia confirmed findings in Vietnam: that there is a high-volume rat trade across the border. In Cambodia, the team observed poor biosecurity and hygiene practices, and exposure both directly and indirectly of rat catchers and middlemen to the bites, blood, saliva, scratches, and entrails of the rats. As in Vietnam, the rat trade seems to be a significant source of livelihood for rural communities in Cambodia.

Activities planned for FY 2013 in Cambodia:

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Cambodia Human-Animal Exposure Follow-up Survey

PREVENT developed and pretested tools, methods and approach to assess human exposure to animals in a variety of settings in different countries. In FY2012, PREVENT, with PREDICT, adapted and implemented these tools and an abbreviated household survey in two provinces (Mondulkiri and Banteay Meancheay) in Cambodia as a baseline study.

In FY13, PREVENT will assist PREDICT in implementing quarterly follow-up surveys about household domestic animals and consumption of animal meats in conjunction with PREDICT animal sampling in selected households from the baseline study. The samples from higher-risk types of animals (rodents, bats, primates, small carnivores, and ungulates) will be tested for certain high-priority viral families. Information from the quarterly follow-up surveys, along with PREDICT's animal sampling study, will be used to validate the recall-based reports collected during the human-animal exposure survey.

- **Partners:** FHI 360, Royal Government of Cambodia, Department of Communicable Diseases (DCD), Ministry of Agriculture and Forestry (MAF), the National Veterinary Research Institute (NaVRI), and PREDICT
- **Expected results:** Finalized human-animal exposure assessment tools and methods. One-year time serial panel data on wild and domestic animal meat consumption.

Activity 2.2.2: Rodent Trade

Rodents have been shown to harbor EPT viruses in some studies conducted in other countries in the region; for example Hanta viruses have been identified in rats in Cambodia[4] and bandicoots in Thailand.[5] A study carried out in the Mekong River Delta Region of Vietnam noted that annual production of rat meat for human consumption was 3,300 – 3,600 tons of live rats.[6] (Khiem 2005).

To gain a general sense of the current size of the trade in rats, a PREVENT staff member conducted an exploratory informal visit to areas of Vietnam and Cambodia identified as possible locations for the trade. The visit uncovered wide distribution of two popular types of rat, locally called Cong Nhum and Cong Com[7] in markets in the Mekong Delta region of Vietnam. Observations and discussions with local officials suggested that markets may be selling as much as one to two tons of rat per day. Although live rats were more commonly observed in markets than processed rats, individual households in processing villages in Vietnam may be butchering up to one ton of rats per day during peak collection times, reported

[4] Reynes et al. Microbes and Infection 5(9): 769 2003
[5] Hugot et al. Virology Journal 3:7 2006
[6] Khiem et al. *Market study of meat from field rats in the Mekong Delta.* An Giang University p 543 – 547 2005
[7] PREVENT has not been able to identify the exact species of rat (species identification frequently relies on subtle anatomical differences).

as six months out of the year: March – May and September – November. At the border crossings rats were observed being transported from Cambodia to Vietnam by motorbike and boats in wire cages that allow mixing of rats and the spread of excrement during transport.

In Cambodia it appeared that the suppliers are working to deliver rats to the higher demand Vietnamese consumers, with rats being supplied by individual farmers – for example, a chief of one village in Kandal Province reported 100 of 285 households in the village participating in the trade.

In both Cambodia and Vietnam, observations indicated poor biosecurity and hygiene practices, with individuals involved in the trade exposed both directly and indirectly to rat bites and scratches as well as blood, saliva and entrails.

We found no systematically collected information about the rat trade and its potential for zoonotic disease transmission, although the trade appears to be sizable and involve high rates of risky exposure for those involved in it. The structure of the market chain and the number of people participating in the trade (operators) remain unidentified, apart from the paper by Khiem, et al. The scale of the trade, including the volume of rodents bought and sold and the seasonality of the trade remains undocumented. Specific practices and situations that create opportunities for exposure to disease have not been recorded. PREVENT proposes a research study to answer these important questions.

Rodent Trade – Descriptive Analysis

PREVENT will carry out a descriptive analysis of the market chain of cross-border rat trade in southern Vietnam and adjacent provinces of Cambodia. From "field to fork" the study will identify the operators of the rat market chain and the linkages or transaction points of primary products, rats, and secondary products, rat meat and remaining parts (entrails, head, legs and tail). This study will document the scope and structure of the rat trade and explore specific practices and situations of market chain operators (person, place, time, and reasons) that involve potentially risky exposure from rats, as well as important factors that might promote or inhibit changing practices.

- **Partners:** FHI 360, NaVRI, MOH, local consultants (TBD)
- **Expected results:** Identification of specific practices and situations involving risky exposure to rats and information about perceptions that can be used in developing interventions.

LOW 4: Risk Reduction
4.2 Implement risk reduction activities
Activity 4.3.1: Technical Working Group on Zoonotic Diseases

The Royal Government of Cambodia's Ministry of Health (MOH) chairs a bimonthly meeting for all EID stakeholders in Cambodia, the Technical Working Group on Zoonotic Diseases (TWG-Z). The meetings are intended as an opportunity to share information and ensure collaboration among stakeholders. As a stakeholder of EIDs in Cambodia PREVENT will attend these meetings and report to the TWG-Z on completed and planned activities.

- **Partners:** FHI 360, MOH, NaVRI, EPT partners
- **Expected results:** Better coordination of EID stakeholders in Cambodia.

Activity 4.3.2 Risk Communications Training of Front-line Health and Veterinarian Workers in 3 Additional Provinces

In 2011 and 2012, the USAID Mekong Infectious Diseases Behavior Change Communication (MID-BCC) project worked closely with the Department of Communicable Disease Control (CDC) at the Ministry of Health (MOH) and the Ministry of Agriculture, Forestry and Fishery (MAFF), National Veterinary Research institute (NaVRI) to prevent further H5N1 influenza in Cambodia. MID-BCC conducted a Training of Trainers (TOT) in June 2012 in Phnom Penh for seven future Risk Communication Trainers from the MOH and MAFF, and two Trainers from the Cambodian Red Cross.

The Royal Government of Cambodia prioritizes the development of Master Trainers in Risk Communication. The Government has directly expressed their desire to expand this training in additional provinces in Cambodia, especially those at higher risk for outbreaks. The Government will determine the final list of provinces. MAFF and MOH already identified the province of Mondulkiri, currently a focus of research by PREVENT, as a province of high need.

Under support of AusAID funding, this training will be expanded to three additional provinces, and will include further training of the Master Trainer cohort. PREVENT will provide technical assistance to reinforce the skills of this cohort in risk communication, H5N1 key messages, interpersonal communication skills and adult learning participatory training skills.

- **Partners:** FHI 360, Cambodian Ministry of Health, Department of Communicable Disease Control (CDC); and the Ministry of Agriculture, Forestry and Fishery (MAFF), National Veterinary Research institute (NaVRI); Provincial veterinarians, district veterinarians, provincial health officers, district health officers, and Red Cross staff.

LAO PDR

In Southeast Asia, Lao PDR is the country with the most undisturbed landscape and remote populations. More than 80 percent of the population lives in rural areas; and for many, wild animal meat is an important source of protein. Culturally, hunting for food and purchase of meats from wet markets is widespread. Some minority cultures in Laos have extensive contact with wildlife. Continued human-wildlife interaction represents an opportunity for EPT transmission, while the reliance on wild animal meat poses the equally compelling challenge to ensure food security for the rural population. PREVENT will build on lessons learned in implementing a multi-sectoral national avian and human influenza strategy to develop interventions to reduce the likelihood of EPT transmission, while addressing the Government of Lao PDR's goals of food security, conservation, and poverty alleviation.

Partnerships

PREVENT will build on the strong previous collaboration between FHI D360 (formerly AED) and NEIDCO to ensure that activities are consistent with Government of Lao PDR goals. PREVENT anticipates working with key stakeholders throughout the project's life including: Government of Lao PDR (e.g. NEIDCO, the Center of Information and education for Health (CIEH), MOH Department of Hygiene and Prevention, provincial and district health units, agriculture and forestry offices in identified provinces, Lao Women's Union (LWU), Market Working Group, extractive industry partners, and research agencies (TBD), as well as EPT Program partners PREDICT and RESPOND.

LOW 2: Risk Determination
2.2 Interface Characterization

2.2.1 Participatory Action Research (PAR) on Key Species (Bats)

PAR is a systematic qualitative research approach in which researchers work with community members to solve a problem or understand an area of concern for the community. PAR also includes a time for community "restitution" – presentation of the results of work to the community and collective problem solving about the ways things can be improved. As PAR collects fairly rich, contextualized information about a particular topic in a relatively short amount of time, it is an ideal method to use to gain in-depth knowledge about situations about which little is known. In Laos, researchers will work with community members to gain a better understanding of the exposure to, interactions with, and risk perceptions surrounding bats within these communities.

In PREVENT's market survey in Laos carried out by WCS, bats were seen in a series of markets not far from karst formations. PREVENT proposes to use PAR to gain a better understanding of how people perceive bats in these areas, and obtain detailed information about how they interact with them, including methods they use to collect bats that are sold in markets, whether they are concerned about bats entering their houses, eating fruit on their trees, etc., methods they might use to discourage this and the perceived effectiveness of those methods.

Fieldwork will consist of implementation of PAR tools followed by restitution with the community. PREVENT anticipates that several villages will be selected as research sites in each location

- **Partners**: FHI D360, consultants
- **Expected results**: Identification of high-risk practices involving bats; identification of positive deviants; identification of potential risk mitigation strategies.

2.2.2 Human-Animal Exposure Study

PREVENT has developed a standard survey approach for assessing human exposure to animals in a variety of settings in different countries. These surveys will quantify human exposure to wild animals particularly likely to carry zoonotic viruses – bats, rodents, and primates – as well as other types of wild and domestic animals (pigs and chickens) to which people are frequently exposed.

These human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. Therefore, part of the standard approach for the study includes conducting formative research to learn the local names for different types of animals, how people categorize animals or the spaces they find them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what sensitivities, if any exist, with respect to interactions with animals that may impact how people report their exposure (e.g. ban on hunting).

In FY 2012, PREVENT subcontracted a research firm, Burnet, Inc., to conduct the formative study on human-animal exposure in Lao PDR in two provinces: Bolikhamxay (central Lao PDR) and Attapeu (southern Lao PDR). In Bolikhamxay, two groups (Hmong and Lao communities) were selected near the Theun Hinboun Power Company (THPC) dam extension reservoir. In Attapeu, Lao communities near the Attapeu provincial capital (Attapeu town), and Brao ethnic community near an area known for heavy logging were selected. Burnet finished fieldwork in April 2012. The findings from the formative study will be used to modify/adopt the questionnaires for the human exposure survey planned for later this year.

Prior to the implementation of the full survey in FY 2013, PREVENT is planning to conduct cognitive interviews to pre-test the validity and comprehensibility of key items in the questionnaire; the cognitive interview pre-test will help finalize the survey questionnaires.

- **Subactivity 2.2.2.1: Implementation of cognitive interviews and quantitative human animal exposure survey**

  PREVENT anticipates conducting the human animal exposure quantitative survey in two sites in each of the provinces, Bolikhamxay and Attapeu. The survey will attempt to quantify specific types of human exposure to animals – defined by specific transmission routes - that occur in different locations (e.g. in and around the home, food growing spaces, etc) and in association with different human activities (e.g. raising animals, hunting, eating, etc).

  - **Partners**: FHI D360, research firm (TBD)
  - **Expected results**: Estimated exposure rates of humans to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.

LOW 4: Risk Reduction
4.2 Design Approaches

4.2.1 Participate and Support Markets Working Group

Participate as an active member of the Markets Working Group (MWG) and continue to assist with expanding the mandate to cover all emerging infectious diseases (EIDs). PREVENT will attend monthly meetings at the national level and support two half day meetings for around 30 working group members. This year PREVENT will support and expand MWG interventions, see activity 4.2.2.

- **Partners**: FHI D360, Market Working Group Members, Department of Hygiene and Prevention
- **Expected results**: Expansion of MWG to cover EIDs and One Health.

LOW 4: Risk Reduction
4.3: Implement risk reduction activities

4.3.2 Dissemination Workshop for the Human Exposure Studies

Before initiation of human-animal exposure research activities in Laos, PREVENT convened a meeting with representatives of the Department of Hygiene and Prevention, the National Emerging Infectious Diseases Coordination Office (NEIDCO), the Department of Livestock and Fisheries, and the Wildlife Division of the Department of Forestry. At this meeting, PREVENT formally presented the proposed research (objectives, methods) and solicited input into optimum locations to conduct the studies.

Subsequently, PREVENT has kept these government representatives informed of the progress of the research, who in turn, have lent their assistance in obtaining government and local permissions to conduct the studies. In addition, some government staff have attended the training workshop for field staff and have gone to the field to observe the implementation of parts of the research.

After completion of all components of the study (formative (completed in FY12) and survey), PREVENT will host a one-day forum to share the findings of the studies. Representatives of governmental departments, USAID and other stakeholders will be invited.

- **Partners**: FHI D360, Burnet, Inc., quantitative survey research firm (TBD)
- **Expected results**: Continued knowledge sharing and continued cooperation in future activities.

THAILAND

Thailand will serve as a regional platform for PREVENT. Regional research and communication staff will be based in Bangkok. Isaan, the northeastern region of Thailand, will continue to be the focal area for human-animal peri-domestic exposure research as this region has reported rodent consumption and language similarities with Lao PDR.

PREVENT – FY12 activities completed

In FY12 PREVENT carried out a desktop review of existing literature on the potential for disease transmission from wildlife to humans in Thailand, focused on risky practices and behaviors that affect the disease transmission from wildlife to humans, social norms that support these or less risky practices, and the motivations and circumstances that support risky practices, with a focus on rodent, bat, and primate species.

In FY12, PREVENT pre-tested the survey questionnaire for the regional human-animal exposure survey in Khon Kaen. The pre-test found that in both urban and rural areas, dogs, cats, chickens, ducks, and pigs were the animals most commonly raised. Five percent or fewer people reported raising birds, fish, cows, and gamecocks in both urban and rural areas, and animals that are probably pets – rats in urban areas, and guinea pigs, rabbits and monkeys in rural areas. In the rural areas, most animals were raised specifically for consumption or as a source of income. Respondents also regularly encountered animals they did not raise, such as rats, street cats, street dogs, bats and squirrels. About 50% of all respondents (male or female, urban or rural) reported seeing feces in or near the house, and about a third in rural areas reported seeing dead rodents in or near the house. It was found that chicken, pork, fish, beef, and duck were the main sources of animal protein for all respondents, and more people in rural than in urban areas reported consuming field rat/rats and birds.

Partnerships: Government of Thailand (National Park, Wildlife and Plant Conservation Department of Thailand (DNP), Mahidol University, research agencies (TBD), PREDICT, and RESPOND.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: PAR on Rodents

PAR is a systematic qualitative research approach in which researchers work with community members to solve a problem or understand an area of concern for the community. PAR also includes a time for community "restitution" – presentation of the results of work to the community and collective problem solving about ways things can be improved. As PAR collects fairly rich, contextualized information

about a particular topic in a relatively short amount of time, it is an ideal method to use to gain in-depth knowledge about situations about which little is known.

In Thailand, one such area is people's interactions with rodents. In a survey about human-animal exposure carried out by PREVENT in Khon Kaen in December 2011, between 45 and 60% of all respondents, male and female, reported seeing dead rodents or rodent feces in or around their houses. PREVENT proposes to use PAR to gain a better understanding of how people perceive rodents, and to obtain detailed information about how they interact with them, including methods they use to deter rodents from entering their houses, contaminating food, etc. and the perceived effectiveness of those methods.

Fieldwork will consist of implementation of PAR tools followed by restitution with the community. PREVENT anticipates that several villages will be selected as research sites in each location

- **Partners**: FHI D360, consultants
- **Expected results**: Identification of high-risk practices involving rodents; identification of positive deviants; identification of potential risk mitigation strategies

VIETNAM

In Vietnam land use change, commerce, and culture result in an interface between humans and animals that creates potential opportunities for viruses with pandemic potential to emerge. For example, in the last decade Vietnam has experienced outbreaks of newly emerging diseases, including SARS and avian influenza A (H5N1).

Vietnam is the fourteenth most populous country in the world with an estimated 91 million people in 2012. Due to land resources Vietnam has a population density higher than any of its neighbors (twice as much as China; three times Cambodia; and 10 times the population in Lao PDR)[8]. Vietnam is one of the most biologically diverse nations on the planet[9]. However, habitat destruction due to country modernization, industrialization, and pollution threaten the rich biodiversity found in Vietnam. It has been hypothesized that biodiversity loss might lead to emergence of zoonotic diseases.

Commerce and culture play a vital role in potentially important interface between humans and animals in Vietnam. The country is both a transit point and a (declining) source for the export of wildlife on the global market and plays a significant role as a consumer, mostly for food, of wild animals.[10,11] In addition to the consumption of protected animals such as tiger and bears Vietnam has an unregulated trade of rats in southern Vietnam, wildlife farming of rodents such as porcupines, and farming of civets – key species for PREVENT because they have most frequently been implicated in the transmission of infectious diseases that have had a severe impact on humans.

[8] Vietnam General Statistic Office, 2010.
[9] Pilgrim, J. D. and Nguyen Duc Tu (2007) Background paper on threatened and alien species in Vietnam and recommendations for the content of the Biodiversity Law. Report to the Department of Environment, Ministry of Natural Resources and Environment. Hanoi, BirdLife International Vietnam Programme.
[10] Bina Venkataraman (Comps) (2007). TRAFFIC Southeast Asia, Greater Mekong Programme, Ha Noi, Viet Nam.
[11] Do Thi Thanh Huyen, Bui Huu Manh et al, 2011. *Consumption of wild animal products in Ho Chi Minh City, Vietnam - Results of resident and student survey*. Ho Chi Minh City. Vietnam.

PREVENT FY 2013 activities will focus mainly on identifying potential risk at the human-animal interface as a result of commerce and culture.

Partnerships
PREVENT anticipates working with key stakeholders throughout the project's life including: Government of Vietnam (e.g. Ministry of Agriculture and Rural Development (MARD), Department of Animal Health (DAH), Department of Livestock Protection (DLP), and Ministry of Forestry (MOF), relevant NGOs (World Wildlife Fund (WWF), research agencies (TBD), and EPT partners PREDICT and RESPOND.

LOW 2: Risk determination
2.2: Interface characterization

Activity 2.2.1: Rodent trade
Rodents have been shown to harbor EPT viruses in some studies conducted in other countries in the region; for example Hanta viruses have been identified in rats in Cambodia[12] and bandicoots in Thailand.[13] PREVENT carried out a consumer demand survey that asked specific questions about key species (rodents, bats, and primates) as well as general questions about eating wild animal meat. In this study 5.2 percent of respondents in Hanoi and 27.4 percent in Ho Chi Minh City reported eating rodents in the past year (PREVENT research report March 2011). A study carried out in the Mekong River Delta Region of Vietnam in 2005 noted that annual production of rat meat for human consumption was 3,300 – 3,600 tons of live rats.[14]

The background of the prior work and activities conducted in FY12 are detailed under the descriptive section for Cambodia. The trade and the proposed activities are cross-border in nature. Please refer to the Cambodia description for these details.

Rodent Trade – Descriptive Analysis

PREVENT will carry out a descriptive analysis of the market chain of cross-border rat trade in southern Vietnam and adjacent provinces of Cambodia. From "field to fork" the study will identify the operators of the rat market chain and the linkages or transaction points of primary products, rats, and secondary products, rat meat and remaining parts (entrails, head, legs and tail). This study will document the scope and structure of the rat trade and explore specific practices and situations of market chain operators (person, place, time, and reasons) that involve potentially risky exposure from rats, as well as important factors that might promote or inhibit changing practices.

- **Partners:** FHI 360, National Agriculture and Fishery Extension Center under MARD, local consultants, research organization
- **Expected results:** Identification of specific practices and situations involving risky exposure to rats and information about perceptions that can be used in developing interventions.

Activity 2.2.2: Wildlife Farm Biosecurity (Emphasis on Primates and Rodents)

Theoretically, farmed wild animals should relieve pressure on wild animal populations. However, a 2009 study (WCS and Vietnam Department of Forestry) showed that nearly half of commercial wild animal

[12] Reynes et al. Microbes and Infection 5(9): 769 2003
[13] Hugot et al. Virology Journal 3:7 2006
[14] Khiem et al. *Market study of meat from field rats in the Mekong Delta.* An Giang University p 543 – 547 2005

farms surveyed in northern Vietnam regularly brought animals from the wild, thus exacerbating rather than alleviating pressure on wild animal populations. Further, keeping multiple species of newly imported animals in a small area increases the risk of interspecies disease transmission, a situation analogous to wet markets.

Department of Forestry Protection (DFP) requested PREVENT assistance with improving biosecurity at wildlife farms through working closely with farm owners. In FY 12 PREVENT assembled a list of wildlife farms and owners from data collected in previous years by DFP officials. Although this data collection was inconsistent within and across provinces – thus the list is incomplete - it provides a general sense of the number of wildlife farms and types of animals at the farms. PREVENT will use this information to select provinces in the Mekong Delta for FY13 follow-up activities.

In FY13 PREVENT proposes working with EPT partners such as FAO to conduct a biosecurity scoping and a survey of wildlife farm personnel's knowledge, attitudes, and practices. Using this data PREVENT will explore options for improving biosecurity practices at wildlife farms, including building the capacity of wildlife farm personnel. PREVENT will then develop guidance for wildlife farm personnel about improving biosecurity that points out things that could be done and benefits from doing them, as well as, training about biosecurity (addressing factors likely to motivate them to change and/or factors that might inhibit change). The project will evaluate the outcome of the training six months post training, repeating the same biosecurity scoping and KAP study.

- **Subactivity 1.1:** Biosecurity scoping and KAP study. Using information collected last year to identify a sample of wildlife farms, PREVENT will work with EPT partners such as FAO and local government partners to conduct a biosecurity scoping and survey wildlife farm personnel on their knowledge, attitudes, and practice of farm biosecurity.
- **Subactivity 1.2:** Analyze and review results to share with stakeholders for feedback. PREVENT will use the results of the biosecurity scoping and KAP study to develop recommendations for improving biosecurity of wildlife farms such as capacity building for farm owners and staff on biosecurity guidelines and/or structural changes (zoning, construction of places to quarantine, installation of running water). The recommendations will be shared with stakeholders such as the Government of Vietnam and the Biosecurity Working Group for their feedback. Based on their input PREVENT will develop training for farm owners.
- **Subactivity 1.3:** Train. PREVENT will select key provinces to conduct wildlife farm biosecurity training, selecting from the Mekong Delta region. The final selection of provinces will be made in consultation with the Government of Vietnam. From each province at least 10 wildlife farm personnel will be randomly selected from those who participated in the biosecurity scoping and KAP survey (prioritizing farm owners breeding PREVENT key species) for biosecurity training. Two master trainers (one for the north and one for the south) will implement the biosecurity improvement activity. In each province one provincial level trainer will be selected based on their past experience in implementing biosecurity activities and future availability as a resource for wildlife farm personnel and staff. These provincial level trainers will assist the master trainers in facilitating the training.
- **Subactivity 1.4:** Evaluate. The outcome of the capacity building activity will be evaluated six months after it has occurred. PREVENT will select a sample of the trained wildlife farm personnel to a) repeat the biosecurity scoping and KAP study; b) determine the extent to which participants have been able to implement the recommendations; and c) identify any factors that are barriers or that facilitate applying the biosecurity improvements.
- **Subactivity 1.5:** To garner support for this activity PREVENT will be an active participant in the Biosecurity Working Group. We will support at least one Biosecurity Working Group meeting on the

topic of wildlife farm biosecurity practices, building on lessons learned from the poultry sector in Vietnam.

- **Partners:** FHI 360, FAO, Department of Animal Health, Department of Forestry Protection and Department of Livestock Production
- **Expected results:** A description of biosecurity practices at wildlife farms in the Mekong Delta region of Vietnam, current knowledge, attitudes and practice of wildlife farm personnel on biosecurity, and the means and motivations for reducing potential risks. PREVENT anticipates up to 100 wildlife farms personnel will be trained on biosecurity. Evaluation of results.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction

Activity 4.2.1: Avian Influenza Behavior Change Communication Working Group
PREVENT will participate in the AI-BCC Working Group, soon to be called the 'One Health Communication Working Group', and provide them materials on advocacy and social and behavior change communication (SBCC) approaches.

- **Partners:** FHI 360, NAFEC, AI BCC Working Group Members
- **Expected results:** Around 40 working group members have improved awareness of state of the art approaches to advocacy and SBCC.

Activity 4.2.2: Reduce Consumer Demand for Wild Animal Meat
Vietnam is a country with high consumption of wild animal meat and use of wild animal-based medicines, although not everyone consumes wild animal meat. Drury's[15] dissertation research in Hanoi showed that only about half of the population reported consuming wild animal meat in the past 12 months. Respondents who did consume it were very concerned about food quality; saying that they preferred wild meat because it is more "natural," echoing AI.COM findings that people preferred uncaged chickens because they were more "natural." Another clear factor enhancing the desirability of wild meat is its rarity; things costly to acquire are highly valued.

A recent survey completed by Wildlife at Risk (WAR) and the University of Science, Vietnam National University Ho Chi Minh City (HCMC) (August 2010 to April 2011) revealed that usage of wild animal products in Ho Chi Minh City is fairly common as a food source, echoing findings from Drury's dissertation and the *A Matter of Attitude* survey completed in 2007 for residents of Hanoi.

According to the WAR survey, nearly 51% of the surveyed residents who live and work HCMC have used wild animal products, of which 48.4 % have consumed wild animal products more than three times per year (p12)[16]. Of the people that have consumed wildlife 75.3% reported food as their reason for wild animal consumption, followed by wild animal drinks (p 13). Species that are most widely consumed include rodents (porcupine) and civets, key PREVENT species, as well as snake, wild boar, stag, deer, wild fowl, bear, turtle, python, and monitor lizard. The most popular places reported for eating wild animal meat and drinking wild animal alcohol are restaurants in HCMC (44.1% of the people who use wild animal products). The next places in turn are at home (40.6% of the people who use wild animal products) and specialty restaurants in other provinces (23.4%) (p 17).

[15] RC Drury: Identifying and understanding consumers of wild animal products in Hanoi, Vietnam: Implications for Conservation Management. University College London, February 2009.
[16] Do Thi Thanh Huyen, Bui Huu Manh et al, 2011. *Consumption of wild animal products in Ho Chi Minh City, Vietnam - Results of resident and student survey*. Ho Chi Minh City. Vietnam.

Human consumption of wildlife is a driver for wildlife trade including hunting and trading of wildlife animals and possible extinction of animals in Vietnam. The pressure on wildlife populations disrupts a delicate ecological balance and provides an interface for zoonotic diseases to emerge. PREVENT will work with local organizations to assess campaigns completed in the last ten years on reducing human consumption of wildlife to address this issue.

Subactivity 4.2.2.1: Review of Communication Interventions to Reduce Consumer Demand for Wild Animal Meat

PREVENT has documented thirteen communication interventions to reduce consumer demand for wild animal meat and products in Vietnam. These interventions range from a "Green Restaurant" campaign, to promoting awareness and public action through television, radio, newspapers, as well as advertising on buses, billboards, hosting high profile events, producing a variety of publications in Vietnamese for the public, and frequent news feeds to network media. These activities have been funded by both international and national NGOs in Vietnam and some have been implementing wildlife consumer demand reduction communication activities since 2000. To-date we have identified one evaluation report on the impact of the demand reduction activity. Therefore, PREVENT will support a communications expert to review reports about and available results of identified interventions and interview people knowledgeable about them to determine if any have been proven or have the potential to reduce consumption of wild animals.

- **Partners:** FHI 360, local consultant, FAO, WHO, PREDICT, MARD and DFP, ENV, WWF, WAR, APII
- **Expected results:** Report documenting communication efforts to reduce consumer demand for wildlife in Vietnam, with an assessment of the potential effectiveness of these approaches.

BURMA / MYANMAR

Burma has been added to the list of EPT countries through the program interests and funding support from the Government of Australian and AusAID. Because Burma was not an EPT country, the EPT program is currently being "introduced" to the concerned Ministries, and scoping missions will take place in the first quarter of FY13. The activities currently suggested are indicative of those planned. Final decisions will follow the scoping mission.

PREVENT currently has an initial funding for three years of work in Burma. Over that time period, the project will initially work on addressing the behaviors and practices that contribute to the continued challenge of H5N1.

Strategic Approach:

USAID, since 2006, has invested in H5N1 activities in Burma through partnerships with WHO and FAO. Building on these platforms, PREVENT proposes a two stage process:

LOW 2: Characterizing Risk:

To better understand the risk dynamics for H5N1 within poultry populations and to humans, PREVENT has a number of tools and approaches that can be implemented at the national and/or community level, as needed.

- Desk review including existing research, communication and training materials, guides, reports of interventions including those to affect the enabling environment to identify gaps, promising approaches and partners
- Market assessments, including the policy environment, value chain analysis, biosecurity audits, and studies of market actors (vendors, transporters, consolidators, sanitation workers, poultry workers) to identify risk associated with locations, occasions and practices and potential motivations for and barriers to change.
- Provider studies – in-depth interviews with staff of critical ministries whose mandate is human or animal health to understand their capacity and ability to implement prevention or response activities.
- Community/Household studies (qualitative and quantitative) to identify sub-populations (segments) at risk, the practices that contribute to that risk and potential motivations for and barriers to change.

LOW 4: Intervention design and implementation:

Using the risk data and taking a One Health approach, PREVENT will propose the most appropriate solutions to address risky behaviors and practices. Some possible specific activities include:

- Training ministry staff in skills, knowledge and values they may need to become effective implementers of prevention or response activities
- Advocacy interventions to improve the enabling environment, such as improved regulations and awareness of existing regulations
- Development and production of improved and adapted materials about H5N1
- Development and implementation of strategic interventions to reach the at-risk audiences focusing on markets, communities close to poultry farmers, transporters, and vendors
- Development of a risk communication plan and training to ensure that a sufficient number of personnel to implement it are available when necessary
- Explore the potential of involving such private sector partners as commercial poultry farms, markets and vendors, soap manufacturers (hygiene) and transporters related to poultry and wildlife

Expected Outcomes:

The ultimate objective of PREVENT's H5N1 activities will be to strengthen the capacity within Burma to reduce the incidence of H5N1 virus outbreaks among at-risk audiences.

Outcomes that will contribute to achieving this impact include:

- Mainstreaming awareness and knowledge of the virus and effective response to it as part of the national agenda.
- Increasing the capacity of government and civil society partners to plan for, take action to prevent and respond to outbreaks of the virus.
- Institutionalizing government staff competencies to conduct interpersonal communication about H5N1 with farmers, poultry workers, community members and patients in order to improve change practices of groups at risk
- Engaging the private sector to improve bio-security in markets and farms to reduce the chances of outbreak.

Many of these approaches can also be mobilized to address other emerging zoonotic pandemic threats.

LOW 4: (AusAID supported)

Activity 4.1 AI – Risk Communications Training of Front-line Health and Vet Workers

Activity 4.2 AI Coordination Meeting of Stakeholders in Burma

Activity 4.3 AI Risk Mitigation – TBD

INDONESIA & MALAYSIA

Neither Indonesia nor Malaysia are routinely included in the Mekong Sub-Region, as the Mekong and all it's tributaries have emptied into salt-water seas before reaching these two countries. Yet, from the possible network of EPT events, these two countries are vital members of the geographic zone of concern to the EPT programs.

With substantial activities related to avian influenza still very active in Indonesia, PREVENT deferred the ramp up activities while conducting desk studies and engaging in consultations with the USAID Mission and partner projects.

Malaysia is a country where PREVENT and PREDICT will collaborate on a Deep Forest study in the State of Sabah. This study will take place over the coming two years, with initial work only in the coming FY13 work plan.

INDONESIA

Indonesia's diverse flora and fauna, spread over a great expanse of islands, are matched by a diversity of cultures. During the past decade Indonesia has addressed emerging diseases such as avian influenza A H5N1, Pandemic influenza AH1N1, severe acute respiratory syndrome (SARS) and re-emerging and drug-resistant diseases.[17]

PREVENT – FY12 activities completed

In February 2012, PREVENT commissioned a desk study and targeted literature review. The focus of the study was on East Kalimantan and Sulawesi, as these are areas where cultural traditions are reported to include higher incidence of risky practices and behaviors that affect disease transmission from wildlife to humans, social norms that support these risky practices, and circumstances that further support risky practices. In addition, East Kalimantan is the locus of considerable land use change related to extractive industry (mining, gas and oil sites and palm oil plantations) that provides an enabling environment for zoonotic transmission.

[17] Coker, Richard J, Benjamin M Hunter, James W Rudge, Mraco Liverani, and Piya Hanvoravonghai. *Emerging infectious diseases in Southeast Asia: regional challenges to control.* Lancet Vol. 377, February 12, 2011.

PREVENT - FY13 planned activities

The diversity of Indonesia's flora, fauna and cultures and the expanse of the archipelago (17,508 islands of which 6,000 are inhabited[18] make it necessary to narrow PREVENT's focus in the activities for FY13.

PREVENT will initiate activities of North Sulawesi. As confirmed in the desk study commissioned in FY12, the North Sulawesi population has a high rate of rodent and bats consumption – a potentially risky behavior for disease emergence. As PREVENT implements activities, the project will examine and realign the geographic focus as needed.

Staffing

A Technical Officer will be recruited and based in North Sulawesi. A job description for this position is under review and will soon be posted.

LOW 2: Risk Determination

2.2 Interface Characterization

Activity 2.2.1: Market Studies

Markets that sell wild animals may expose human populations to emerging diseases. PREVENT is examining both the demand and supply sides of trade in wild animals and wild animal meat. Because bats, rodents, and primates have been proven to harbor EPT viruses, PREVENT proposes concentrating on markets in areas where these animals are consumed. To gather basic information on markets PREVENT proposes two types of market data collection: market scoping and market monitoring implemented sequentially. Implementation of successive data collection is contingent on results of the previous step – i.e., if market scoping indicates that no key species are available in markets, then further data collection will not be carried out.

- A market scoping is a quick one-time visit to a market to obtain information about the number of vendors, availability of wildlife and domestic animals/meat for sale, and basic observational information about market biosecurity.
- Market monitoring is a more intensive data collection than market scoping; it involves periodic repeat visits for a set period of time and collection of more detailed information about the market.

Subactivity 2.2.1.1: Market Scoping

As a first step to understand the supply side of the equation, PREVENT will conduct a rapid survey of markets to identify small, unregistered markets, determine what wild and domestic animals/meats are available at them and at larger registered markets, and obtain basic information about market biosecurity. During the rapid market scanning PREVENT will assess the availability of wildlife at large formal markets (tentatively, more than 30 vendors) as well as smaller unregistered markets along the road. Information about the identified markets will inform decisions about follow-up data collection. The following steps will be accomplished:

- Conduct a desk literature review and key informants interviews to learn what is known about markets. Determine in consultation with local government partners and stakeholders the route for the exploratory visit. Finalize the scoping instrument and approach, using the literature review and key informant interviews main findings.
- Select team and train. Adapt the training manual and hold a two-day training to familiarize the market scoping team with forms, data collection procedure, analysis protocols, and reporting.

[18] https://www.cia.gov/library/publications/the-world-factbook/geos/id.html

- Implement market scoping. Identify and obtain basic information about large formal markets and roadside markets along the route selected for market scanning.
- Prepare a report and disseminate to government and stakeholders.
  - **Partners:** FHI 360, local consultant(s)
  - **Expected results:** Report summarizing the market scoping data, including; a list of key animals of interest available, number of wildlife for sale, number of vendors selling wildlife, and basic market biosecurity.

Subactivity 2.2.1.2: Market Monitoring
PREVENT proposes developing a simple monitoring system that can be carried out through local market monitors. On the first visit PREVENT will collection information about general market characteristics, such as access and mobile phone coverage, and specific aspects of market governance, such as a private or public market ownership. At this and subsequent visits (one per season for one year), the project will monitor markets for availability of key species (quantity and price) and market biosecurity practices. The steps to achieve these results are:

- Select markets to monitor and individuals or an organization to assist in monitoring markets. Based on final consultation with local government partners and institutions and with PREDICT, PREVENT will select markets to monitor.
- Conduct training workshop. PREVENT will carry out a four-day workshop to familiarize monitors with market monitoring forms and data collection and analysis protocols, including practice in identifying key species.
- Implement market monitoring, which will involve systematic, periodic data collection of market biosecurity and animal price and quantity data with a primary focus on key PREVENT species – bats, rodents, primates and selected domestic animals.
- PREVENT will analyze information collected and write a report for distribution government and stakeholders.
  - **Partners:** FHI 360, local consultants and/or organization; collaboration with PREDICT (if PREDICT is sampling in specific markets, PREVENT will include them in the monitoring)
  - **Expected results:** Information about the availability and price of key species and market biosecurity overtime as well as fundamental information about market characteristics, including governance.

LOW 4: Risk Reduction

4.2 Design approaches for risk reduction
Activity 4.2.1: Intervention to Reduce Human-Animal Exposure

- **Sub-Activity 4.2.1.1: PAR on key species, such as bats or particular species of rodents**
  PAR is a systematic qualitative research approach in which researchers work with community members to solve a problem or understand an area of concern for the community. PAR also includes a time for community "restitution" – presentation of the results of work to the community and collective problem solving about ways things can be improved. As PAR collects fairly rich, contextualized information about a particular topic in a relatively short amount of time, it is an ideal method to use to gain in-depth knowledge about situations about which little is known. In Sulawesi, researchers will work with community members to gain a better understanding of the exposure to, interactions with, and risk perceptions surrounding a particular key species.

  PREVENT proposes to use PAR to gain a better understanding of how people perceive the key species in these areas, and obtain detailed information about how they interact with them, including

methods they use to collect animals that are sold in markets, whether they are concerned about the key species entering their houses, eating their food, etc., methods they might use to discourage this, and the perceived effectiveness of those methods.

Fieldwork will consist of implementation of PAR tools followed by restitution with the community. PREVENT anticipates that several villages will be selected as research sites in each location.

- **Partners**: FHI 360, consultants
- **Expected results**: Identification of high-risk practices involving key species; identification of positive deviants; identification of potential risk mitigation strategies

MALAYSIA

LOW 2: Risk Determination

Activity 2.2: Human-animal exposure study

PREVENT has developed a standard survey approach to assess direct and indirect human exposure to animals in a variety of settings in different countries. These surveys will quantify human exposure to wild animals particularly likely to carry zoonotic viruses – bats, rodents, and primates – as well as other types of wild and domestic animals (pigs and chickens) to which people are frequently exposed. The PREVENT human-animal exposure surveys will inform the design of interventions to reduce transmission of zoonoses, as well as improve prediction of "hotspots" for possible future disease.

In FY 2013, PREVENT anticipates conducting the first phase of the human animal exposure study in Sabah, Malaysia. Sites/groups will be selected to allow for comparison of patterns of exposure across key variables such as occupation, religion or ethnicity as well as environment.

- **Subactivity 2.2.1: Implementation of formative study.** The human-animal exposure surveys must be adapted to the country, sub-population, and setting in which they are conducted. PREVENT will conduct formative research to learn the local names for different types of animals, how people categorize animals or the spaces they find them (are rats wildlife or pests?), what roles animals have in the economic, social, spiritual lives of the population, the types of contacts that people have with them, and what sensitivities, if any exist, with respect to interactions with animals that may impact how people report their exposure (e.g. ban on hunting).

  - **Partners** – FHI 360, research firm (tbd)
  - **Expected results**– Guidance for adapting the human-animal exposure survey questionnaire - including local animal names, categories of animals and spaces, roles of animals, types of human-animal contact and different sensitivities that need to be accounted for. In addition, the results will guide the interpretation of results from the human-animal exposure surveys.

LOW 4: Risk Reduction
Activity 4.2.1

Workshop to orient government staff to research

As PREVENT presented plans for activities, particularly the human-animal exposure study, to government staff in Cambodia and Malaysia, the project was requested to build government capacity related to research.

While PREVENT seeks to involve government co-investigators when possible, very few government staff members have any background in research, and few can be available for the length of time needed to carry out a study. Even when staff members have expertise, their presence in the field can present other problems in terms of potential bias. Thus only in rare instances can staff be incorporated into field teams. Conversely, knowing what research can and cannot achieve and what the process is, being able to assess results and valuing research quality would be useful competencies for many staff.

PREVENT will develop a workshop (at most 1-2 days – these are busy people) using adult learning principles. The workshop will be tested in Cambodia, revised and offered again, then offered in Malaysia. Evaluation will cover immediate changes in competencies (pre and post) as well as a six-month followup to assess the longer-term effect of the workshop.

- **Partners** – FHI D360
- **Expected results** – Development of workshop materials, government staff oriented to research
- **Locations**: Cambodia (MOH), Malaysia (Sabah Department of Wildlife, possibly MOH)
- Possible: Lao PDR

REGIONAL ACTIVITIES SOUTH ASIA

Overview:
South Asia is one of the "hottest" of hot spots for potential pandemics because of its large population and high population density. Most recently, Bangladesh suffered almost annual outbreaks of Nipah virus, and the potential for transmission of other viruses from bats, rodents, small mammals, and monkeys appears to be large. PREVENT will review and refine ICDDR,B's intervention to reduce primary transmission of Nipah through date palm sap.

Background of ICDDR,B – Nipah Research
The past decade has seen ten outbreaks of Nipah virus in Bangladesh. Bats (Pteropus gigantus in Bangladesh) are the animal host for Nipah; they shed virus through both their saliva and urine. Outbreaks of Nipah in Bangladesh have been traced to consumption of raw date palm sap, which can be contaminated by infected bats. About 50 percent of confirmed Nipah cases can be attributed to contact with an infected person; of the remaining cases, about half report having consumed raw date palm sap.

In 2007, a team of anthropologists at iccdr,b conducted an exploratory study with date palm sap collectors (*gachhis*) to identify existing methods to prevent palm sap contamination. A broader public health team concluded that bamboo skirts, one of several locally practiced methods, might have potential to prevent bat access to date palm sap. The following year (2008) anthropologists conducted a pilot study in one village to understand the feasibility and acceptability of bamboo skirts in the community and veterinary experts examined the effectiveness of bamboo skirts to prevent bat access. That study indicated that bamboo skirts can be an effective physical barrier to interrupt bat access and protect sap and that gachhis and tree owners will accept bamboo skirts (*banas*).

In 2009 iccdr,b carried out a small-scale pilot intervention in four villages (two with low-intensity and two with high-intensity interventions) that indicated people are willing to use the *banas*, at least for trees

producing sap that is consumed raw. The pilot also showed that the "low-intensity" intervention worked as well as a "high-intensity" one: both involved community meetings, *banas*-making training sessions, and messages about the importance of drinking safe sap and the effectiveness of the bamboo skirt as a preventative method in keeping bats from the sap. However, researchers noted that an even lower intensity intervention will be needed to introduce the skirts at scale. Possibilities include materials like jute stalk, weed plant (dhoincha), polyethylene sheet and gunny bags – all materials used by some in the community. The researchers reported that these materials were cheaper, more available, less time-consuming and easier to use to make skirts than bamboo, so that multiple family members – men, women, and children – could make skirts.

In 2010, the veterinary team experimented with skirts made from different plant products and polyethylene and developed and tested the efficacy of four additional types of skirts: bamboo, dhoincha, jute stalk and polyethylene. All kept bats away from the collected sap. Moreover, people who used the skirts noted that using them produced higher quality sap. This immediate positive benefit of using the skirts is a possible message point for encouraging people to use them. At the same time the anthropologists piloted a larger-scale (in a sub-district) low-intensity community acceptability trial promoting bamboo skirts. The study found that 34 percent of gachhis and 16 percent of tree owners used bamboo skirts.

The team also found that bamboo skirts took about 90 minutes to make; whereas other materials took less time than bamboo. While skirts can last an entire season, given the number of trees that a sap collector may be tapping (in some cases, 150-200), he would need to start making skirts well before the season starts or would have to buy them. An additional constraint may be the time needed to position the skirt and the time and additional effort needed to collect sap from jars protected by skirts.
One approach would be for *gachhis* to use the skirts only on trees from which sap is consumed raw. A possible barrier is that collectors may mix sap from different trees during transport. Thus, it would be necessary to differentiate sap from protected and from unprotected trees. However, the research team noticed during recent studies that some gachhis keep the sap from trees protected using the skirt barrier separate and they used only that sap for raw consumption.

iccdr,b and PREVENT have agreed that the skirt intervention could benefit from a systematic behavior change examination. In addition, as interventions to date have been very small, PREVENT will help the team consider whether and how to tweak the intervention so that it can be implemented on a wide scale.

Partnerships

PREVENT anticipates working with key stakeholders over the project's life: Government of Bangladesh, iccdr,b, and relevant local NGOs.

BANGLADESH

LOW 4: **Risk Mitigation: Nipah**

Intervention: A community intervention trial to reduce the risk of Nipah spillover through date palm sap
Bats (in Bangladesh *Pteropus gigantus*) are the animal host for Nipah; they shed virus through both their saliva and urine. Outbreaks of Nipah in Bangladesh have been traced to consumption of raw date palm

sap, which can be contaminated by infected bats. A substantial proportion of people who have been diagnosed with Nipah have a history of having consumed raw date palm sap.

Beginning in 2006, a team of anthropologists and physicians at iccdr,b has explored ways to prevent contamination of the palm sap. They identified a traditional method of protecting sap from debris and animals, improved it and have carried out a series of pilot studies to test its acceptability, feasibility and efficacy. The method – using skirts (*bana* in Bengali), which can be made from a variety of materials, to cover the cut portion of the tree and the sap collection pot – provides an effective physical barrier to bats' contaminating the sap and is low-cost and relatively easy for sap collectors to use on the trees from which they obtain raw sap for drinking.

To date *bana* have been promoted in only a few villages at a time, mainly through community meetings and one-on-one discussions with sap collectors. Some posters have been developed; these are posted in public locations. Use of bana by sap collectors has varied by intensity of the intervention; other factors include the number of trees the sap collector taps in a given week, the amount of time they have to make *bana* and whether they are collecting from their own trees or trees owned by someone else. During last year's outbreak the government recommended that people stop drinking raw sap; some did, but many did not.

This year PREVENT will support icddr,b in adapting the intervention so it can be implemented at district scale - up to 1000 villages. The plan is to implement the intervention in one district, and measure the rate of sap-drinking and use of *banas* in a similar district (to account for external influences such as the government announcement). An integrated communication approach will be used, most likely involving print materials, video and interpersonal communication by NGO staff. Discussions with icddr,b researchers have resulted in definition of three audiences: the general public, sap collectors and tree owners (who may collect sap themselves, have share-cropping or monetary agreements with sap collectors). Effectiveness of the approach will be measured by pre-post surveys of the general public, with augmented samples of sap collectors; the main indicators will be the rate of consumption of unboiled sap (some is consumed raw, some consumed after some fermentation), and the rate of use of *banas* by sap collectors.

- **Partners** – FHI D360, icddr,b, local NGO, local advertising firms
- **Expected results** – evaluated integrated intervention that can be implemented on a large scale (if effective)

Activity 4.2.1 Systems approach to improving biosecurity in markets

In Bangladesh, FAO identified the most important biosecurity lapses and markets and has systematically improved infrastructure (drainage, water supply, surfaces of specific parts of markets) and initiated improved cleaning and disinfection practices in 24 of them. It noted that attendance at improved markets has gone up

However, the likelihood that these improvements will be sustained is at least uncertain: for example, no provision was made for the markets to pay for the disinfectant, a gap that will need to be filled as the DELIVER project stops providing free disinfectant.

PREVENT believes that a systems approach to improving biosecurity might have a better chance of being sustained and that one element of this approach - promoting improved markets – in addition to increasing attendance and thus vendors revenues, allowing them to pay more for their market places, could also influence managers and committees of as-yet-unimproved markets to make changes.

The elements of the proposed systems approach are a) externally-funded market improvements (the average cost of the improvements made by FAO was <$US20,000 per market); b) a cost plan for maintenance, cleaning and disinfection; c) a plan for recovering those costs from fees that vendors can pay if attendance increases – this plan may include vanishing externally-funded subsidies for vendors as they make the fee transition; d) training for vendors, cleaners and others professionally associated with the market to ensure that they know the value of the improvements and improved plan and that their practices enhance biosecurity; e) promotion of the improved markets.

The first step will be to identify different cost recovery options. This will be accomplished through interviews with market managers and managing committees at selected markets to get a broad understanding of market costs and income. Based on this information we will make a go/no go decision about this approach, that is, determine if sustained cost recovery is feasible and under what conditions. . If it is feasible, then the implementation team (which we anticipate will involve both PREVENT and FAO) will work through the proposed approach in one or two markets. These will be selected from among the markets with which FAO has not worked (we think that for proof-of-principle starting in markets that have not already benefitted from the FAO improvements and gotten the bump in attendance is important); key criteria are that the market senior management (market manager and/or market committee) has the interest, willingness and capacity to participate in developing a new system. In addition, in the spirit of one health, we will look specifically for markets where poultry, domestic animals and wildlife are sold.

- **Partners** – FHI D360, FAO, markets TBC
- **Expected results** – Proof-of-principle test of a systems approach to market biosecurity improvement

Activity 4.2.2 – Technical Assistance to FAO and Feed the Future

As an overall strategy for AI, EPT and EPT+ is being tested in Bangladesh, a significant partner will be the Feed the Future program in the country. The details of the working activity are still under discussion. A budget has been set aside to support such work.

- **Partners** – FHI 360, FAO, Feed the Future

III. Implementation Plan

IMPLEMENTATION PLAN - GLOBAL ACTIVITIES [EXTRACTIVE INDUSTRIES]

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13Q Q4 JUL-SEP 13
2.1	White paper on Global Wildlife Trade	FHI D360	Analysis of key factors driving the global wildlife trade in key species of interest.	X	X		
4.2.1	Convene and lead the extractive industries working group with participation from PREDICT, RESPOND, Chatham House, USAID and others as appropriate.	FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks	Continued sharing of experiences, tools, activities, etc.	X	X	X	X
4.2.2	Secure high-level policy interest in emerging infectious diseases among multinational actors, banks, and extractive industries through engagement with Chatham House.	FHI D360, Chatham House	Detailed white paper outlining current risks of emerging infectious disease outbreak associated with extraction industry and possible mitigation policy options	X	X	X	X
4.2.3	Implement an advocacy strategy and develop advocacy materials for extractive industry.	FHI D360, EI working group	Tested approaches and materials shared for advocacy to governments and the extractive industry about mitigating EPT.	X	X	X	X
4.2.3.1	Chatham House to develop links for high-level policy dialogue with extractive industry and national governments.	FHI D360, EI working group		X	X	X	X
4.2.3.2	Repackage tools for different audiences. Work with EIWG to repackage and translate tools as appropriate.	FHI D360, EI working group	The tools will be available for examination by potential partners and will be field tested in selected sites.		X	X	X
4.2.3.3	Promote EPT with different industry groups (mining, forestry, oil and gas). Attend various forums to share EPT mitigation options and approaches.	FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks	Active engagement with at least one sector helping to promote EPT within the industry. Opportunities for engagement and advocacy identified within at least one industry group.	X	X	X	X

4.2.4	Develop, test and implement tools and guidance to mitigate disease transmission associated with extractive industry activities.	FHI D360, EI working group, Chatham House, IFC, Industry Groups/networks	Validated tools that have been used with industry in at least one sector	X	X	X	

IMPLEMENTATION PLAN – REGIONAL CONGO BASIN

IMPLEMENTATION PLAN – UGANDA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012– 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.1	Deep Forest: Implementation of Human-Animal Formative Study	FHI 360, TBD	Improved understanding of reporting/nonreporting behavior and reasons for eating animals found dead.		X	X	X
4.4.2	Field Test the Planning Tool and Audit Tool and make adjustments	FHI 360, EI working group, Chatham House, IFC, Industry Groups/network	Test and Revise tool based on feedback from industry groups, multilateral organizations such as IFC, and in consultation with Chatham House.		X	X	X

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2012	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.1.1	Monitoring the price and quantity of bushmeat and live animals available in selected markets.	FHI D360, WCS	Information about fluctuations in availability and price of bushmeat in selected markets in the context of a newly built road crossing into forest areas.	X	X	X	X

IMPLEMENTATION PLAN – REGIONAL SOUTHEAST ASIA

IMPLEMENTATION PLAN – CAMBODIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012– 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.1	Cambodia human-animal exposure follow-up survey	FHI 360	Finalized human-animal exposure assessment tools and methods. One-year time serial panel data on wild and domestic animal meat consumption.	X	X	X	
2.2.2	Rodent trade – descriptive analysis and monitoring	FHI 360	To understand specific practices and situations that could potentially result in risky exposure to rats in order to develop interventions that can be used to mitigate zoonosis within the rat trade.		X	X	X
4.3.1	Technical Working Group on Zoonotic Diseases	FHI 360	Better coordination of EID stakeholders in Cambodia.	X	X	X	X
4.3.2	Risk communications training of front-line health and vet workers in 3 additional provinces	FHI D360	Reinforced skills in risk communication, H5N1 key messages, interpersonal communication skills and adult learning participatory training skills.		X		

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.1	Participatory Action Research (PAR) on key species (bats)	FHI D360, consultants	Identification of high- risk practices involving bats; identification of positive deviants; identification of potential risk mitigation strategies.	X	X	X	

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.2.1	Implementation of cognitive interviews and quantitative human-animal exposure study.	FHI D360, research firm (TBD)	Estimated exposure rates of human to key animals that will provide additional input for PREDICT's geospatial models and inform potential interventions.	X	X		
4.2.1	Participate and support market working groups.	FHI D360	Expansion of MWG to cover EIDs and One Health	X	X	X	X
4.3.3	Dissemination workshop for the human exposure studies.	FHI D360	Continued knowledge sharing and continued cooperation in future activities.			X	

IMPLEMENTATION PLAN – THAILAND

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.1	PAR on rodents (Objective 2)	FHI D360, local consultants,	Identification of high-risk practices involving rodents; identification of positive deviants; identification of potential risk mitigation strategies.	X			

IMPLEMENTATION PLAN – VIETNAM

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011– 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.2.1	One Health Behavior Change Communications Work Group	FHI 360, AI-BCC Working Group	Members of AI-BCC Working Group, now called the Emerging Diseases Working Group, will be trained on advocacy and SBCC skills (around 40 members total). An evaluation of results will be conducted.	X	X	X	X
2.2.2	Rodent trade descriptive analysis and monitoring	FHI 360	To understand specific practices and situations that could potentially result in risky exposure to rats in order to develop interventions that can be used to mitigate zoonosis within the rat trade.	X	X	X	X
2.2.3	Wildlife farm biosecurity	FHI 360	A description of biosecurity practices at wildlife farms, current knowledge, attitudes and practice of wildlife farm owners on biosecurity, and the means and motivations for reducing potential risks. PREVENT anticipates up to 200 wildlife farms owners will be trained on biosecurity. Evaluation of results.	X	X	X	X

4.2.1.1	Review of communication interventions to reduce consumer demand for wild animal meat	FHI 360	Report summarizing the effectiveness of wildlife consumer demand reduction campaigns and recommendations of potential interventions for future support from PREVENT. A profile of consumer demand and/or consumption for selected wildlife in Vietnam.	X			

IMPLEMENTATION PLAN – BURMA/MYANMAR

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
2.1	TBD			X	X	X	X
4.1	Training of front-line health and veterinary workers				X		
4.2	AI coordination meeting					X	
4.3	Risk mitigation - TBD				X	X	X

IMPLEMENTATION PLAN – INDONESIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY13 Q1 OCT-DEC 11	FY13 Q2 JAN-MAR 12	FY13 Q3 APR-JUN 12	FY13 Q4 JUL-SEP 12
2.2.1	Market scoping	FHI 360	Report summarizing the market scoping data, including; a list of key animals of interest available, number of wildlife for sale, number of vendors selling wildlife, and basic market biosecurity.	X	X		
2.2.2	Market monitoring	FHI 360	Information about the availability and price of key species and market biosecurity overtime as well as fundamental information about market characteristics, including governance.		X	X	X
2.3.1	PAR on key species, such as bats or particular species of rodents.	FHI 360	Identification of high-risk practices involving key species; identification of positive deviants; identification of potential risk mitigation strategies.		X	X	

IMPLEMENTATION PLAN – MALAYSIA

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY13 Q1 OCT-DEC 11	FY13 Q2 JAN-MAR 12	FY13 Q3 APR-JUN 12	FY13 Q4 JUL-SEP 12
2.1	Implementation of formative study - Human-animal exposure Deep Forest – Phase One	FHI 360	PREVENT anticipates conducting the human animal exposure study in Sabah.		X	X	
2.2	Quantitative Human-animal Exposure Survey (Deep Forest) – Phase Two	FHI 360	PSites/groups will be selected to allow for comparison of patterns of exposure across key variables such as occupation, religion or ethnicity as well as environment.			X	X

4.2.1	Workshop to orient government staff to research.	FHI D360	Development of workshop materials, government staff oriented to research.		X		

IMPLEMENTATION PLAN – SOUTHEAST ASIA – BANGLADESH

	ACTIVITIES by LOW	Who is Responsible?	EXPECTED RESULTS 1 Oct 2012 – 30 September 2013	FY13 Q1 OCT-DEC 12	FY13 Q2 JAN-MAR 13	FY13 Q3 APR-JUN 13	FY13 Q4 JUL-SEP 13
4.2.1	A community intervention trial to reduce the risk of Nipah spillover through date palm sap	FHI 360, icddr.b, local organizations, FAO	Evaluated integrated intervention that can be implemented on a large scale (if effective).	X	X	X	
4.2.2	Systems approach to improving biosecurity in markets.	FHI D360, FAO	Proof-of-principle test of a systems approach to market biosecurity improvement.	X	X	X	X
4.2.3	Engagement with Feed the Future	FHI D360, FAO, Feed the Future	An overall strategy for AI, EPT and EPT+ tested in Bangladesh, working with the Feed the Future program.		X	X	X

V. MANAGEMENT PLAN

FHI D360 HQ provides the overall technical direction, program management, financial and administrative oversight, and the administrative support of PREVENT. (b)(6) is the PREVENT Project Director. (b)(6) manages the EPT component of the project.

For activities in South and Southeast Asia, FHI D360's regional Asia office in Bangkok, Thailand, provides procurement, logistics, and program support as needed to PREVENT activities in the region. FHI D360 also has country project offices that can provide limited logistical, financial, and administrative services to PREVENT activities (e.g., Bangladesh, Cambodia, Burma, Vietnam, Lao PDR and Indonesia). In the Congo Basin area, FHI D360 has supportive country project offices in Uganda and, if required, the DRC.

PREVENT chairs the Extractive Industry Working Group, and will also manage the work contracted with the Chatham House. The extent of the work to be performed by the Chatham House in FY13 has been projected to expand. The strategy to be pursued and the funding support to be made available to the Chatham House will be determined on outputs and outcomes of the first two phases of work funded during FY12. A major event in the Chatham House activities is a high-level technical round table to be conducted at the Chatham House on 7 November, 2012. Outputs and outcomes of this round table event will inform development of a detailed work plan for the projected third phase of activities, as well as decisions on level of support to be provided. All such support will depend on funds available, as well.

At the global, regional, and country level, FHI D360 will collaborate and coordinate as appropriate with two of the EPT Program's CAs (PREDICT and RESPOND), and with the CDC.

Partnerships at the regional/country level

Most PREVENT work in Africa will be conducted through teamwork between FHI D360 and partner projects and with local research and health agencies and authorities. The Care and Health Program (CHP) and Centre International de Recherches Médicales de Franceville (CIRMF) will work closely with PREVENT/EPT in Gabon, if program expansion there occurs. PREVENT will collaborate with WHO/AFRO on risk reduction and risk communication strategies. In the Republic of Congo, PREVENT's main implementing partner will be Wildlife Conservation Society.

In Asia, PREVENT's main implementation partners are Wildlife Conservation Society in Vietnam, Lao and Cambodia and iccdr,b in Bangladesh along with local research and health agencies and authorities. PREVENT will collaborate with EcoHealth Alliance for research in Sabah, Malaysia. PREVENT is still developing partnerships in Indonesia. PREVENT will collaborate with FAO for activities in Burma and Bangladesh.

Whenever possible in all regions and countries where it works, FHI 360 will subcontract research, graphic design, training, and other technical and program service needs to local agencies through a competitive procurement process.

Briefing and reporting

Briefings will be conducted as requested with USAID HQ, USAID missions, US Embassies and other US government agencies in-country or at the regional level. PREVENT will provide trip reports, interim and final reports and status and special reports as requested.

PREVENT

Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity

Implemented by FHI 360

QUARTERLY REPORT
JULY 1, 2012 – SEPTEMBER 30, 2012

SUBMITTED TO
The United States Agency for International Development
Under the USAID Client Associate Award No.: GHN-A-00-09-00002-00
Under Leader Award (C-Change) No. GPO-A-00-07-00004-00

October 16, 2012

fhi360
THE SCIENCE OF IMPROVING LIVES

Introduction

On September 30, 2009, the U.S. Agency for International Development (USAID) awarded to the Academy for Educational Development (AED) Associate Award No. GHN-A-00-09-00002-00 (under C-Change Leader Award No. GPO-A-00-07-00004-00) entitled Global Avian Influenza and Zoonotic Behavior Change and Communication Support Activity, or PREVENT. On June 30, 2011, Family Health International (FHI) acquired AED's programs and assets, including PREVENT; the resulting new integrated organizational entity is FHI 360. PREVENT, a cooperative agreement, focuses on using evidence-based behavior change and communication interventions to prepare for, prevent, respond to, and control avian and pandemic influenzas and other emerging pandemic threats. The Project is part of the larger USAID program on Emerging Pandemic Threats (EPT Program).

On June 6, 2012, USAID and the Australian Agency for International Development (AusAID) signed a memorandum of cooperation (MoC) to help reduce the risk of emerging pandemic disease threats in the Mekong region of Southeast Asia. Under the MoC, AusAID is providing Aus$6 million to USAID's PREVENT project over three years to boost efficiency and effectiveness in combined actions to reduce the risk of emerging infectious disease. This co-funded work will focus on countries in the Greater Mekong Subregion, particularly Cambodia, Lao PDR, Vietnam, and Burma/Myanmar.

On August 7, 2012, the U.S. Agency for International Development (USAID) signed a one-year, no-cost extension of the PREVENT project through September 29, 2015.

Pandemic Influenza and Other Emerging Threats (PIOET)

GLOBAL

Extractive Industries Activities

PREVENT hosts the Extractive Industries Working Group (EIWG) and its meetings. Chatham House also now participates in EIWG discussions. PREVENT and RESPOND finalized the educational brochure for the oil and gas industry to bring to the Society of Petroleum Engineers (SPE) conference. There are now three industry-specific brochures covering mining, oil and gas, and forestry/timber.

PREVENT and RESPOND attended the SPE conference in Perth in September 2012, and PREVENT staff helped to make a presentation that was one of four related to infectious diseases. Other presentations in the same session included efforts to curb malaria, tuberculosis, and vector-borne infections. Separate sessions were held on HIV-related issues. This conference generated some solid interest in the draft EIWG planning tools. Several industry medical/health directors were very keen to test the EPT tools, including those from Chevron and Shell. The representative from Frontier Medex offered to connect PREVENT with the medical and health contacts at Tullow and Total operating in Uganda. Project staff met with several consulting firms that typically carry out environmental, social, and health impact assessments. Representatives from these organizations were also very interested in the draft tools. PREVENT also contacted a

colleague who leads the health impact section of the International Association of Impact Assessments.

One key take-away message from the SPE conference was that industry is very engaged in risk assessment and mitigation, but primarily in risks associated with its industry. Oil and gas companies are very concerned about worker safety and have charged the industry association to help develop new safety protocols. This is far more important to the industry as a whole than emerging pandemic threats. That said, individual health directors are interested in EPT if it affects their particular site. For this reason, we believe targeting particular sites might be the most advantageous way forward.

EIWG/Project staff spoke with representatives from ICMM and IPIECA at the conference. Both had heard about the Chatham House initiative and expressed some confusion about the connection between the "IDRAM Initiative" and the EIWG of the EPT program. It was explained that the Chatham House efforts are part of the same overall EPT program, but part of different lines of work; the EIWG focus is on the ground at a particular site level, while that of Chatham House is to be at a higher policy level.

PREVENT is talking with USAID about testing the EIWG planning tool in Gabon and Uganda. The initial One Health meeting in Gabon was postponed until November 2012, but USAID Uganda has expressed interest in coordinating extractive industry activities. A visit to Uganda is scheduled for the next quarter. In the meantime, PREVENT and RESPOND have outlined a strategy for testing the tool with different industry actors based on the SPE conference and WWF meeting connections. USAID has agreed that we can proceed with making contacts and taking advantage of opportunities to test the tool.

PREVENT followed up with the Secrétariat pour l'évaluation environnementale en Afrique Centrale hosting the meeting on environmental assessments in Central African Republic in November. The secretariat misplaced the abstract PREVENT and RESPOND submitted and did not have a fixed agenda for the meeting. Therefore, in consultation with USAID, PREVENT decided not to attend the meeting. Instead, we will visit the secretariat in Cameroon when we visit other organizations related to extractive industry there.

PREVENT also began to develop a stakeholder analysis tool, developing an outline and a plan for creating the tools. The team sketched out a plan and presented it to USAID. This plan was well received; however, when funding decisions were made, this was given lower priority. Therefore, fully developing the stakeholder analysis tool has been tabled for the moment.

Chatham House

During this quarter, Chatham House commissioned a white paper outlining health issues, risk assessment and management tools, best practices, and gaps. EcoHealth Alliance was engaged to write this paper. The purpose of the paper is to inform roundtables that Chatham House will convene to discuss EPT. The paper was due September 23, 2012 and will be shared with the EIWG for comment. A revised version will be prepared for a meeting of health experts from donors, industry and the EPT program scheduled for November 7, 2012.

Communications

During this quarter, FHI 360 worked to heighten overall public awareness of Pandemic Influenza and Other Emerging Threats (PIOET) and its ongoing work.

As part of this task, daily media monitoring was conducted using a list of key words (below) to locate stories related to PIOET's work. The most relevant stories were compiled into a weekly media monitoring report, sent to USAID, and uploaded to the Central Desktop. In many cases, these stories were also the basis of tweets written for @PREVENTProject.

The ongoing monitoring enabled the team to identify stories whose themes provided a relevant "hook" for introducing PIOET's activities to the media. Examples of this were a Dennis Carroll-authored OpEd in September (during National Preparedness Month) and outreach to NPR and *The New York Times* in conjunction with David Quammen's September 22 Opinion piece in *The New York Times*. This led to a letter (authored by Dennis Carroll) being published in *The New York Times*: http://www.nytimes.com/2012/10/02/opinion/diseases-from-animals.html.

List of Key Words for Media Monitoring

Avian influenza	International wildlife trade
Bioterrorism	Pandemic outbreak
Bird flu	Pandemic diseases
Emerging pandemic threats	Pandemic influenza
Emerging infectious diseases	Pandemic emerging diseases
Extractive industries	PIOET
Germ warfare	PREVENT Project
Global disease threats	Swine flu
Global pandemic threats	Zoonotic diseases
Health and security	Zoonotic viruses
H5N1	Zoonotic infectious diseases
	Zoonoses

CONGO BASIN REGIONAL

Congo Basin Regional Year 4 Planning Meeting

The work-planning meeting for the Congo Basin region was held on 18-20 July 2012, at the Speke Resort & Conference Centre, Munyonyo, outside of Kampala, Uganda. Both (b)(6) (b)(6) (b)(6) and (b)(6) attended for PREVENT. The meeting brought EPT partners together to share updated information and highlight key deliverables for the coming year. The meeting included a review of program highlights from the past year, and broad discussions of progress as well as programmatic challenges across the key EPT program elements. The location of the meeting was valuable because it led to informal evening sessions where much greater sharing among partners occurred.

Cameroon

Market Ethnography Study

During this quarter GVFI submitted the final synthesis report of the rapid market ethnography qualitative data. During this quarter, (b)(6) Senior Research Advisor, reviewed and reanalyzed the quantitative data collected during the ethnography study. A summary of the review will be forthcoming in the next quarter.

Republic of Congo (ROC)

Market Study - Tracking Changes from New Road Construction

Road building and road improvement can have a profound impact on the potential for emergence of diseases both through their direct effects on ecology and on human access to previously difficult to reach areas. Roads are also corridors for animal movement. Examples of this are bats, as well as domestic animals and pests that may accompany human migrants. Roads encourage human settlement and provide access for hunters to reach both hunting areas and markets with wildlife to sell.

In ROC, the Chinese are building a road from Brazzaville to Ouesso (and possibly further, through pristine areas, to Bangui). The road will include several bridges replacing ferries (two not far from Brazzaville), thereby shortening the journey between Brazzaville and Ouesso – that is, between a large city where a reported 89 percent of people have eaten bush meat recently and the site of one of the largest wild animal/meat markets in the region. Construction has begun only recently; Wildlife Conservation Society (WCS) estimates that the road will be completed in about two years.

PREVENT has been preparing to assess, through a low-cost market monitoring system, the effect of this road expansion on the availability of key species of wildlife in markets – both along the road and in Brazzaville – to improve understanding of the dynamics of trade in these key species and document the effects of changes in access. During this quarter, PREVENT drafted a market monitoring protocol and action plan. In the coming quarter, we will make an initial visit to ROC to finalize the protocol and discuss coordinating with PREDICT, which has been sampling along the major road that is being improved.

SOUTH AND SOUTHEAST ASIA REGIONAL

AusAID

Preparations were made to expand activities in light of additional funds coming from the AusAID under MoC with USAID, beginning in October 2012. Under the MoC, AusAID is providing up to Aus$6M to USAID's PREVENT project. Work supported under this memorandum will focus on the countries in the Greater Mekong Subregion, including Burma, Cambodia, Lao PDR, and Vietnam.

Asia Regional Year 4 Planning Meeting

The work-planning meeting for the Asia Region was held on 25-26 July 2012, in Bangkok, Thailand. (b)(6) attended for PREVENT. As with the Congo Basin regional meeting, EPT partners were brought together to share information and key deliverables for the coming year. A series of side-bar meetings also contributed to the planning for FY13, including meetings with USAID/W, RDMA and AusAID to discuss the parameters of the AusAID buy-in to the PREVENT project. A separate meeting was held with RDMA and FAO regarding initial program options for Burma.

Cambodia

Human – Animal Exposure Research

(b)(6) PREVENT Senior Research Specialist, and (b)(6) (b)(6), Research and M&E Officer, conducted formative (qualitative) and human-animal interface (quantitative) studies in two provinces of Cambodia (Mondulkiri and Banteay Meanchey provinces). Both studies were in collaboration and coordination with PREDICT/ WCS and Department of Disease Control in the Cambodian Ministry of Health. The sites within the two provinces were selected based on areas where PREDICT/WCS Cambodia has been working and building relationships for some time. Classroom and field training were conducted in Phnom Penh and in the nearby capital city for PREDICT/WCS staff, local researchers, and a field interpreter. The data collections were conducted in three villages per each research study and each province.

In each province, the qualitative research team conducted six focus group discussions among adult men and women, three key informant interviews, and 10 individual interviews in three forest villages. This qualitative research focused on learning which wild animals people could identify, which they were most exposed to, and of sensitivities regarding talking about animals, and about hunting. The quantitative research team interviewed senior women in all households in three other villages about animals raised and consumed, as well as hunting-related activities. The results of quantitative survey data collected through a brief household questionnaire served as baseline results and were used to identify two groups of households that agreed to be contacted during follow up surveys: the 10 households which consumed the greatest number of animals in the previous month, and another 10 randomly selected from the rest. These two groups were invited to participate in PREDICT's animal sampling study and a quarterly follow-up survey about their domestic animals and consumption of meat.

During this quarter, PREVENT collaborated with PREDICT to implement the first trimester quantitative follow-up survey in Mondulkiri. The follow-up data collection activities in Banteay Meanchey began October 01, 2012. (b)(6) completed preliminary analysis of the baseline Mondulkiri and Banteay Meanchey quantitative surveys.

Key findings include an important variation in taxonomic groups consumed in the two sampled provinces of Cambodia, and low consumption of wild animals during April-May-June among people living in forest areas. Deer meats (muntjac, sambar and mouse deer), rodents (field mouse, porcupine, rat, and squirrel), primates (gibbon, monkey and slow loris), and bat meats were reportedly consumed in Mondulkiri. Only rodent (rat, squirrel and porcupine) and bat meats were consumed in Banteay Meanchey. In all categories of wild animal meats, the highest reported consumption in the month preceding the survey was for muntjac deer meats in Mondulkiri (21 percent of households). In Mondulkiri the highest consumption rates were for civets (17 percent), squirrels (15 percent), and porcupines (14 percent); intermediate consumption rates were reported for monkeys (10 percent) and rats (8 percent), and the lowest rates were for bats (5 percent), slow loris (5 percent), gibbons (4 percent), flying fox (1 percent) and field mice (1 percent). In Banteay Meanchey, the highest consumption rate was for rats (15 percent), the lowest were for squirrels (2 percent), bats (1 percent) and porcupines (1 percent), as shown in Figure 1 (on following page).

Another interesting finding involves the source of wild animal meat. The study results indicate that people in the sampled forest areas purchase as well as hunt wild animals. Inhabitants in forest villages acquire their wild animals mainly from hunting and buying. For example, among respondents consuming wild animal meats, about one respondent out of four bought slow loris, monkey, or bat in the markets of Mondulkiri, and more than 45 percent bought the rat and porcupine that they consumed in Banteay Meanchey, as shown in Figure 2 (on following pages).

Overall, results show potential contact with wild animal blood. In Mondulkiri and Banteay Meanchey, more than 90 percent of respondents cut up or butchered wild animal meats that they consumed.

Surprisingly, the study findings show that populations in some forest areas of Cambodia do not practice hunting activities. In Mondulkiri, only 10 percent of respondents in one village lived in households where at least one household member hunted during the last month prior the survey. In Banteay Meanchey, no hunters were found in two targeted villages. PREVENT and PREDICT are working together to understand these results.

Figure 1: Percentage of respondents reporting specific type of animal meat consumed in Mondulkiri and Banteay Meanchey provinces

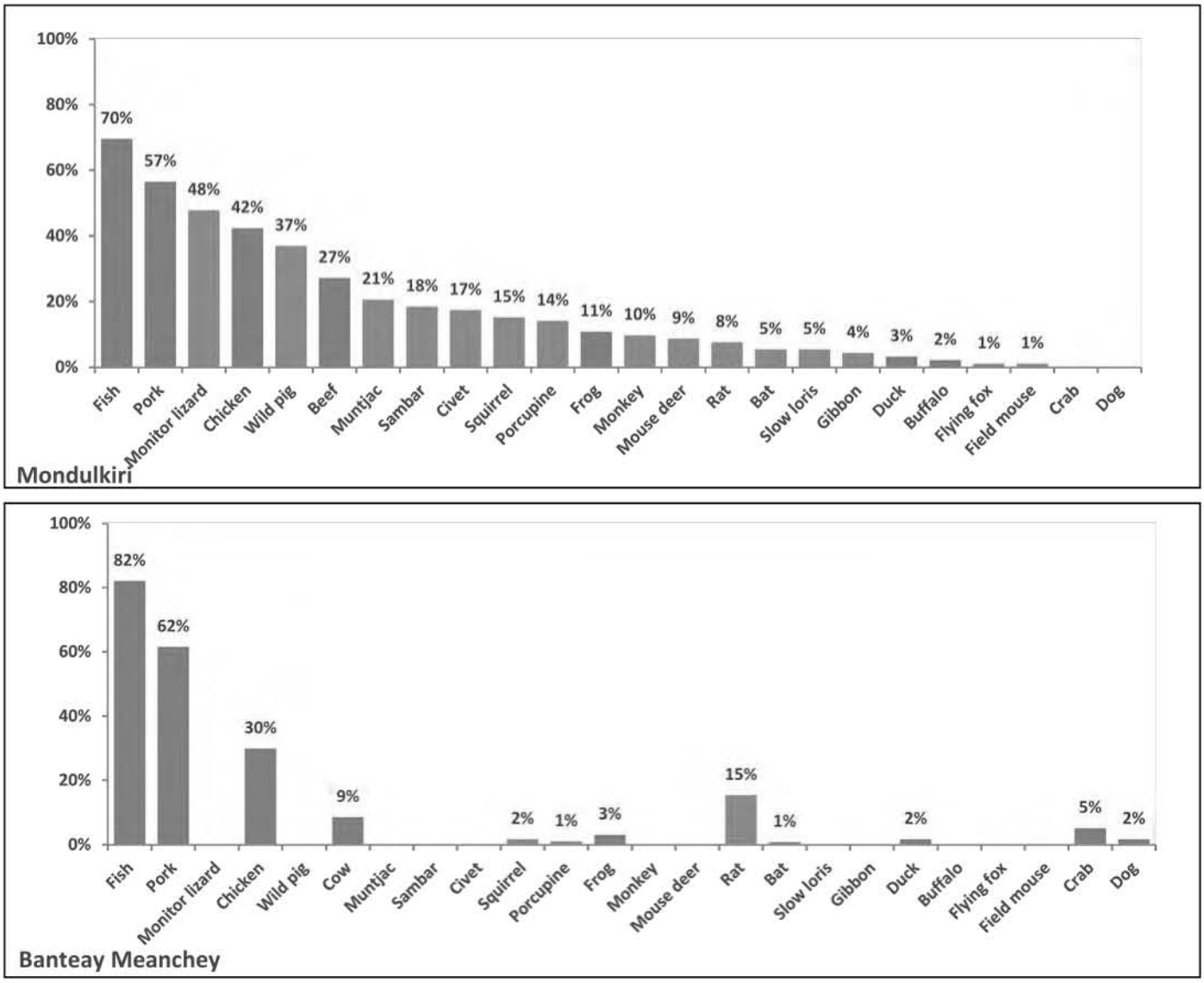
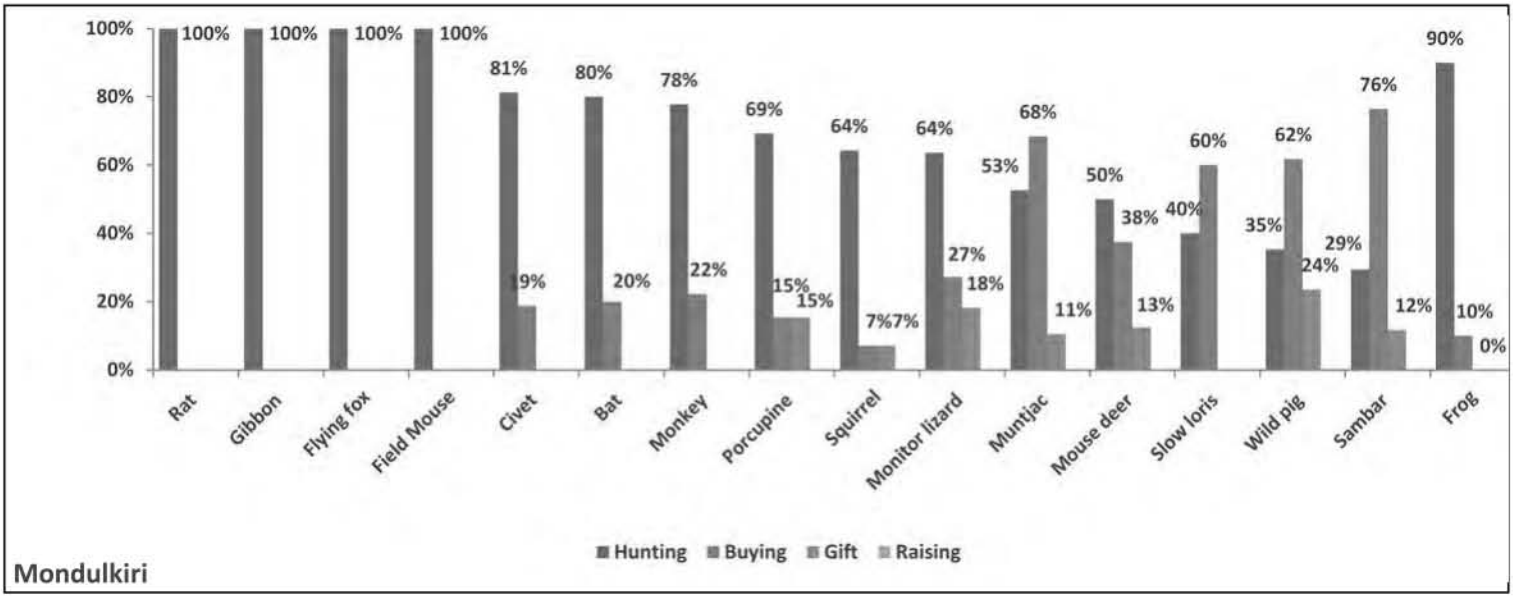
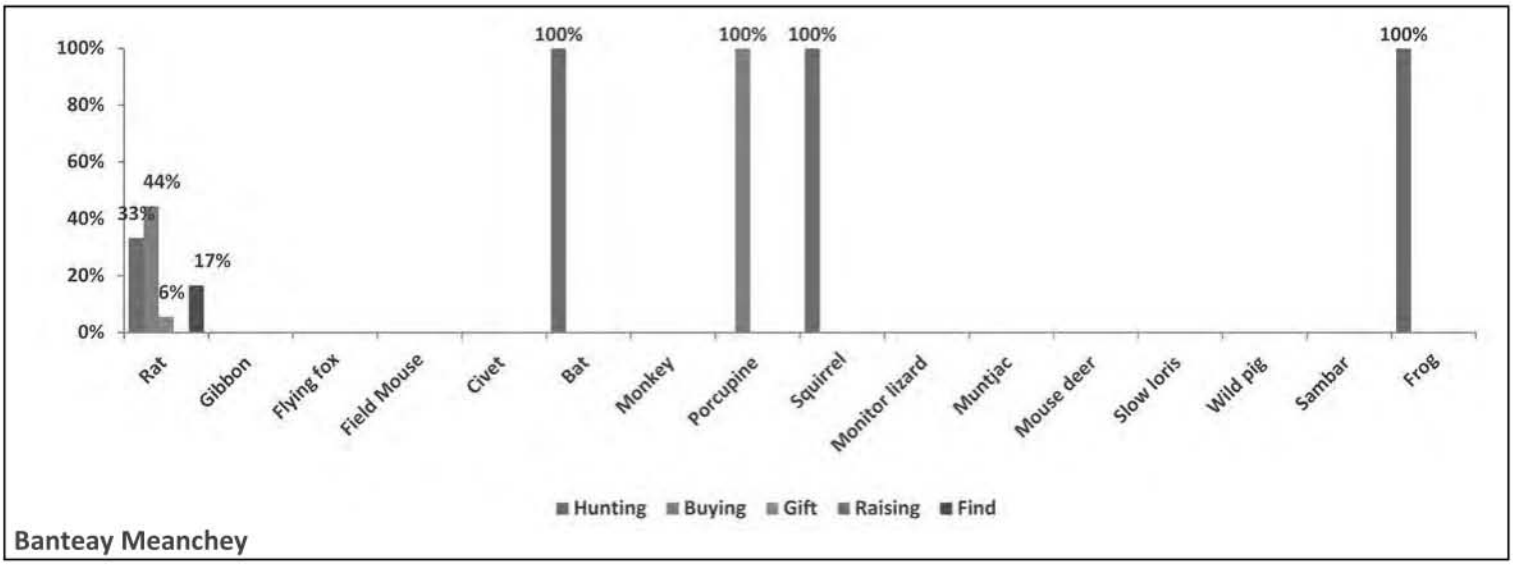


Figure 2: Percentage of respondents reporting source of wild animal meats consumed per province





Data analysis for formative research is currently ongoing and it is expected to finish by October 2012.

Cambodia EPT Partners Meeting:

(b)(6) attended an EPT partners meeting in Siem Reap, Cambodia during June 5 - 6, 2012. (b)(6) briefed the group on PREVENT's activities and the FY13 work plan for Cambodia. During the meeting, there were several suggestions from government counterparts on PREVENT's future activities. The suggestions are under considering in PREVENT's FY13 work plan.

Indonesia

Indonesia Country Year 4 Planning Meeting

The EPT work-planning meeting for Indonesia was held on 22-23 July 2012, at the Hotel Borobadur in Jakarta, Indonesia. (b)(6) attended this meeting for PREVENT. The purpose of the meeting was to harmonize and integrate EPT components for the FY13 work plan. In the third quarter of FY12, PREVENT contracted a desk study on extractive industries in Kalimantan. With the determination not to pursue extractive industry issues in the Asia Region pending proof-of-concept work on the EI tools in the Congo Basin region, the PREVENT project has determined to follow PREDICT to N. Sulawesi. PREVENT has posted a job opening for staff in Sulawesi and is awaiting further news regarding the research plans of PREDICT in that area.

Lao PDR

Meetings

PREVENT hosted the third EPT quarterly meeting on August 3, 2012 at the Lao Plaza Hotel, Vientiane. The meeting was co-chaired by (b)(6), and (b)(6) of USAID/RDMA Lao PDR. Participants were from GOL agencies (NEIDCO, Ministry of Health, Ministry of Agriculture and Forestry (MoAF), Ministry of Foreign Affairs (MOFA), National Animal Health Center (NAHC), National Center for Laboratory and Epidemiology (NCLE)), EPT partners and USAID/RDMA. At the meeting, participants reviewed the progress of EPT projects in the third quarter of FY 2011/12 (from April to June 2012) and the EPT component projects presented their draft work plans for FY 2013.

On September 14, (b)(6) met with the (b)(6) (b)(6) The purpose of the meeting was to solicit recommendations from the department head about the agreed meeting of the Market Working Group to be possibly supported by PREVENT. A follow up meeting between FHI 360 and the Market Working Group has been scheduled to finalize the plan.

Representing PREVENT, (b)(6) had a telephone conversation with (b)(6) (b)(6), another USAID project working on wildlife conservation. (b)(6) coordinates ARREST's efforts in Lao PDR. ARREST's focus is

stopping illegal wildlife trade, and the project has been working with local partners and the government in Lao PDR on an ongoing public awareness campaign that started in 2009. It also provides training to Lao law enforcement officials (although most of that is conducted at regional events outside of Lao PDR) and fosters a multi-agency national task force to tackle illegal trade. Following such conversation, FHI 360 expressed interest in exploring a partnership with the ARREST team on specific campaign activities in Lao PDR.

Market Observation Pilot Study

PREVENT presented the highlights of its pilot market observation study at a government symposium on September 3, 2012. This activity is a joint effort between the U.N. Food and Agriculture Organization (FAO), the World Health Organization (WHO) and NEIDCO.

Human-Animal Exposure Study

In April 2012, PREVENT contracted a research firm, Burnet, Inc., to conduct a formative study on human-animal exposure in Lao PDR in two provinces: Bolikhamxay and Attapeu. In Bolikhamxay, two groups (Hmong and Lao communities) were selected near the Theun Hinboun Power Company (THPC) dam extension reservoir. In Attapeu, Lao communities near the Attapeu provincial capital (Attapeu town), and a Brao ethnic community near an area known for heavy logging were selected.

Burnet finished fieldwork in Bolikhamxay and Attapeu in April 2012 and issued a full report of the findings of the study in July 2012. This report was presented to USAID and Lao government sponsors.

Findings indicate varying degrees of human interaction with all the species of interest (bats, primates and rodents). For instance, people in all communities report eating some types of rodents (especially rats in harvest season), bats (some species preferred), and monkeys (eaten less frequently recently due to lack of availability). Consumption of raw meat/blood from some of these animals was also reported in some of the sites. Other types of exposure mentioned included use of animal parts for medicine (bats, bamboo rats, monkeys, gibbons), use of animals for children's entertainment or as pets (bats, mice and monkeys), and capture of animals for sale (porcupines, civets, monkeys, squirrels). In addition, the study provided some insight into the degree of specificity with which people recognize different animal families, how communities categorize animals, how they report frequencies of different events, seasonality of people's lives and animal abundance, and sensitivities regarding some animals (e.g., legality of hunting).

The findings from the formative study have been used to make decisions the affect the upcoming human-animal exposure survey and informed several modifications to the questionnaires. For instance, it was clear that children have different and potentially risky exposure to animals, and therefore the survey will include a sample of children 10-14 years old. The formative study also highlighted the frequent of use of animals for medicine or as sacrifice and therefore the questionnaire was adapted to explore these routes of exposure more thoroughly. In addition, a glossary of local animal names was generated and is now included in the questionnaire.

In July 2012, the Country Coordinator submitted a request prepared by (b)(6) to the National Ethics Committee to conduct the quantitative survey on animal-human exposure. (b)(6) (b)(6) of NEIDCO officially endorsed this study request. The FHI 360 office in

Lao PDR submitted the required documentation in the same month. Approval by the Committee President was obtained on September 17, 2012.

In planning for the upcoming survey, PREVENT explored local research capacity and could not identify researchers that could speak the Brao language. Because of this and in light of budget constraints, at present PREVENT is only going to conduct the full human animal exposure survey with the Lao and Hmong ethnic groups in Bolikhamxay. Prior to the implementation of the full survey, PREVENT is planning to conduct cognitive interviews in October-November 2012 to pre-test the validity and comprehensibility of key items in the questionnaire; the cognitive interview pre-test will help finalize the survey questionnaires that will be used around January 2012. Cognitive interviewing is a method of pretesting survey questions to assess how people understand questions and process information in order to respond to them.

(b)(6) PREVENT Research Manager and (b)(6) will conduct cognitive interviews in Lao PDR at selected sites during the period between October to December 2012. Local consultants and translators will be hired to conduct the study in cooperation with Lao government counterparts. During the quarter, the Laos Country Coordinator obtained NEIDCO's approval for the travel of (b)(6) and (b)(6) (b)(6) to Bolikhamsay province to conduct these cognitive interviews for the survey pretest in all the study communities.

Malaysia

In Malaysia, PREVENT is collaborating with PREDICT/EcoHealth Alliance (EHA) on a Deep Forest Study in Sabah Province. Following a meeting in the previous quarter between PREVENT Regional Communication Advisor, (b)(6) PREDICT/EHA Project Coordinator, (b)(6) and representatives of Sabah Department of Wildlife (SDW), PREVENT is continuing to work closely with the EHA to plan for the Deep Forest study.

A visit to Sabah is planned for the next quarter, when EcoHealth Alliance staff will show PREVENT research staff the study area as well as PREDICT's sampling sites. In addition, PREVENT will present approaches for the human-exposure research study to SDW staff and representatives of the Sabah Department of Health, and engage in discussions of next steps including gaining permissions to conduct the study. Following this visit, and after agreements with government representatives in Sabah and decisions are made about the PREVENT sampling approach to reflects local demography, the research protocol will be submitted to the FHI 360 institutional review board (IRB). Concurrently, during the next quarter PREVENT will seek Malaysia EPU approval (Economic Planning Unit Research Pass) and submit the protocol to a local IRB for approval.

Thailand

Meetings

(b)(6) attended the EPT partners meeting in Bangkok on June 11, 2012. (b)(6) (b)(6) presented PREVENT previous research results from Khon Kaen province, Thailand that was conducted in November to December 2012 to USAID/RDMA and EPT partners, as well as expected plans to conduct activities in Thailand during FY13.

Vietnam

Meetings

(b)(6) Vietnam Program Coordinator, participated in the annual Avian and Pandemic Influenza Partner Retreat on July 10-11 in Hoi An. This activity was organized by USAID/Vietnam to set the direction for developing an integrated work plan for the 2012-2013 Avian and Pandemic Influenza (API) program in Vietnam. The participants of the workshop included representatives from Government of Vietnam agencies, including the Department of Animal Health (DAH), Department of Livestock Protection (DLP), National Agriculture and Fishery Extension Center (NAFEC), the Partnership of Avian and Human Influenza (PAHI) under the Ministry of Agriculture and Rural Development (MARD), and Department of Health Preventive under Ministry of Health; U.N. organizations (FAO and WHO); and the Avian and Pandemic Influenza Initiative project (APII). The objectives of the workshop were to: 1) Provide an overview of achievements, challenges, gaps, and barriers in 2011 – 2012; 2) Identify areas of focus and major activities for the coming year; and 3) Identify cooperation and coordination opportunities between the APII program and other programs in FY 13.

At the meeting, PREVENT was invited by DLP and FAO to participate in the Biosecurity Working Group (BWG); (FAO and DLP are generally responsible for livestock biosecurity in Vietnam). PREVENT began an informal discussion regarding leading an upcoming BWG meeting on biosecurity and wildlife farming. The working group may be a potential partner for PREVENT's wildlife farm biosecurity activity planned for the next fiscal year.

On August 20, 2012, PAHI and MARD organized the third working group meeting on Policy and Advocacy Planning for Avian and Pandemic Influenza (API). At the meeting, the participants presented and discussed their work plans, and looked for opportunities for joint collaboration. (b)(6) was invited to the meeting to share concurrent non-API activities ongoing in Vietnam.

On August 24, PREVENT's Vietnam Program Coordinator and (b)(6) Senior Program Officer, participated in a meeting organized by USAID/Vietnam to discuss the coordination of activities related to One Health in Vietnam and to conduct a stakeholder mapping exercise. Participants representing EPT projects included (b)(6) and (b)(6) (b)(6) for RESPOND; (b)(6) and (b)(6) of WHO; (b)(6) (b)(6) from PAHI; and (b)(6) and (b)(6) for USAID/Vietnam.

As an outcome of the meeting, PREVENT's Vietnam Program Coordinator, in collaboration with the PAHI Secretariat, developed a joint action plan for One Health implementation in Vietnam. The focus of the joint plan is on the 15 key elements of the Vietnam Integrated National Operational Program on Avian Influenza, Pandemic Preparedness and Emerging Infectious Diseases, period 2011-2015. The plan was sent out to the meeting participants for comment.

Descriptive Analysis of Cross-border Rat Trade

PREVENT is developing a protocol for submission to the FHI 360, Vietnam, and Cambodian IRBs for a cross-border rat trade study. We expect to submit the protocol for a descriptive analysis of the rat trade next quarter.

Wildlife Farms Biosecurity Assessment

PREVENT is carrying out a desk review of wildlife farming in Vietnam to inform the Wildlife Farm Biosecurity Assessment, planned for the new fiscal year. In collaboration with WCS, PREVENT's Program Coordinator collected Government of Vietnam legislation and regulations on wildlife farming (this included one decision and four decrees). This legislation will provide guidance for PREVENT's development of the biosecurity checklist and a scoping tool for wildlife farms. As part of the review, a number of documents, technical reports, and articles on wildlife farming topics have been collected.

During this quarter, the Program Coordinator worked with the DFP to select focal provinces for wildlife farming. The selected provinces are based on the presence of PREVENT's key species of rodents and primates, and the number of wildlife farms in the provinces. DFP has recommended the following provinces for PREVENT's wildlife farm activities: Bà Ria, Vung Tau, Binh Duong, Dong Nai, Lam Dong, and Tay Ninh.

In a meeting with FAO and Government of Vietnam representatives, (b)(6) from the Department of Livestock Protection (DLP) informed PREVENT that under the Vietnam Avian and Human Influenza Control and Preparedness Project (VAHIP) funded by the World Bank, DLP is developing minimum biosecurity standards for farm-level implementation. (b)(6) (b)(6) will share the resulting biosecurity standards developed by this project and the general biosecurity regulations developed by VIETGAP for poultry and pig farming.

Bangladesh

Preparations to kick off the intervention on Nipah virus prevention went into full swing during this quarter. The activities are based on an intervention developed and tested by ICDDR,B: using skirts (bana in Bengali), which can be made from a variety of materials to cover the cut portion of date palm trees and the sap collection pot to provide an effective physical barrier to bats contaminating the sap with Nipah.

A creative brief, research protocol, and overall strategy were initially developed for the intervention. The team also created a series of posters and a three-minute television "documentary" for pre-testing. PREVENT's BCC Advisor, (b)(6), travelled to Bangladesh to collaborate with NGO volunteers and workers to identify gachhis (tree sap harvesters), tree owners, and community leaders in the target locations. A training curriculum on the intervention was developed for the NGO workers to strengthen their interpersonal communication skills and educate them on Nipah virus and the process of the intervention. As part of this training, lists of messages, FAQs, and other support materials were created. The trainings are slated for the beginning of the next quarter.

Biannual Report for the IDENTIFY Project

Reporting institutions: FAO

Reporting period: 1 April - 30 September 2011

Planned activities: 1 October 2011 – 31 March 2012

Project Title: IDENTIFY

Regional component: Global

Countries: 4 "hot spots":

- **Congo Basin:** Uganda, Democratic Republic of Congo, Cameroon, Republic of Congo, Tanzania, Gabon, Equatorial Guinea, Rwanda, Central African Republic, South Sudan
- **Southeast Asia:** Cambodia, China, Indonesia, Lao Peoples Democratic Republic, Malaysia, Myanmar, Philippines, Thailand, Vietnam
- **South Asia:** Bangladesh, India, Nepal (future activities pending)

Project title: IDENTIFY

Code: OSRO/INT/902/USA

Budget: US$ 16.5 million (US$ 13 million without OIE : US$ 3 million for first year, US$ 4 million for second year, 6 million for October 2011-September 2012)

Effective starting date: December 2009

Planned end date: 30 September 2012

Context of the project

This project is part of a complex program--Emerging Pandemic Threats (EPT)--designed by USAID and aimed to find and implement mechanisms to detect disease emergences, especially from wild life. The One Health concept is an important component of the whole program. The IDENTIFY project is implemented jointly by the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO).

Objectives of the project

The IDENTIFY project is intended to strengthen diagnostic capacities through the development of laboratory networks spanning animal and human sectors with the ultimate aim of enabling countries to meet international obligations for disease reporting. Accurate and timely detection of known pathogens should facilitate the rapid recognition of newly emerging pathogens. International reference laboratories capable of fully characterizing the emerging pathogens are an integral part of these networks.

The project focuses on several parts of the world defined by the USAID as "hot spots" for emerging diseases where they are more likely to happen: Congo Basin, Southeast Asia, Amazon Basin and Gangetic Plains.

The project will collaborate with the other arms of the EPT program: PREDICT, RESPOND, PREVENT, and USAID's DELIVER project. Collaborations are defined through the Lines of Work (LoW) defined by USAID: Pathogen Detection, Outbreak response, Risk determination, and Risk reduction. Each LoW has a defined work plan with activities and sub-activities to which every project team has agreed upon their level of participation (support, participate or lead).

Planned activities

A tripartite work plan had been established for years 1 and 2 at the headquarters level. The approach to the project had been fully developed and agreed to among the three partners. For the description of outputs, activities and sub-activities, refer to Work plan Year Two.

The planned activities and sub-activities (1 October 2011 - 31 March 2012) are described in the

FAO IDENTIFY Year three Work Plan (submitted on 1 Sept 2011), FAO Log Frame and Gannt Chart (submitted on 6 Oct 2011) and the supplement to the FAO IDENTIFY Year three work plan (submitted on 28 Oct 2011).

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Acronyms & Abbreviations

AAHL	Australian Animal Health Laboratory
AGAH	FAO Animal Health Service
AHSHM	Animal Health Stakeholders Awareness Meeting
AOTR	Agreement Officer's Technical Representative
A-PBA	Asia-Pacific Biosafety Association
APSED	Asian Pacific Strategy for Emerging diseases
ASEAN	Association of Southeast Asian Nations
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
CPBB	Contagious Bovine Pleuropneumonia
CVO	Chief Veterinary Officer
DRC	Democratic Republic of Congo
EARLN	East Africa Regional Laboratory Network
EDPLN	WHO Emerging and Dangerous Pathogens Laboratory Network
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
EQAS	External Quality Assessment Schemes
FAO	Food and Agriculture Organization of the United Nations
FAO-ECTAD	Food and Agriculture Organization of the United Nations Emergency Centre for Transboundary animal diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific
FMD	Foot-and-mouth disease
FRET	Fluorescence resonance energy transfer
FVI	France Vétérinaire International
GFN	WHO Global Foodborne Infections Network
GLNS	Global Laboratory Networking Strategy
HPAI	Highly Pathogenic Avian Influenza
HPED	Regional Cooperation Programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia
HQ	Headquarters
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IST	Intercountry Support Team

IZSVe	Istituto Zooprofilattico Sperimentale delle Venezie
LANAVET	Laboratoire National Vétérinaire, Cameroon
Lao PDR	Lao People's Democratic Republic
LIMS	Laboratory Information Management System
LoA	Letter of Agreement
MoA	Ministry of Agriculture
MoH	Ministry of Health
NICD	National Institute for Communicable Diseases, South Africa
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organization for Animal Health
OIE SRR	OIE Sub-Regional Representation
PPE	Personal Protection Equipment
PPR	Peste des petits ruminants
PVS	OIE Performance of Veterinary Services Pathway
QA	Quality Assurance
RVF	Rift Valley Fever
RLNS	Regional Laboratory Networking Strategy
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SADC FANR	Southern African Development Community Food Agriculture and Natural Resources
SE Asia	South East Asia
SEACFMD	Southeast Asia and China Foot and Mouth Disease Campaign
SIB	Swiss Institute of Bioinformatics
SOP	Standard Operating Procedures
STOP AI	Stamping Out Pandemic and Avian Influenza
TC	Teleconference
TCP	Technical Cooperation Programme
USAID	U.S. Agency for International Development
USAID/W	U.S. Agency for International Development/Washington
VC	Videoconference
VRI	Veterinary Research Institute, Malaysia
WAHID	World Animal Health Information Database
WAHIS	World Animal Health Information System
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office

Activities undertaken during the reporting period (1 April 2011 – 30 September 2011)

1.1 GLOBAL and activities across more than one region

1.1.1 Activity 3.1.G: Ongoing tripartite project management and coordination, monitoring, and planning

For description and listing of activities completed, see Annex 1 Table 1

- Routine project management at HQ and regional levels continued through weekly/biweekly conference calls, videoconferences as needed, daily email communication, and tripartite face to face meetings between FAO, OIE and WHO as well as the use of the IDENTIFY SharePoint.
- Participation in monthly teleconferences with IDENTIFY project management team and USAID/W AOTR on 19 April, 3 August and 22 September or face to face meetings on 15-16, 28 June and 13 July. .
- Continued rotating system of responsibility sharing on a monthly basis between the three partners in order to more effectively and rapidly handle communication with program partners, day-to-day operations, and logistic arrangements. This system also applies to document creation, revision and meeting hosting. FAO hosted the IDENTIFY secretariat on April, June and September 2011.
- Moreover, project planning was discussed during the following meetings:
    - Tripartite HQ meeting on the Year 3 planning process, Lyon, France, 10-11 May 2011
    - EPT Quarterly Partners meeting, Washington, DC, 27-28 June 2011.
    - USAID and Tripartite Meeting to discuss IDENTIFY and EPT +, Rome, 15-16 Jun 2011

  Additionaly, side meetings with OIE and/or WHO are indicated in Annex 1, tables 1 to 4.

1.1.2 Activity 3.2.G: Recruitment of project staff (headquarters and regionally) to support IDENTIFY activities

During the reporting period, the following staff were recruited, only for short consultancies:

- FAO consultant (4 months) for further development of the EMPRES-i virus genetic module (exploring the possibility to link with other sequence databases) and updating the national and international laboratory directory.
- IT FAO Consultant (half time- 10 months) for the linkage between the FAO EMPRES-i database and the OpenFlu Influenza database, in the context of the development of the FAO virus genetic module and development of national and international laboratory directory.
- External consultant (8 days) to (1) finalize the review of available diagnostic assays for several IDENTIFY targeted diseases, submit each chapter to a panel of OIE/FAO experts for review and explore potential applications for large scale multiple disease screening; (2) assist with training materials under the OFFLU Technical Activity on Capacity Building.
- External consultant (5 days) to assist in the process for designation of FAO Reference Centres.

1.1.3 Activity 3.3.G: Develop annual IDENTIFY work plan - preparation and review of global, regional, and country-level work plans and other project documents

- During the reporting period, the HQ project team, along with regional IDENTIFY coordinators, developed the IDENTIFY Year 3 Work plans for HQ, Congo Basin, Southeast Asia and South Asia (covering the period from1 Oct 2011-30 Sept 2012) following the guidance provided by USAID on April 2011 to the EPT partners and on September 2011 to IDENTIFY partners. This process had to be of a consultative nature at the regional level and the identification of areas of coordination among different EPT projects. A tripartite meeting was organized 10-11 May 2011 in Lyon, France, to initiate the tripartite discussions and to define the internal timeline for the tripartite work plan submission.
- USAID presented on 15-16 June a shift in the project's administrative framework, indicating that each organization would prepare a separate work plan and budget. The FAO work plan was developed at Global, regional and country level. Collaboration with OIE and WHO were maintained in the case of bi/tripartite activities. The FAO work plan was initially submitted on 1 September, with revision to log frame format on 6 October, and additional supplemental information submitted on 28 October 2011.
- Project indicators were developed by FAO during the formulation of the work plan and presented in the FAO Log Frame. Indicators were developed at Outcome, Outputs and Activity levels. For the detailed description of the baseline indicators for the FAO contributions to the IDENTIFY project, please see Annex 3. The recruitment of an M&E specialist is being considered to finalize the baseline indicators for FAO contribution to IDENTIFY project.
- The first tripartite biannual report for Year 2 (1 Oct 2010-31 Mar 2011) describing Global and Regional activities was submitted to USAID on 12 May 2011.

1.1.4 **Activity 3.4.G: Communication tool development and resource building -** to ensure circulation of information, coordination and harmonization of initiatives, implement standard methods of sharing critical project documents for access by project members

- In order to ensure communication and coordination, the IDENTIFY HQ coordinator uploaded key IDENTIFY documents on the SharePoint, as well as reference documents.
- The joint IDENTIFY leaflet (English version) was finalized and validated by the three partners and shared with IDENTIFY project stakeholders.
- A tripartite document was developed in August 2011 together with and agreed by the USAID AOTR (see Annex 2: ''USAID EPT/IDENTIFY Project Position on Provision of Laboratory Equipment and supplies''). This document is intended to be shared with the other EPT partners in order to clarify the position of the three organizations regarding the provision of lab equipment under IDENTIFY.

1.1.5 Activity 3.5.G: Review and update of the tripartite Laboratory Networking Strategy (LNS) and future planning

- Within the framework of the GLNS:

  FAO consultant continued with the FAO IDENTIFY team the review of available diagnostic assays and cross-cutting technologies for IDENTIFY targeted diseases and large scale multiple disease screening to explore potential applications for large scale multiple disease screening, in particular in the context of developing countries. The draft document comprises tables proposing diagnostic methods of eight different diseases and is still under review of FAO/OIE Reference Laboratories. Tables for ten other priority diseases will be finalized in the next reporting period. (see Annex 3). The animal influenza table has been peer reviewed by experts from FAO/OIE Reference Centres and has been finalized was

submitted in September 2011 to the OFFLU Steering and Executive committee for validation and posting on the OFFLU website.

- In May-June 2011, the three partners updated the Laboratory Networking Strategy (LNS) based upon feedback from the regions, outcomes of the stakeholder's meetings and data from the laboratory mapping. This document provides the framework for the IDENTIFY project activities (see Annex 4).

1.1.6 Activity 3.6.G: Follow-up of laboratory mapping exercise activities

- This effort includes several phases, such as assessment, identification of gaps, and progress monitoring. Mapping of laboratory capacity assessments in FAO networks in Congo Basin and SE Asia has been undertaken using a similar approach in both regions. The compilation of existing documents accessible by FAO on laboratories in beneficiary countries in the two hotspots (e.g. analysis of National Laboratories Annual Reports and FAO laboratory assessments/mission reports, etc.) will be ongoing and will help update current data. For those laboratories that have already been assessed, the mapping activity can now enter the progress monitoring phase. This process will be repeated for any new laboratories nominated by national authorities to receive support under IDENTIFY.
- Following the laboratory mapping results in each region, appropriate action was determined based on the needs of each laboratory in the following areas: follow-up laboratory visits, trainings, workshops, conferences, and procurement and delivery of equipment and supplies. These activities will continue throughout the next reporting period.
- The lists for national and regional laboratories nominated receive support under IDENTIFY has been updated for both regions and were shared with USAID and the EPT partners. The updated lists including the Laboratory focal points for the regional laboratory network were included in the IDENTIFY FAO Year 3 work plan (see Annex 5). The regional service laboratories already nominated to provide disease-based support to each region are also included on these lists. The newly designated FAO Reference Centres will be contacted in the near future to further define their involvement in laboratory networking activities and capacity building serving each hot spot region in support of the laboratory networking strategy in the context of the IDENTIFY project and will be included in the list in the next reporting period.

1.1.7 Activity 3.7.G: Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

- FAO HQ assisted in the preparation of the SE Asia meeting including contributions to the concept note and agenda; integration of the outcomes from the Third Laboratory Director's Forum (4-5 August 2011); expansion of the existing network to include China (Bangladesh, Cambodia, Indonesia, Lao PDR, Malaysia, Nepal, Philippines, Thailand, Vietnam); participation of key laboratories representing wildlife and PREDICT; liaison with WHO regarding planning for the joint sessions, contributions to working group development and format for joint sessions. This represents the first formal opportunity in the region for a joint meeting of laboratories in both animal and public health sectors.

1.1.8 Activity 3.8.G: Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

For description and listing of meetings/trainings supported, see Annex 1, Table 2

1.1.9 Activity 3.9.G: Development of joint meetings and conferences to support networking and promote national laboratory

For description and listing of workshop and trainings completed, see Annex 1, Table 3

- The three partners continue to share training opportunities and collaborate where possible, particularly where public health and veterinary professionals can work together. FAO implemented targeted training programmes based on the outcomes of the AHSHM and the laboratory mapping under the framework of the GLNS/RLNS.
  Under the effort for validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system) (FAO/IAEA), a multiple pathogens detection tool for ruminants poxviruses based on FRET technology and peste des petits ruminants (PPR) virus was developed and validated by FAO/IAEA. For poxviruses, the capripoxviruses were used as model to develop and alternative to FRET assay which can perform on any qPCR machine without the need of FRET Channel. 15 scientists from 11 different countries (Uganda, Democratic Republic of Congo, Cameroon, Republic of Congo, Tanzania, Gabon, Equatorial Guinea, Rwanda, and Central African Republic, Kenya and Ethiopia) were trained to use the PPR real time PCR during the training course in Uganda (20 June-1 July 2011, refer to Annex 1, Table 3) conducted under this reporting period. During the next reporting period, this approach will be extended to other poxviruses, with the aim to differentiate the viral strain within each genus.

  For peste des petits ruminants, an internally controlled real time PCR is being validated for an accurate and quality assured detection of PPR virus. This tool will provide a more robust and accurate technique for PPRV molecular diagnosis by real time PCR. It will also provide an alternative method to FRET validated for capripox detection and differentiation, with the potential to be applied to IDENTIFY priority diseases for multiple pathogen detection.

  This is an ongoing activity that will continue through the next reporting period; genotyping tools are ready for transfer in Congo basin region. This tool will be disseminated through peer-review paper with acknowledgement made to IDENTIFY financial contribution. Furthermore, the number of labs using these tools will be assessed.

- A revision and adaptation of the existing train-the-trainer system for enhancing field and laboratory diagnosis was initiated by an international FAO Consultant to prepare and conduct a simple, sustainable, regional Train-the-Trainer system on field necropsy, pathology, and linking with laboratories (to be conducted during the next reporting period).

1.1.10 Activity 3.10.G: Promote and support laboratory quality management

- The publication of data from the second part on External Quality Assessment Schemes (proficiency testing) as an EQAS database on the websites of the four organizations (WHO, OIE, FAO and IAEA for the benefit of laboratories and Member States) was discussed and will be finalized during the next reporting period. WHO has finalised the dataset.
- Proficiency testing for PPRV by molecular detection was organised by FAO/IAEA early 2011 and involved 11 countries in total, including 3 IDENTIFY countries (China, Bangladesh and Cameroon). The results were analysed by FAO/IAEA and the feedback provided to the laboratories in April 2011. The preparation of the 2012 proficiency

testing for molecular detection of PPRV for Congo basin and Asian countries was initiated by FAO/IAEA staff and FAO regional coordinators for the Congo Basin. Targeted countries are: DR Congo, Cameroon, Gabon, Central African Republic, Congo, Uganda, Rwanda, Tanzania, Ethiopia and Kenya, China, Vietnam, Bangladesh. This activity will continue through the next reporting period.

1.1.11 Activity 3.11.G: Provide laboratory equipment and supplies in a coordinated manner

- FAO HQ assisted the Congo Basin regional team in the provision of metrology kit, on April 2011, in support of Quality management system (QMS) implementation to Cameroon, DR Congo, Congo, CAR, Gabon, Rwanda, Tanzania and Uganda.
- FAO HQ together with regional team and WHO provided to USAID the preliminary list and justification for the selection process of laboratories to receive 5 real time PCRs, PPE and equipment that remained from the USAID 2009 H1N1 procurement. FAO regional coordinators for IDENTIFY linked with the two regional laboratories suggested for animal health side: LNERV in Senegal and BNVL in Botswana.

1.1.12 Activity 3.12: Support and promote laboratory networks: Assess the role and activities of existing FAO/OIE/WHO networks in improving the laboratory capacity and networking in hot spot regions. Coordinate regional networking to test for normative diseases and detect emerging or unknown pathogens in wildlife, domestic animals and humans

For description and listing of meetings completed, see Annex 1, Table 4

- The first phase of development of the Genetic Module in EMPRES-i (FAO animal disease information database) was completed in June. Webservices were developed to enable the transfer of information between the OpenFlu and EMPRES-i databases. An algorithm was developed to link EMPRES-i outbreak data with publicly available influenza sequences in OpenfluDB (SIB). A validation tool for the linkages proposed in the algorithm was created. Shape files with virus characteristics to overlay on other EMPRES-i maps (e.g. animal densities) were generated. A final meeting was held at FAO HQ with the main partner: the Swiss Institute for Bioinformatics (SIB), 30-31 May to review the results and prepare for the next phase, for validation and production (launch to the public) and development of applications (maps, analytic tools). The Genetic module was presented at several occasions to potential users (e.g. WHO; GISAID foundation) and was endorsed by OFFLU in April 2011.

  The development of a genetic module for other diseases is being discussed. The next Letter of Agreement describing the next phase of work has been prepared and is pending for internal clearance. The frame of a scientific paper that describes the Genetic Module has been drafted with the external partner and the manuscript is planned; the next phase to test and validate the FAO EMPRES-i influenza genetic module will start in November; discussions will be conducted with two other specialized influenza databases to explore linkages between EMPRES-i, and the possibility of a newly developed algorithm will be introduced. The work for integration of future results from the EPT+ project will start shortly.

- The joint ''Four-way linking of epidemiological and virological information on human and animal influenza'' project assessment mission in Viet Nam in June 2011 reviewed the national-level functional and communication linkages among the 4 sectors critical to controlling health risks from H5N1 influenza at the human-animal interface: Public

Health Epidemiology, public health virology (NIHE), animal health epidemiology (DAH) and animal health virology (NCVD). Twenty-four visits were made to various stakeholders, and details of the mapping were presented to all stakeholders for their inputs in a final workshop. During this workshop, linkages were mapped and gaps identified. The main conclusions of the assessment mission focused around the need for data sharing, improving joint working for case investigation, and improving surveillance systems. A workshop was conducted in Egypt in September (supported under another project) and included didactic presentations, group work, and scenario-based training: the setup of this workshop in Egypt will serve as a blue print for the future workshop in Viet Nam (planning meeting is scheduled for Oct 2011). The didactic materials developed for Egypt are available for workshops in third countries.

- OFFLU developments:

  (1) Contribution to WHO Vaccine Selection Process. FAO is involved - together with the OFFLU secretariat based at OIE- in coordination and gathering of data. OFFLU laboratories (i.e. any animal health laboratories that have animal influenza activities and that wish to contribute to OFFLU) are engaged, and a subset of these representing international reference and key regional laboratories are involved in the biannual preparation of data on zoonotic influenza virus strains for the OFFLU contribution to the WHO Vaccine Composition meeting selection process. FAO carries out the compilation, analysis and reporting of information on animal influenza viruses of public health concern from institutions within the OFFLU network. The OFFLU contribution includes the report generated from these collaborations, and a presentation is provided by a nominee from one of the international reference laboratories with an FAO/OIE OFFLU representative. For the last consultancy meeting (26-28 September 2011), OFFLU provided a summary of available epidemiological and molecular data for highly pathogenic avian influenza (HPAI) H5N1 and avian influenza H9N2 for the period 1 February until 20 September 2011. For H5, OFFLU shared new and previously unreported sequences from Bangladesh, Egypt, India, Indonesia, Israel, Lao PDR, Myanmar, and Viet Nam, representing clades 1, 2.1.3, 2.2, 2.2.1, 2.3.2, 2.3.4. The report included 245 H5 sequences (120 non-public and 12 public domain sequences from 2011; 113 non-public 2009-2011). For H9, the OFFLU network contributed 20 pre-2011 sequences (majority from 2009) and one 2011 sequence from Bangladesh. The outcomes of this consultancy process are published on the WHO web under "Antigenic and genetic characteristics of zoonotic influenza viruses and development of candidate vaccine viruses for pandemic preparedness":
  (http://www.who.int/influenza/resources/documents/characteristics_virus_vaccines/en/). In support of this ongoing effort, SOPs to aid in the coordination and analysis of data were prepared by FAO for the next VCM scheduled in February 2012 and submitted to the OFFLU Executive Committee on the 15 September 2011.
  (2) An FAO international consultant worked 8 days on the selection of many online training materials and resources; the approach for this review was initially discussed with the OFFLU Technical Activity on Capacity building and the outcomes subsequently validated by the same group. In particular, an influenza E-learning Training Module developed under an EU project (FLUTRAIN) was reviewed and comments provided to the developers to aid in improvement of the The outcomes of this review were submitted to the OFFLU Steering Committee (Paris, September 2011), who agreed on the creation of a training webpage with the selected material on the OFFLU website. Contacts with the WHO library (http://www.influenzatraining.org/en/) on influenza training were made and OFFLU experts were invited to provide training material to this library.

  (3) Inputs provided to the OFFLU secretariat for the establishment of new OFFLU website: www.offlu.net, to improve visibility of the OFFLU network and to facilitate data

sharing, transfer of knowledge and training materials. The new updated site was launched in April 2011. FAO provides regular check-up and update for the website.

(4) Establishment of the OFFLU Swine Influenza Group to work towards a worldwide surveillance network for influenza in pigs that includes timely data collection, analyses, and sharing. The first meeting was held at OIE, Paris 6-7 April 2011. The meeting report is posted on offlu.net. FAO has suggested TORs and governance for the SIV group and submitted to the OFFLU Steering Committee in Sept 2011. The TORs for SIV group are to be endorsed in the coming months.

1.1.13 Activity 1.13.G: FAO/OIE/WHO laboratory twinning initiatives and partnerships

- Progress has been made on this long and complex designation process of FAO Reference Centres. 5 Reference Centres in animal health have so far been designated according to the 2006 Corporate Policy while the Animal Health Service expects to have 48 designated Ref. Centres in the near future. Applications have been reviewed, missing information has been requested to the applications, workplans have been established and agreed with the applications, evaluations have been submitted for clearance by the FAO DG, government endorsements have been requested and final designation letters have been prepared, after discussions with the LEGAL office. Dossiers stand at various stages of the process. A comparison between OIE and FAO Reference Centres and terms for designation and partnership has been made to look for complementary and common work.
- Further IT developments of the EMPRES-i directory were conducted. The directory is now functional but will need to be more populated. Once fully populated, this directory will allow to get an easy access to information related to reference, regional and national laboratories and geographically map these laboratories and attach any related information that FAO may want to store on each laboratory (eg letter of Reference Centre designation, annual reports, Letters of Agreement, etc).

1.2 SOUTH/SOUTHEAST ASIA. Activities undertaken during the reporting period (1 April 2011 – 30 September 2011)

1.2.1 Activity 3.1.S: Ongoing tripartite project management and coordination, monitoring, and planning

For description and listing of meetings completed, see Annex 1 Table 1

1.2.2 Activity 3.3.S: Develop annual IDENTIFY work plan - preparation and review of global, regional, and country-level work plans and other project documents

SE ASIA

- Development of the Year 3 work plan included participation in many tripartite and EPT planning meetings both at country and regional levels (Annex 1, Table 1).

1.2.3 Activity 3.4.S: Communication tool development and resource building - to ensure circulation of information, coordination and harmonization of initiatives, implement standard methods of sharing critical project documents for access by project members

SE ASIA

- EMPRES-i Asia platform open for public access will continue to reinforce communication and share documents with IDENTIFY stakeholders in the region. On-going
- In addition, updates to the AI Network Asia email list serve are made on a weekly basis by the regional FAO IDENTIFY coordinator. On-going

SOUTH ASIA

- EMPRES-i Asia platform and AI Network Asia as above. On-going

1.2.4 Activity 3.5.S: Review and update of the Laboratory Networking Strategy (LNS) and future planning

For description and listing of meetings completed, see Annex 1 Table 1 FAO communication and coordination for IDENTIFY (including laboratory networking meetings and communication with EPT Partners)

SE ASIA

- The Southeast Asia RLNS will be updated to reflect the outcomes of the Regional Laboratory Network Technical Advisory Group Meeting (4-5 Aug)

SOUTH ASIA

- The South Asia / SAARC network is in the process of reviewing inputs such as the Global and Regional LNS examples and will be discussing ways forward at upcoming meetings.

1.2.5 Activity 3.6.S: Follow-up of laboratory mapping exercise activities

- Follow-up of ongoing desktop review of existing data on laboratory capacity and networks from existing laboratory assessments

Additional assessments (both self-assessment and expert visits) from 4 laboratories and updated information from 8 laboratories have been integrated and overall laboratory capacities are summarized in Table 1.A.1 below. This data was updated using a streamlined version of the FAO Laboratory mapping tool (Annex 6) which summarizes 18 indicators by 93 different criteria. For the eight laboratories assessed in the previous time period, improvements as indicated from the criteria based upon updated training and additional equipment received ranged from zero (for 1 lab) to 23%.

Type of laboratory	**Number**
Advanced labs	2
In progress -> advance	1
Routine labs	4
In progress -> intermediate	1
Basic labs	4

Table 3.6: Laboratory assessment data by 18 major indicators

	Southeast Asia National Laboratories								**Sub-national**	**South Asia National**		
Indicator	*+	*		*								
Geographic location	66.7	77.8	88.9	66.7	22.2	55.6	66.7	88.9	66.7	88.9	22.2	11.1
Laboratory Budget	77.8	77.8	66.7	66.7	55.6	44.4	0.0	0.0	61.1	55.6	44.4	11.1
Basic supply	100.0	100.0	88.9	100.0	44.4	55.6	44.4	44.4	77.8	100.0	77.8	11.1
Organization	100.0	100.0	100.0	66.7	66.7	100.0	66.7	66.7	66.7	66.7	66.7	66.7
Linkage with satellite labs	100.0	100.0	88.9	77.8	66.7	66.7	44.4	66.7	0.0	44.4	33.3	44.4
Communication means	91.7	91.7	100.0	66.7	50.0	66.7	25.0	33.3	79.2	91.7	58.3	25.0
Infrastructure	91.7	87.5	75.0	75.0	54.2	54.2	50.0	58.3	52.1	70.8	41.7	25.0
Equipment	94.4	77.8	72.2	50.0	50.0	38.9	44.4	50.0	55.6	66.7	50.0	33.3
Reagent supply	87.5	83.3	83.3	75.0	66.7	29.2	20.8	16.7	72.9	62.5	41.7	4.2
Staff skills and availability	95.8	91.7	83.3	54.2	45.8	58.3	50.0	41.7	62.5	83.3	8.3	25.0
Sample accession	94.4	94.4	100.0	61.1	50.0	72.2	55.6	27.8	55.6	94.4	44.4	27.8
Available technology	96.3	96.3	88.9	63.0	63.0	18.5	14.8	22.2	79.6	59.3	14.8	11.1
Training	77.8	66.7	83.3	33.3	27.8	22.2	38.9	27.8	50.0	61.1	11.1	22.2
Quality Assurance	79.2	95.8	79.2	58.3	58.3	41.7	20.8	20.8	29.2	33.3	8.3	16.7
Biosafety/Biosecurity	86.7	73.3	100.0	80.0	33.3	13.3	13.3	13.3	50.0	66.7	53.3	6.7
Staff Security/Health	88.9	88.9	100.0	77.8	22.2	33.3	11.1	0.0	16.7	66.7	11.1	11.1
Laboratory collaboration	86.7	93.3	60.0	86.7	66.7	66.7	46.7	46.7	43.3	73.3	20.0	33.3
Use of databases/platforms	83.3	66.7	66.7	83.3	83.3	25.0	25.0	25.0	58.3	91.7	41.7	25.0
Grand Total	88.9	86.7	83.5	66.7	52.3	43.7	34.1	33.7	55.6	69.2	31.9	20.4

+ = to be confirmed, * = laboratory with regional responsibilities

- Follow-up of the additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity

SE ASIA

- The list of potential national and regional laboratories compiled by FAO has been updated (Annex 5)

- Data from multiple sources is being compiled to visualize regional capacities by priority disease.
- The FAO laboratory mapping tool presented at the SE Asia Animal Health Stakeholders Awareness Meeting, 20-21 Jan 2011 in Bangkok, Thailand, was adapted used to monitor the progress of laboratory capacities.
- FAO with OIE completed visits to national and sub-national laboratories in Lao PDR, Viet Nam, Thailand, Nepal, and Indonesia:
  - Laboratory mapping conducted at Hanoi Agriculture University, Hanoi, Viet Nam, June 2011 by FAO Laboratory Expert in Viet Nam. Results compiled and preliminary analysis results available. HAU share similar limitations in biosafety-biosecurity, staff security and health with the majority of laboratories in SE Asia.
  - Laboratory mapping conducted for Bangladesh Livestock Research Institute and Central Veterinary Diagnostic Laboratory in Bangladesh in March 2011 has been integrated into the overall data.

1.2.6 Activity 3.7.S: Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

- Regional and national stakeholders meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

  - Preparations for the upcoming IDENTIFY regional stakeholders meeting for SE Asia planned for October 2011 included integration of the outcomes from the Third Laboratory Director's Forum (4-5 August 2011); expansion of the existing network to include China (Bangladesh, Cambodia, Indonesia, Lao PDR, Malaysia, Nepal, Philippines, Thailand, Vietnam); participation of key laboratories representing wildlife and PREDICT; planning and drafting questions for breakout groups during animal health and tripartite the joint sessions, format for tripartite sessions, and finalizing the concept note, agenda, and invitations. This represents the first formal opportunity in the region for a joint meeting of laboratories in both animal and public health sectors.

  - May 2011: The report for the IDENTIFY Animal Health Stakeholders Awareness Meeting on 20-21 January 2011 in Bangkok Thailand was finalized after receiving Stakeholders' comments and submitted to USAID HQ.

- Develop the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases (Viet Nam, other pilot countries TBD)

  - June 2011, Viet Nam: The joint ''Four-way linking of epidemiological and virological information on human and animal influenza'' project assessment mission in Viet Nam in reviewed the national-level functional and communication linkages among the 4 sectors critical to controlling health risks from H5N1 influenza at the human-animal interface: Public Health Epidemiology, public health virology (NIHE), animal health epidemiology (DAH) and animal health virology (NCVD). 24 visits were made to various stakeholders, and at a final workshop details of the mapping were presented to all stakeholders for their inputs. Finally, the relationships were mapped and gaps identified. The main conclusion of the assessment mission was that problems are mainly occurring in enabling and supporting data sharing, improving joint working for case investigation and improving surveillance systems. A workshop was conducted in Egypt in September (supported under another project) and included

didactic presentations, group work, and scenario-based training: the setup of this workshop in Egypt will serve as a blue print for the future workshop in Viet Nam (planning meeting is scheduled for Oct 2011). The didactic materials developed for Egypt are available for workshops in third countries.

1.2.7 Activity 3.8.S: Support to and participation in [non-IDENTIFY] conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

For description and listing of activities completed, see Annex 1 Table 2. List of [non-IDENTIFY] conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards to which participants were supported

1.2.8 Activity 3.9.S: Development of joint meetings and conferences to support networking and promote national laboratory

For description and listing of activities completed, see Annex 1 Tables 3 and 4: List of FAO/OIE/WHO-organized **trainings or workshops** to build laboratory capacity and to promote national laboratory policies, guidelines, and List of joint **meetings and conferences** organized by FAO/OIE/WHO to support networking and promote national laboratory policies

- Advanced Biorisk Training: Building regional biosafety resource people including biosafety managers and biosafety engineers. The training curriculums were designed to specifically target advanced laboratories with BSL3 and/or BSL4.
    - Preparations are underway for this activity scheduled for November 2011. This activity builds upon Biosafety Management Training organized under IDENTIFY in Year 2. Targeted country support for six advanced laboratories in China (CADCC, CAHEC and Langzhou), India (HSADL), Lao PDR (NAHC), Malaysia (VRI), Thailand (NIAH, RRL) and Viet Nam (RAHO6).

- Laboratory Engineering and Equipment Maintenance Training. Building regional biosafety resource people including biosafety managers and biosafety engineers. The training curriculums were designed to specifically target advanced laboratories with BSL3 and/or BSL4.
    - Preparations are underway for this activity scheduled for November 2011. This activity builds upon Biosafety Management Training organized under IDENTIFY in Year 2. Targeted country support for six advanced laboratories in China (CADCC, CAHEC and Langzhou), India (HSADL), Lao PDR (NAHC), Malaysia (VRI), Thailand (NIAH, RRL) and Viet Nam (RAHO6).

- Strengthen capabilities /capacities through workshops to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - Details contained in Table 3 for: 21 - 22 July 2011 The Workshop on Diagnosis of Priority and Emerging Diseases in Swine, and 11 – 20 July 2011 The Training on Diagnosis and Characterization of Classical Swine Fever and Porcine Reproductive and Respiratory Syndrom. The evaluations of the completed workshop and training can be found in Annex 7.

- Laboratory Information Management Systems (LIMS): Workshop to Identifying Needs, Resources, and Ways Forward

- Based on previous experience in providing assistance to LIMS implementation, FAO is collaborating with the Australian Animal Health Laboratory (AAHL) to develop guidelines for selecting LIMS. A Letter of Agreement with collaborating partner (Australian Animal Health Laboratory) has been finalized and planning initiated. The goal of this workshop is to address laboratory needs and provide information on potential open-source database solutions. Guidelines for selecting LIMS including need assessment tool for the laboratory is being developed and will be presented during the workshop planned for 8-9 December 2011 in Bangkok, Thailand where IDENTIFY supported laboratories will be invited to attend including China (CAHEC, CADCC), Cambodia (NaVRI), Lao PDR (NAHC), Malaysia (VRI), Philippines (PAHC), Thailand (NIAH) and Viet Nam (RAHO6).

- Adaptation of animal health laboratory (individual and country-level) assessment tools for monitoring and evaluation – refer to **3.6**: The FAO laboratory mapping tool presented at the SE Asia Animal Health Stakeholders Awareness Meeting, 20-21 Jan 2011 in Bangkok, Thailand, was adapted used to monitor the progress of laboratory capacities.

1.2.9 Activity 3.10.S: Promote and support laboratory quality management

- Assessment of biosafety infrastructure, biosafety cabinet testing, procurement and calibration
  - Under the Letter of Agreement (LoA) with FAO, A-PBA conducted the assessment of biosafety infrastructure, biosafety cabinet testing (24 cabinets), and practices of 5 laboratories in Cambodia, Lao PDR, Philippines, Malaysia, and Thailand (Nov–Dec 2010). The report was submitted and awaiting clearance. Reports including recommendations for improving laboratory biosafety-biosecurity are available for national animal health laboratories in Cambodia (NaVRI), LaoPDR (NAHC), Malaysia (VRI), Philippines (PAHC), Thailand (NIAH), Bangladesh (CDIL, BLRI) and Nepal(CVL) – refer to 3.11. S for procurement detail.

- Laboratory support visits to assist with development and implementation of laboratory quality management systems
  - Under the Letter of Agreement (LoA) with the Australian Animal Health Laboratory signed in May 2011, Backstopping missions was planned to ensure implementation of appropriate diagnostic protocols under a quality assurance system. Specifically, AAHL laboratory experts would 1) Follow up on proficiency testing result for PRRS, CSF and HPAI ,2) Trouble shooting any technical problem reveal by proficiency testing result, 3)Provide in-house training on equipment usage and maintenance, 4) Follow up on laboratory quality systems, 5) Provide inputs on biosafety and biosecurity and 6) Advocate laboratory support for surveillance. These missions are planned to be carried out between October 2011 – November 2011 at IDENTIFY supported laboratories in China (CAHEC, CADCC), Cambodia (NaVRI), Lao PDR (NAHC), Malaysia (VRI), Thailand (NIAH) and Viet Nam (RAHO6)

- Provision of Laboratory Information Management Systems (LIMS)
  - Under the Letter of Agreement (LoA) with the Australian Animal Health Laboratory, a guidelines for selecting LIMS including need assessment tool for the laboratory is being developed and will be presented during the workshop planned for 8-9 December 2011 in Bangkok, Thailand (refer to **Activity 3.9**)

- Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases
    - 5-19 September 2011, Geelong, Australia. Training on Quality Assurance and Standardization of Diagnostic Reagents. The objective of this training was to equip laboratories with necessary skill to develop their own proficiency testing programme. A total of 15 participants from IDENTIFY supported laboratories in Cambodia (NaVRI), China (CAHEC), Lao PDR (NAHC), Malaysia (VRI), Philipppines (PAHC), Thailand (VRI) and Viet Nam (DAH) participated in the 12-day training. The training program at the Australian Animal Health Laboratory (AAHL) reviewed the requirements under ISO17025 for quality assurance of laboratory tests and training in providing Proficiency Testing (PT) to ensure laboratories are producing accurate and correct results for tests carried out in the laboratory. It is foreseen that the developed capacity to provide proficiency testing will allow national animal health laboratories to develop their own external quality assurance programme for their national laboratory network.

- Provision of validated standardized veterinary diagnostic reagents –antigens and antisera- targeting priority TADs – refer to 3.11.

1.2.10 Activity 3.11.S: Provide laboratory equipment and supplies in a coordinated manner

SE ASIA and SOUTH ASIA

- Procurement by FAO to address immediate needs:
    - A total of three (3) replacement HEPA filters were procured, delivered and installed for laboratories in Thailand (NIAH) and Bangladesh (BLRI and CDIL). A total of eight (8) replacement biosafety cabinets were procured and delivery to laboratories in Cambodia (NaVRI 1 cabinet), LaoPDR (NAHC 2 cabinets), Malaysia (VRI 2 cabinets), Bangladesh (BLRI 1 cabinet) and Nepal (CVL 2 cabinets) is in process – refer to 3.10. S;
    - Delivery for other items such as laboratory diagnostic reference books, IATA biocontainers for samples shipment, and proficiency testing panels is ongoing.

1.2.11 Activity 3.12.S: **Support and promote laboratory networks :** Assess the role and activities of existing FAO/OIE/WHO networks in improving the laboratory capacity and networking in hot spot regions. Coordinate regional networking to test for normative diseases and detect emerging or unknown pathogens in wildlife, domestic animals and humans

- Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis

SE ASIA

For description and listing of completed meetings, see Annex 1 Table 4 FAO communication and coordination for IDENTIFY (including laboratory networking meetings and communication with EPT Partners)

Other activities included:

- 13 – 17 June 2011, Hanoi: FAO|IDENTIFY SE Asia coordinator together with OIE|IDENTIFY SE Asia coordinator visited Animal Health Laboratories in Viet Nam including the National Center for Veterinary Diagnosis, Regional Animal Health Office Number 6 and Hanoi Agriculture University from. Presentation and discussion on Regional Laboratory Networking activities including the Emerging Pandemic Threat Programme and IDENTIFY were made. Details of FAO Regional Laboratory Network activities including IDENTIFY activities in Viet Nam were discussed and agreed upon with the Director General of the Department of Animal Health, Ministry of Agriculture and Rural Development.
- 18 July 2011, Bogor, Indonesia: FAO|IDENTIFY HQ Liaison with the OIE|IDENTIFY SE Asia coordinator Meeting with Heads of Departments of Bbalitvet laboratory, various technical staff. Presentations were provided by both focal points to provide background information on EPT/IDENTIFY, identify opportunities to build upon the existing network of Disease Investigation Centres and other national veterinary labs, and to determine disease focus needs and current collaborations.
- 24-26 August 2011, Hanoi, Viet Nam: FAO|IDENTIFY SE Asia coordinator supported the mission for the Field Epidemiology Training Programme for Veterinarians. The mission team including the ROs, Thailand FETPV and FETP staff had two meetings with both administrative and epidemiology staff of the RAHO6 to discuss support for FETPV trainee from Viet Nam. RAHO6 and Viet Nam Department of Animal Health (DAH) expressed their kind support for FETPV trainee and agreed upon the objectives, the data sources and work plan covering the next six months. The mission team also attend the FETP graduation ceremony at the Ministry of Health, Hanoi, Viet Nam and have informal consultation with USAID Viet Nam on EPT and IDENTIFY activities in Viet Nam.

- Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - 30 May – 2 June 2011, Rome, Italy: FAO|IDENTIFY SE Asia coordinator participated in the meeting between FAO EMPRES Laboratory unit and the Swiss Institute of Bioinformatics from. The goal of the meeting was to follow up on the outcome and way forward for the development of EMPRES-i Genetic Module. The EMPRES-i genetic module was developed as a collaborative activities between FAO EMPRES laboratory unit and the Swiss Institute of Bioinformatics (SIB) with the goal to provide an integrate Influenza outbreak information on FAO – EMPRES system together with virus gene sequence information on SIB – OpenFlu. The linkage between Empres-i outbreak ID and OpenFlu ID was established along with validation interface and web-service tools. SOP for data analysis across OpenFlu and Empres-I was recommended including analysis of large scale viruses, visualization and analysis from phylogeny to sequence similarity maps.

1.3 CONGO BASIN

1.3.1 Activity 3.1.C: Ongoing tripartite project management and coordination, monitoring, and planning

For description and listing of activities completed, see Annex 1 Table 1

- Project management and planning at regional level continued through conference calls between Tripartite regional coordinators, and tripartite face to face meeting on 29 July 2011.

1.3.2 Activity 3.2.C: Recruitment of project staff (headquarters and regionally) to support IDENTIFY activities

- FAO consultant (April 2011) analyzed data on animal disease surveillance system in IDENTIFY project countries by focusing on the collaboration between epidemiology and laboratory staff, and identify constraints, roles and responsibilities to improve relation between laboratory and epidemiology networks in IDENTIFY beneficiary countries and suggest ways to alleviate these constraints. The report is available and the outcomes will be presented during the 2011 annual RESOLAB meeting.

1.3.3 Activity 3.3.C: Develop annual IDENTIFY work plan - preparation and review of global, regional, and country-level work plans and other project documents

- During the reporting period, the regional FAO|IDENTIFY coordinators, along with HQ team, developed the IDENTIFY Year 3 Work plans for Congo Basin, from the country (done in conjunction with each country), region to the global level following the guidance provided by USAID. During the process, FAO regional coordinators requested, assessed and reviewed the workplans, budgets and lists of needs for capacity building from all National Laboratories.
- The FAO|IDENTIFY coordinators presented the FAO planned activities for year 3 during the tripartite IDENTIFY side meeting (Kinshasa, 29 July 2011) and discussed collaboration with OIE and WHO in the case of tripartite and cross-sectoral activities.
- IDENTIFY regional coordinators participated and presented the planned FAO Year 3 Congo region activities to USAID/W, USAID country missions and EPT partners during the EPT Congo Regional Planning Meeting organized from 27-28 July 2011 in Kinshasa. Contacts and discussions were made with the newly appointed EPT coordinator in Uganda, PREDICT and RESPOND. FAO delegation visited RESPOND Office in Kinshasa and have had a fruitful working discussion.

1.3.4 Activity 3.4.C: Communication tool development and resource building - to ensure circulation of information, coordination and harmonization of initiatives, implement standard methods of sharing critical project documents for access by project members

- There is regular contact on activities implemented between FAO|IDENTIFY coordinators (Bamako, Nairobi and Gaborone) and with stakeholders, in particular laboratory directors through emailing list.
- FAO|IDENTIFY coordinators regularly posted documents and information on IDENTIFY events on FAO-ECTAD websites (RESOLAB http://www.fao-ectad-bamako.org/ , EARLN http://www.fao-ectad-nairobi.org/spip.php?rubrique57 and LAB NET http://www.fao-

ectad-gaborone.org/en/spip.php?rubrique55). A specific tab for IDENTIFY has been created in RESOLAB website (http://www.fao-ectad-bamako.org/fr/-Projet-IDENTIFY-?lang=en) and will be created on the other ECTAD websites during the next reporting period to contribute to IDENTIFY project visibility.

- Production of tripartite awareness materials (banners and leaflets with IDENTIFY and USAID logos are produced for IDENTIFY supported workshops).
- IDENTIFY poster (French version) was produced and distributed to each of the following laboratory Cameroon, CAR, DR Congo, Eq. Guinea, Gabon and Congo. English version under printing for Rwanda, Tanzania and Uganda during Kinshasa workshop on Necropsy and sampling. One copy will be sent to FAO Representatives of all the said countries.

1.3.5 Activity 3.5.C: Review and update of the tripartite Laboratory Networking Strategy (LNS) and future planning

- Tripartite finalization of the Regional lab networking strategy (RLNS) expected by end of 2011. A draft of Regional Laboratory Networking Strategy (RLNS) was proposed by OIE and circulated between the three regional coordinators.

1.3.6 Activity 3.6.C: Follow-up of laboratory mapping exercise activities

- Additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity: FAO focal point visited the Laboratoire vétérinaire of Kinshasa, 26 and 29 July., and the additional data collected was the for example the organigram, vaccine production status, other activities carried out, strength of financial sustainability from own generated resources.
- The data review and compilation of national laboratories reports from the West and Central regional laboratory network (RESOLAB), Eastern Africa network (EARLN), SADC Laboratory Network (LABNET) meetings and from FAO laboratory assessments/mission reports were consolidated with additional data collected though questionnaires on rabies and FMD (the RESOLAB FMD subnetwork facilitators posted an updated biannual table on confirmed FMD cases in the region http://www.fao-ectad-bamako.org/fr/-FMD-Sub-Network-?lang=en), country status reports presented during training workshops (Kinshasa, 15-19 August; Libreville, 12 – 16 September), coordination meetings (e.g. EARLN/EAREN joint meeting in Kigali from 5 – 7 September 2011) and opportunistic visits to the national laboratories in Uganda, Rwanda, Tanzania and DRC.).
- Follow-up of ongoing desktop review and analysis of existing data on laboratory capacity and networks from existing laboratory assessments : the FAO laboratory scoring and gap analysis preliminary findings presented to the IDENTIFY OIE and WHO coordinators at the tripartite Gabon meeting (Libreville, March 2011) were further developed (see annex 8) . The completed report on veterinary laboratory data analysis and mapping exercise and the integration of the outcomes of the lab mapping into the Lab Networking Strategy will be finalized by FAO by end November2011. Congo Basin laboratories individual laboratory scoring and gaps analysis shall be submitted at the same time to IDENTIFY coordinators .
- Agreement on each laboratory's desired and feasible role in the regional context: the discussions with each laboratory started informally at the stakeholder meetings and were further elaborated during the FAO laboratory visits and assessments. Regional service laboratories will be contacted to define their mandate, as opposed to reference Centres during the next reporting period.

1.3.7 Activity 3.7.C: Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

- IDENTIFY activities have been adjusted according to the recommendations from Entebbe Stakeholders' meeting in the Congo Basin region (2-4 Nov 2010 in Entebbe, Uganda). .
- Preliminary discussions were initiated between the IDENTIFY partners on next stakeholders meeting for the Congo region, tentatively projected for early 2012.

1.3.8 Activity 3.8.C: Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

For description and listing of activities completed, see Annex 1 Table 2

1.3.9 Activity 3.9.C: Development of joint meetings and conferences to support networking and promote national laboratory

For description and listing of activities completed, see Annex 1 Tables 3 and 4

- Information on planned trainings for Year 2 of the project was shared between FAO/IAEA/OIE/WHO. Opportunities for joint trainings were discussed and training for public health professionals and veterinary scientists together will be explored under the planned trainings for the next reporting period.

1.3.10 Activity 3.10.C: Promote and support laboratory quality management

- Under the LoA with FAO and IZSVe of Padova, all IDENTIFY countries in Congo Basin were invited in February 2011 to participate in the third round of Avian influenza and Newcastle disease proficiency test. The panels were shipped in March 2011 and all countries submitted their results. The results were analyzed by IZSVe, made available on September 2011, and will be presented to the countries during the next RESOLAB and EARLN annual meetings in 2011.
- Provision of metrology kit, on April 2011, in support of Quality management system (QMS) implementation to Cameroon, DR Congo, Congo, CAR, Gabon, Rwanda, Tanzania and Uganda. This procurement was followed up by the training on ''Management of laboratory equipment and basic metrology'' (12-16 September 2011, Libreville, see Annex 1, table 3) to train Cameroon, Central African Republic, DRC, Congo, Gabon, Equatorial Guinea for the use of the metrology equipment provided to the countries.
- Provision of manuals and standard operating procedures in support of QMS implementation (DRC, Congo, CAR, Rwanda, Tanzania and Uganda): training manuals including SOPs on implementation of laboratory QMS based on ISO/17025 were provided to participants from Rwanda, Tanzania and Uganda during a regional training course in Dar es Salaam, Tanzania in July 2011. Manuals on laboratory biosafety and biosecurity were also provided during this meeting.
- Installation and staff training for an open-source LIMS platform by FAO/IAEA in order to improve laboratory information management in the national animal health laboratories of one pilot country (Cameroon) : One expert mission was conducted at LANAVET (Cameroon) on 11-15 April 2011, to identify the laboratory needs for Vet- LIMS and advice on the establishment of LIMS and various LIMS systems used in veterinary laboratories, Evaluate the existing facilities, infrastructures and system requirement for LIMS and determine interfacing technology. Work with counterpart to outline workflow for necessary task in the lab. (Visual workflow), provide technical advice on data

collection , validation of system, implementation methodology and monitoring and provide feedback to FAO/IAEA on equipment and training requirements. Furthermore, one staff from LANAVET attended the Bioinformatic training in Vienna (11-22 July 2011, see Annex 1 Table 3) for which the second week was focused on databases and LIMS.

- Training manuals including SOPs on implementation of laboratory QMS based on ISO/17025 were provided to participants from Rwanda, Tanzania and Uganda during a regional training course in Dar es Salaam, Tanzania in July 2011. Manuals on laboratory biosafety and biosecurity were also provided during this meeting.
- The preparation of the proficiency testing for the serodiagnosis of Rift Valley Fever (RVF): comparison of the efficiency of two RFV Inhibition ELISA kits in the Congo basin region was initiated in June and an agreement was made between FAO/IAEA and the head of the special pathogen unit of the National Institute for Communicable Diseases (NICD, South Africa) for the practical organization. The targeted countries (DR Congo, Cameroon, Gabon, Central African Republic, Congo, Uganda, Rwanda, Tanzania, Ethiopia and Kenya) have been invited to participate and already provided their agreement. The kits for RVF Competition ELISA were ordered in September 2011. This activity will continue through the next reporting period.

1.3.11 Activity 3.11.C: Provide laboratory equipment and supplies in a coordinated manner

- The provision of metrology kit by FAO to address immediate needs defined by the countries during the stakeholder meeting (November 2010) was finalized in July 2011 in Cameroon, DR Congo, Congo, CAR, Gabon, Rwanda, Tanzania and Uganda.
- The list of equipment and supplies required by Cameroon, CAR, DR Congo, Eq. Guinea, Gabon, Congo, Rwanda, Tanzania and Uganda were collected during the work planning process (see activity 3.3.C), compiled by FAO Coordinators and shared with OIE and WHO during the EPT planning meeting (July, Kinshasa).The procurement process will be continued during the next reporting period.

1.3.12 *A*ctivity 3.12.C: Support and promote laboratory networks : Assess the role and activities of existing FAO/OIE/WHO networks in improving the laboratory capacity and networking in hot spot regions. Coordinate regional networking to test for normative diseases and detect emerging or unknown pathogens in wildlife, domestic animals and humans

For description and listing of activities completed, see Annex 1 Table 4

- FAO has been facilitating the selection of a regional laboratory (applications received from Ethiopia, Tanzania, Sudan (North), and Kenya) for Eastern Africa : FAO-ECTAD Eastern Africa received formal applications from the four countries for designation as regional service laboratories for Avian Influenza and Newcastle disease. Subsequently ECTAD convened a meeting of a regional networks secretariat composed of OIE, FAO, AU-IBAR, representative of Livestock (Ethiopia), Wildlife (Tanzania) and VS (Kenya) in May 2011 to consider the applications. The outcome of the meeting is that the National Animal Health Diagnostic and Investigation Centre (NAHDIC, Sebeta) Ethiopia was selected as the regional AI/ND laboratory for Eastern Africa. A report on the procedure and outcome of the selection process has been prepared. It is expected that a summary of the report will be published in the FAO EMPRES Bulletin.
- Laboratory subnetworks (established during the RESOLAB 2010 Annual meeting at Bamako, December 2010) on rabies and FMD including Cameroon, CAR, Congo, DR

Congo, Guinea Equatorial and Gabon and other laboratories from Western Africa (See also activity 3.6).

  - The FMD subnetwork aims to assess the relevance of tests/papers for use in the region; Discuss and share the FMDV findings by the national labs and/or the FAO/OIE WRL; Translate and/or comments on published FMD papers relevant to West/Central Africa; Share information on relevant projects in the region; Share information on important epidemic events.
  - The Rabies subnetwork aims to: Define priorities for rabies control; Identify the needs for veterinary laboratories; Interact with the human health sector and advocate with public sector. During the reporting period, a survey on rabies diagnostic was initiated in collaboration with IZSVe laboratory of Padova. The purpose of this study is to assess the diagnostic capabilities of rabies in the laboratories of the network

- Similarly an FMD for Eastern Africa (EARLN-FMD) has been established. Its activities are supported mainly by EU-FMD secretariat that is based at FAO Headquarters, Rome.
  - EARLN-FMD conducted an in-house training on sample collection, shipment and processing in August 2011. Other activities were indicated in the table.
- National laboratories quaterly reports were posted on protected space of ECTAD website. Access username and password have been provided to OIE and WHO/AFRO focal points. These reports provide information on animal diseases diagnosed, tests performed, constraints faced by the laboratories during the period and the action plan for the next quarter.
- FAO commissioned a study on animal disease surveillance systems across all RESOLAB including IDENTIFY supported countries. The focus was on national epi system capability and their relationship between Epidemiology and Laboratory to address the limited number of samples submitted and tested through the establishment of collaborations with epidemiosurveillance units and participation in disease surveillance programs.

1.3.13 Activity 3.13.C: FAO/OIE/WHO laboratory twinning initiatives and partnerships

- From FAO side, no progress reported during the reporting period

2 Planned activities for the next six-month period (1 October 2011 – 31 March 2012)

For further detail, please refer to the FAO Workplan Year 3.

2.1 Planned activities for GLOBAL

Activity code	Activity description	2011 10-11	2011 11-11	2011 12-11	2012 01-12	2012 02-12	2012 03-12	PARTNERS	Focal Person
	Output 1 Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced								
1.A.	Follow-up of laboratory mapping exercise activities							OIE, WHO	Mia Kim, FAO HQ
	1.A.1 Review of historic data from EMPRES-i							OIE, WHO	Mia Kim, FAO HQ
	1.A.2 Disease prioritization							OIE, WHO	Mia Kim, FAO HQ
	1.A.3 Improved data collection from FAO Reference Centres							OIE	Mia Kim, FAO HQ
	1.A.4 Update of regional data on laboratory capacity and networks							FLI	Mia Kim, FAO HQ
	1.A.5 Identification of regional service laboratories by disease focus based on the outcomes of the laboratory mapping							OIE, FAO/IAEA	Mia Kim, FAO HQ
	1.A.6 Adaptation of animal health laboratory (individual and country-level) assessment tools								
1.B.	Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards								Gwenaelle Dauphin, FAO HQ
1.C	Develop and conduct trainings or workshops to build laboratory capacity and to promote national laboratory policies and guidelines								Gwenaelle Dauphin, FAO HQ
	1.C.1 Organizational support for regional workshops, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."							FAO/IAEA	Mia Kim, FAO HQ
	1.C.2 Regional pathology train-the-trainer workshops on "Basics of Field and Laboratory Diagnosis" coordinated and conducted in both regions							OIE, RESPOND, UGA	Mia Kim, FAO HQ

	1.C.3	*Training on classical and molecular virology*		■						FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.C.4	*Regional training courses on "Major Transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology"*						■		FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.C.5	*Consultation on good laboratory practices for conducting multiple disease diagnosis*								FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.C.6	*Validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system)*		■	■	■	■			FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.C.7	*Workshop on Good Emergency Management Practice (GEMP) in coordination with FAO/CMC and RESPOND*								OIE, WHO, RESPOND		Gwenaelle Dauphin, FAO HQ
1.D	Promote and support laboratory quality management		■	■	■	■	■	■				Gwenaelle Dauphin, FAO HQ
	1.D.1	*Development of training/mentoring Programme*			■	■	■	■		OIE, AAHL, IZSVe		Gwenaelle Dauphin, FAO HQ
	1.D.2	*Installation of updated laboratory information system (LIMS) in targeted laboratories*								FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.D.3	*External Quality Assurance for targeted diseases*				■	■			FAO/IAEA, IZSVe, AAHL		Gwenaelle Dauphin, FAO HQ
	1.D.4	*Joint FAO/IAEA/OIE/WHO Global Survey on External Quality Assessment (proficiency testing) Schemes*	■	■	■	■	■			OIE, WHO, FAO/IAEA		Gwenaelle Dauphin, FAO HQ
	1.D.5	*Access to standardized veterinary diagnostic reagents and international standards*								FAO/IAEA		Gwenaelle Dauphin, FAO HQ
1.E	Provide laboratory equipment and supplies in a coordinated manner					■	■	■				Gwenaelle Dauphin, FAO HQ
	Output 2 Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened											Gwenaelle Dauphin, FAO HQ
2.A	Communication tool development and resource building			■	■			■				Gwenaelle Dauphin, FAO HQ
	2.A.1	*Develop communication tool(s) for different audiences, stakeholders and partners*		■	■			■		OIE, WHO		Gwenaelle Dauphin, FAO HQ
	2.A.2	*Resource Building – Provision of documents, manuals, books and database access to scientific literature*		■	■			■				Béatrice Mouillé, FAO HQ

	2.A.3	*Development of a glossary of the available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses*		■					FLI, laboratory experts	Gwenaelle Dauphin and Mia Kim , FAO HQ
	2.A.4	*Development of a self assessment tool for laboratories to identify the elements needed for a laboratory information management system (LIMS)*			■	■			AAHL, LIMS users and developers	Mia Kim, FAO HQ
	2.A.5	*Support ongoing development of the EMPRES-i genetic module*		■	■	■	■	■	SIB	Gwenaelle Dauphin, FAO HQ
	2.A.6	*Development of e-learning modules on bioinformatics (phylogeny and sequence analysis)*				■	■	■	FAO/IAEA, SIB	Gwenaelle Dauphin, FAO HQ
	2.A.7	*Centralized resource for genomic characterization and molecular reagents*					■	■	FAO/IAEA, TBD	Gwenaelle Dauphin, FAO HQ
	2.A.8	*Sample referral guidelines for transboundary animal diseases (TADs)*								
2.B		Development of joint meetings and conferences to support networking and promote national laboratory policies	■	■	■	■	■	■		Gwenaelle Dauphin, FAO HQ
2.C		Review and update of the tripartite Laboratory Networking Strategy (LNS) and future planning			■	■	■	■		Gwenaelle Dauphin, FAO HQ
	2.C.1	*Tripartite coordination meetings*	■	■	■	■	■	■	OIE, WHO, Regional Lab Network partners, Ref Labs	Gwenaelle Dauphin, and Mia Kim , FAO HQ
2.D		Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories	■	■	■	■	■	■		Gwenaelle Dauphin, FAO HQ
	2.D.1	*Coordination and development with regional counterparts of global framework for regional and national stakeholders meeting in each hot spot region*		■					PREDICT, RESPOND, DELIVER	Gwenaelle Dauphin, FAO HQ
	2.D.2	*Four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface*	■				■		OIE, WHO, PREDICT	Gwenaelle Dauphin, FAO HQ
2.E		Support and promote laboratory networks	■	■	■	■	■	■		Gwenaelle Dauphin, FAO HQ
	2.E.1	*Support to routine regional and global networking meetings*		■	■				OFFLU, CDC, Ref Laboratories/Centers	Gwenaelle Dauphin, FAO HQ

	2.E.2	*Linking laboratory and epidemiologic networks*							CMC, RESPOND	Gwenaelle Dauphin, FAO HQ
	2.E.3	*Support for sharing of information and biological materials*							OIE, WHO	Gwenaelle Dauphin, FAO HQ
	2.E.4	*Monitoring regional capacities for targeted diseases*							National labs	Gwenaelle Dauphin, FAO HQ
	2.E.5	*Support and promote OFFLU network activities*							CDC, WHO collaborating centers, Ref Laboratories/Centers	Gwenaelle Dauphin, FAO HQ
2.F	Support and promote laboratory partnerships									Gwenaelle Dauphin, FAO HQ
	2.F.1	*Identification of FAO Reference Centres in the regions and beyond prepared to offer expertise in diseases or technical areas relevant to each region*							Ref Laboratories/Centers, OIE, WHO	Gwenaelle Dauphin, FAO HQ
	2.F.2	*Support and promote the establishment/development of regional service laboratories*							Ref Laboratories/Centers, OIE, WHO	Gwenaelle Dauphin, FAO HQ

2.2 Planned activities for SOUTH and SOUTHEAST ASIA

Activity code	Activity description	2011 10-11	2011 11-11	2011 12-11	2012 01-12	2012 02-12	2012 03-12	Focal Person	PARTNERS
	Output 1 Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced								
1.A.	**Follow-up of laboratory mapping exercise activities**								
1.B.	**Support to and participate in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards**								
1.C	**Develop and conduct trainings or workshops to build laboratory capacity and to promote national laboratory policies and guidelines**								
1.C.1	***Biosafety trainings***							Pawin Padungtod, FAO-RAP	
1.C.2	***Hands-on training for diagnosis of selected regional priority disease***							Pawin Padungtod, FAO-RAP	
1.C.3	***LIMS workshop: Open-Source Platforms and Tools to Aid in Needs Assessment***							Pawin Padungtod, FAO-RAP	Thai Department of Livestock Development, AAHL
1.C.4	***Regional training-the-trainer pathology workshop on Basics of Field and Laboratory Diagnosis***							Pawin Padungtod, FAO-RAP	UGA
1.C.5	***Regional training courses on "Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology"***							Pawin Padungtod, FAO-RAP	PREDICT

	1.C.6	***Workshop on diagnosis of selected regional priority disease***							Pawin Padungtod, FAO-RAP	OIE/WHO, TBD
1.D		**Promote and support laboratory quality management**								
	1.D.1	***Assessment of biosafety infrastructure, biosafety cabinet testing, procurement and calibration***							Pawin Padungtod, FAO-RAP	APBA
	1.D.2	***Laboratory support visits to assist with development and implementation of laboratory quality management systems***							Pawin Padungtod, FAO-RAP	International lab experts
	1.D.3	***Develop training tool for laboratory logistics management***							Pawin Padungtod, FAO-RAP	DELIVER
	1.D.4	***Provision of Laboratory Information Management Systems (LIMS)***							Pawin Padungtod, FAO-RAP	AAHL
	1.D.5	***Laboratory Management Mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories***							Pawin Padungtod, FAO-RAP	International lab experts, AAHL
	1.D.6	***External Quality Assurance for targeted diseases***							Pawin Padungtod, FAO-RAP	AAHL
	1.D.7	***Access to standardized veterinary diagnostic reagents and international standards***							Pawin Padungtod, FAO-RAP	AAHL
1.E		**Provide laboratory equipment and supplies in a coordinated manner**								
	Output 2 Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened								Pawin Padungtod, FAO-RAP	
2.A		**Communication tool development and resource building**								
	2.A.1	***Resource Building - Provision of documents, manuals, books and database access to scientific literature***							Pawin Padungtod,	

									FAO-RAP	
	2.A.2	***Sample referral guidelines for transboundary animal diseases (TADs)***							Pawin Padungtod, FAO-RAP	
2.B		**Development of joint meetings and conferences to support networking and promote national laboratory policies**								
	2.B.1	***Regional Laboratory Technical Advisory Group Meeting***							Pawin Padungtod, FAO-RAP	OIE/WHO
2.C		**Review and update of the tripartite Laboratory Networking Strategy (LNS) and future planning**								
2.D		**Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories**								
	2.D.1	***Regional and national stakeholders meeting***							Pawin Padungtod, FAO-RAP	OIE/WHO
	2.D.2	***Four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface***							Pawin Padungtod, FAO-RAP	OIE, WHO, PREDICT
2.E		**Support and promote laboratory networks**								
2.F.		**Support and promote laboratory partnerships**								
	2.F.1	***Support and promote the establishment/development of regional service laboratories***							Pawin Padungtod, FAO-RAP	OIE

2.3 Planned activities for CONGO BASIN

Activity code		Activity description	2011			2012			Focal Person	PARTNERS
			10-11	11-11	12-11	01-12	02-12	03-12		
		Output 1 Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced								
1.A.	1.A.	Follow-up of laboratory mapping exercise activities							B.M. Seck;	OIE, WHO

										J.K. Litamoi	
	1.A.1	*Follow-up of ongoing desktop review of existing data on laboratory capacity and networks from existing laboratory assessments*								B.M. Seck; J.K. Litamoi	OIE, WHO
	1.A.2	*Follow-up of review and compilation of national laboratories annual/biannual reports and information generated by members of the West and Central regional laboratory network (RESOLAB), Eastern Africa network (EARLN), SADC Laboratory Network (LABNET) and FAO laboratory assessments/mission reports*								B.M. Seck; J.K. Litamoi	
	1.A.3	*Additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity*								B.M. Seck; J.K. Litamoi	OIE, PREDICT
	1.A.4	*Integrate the outcomes of the laboratory mapping into the Laboratory Networking Strategy*								B.M. Seck; J.K. Litamoi	OIE, WHO, FLI
	1.A.5	*Adaptation of animal health laboratory (individual and country-level) assessment tools*									
1.B.	1.B.	Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards								B.M. Seck; J.K. Litamoi	OIE, WHO
1.C	1.C	Develop and conduct FAO/OIE/WHO trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines								B.M. Seck; J.K. Litamoi	OIE, WHO
	1.C.1	*Regional workshop: "Targeting the needs for genetic sequencing''*								B.M. Seck; J.K. Litamoi	OIE, WHO
	1.C.2	*Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests)"*								B.M. Seck	FVI
	1.C.3	*Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology"*								B.M. Seck; J.K. Litamoi	EISMV, PREDICT
	1.C.4	*Regional train-the-trainer pathology workshops "Basics of Field and Laboratory Diagnosis"*								B.M. Seck; J.K. Litamoi	UGA, OIE
	1.C.5	*Regional workshop: Laboratory equipment calibration and maintenance*								B.M. Seck; J.K. Litamoi	APHIS,EISMV
	1.C.6	*National trainings with field epidemiologists for samples collection, storage, shipping*								B.M. Seck; J.K. Litamoi	WHO, OIE
1.D	1.D	Promote and support laboratory quality management								B.M. Seck; J.K. Litamoi	OIE,WHO

	1.D.1	*Support QMS implementation in providing standard documents and samples of SOPs*							B.M. Seck; J.K. Litamoi	OIE,WHO
	1.D.2.G	*On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation.*							B.M. Seck	IAEA
	1.D.2	*On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation (DRC, Congo, CAR, Rwanda, Tanzania and Uganda).*							B.M. Seck; J.K. Litamoi	FVI
	1.D.3	*Laboratory support trainings to assist in equipment maintenance and calibration*							B.M. Seck; J.K. Litamoi	APHIS
	1.D.4	*Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories*							B.M. Seck; J.K. Litamoi	National lab
	1.D.5	*Assessment missions (Cameroon, DRC) for biosafety and biosecurity infrastructures, equipment and practices*								APHIS
	1.D.6	*Develop partnership with regional biosafety association*							B.M. Seck; J.K. Litamoi	AfBSA
	1.D.7	*Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease*							B.M. Seck; J.K. Litamoi	IAEA, IZSVe
	1.D.8	*Provision to the nine beneficiary countries with validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs laboratory diagnosis*							B.M. Seck; J.K. Litamoi	IAEA, IZSVe
	1.D.9	*Development of specific technical competence to face emergent disease situations in the region*							B.M. Seck; J.K. Litamoi	National lab
1.E	1.E	Provide laboratory equipment and supplies in a coordinated manner							B.M. Seck; J.K. Litamoi	National labs, WHO, PREDICT
		Output 2 Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened								
2.A	2.A	Communication tool development and resource building							B.M. Seck; J.K. Litamoi	OIE, WHO
	2.A.1	*Develop communication tool(s) for different audiences, stakeholders and partners (all 9 IDENTIFY-supported countries)*							B.M. Seck; J.K. Litamoi	OIE, WHO
	2.A.2	*Resource Building - Provide documents, manuals, books and database access to scientific literature (all 9 IDENTIFY-supported countries)*							B.M. Seck; J.K. Litamoi	OIE, WHO

	2.A.3	*Second phase of the study on the development of collaborations and/or partnerships between public veterinary laboratories and the animal industry*							B.M. Seck; J.K. Litamoi	National lab
	2.A.4	*Sample referral guidelines for transboundary animal diseases (TADs)*								
	2.A.5	*Production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases*								
2.B	2.B	Organize and conduct joint meetings and conferences to support networking and promote national laboratory policies							B.M. Seck; J.K. Litamoi	
2.C	2.C	Review and update of the Laboratory Networking Strategy (LNS) and future planning							B.M. Seck; J.K. Litamoi	
	2.C.1	*Tripartite regional coordination meetings*							B.M. Seck; J.K. Litamoi	OIE, WHO
2.D	2.D	Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories							B.M. Seck; J.K. Litamoi	OIE, WHO
2.E	2.E	Support and promote laboratory networks							B.M. Seck; J.K. Litamoi	
	2.E.1	*Support to routine regional and global networking meetings*							B.M. Seck; J.K. Litamoi	OIE, OFFLU, EDPLN, GFN, AU-IBAR
	2.E.2	*Linking laboratory and epidemiologic networks*							B.M. Seck; J.K. Litamoi	APHIS, CIRAD, FVI, AU-IBAR
	2.E.3	*Support for sharing of information and biological materials*							B.M. Seck; J.K. Litamoi	
2.F.	2.F.	Support and promote laboratory partnerships							B.M. Seck; J.K. Litamoi	
	2.F.1	*Identification of FAO Reference Centres in the regions and beyond prepared to offer expertise in diseases or technical areas relevant to each region*							B.M. Seck; J.K. Litamoi	OIE
	2.F.2	*Support and promote the establishment/development of regional service laboratories*							B.M. Seck; J.K. Litamoi	OIE

Main challenges encountered and response provided

- Several major issues were encountered in this reporting period, some of which should ultimately allow activities to progress more smoothly and some that remain new challenges to solve. Significant emphasis on country-level impacts and the subsequent review of the current approach has uncovered the need to re-evaluate present implementation strategies and develop new solutions, which are still in development. These efforts have been further complicated with lack of clarity in reporting / planning process at the country and regional levels where duplicative requests from regional and country USAID offices continue and our officers seek to comply.

  As EPT+ comes online, there will be new opportunities for building on current country level approaches that integrate the field and laboratory activities in priority countries. These opportunities can also include synergy and coordination with other EPT partners, which has been suboptimal, but is improving and expected to gain momentum in Year 3.

- The separation of the work plan process (announced at the June meeting in Rome) resulted in an unexpected drop in the frequency and quality of the communication between the IDENTIFY partners, especially at HQ level. Renewed efforts have improved the coordination, and will continue – particularly with regards to implementation of One Health activities at the country level where coordination is needed to identify opportunities, ensure linkages, and provide clear messages across sectors.

- Some activities in both regions were slowed or postponed from March to June following the request by USAID to conserve funds, and additional delays have been experienced from July to September due to the significant time devoted to the Year 3 work planning process and revisions. Where needed, activities have been brought forward to Year 3.

- The issue of veterinary laboratory sustainability is complex and is not yet being sufficiently addressed, in particular in Central Africa, where the animal industry is not developed. Significant support to national strategy development, identification of resources, and monitoring of laboratory progress is needed, accompanied with regulatory measures. FAO|IDENTIFY will only be able to partially address these issues.

Main progress made towards the achievement of project outcomes (since the start of the project activities)

- The support provided by IDENTIFY to date has contributed to greater understanding of the regional animal health priorities, assessment of laboratory capacities, and identification of regional and national gaps and resources.
- The direct support afforded to laboratories is substantial and has allowed expansion of activities to include quality assurance, biosafety, and maintenance and calibration of equipment, which contribute to laboratories' ability to conduct their work at internationally accredited standards (e.g. ISO 17025). Many national laboratories had never had the opportunity to consider these major issues. This support is not provided in an isolated and sequential manner but builds upon previous and current investments in laboratory networking and allow for a programmatic approach, proper approbation of planned activities by countries, and supports a regional approach to transboundary animal diseases (TADs).
- As many priority diseases are TADs, a regional approach (where agreed) allows for rapid disease detection/identification, and response measures can be coordinated regionally for more effective control. The networks in the West/Central, Eastern Africa and South-East Asia regions have set a good example with both the formal and informal exchange of information, collective effort, and responsibility to build laboratories in the regions. While laboratory capacities and national needs are heterogeneous within each region, the mapping tool developed by FAO has contributed to producing a regional perspective of laboratory capacities and gaps, identifying the required regional and individual support in those laboratories and offering a visualization tool to policy makers. Other partners such as APHIS-USDA, EU-FMD commission and CIRAD have demonstrated increasing interest in and support for these laboratory networks. This growing confidence lends credence to the regional approach, and FAO has a comparative advantage in the coordination of such supports and inputs.
- This project has enabled launching of innovative initiatives, such as the genetic module in the EMPRES-i database, the 4-way linking framework and the laboratory mapping tool. The genetic module represents an ideal example of a multidisciplinary success, linking virology, epidemiology and bioinformatics, and is receiving increasing interest from the scientific community and from policy makers.
- Building on the investments made with support under avian influenza, this project sustains previously established mechanisms such as collaborations and communication pathways between organizations, global –OFFLU- and regional networks, and benefits from momentum gained through "public good concepts" such as recognition of the importance of early detection and intervention, and impacts of pathogens with pandemic potential; these investments facilitate the interest and willingness for further development of technical laboratory capacities, especially molecular techniques, to other transboundary and priority diseases.

3 Annexes & Tables

Annex 1: Tables 1 – 4 for reporting period (1 April 2011 - 30 September 2011)

Table 1: FAO communication and coordination for IDENTIFY (including external communication with EPT Partners) (links with Activity 3.1)

Table 2: List of [non-IDENTIFY] conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards to which participants were supported (links with Activity 3.8)

Table 3: List of FAO/OIE/WHO-organized trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines (linked to Activity 3.9)

Table 4: List of joint meetings and conferences organized by FAO/OIE/WHO to support networking and promote national laboratory policies (linked to Activity 3.9 and 3.12)

Annex 2: USAID EPT/IDENTIFY Project Position on Provision of Laboratory Equipment and Supplies

Annex 3: Current status of the progress of the Veterinary Glossary presenting an overview for validated (new) diagnostic techniques in addition to OIE recommended methods.

Annex 4: Global Laboratory Networking Strategy - June 2011

Annex 5: List of Laboratories – SSEA and Congo Basin

Annex 6: Questionnaire adapted from the lab-mapping analysis tool

Annex 7: CSF-PRRS Training and Workshop Evaluation

Annex 8: Mapping Exercise –Congo Basin.

Annex 1: Tables 1 – 4 for reporting period (1 April 2011 - 30 September 2011)

Table 1: FAO communication and coordination for IDENTIFY (including external communication with EPT Partners) (links with Activity 3.1)

Event Title	Dates	Venue	Organizer(s)	Other Information
Global				
Tripartite face-to-face meetings	10-11 May; 15-16 June, 27-28 June 2011			Project management and planning
Regular tripartite teleconferences (TC) or videoconferences	since Oct 2011			Project management and planning; biannual report; laboratory networking strategy; Year 3 Work Plans; Global Survey
TC and Face-to-face meetings with IDENTIFY AOTR, USAID/W	19 Apr; 3 Aug; 22 Sept; 15-16 June, 28 June; 13 July 2011			Face to face meetings replacing monthly TCs, on the occasion of the EPT Quarterly Partners meeting and of the SE Asia EPT planning meeting
EPT Program Quarterly meetings	27-28 June 2011	Washington DC, USA	USAID	HQ team participated to the EPT quarterly meeting together with OIE and WHO, including the Lab working group discussion (Participants: USAID, PREDICT, RESPOND, CDC, DELIVER)
Congo Basin				
EPT planning meeting organized by USAID	27-29 July 2011	Kinshasa, DR Congo	USAID	Coordination and planning meeting between all EPT partners
Side meeting of IDENTIFY focal points after EPT meeting	29 July 2011	Kinshasa, DR Congo	FAO, OIE, WHO HQ and AFRO	The FAO IDENTIFY Regional coordinators attended on behalf of IDENTIFY to coordinate the EPT work plan and fine-tune details on activities
Regional tripartite TCs between regional coordinators	7 Apr; 2 May, 19 May; 12 July 2011		FAO, OIE, WHO	Project management and planning

Preparatory meeting between FAO and OIE	26 July 2011	Kinshasa, DR Congo	FAO, OIE	Review of ongoing activities and identification of possible Year 3 areas for collaboration in animal health sector
SE Asia				
Informal Consultation on a Draft Asia Pacific Laboratory Action Plan (2011 – 2015) for Emerging Infectious Diseases, +	19-20 May 2011	Manila, Philippines	WHO WPRO	IDENTIFY HQ and SE Asia coordinator participated in the Informal Consultation on a Draft Asia Pacific Laboratory Action Plan (2011 2015) for Emerging Infectious Diseases organized by WHO Western Pacific Regional Office (WPRO). Fourteen participants from WPRO countries attended the meeting along with representatives from ASEAN secretariat, USAID, FAO and OIE. IDENTIFY HQ coordinator(Mia Kim) presented the Tripartite (FAO-OIE-WHO) Laboratory Capacity Building and Networking while IDENTIFY SE Asia coordinator (Pawin Padungtod) presented FAORAP regional approach to animal health laboratory networking under IDENTIFY project of the Emerging Pandemic Threat (EPT) programme supported by USAID and the Regional Cooperative Programme on Highly Pathogenic and Emerging Diseases (HPED) supported by the European Commission (EC) . Subsequent discussion among the tripartite on collaborative laboratory networking activities in SE Asia was focusing on upcoming meeting schedule. In was agreed that the tripartite would pursue in-country collaborative activities including organization of the Zoonoses conference, training in laboratory management and biosafety.
EPT Viet Nam country work plan development workshop, +	20-21 June 2011	Hanoi, Viet Nam	USAID Viet Nam	A spreadsheet describing activities in Viet Nam implemented by all EPT partners was developed. Activities were grouped under five themes including; Livestock Disease Surveillance, Outbreak response, Laboratory Capacity Development, Risk Determination and Risk Reduction. Potential areas of collaboration across EPT components were identified. A summary of EPT contribution for Viet Nam was presented to USAID mission director at the end of the meeting
EPT Thailand country work plan development	23 June 2011	Bangkok,	USAID RDMA	A spreadsheet describing activities in Thailand implemented by all EPT partners was developed. Activities were grouped under five

workshop		Thailand	(Thailand)	themes including; Livestock Disease Surveillance, Outbreak response, Laboratory Capacity Development, Risk Determination and Risk Reduction. Potential areas of collaboration across EPT components were identified.
EPT LaoPDR country work plan development workshop	24 June 2011	Bangkok, Thailand	USAID RDMA (Thailand)	A spreadsheet describing activities in LaoPDR implemented by all EPT partners was developed. Activities were grouped under five themes including; Livestock Disease Surveillance, Outbreak response, Laboratory Capacity Development, Risk Determination and Risk Reduction. Potential areas of collaboration across EPT components were identified.
Tripartite IDENTIFY South and SE Asia Meeting, +	11 July 2011	Bangkok, Thailand	FAO-OIE-WHO	Participants including FAORAP, FAOHQ, OIE SRR SEA, WPRO, SEARO and WHO-IHR agreed upon regional and country work plan for 2012. The overall IDENTIFY regional and country work plan of each organization were presented and agreed upon. Gannt chart and presentation were prepared. The outcomes from this meeting were presented at the regional EPT meeting in Bangkok, 12-13 July 2011.
EPT Asia Regional Workshop, +	12-13 July 2011	Bangkok, Thailand	USAID	The objectives of the workshop were ; 1) Building a shared vision for EPT as a "program", 2)Share "current thoughts" about FY12 country and regional work plans and 3) Highlight the relevance of "non-EPT" platforms in the region
EPT Indonesia country work plan development workshop, +	15-16 July 2011	Jakarta, Indonesia	USAID Indonesia	IDENTIFY HQ liaison together with OIE IDENTIFY SE Asia coordinator participated in the Indonesia EPT planning meeting. EPT partners delivered prospective activities across the five themes: Livestock Disease Surveillance, Outbreak response, Laboratory Capacity Development, Risk Determination and Risk Reduction. A draft work plan was developed for IDENTIFY. Potential areas of collaboration across EPT components were identified.
Stakeholder'planning meeting	1 September, 2011	Bangkok, Thailand	FAO-OIE	Internal planning meeting

*** = side meetings with OIE , + = side meetings with OIE and WHO**

Table 2: List of [non-IDENTIFY] conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards to which participants were supported (links with Activity 3.8)

Event Title	Dates	Venue	Organizer(s)	Invited IDENTIFY Countries	Other Information
Global					
1st International Congress on Pathogens at the Human-Animal Interface (ICOPHAI): Impacts, Limitations and Needs in Developing countries.	15-17 September 2011	Addis Ababa, Ethiopia	ICOPHAI		No country invited but poster on the One Health approach presented by FAO
Congo					
Joint regional AU-IBAR/FAO-RAF Technical workshop on a regional strategy for African swine fever (ASF) control in Central Africa	21-23 June- 2011	N'Djamena, Chad	AU-IBAR/FAO-RAF	DRC, Eq. Guinea, CAR	Participation of the Directors of national veterinary lab of DR Congo, Equatorial Guinea and Central African Republic
One Health for Central and East Africa alliance (OHCEA)	4-6 May:	Brazzaville, Congo	USAID		IDENTIFY focal point Bamako participated. Meeting purpose was to Participate in One Health brainstorming meeting called by USAID at the WHO-AFRO office to

					enhance cooperation between public health and veterinary faculties and the interaction between Ministries of Agriculture and Health. 20 participants (USAID, RESPOND, OHCEA, WHO-AFRO, AU-IBAR and FAO)
EAC/EAPHLN Experts Meeting on viral haemorrhagic fevers and integrated diseases surveillance and response for EAC countries	11-15 July :	Entebbe, Uganda			ECTAD Nairobi focal point participated. The purpose of the workshop was to discuss the status of the regional plan on viral hemorrhagic fevers (VHFs) as the VHFs have been occurring frequently in the region in the past ten years. Uganda gave an account of their experiences with the recent outbreaks of VHFs (Ebola and Yellow fever) in the past one year. The workshop participants visited the recent Ebola outbreak areas in Central and northern Uganda (Kitgum and Lacon hospital in Gulu) and assessed the capacity of the country to manage such outbreaks in the future. Community and field simulation scenarios were developed and discussed. The positive gains by Uganda in the management of VHFs should be consolidated in the other countries and the region as a whole.
SE Asia					

Asia Pacific Biosafety Association Conference, *	5-6 May	Singapore	Asia Pacific Biosafety Association	FAO|IDENTIFY SE Asia Coordinator supported to deliver joint presentation on One Health approach to Biosafety, including EPT with OIE|IDENTIFY SRR Coordinator	A joint presentation entitled "One Health Approach to Biosafety",on One-Health approach to laboratory capacity building including description of the Emerging Pandemic Threat Programme and IDENTIFY was presented by FAORAP and OIE SRR SEA IDENTIFY coordinators
Avian Virology Diagnostic Training and Workshop	11-22 July 2011	Weybridge, UK	Veterinary Laboratory Agency	Philippines	Requested for supported by Philippines Animal Health Center, Bureau of Animal Industry. IDENTIFY supported participation of Dr Edna Felippe, Head of Avian Influenza Diagnostic unit. This training contribute to improve national laboratory staff capacity and competence in diagnostic of priority diseases in the region, which ultimately strengthen laboratory support for surveillance of priority and emerging diseases in the region.

*** = side meetings with OIE , + = side meetings with OIE and WHO**

Table 3: List of FAO/OIE/WHO-organized trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines (linked to Activity 3.9)

Event Title	Dates	Venue	Organizer(s)	Invited IDENTIFY Countries	Other Information
Global					
Training on virological and molecular techniques for the diagnosis of Avian Influenza and Newcastle Disease and Rabies	13–24 Jun 2011	Padova, Italy	IZSVe of Padova under a LoA with FAO	Rwanda, Tanzania	The training aimed at providing participants with the necessary information and skills related to molecular and virological laboratory procedures utilized for the diagnosis of Avian Influenza and Newcastle Disease and Rabies.
Training Course on Advanced Bioinformatics and Laboratory Data Management for Enhanced Quality Assurance and Quality Control  IAEA.Bioinformatic_course_2011.doc	11-22 Jul 2011	Vienna, Austria	FAO/IAEA	Cameroon, Uganda, Ethiopia, Kenya, Indonesia, Malaysia	Consisted of theoretical and practical sessions in the application of advanced bioinformatics tools for viral genome sequence analysis (databases, sequences retrieval, sequences comparison and phylogeny), animal genomic data handling (Animal genetic resources databases) and laboratory information management (LIMS, Vet-LIMS). Participant's knowledge was improved on practical application of bioinformatic tools for viral genome analysis and laboratory information management. 19 participants attended this course; 6 covered by IDENTIFY. Partners: IAEA TC Project:RER/5/015, SIB

Congo Basin					
Regional Training course on ''Major transboundary and zoonotic diseases : Early detection, surveillance and epidemiology''  IAEA.Uganda_Jun_2011_final.doc	Part 1: 20 June to 24 June - Transboundary Animal Diseases (PPR and CBPP); Part 2: 27 Jun-1 Jul, Zoonotic Diseases (rabies and RVF).	Entebbe, Uganda; National Animal Disease Diagnostics and Epidemiology Centre, Ministry of Agriculture, Animal Industry and Fisheries	FAO/IAEA	Cameroon, CAR, Congo, DR Congo, Equatorial Guinea, Gabon, Rwanda, Tanzania, Uganda.	One health concept training with one week dedicated to transboundary animal diseases (CCPP and PPR) and the second to zoonotic diseases (RVF and Rabies). 15 scientists from 11 differents countries (Kenya and Ethiopia also participated) attended this course. Partners: National Institute for Communicable Diseases, South Africa; Centre de coopération Internationale en Recherche Agronomique pour le Développement, France; National Animal Disease Diagnostics and Epidemiology Centre, Ministry of Agriculture, Animal Industry and Fisheries, Uganda.
Advanced Regional Training on Laboratory Quality Assurance and Biosafety/Biosecurity	4 - 8 Jul 2011	Dar Es Salam, Tanzania	FAO	Rwanda, Uganda, Tanzania	Other participating countries: Ethiopia, South Sudan, Sudan, Djibouti, Burundi, Kenya, Ethiopia, Eritrea and Somalia.
Field epidemiologists and laboratory technicians regional training workshop on necropsy, sample collection and shipment.  Necropsy.Sampling.Kinshasa 15.19Aug11.	15-19 August 2011	Kinshasa, DR Congo	FAO	Cameroon, Central African Republic, Democratic Republic of Congo, Congo, Gabon, Equatorial Guinea, (2 participants by country)	To train field and lab technicians in necropsy, sample collection and shipment. Other participation country: Sao Tome and Principe. Partners : Ecole Vétérinaire de Dakar (EISMV),Laboratoire Central Vétérinaire de Kinshasa (LCVK)
Regional Workshop on laboratory Quality	12-16 September	Libreville,	FAO	Cameroon, Central African Republic,	Follow up training for Quality system strengthening in IDENTIFY and RESOLAB

Assurance (QA) system: Management of laboratory equipment and basic metrology  AQ Libreville 12.16Sept2011.doc	2011	Gabon		Democratic Republic of Congo, Congo, Gabon, Equatorial Guinea	laboratories. Other participating countries: 10 Western Africa countries (Benin, Burkina Faso, Cap-Vert, Côte d'Ivoire, Guinea, Guinea Bissau, Mali, Niger, Senegal, Togo) supported by USDA/APHIS
Workshop on OIE Standards for Collection & Shipment of Biological Samples	9-11 August 2011	Nairobi, Kenya	OIE	All IDENTIFY countries (supported by OIE)	FAO IDENTIFY focal point for Eastern Africa attended and gave a presentation on FAO Reference Centres and described FAO's technical assistance programmes:, and projects to its member countries (e.g. TCPs, GCPs, UTFs, Pas, SPFS, LoAs, SPPs, and TeleFood projects).
SE Asia					
Training and workshop on Diagnosis and Characterization of CSF and PRRS Viruses  CSF-PRRS_Training_ and_Workshop_Final.	11-20 July2011	RAHO6 (Ho Chi Minh City, Viet Nam)	FAO, Viet Nam DAH and AAHL	Cambodia (NaVRI), China (CAHEC, Yunnan), Indonesia (DGLAHS), LaoPDR (NAHC),Malaysia (VRI), Philippines (PAHC), Thailand (NIAH) and Viet Nam (RAHO6)	This training aimed to harmonize the protocols for diagnostic and characterization of the two priority animal diseases in Southeast Asia. Seventeen laboratory staff attended this training. The training contents covered swine viral diseases diagnostic and characterization procedures including gross pathology, immunohistochemistry and molecular techniques. The post-training evaluation showed that the participants were satisfied with the training organization and gained satisfactory level of understanding and skills in diagnostic of CSF and PRRS
The Workshop on Diagnosis of Priority and Emerging Diseases	21 - 22 July 2011	Ho Chi Minh City, Viet Nam	FAO, Viet Nam DAH and AAHL	Cambodia (NaVRI), China (CAHEC, Yunnan), Indonesia (DGLAHS), LaoPDR	The objective of this workshop was to draft the strategic framework for capacity building for diagnosis and characterization of priority and emerging diseases in swine. A total of 43

in Swine				(NAHC),Malaysia (VRI), Philippines (PAHC), Thailand (NIAH) and Viet Nam (RAHO6)	participants including laboratory staff from 7 countries in ASEAN, China, experts in swine diseases from academic institution, vaccine production company, Viet Nam Department of Animal Health and the Emerging Pandemic Threat programme partners involving in conducting surveillance in Viet Nam participated in the workshop. Presentations were made to provide the participants with update on CSF and PRRS disease situation in the region, diagnostic, surveillance and control techniques for CSF, PRRS and other emerging diseases in wild and domestic animals. The outcome of the workshop included recommendation of capacity building activities under 5 key areas; biosafety, laboratory support for surveillance, legislation, networking and laboratory quality
Training on Quality Assurance and Standardization of Diagnostic Reagents	5-19 September 2011	Geelong, Australia	FAO-AAHL (LoA)	China, Cambodia, Indonesia, LaoPDR, Malaysia, Myanmar, Philippines,Thailand and Viet Nam	The objective of this training was to equip laboratories with necessary skill to develop their own proficiency testing programme. A total of 15 participants from IDENTIFY supported laboratories in Cambodia (NaVRI), China (CAHEC), Lao PDR (NAHC), Malaysia (VRI), Philipppines (PAHC), Thailand (VRI) and Viet Nam (DAH) participated in the 12-day training. The training program at the Australian Animal Health Laboratory (AAHL) reviewed the requirements under ISO17025 for quality assurance of laboratory tests and training in providing Proficiency Testing (PT) to ensure laboratories are producing accurate and correct results for tests carried out in the laboratory. It is foreseen that the developed

					capacity to provide proficiency testing will allow national animal health laboratories to develop their own external quality assurance programme for their national laboratory network.

Table 4: List of joint meetings and conferences organized by FAO/OIE/WHO to support networking and promote national laboratory policies (linked to Activity 3.9 and 3.12)

Event Title	Tentative Dates	Tentative Venue	Organizer(s)	Invited IDENTIFY Countries	Other Information
Global					
Congo Basin					
9 – 10 May 2011	Second EARLN Interim joint network meeting	Nairobi, Kenya	The Interim Secretariat was coordinated and hosted by FAO ECTAD EA in collaboration with AU-IBAR and OIE Sub Regional Representative in Eastern Africa	No IDENTIFY supported country invited	The FAO ECTAD EA IDENTIFY coordinator attended the meeting, facilitated and presented IDENTIFY. The partners involved included OIE, AU-IBAR, EAC, IGAD. The establishment of Interim Secretariat was endorsed by the CVOs meetings in order to better coordinate the two networks (epi and laboratory) in Eastern Africa. Livestock representative (Ethiopia), Wildlife representative (Tanzania) and VS (Kenya) also attended the meeting.
5-7 September 2011	2nd Joint Eastern Africa Epidemiology and Laboratory network meeting	Kigali, Rwanda	FAO ECTAD Nairobi	Uganda, DRC, Tanzania and Rwanda.	The participation of the RESOLAB coordinator (FAO) enabled the development of stronger linkages between RESOLAB and EARLN networks. Meeting also attended by AU-IBAR, OIE, CDC, EARLN-FMD and other Eastern African countries. Wildlife sector represented by

					participants from Kenya and Rwanda.
SE Asia					
Consultation for establishing a network of Regional Leading Diagnostic Laboratories, *	27-29 July 2011	Kathmandu, Nepal	FAO Sub Regional ECTAD, Nepal	FAO|IDENTIFY SE Asia Coordinator supported to deliver presentation on the SE Asia Regional approach to laboratory networking and EPT	The Consultative Workshop for Epidemiology and Laboratory Network in the SAARC Region was organized from 27 to 29 July 2011 involving the epidemiology and laboratory experts of animal health and wild life sectors of SAARC countries and various other organizations like WHO, OIE, EU and wild life personnel. The workshop was attended by 43 country participants from the entire eight SAARC member states. The workshop participants recommended how the epidemiology and laboratory networks should be set up and functioned in the SAARC region including mechanisms for networking among sub-national laboratories, linkage between national laboratory and epidemiology networks, sharing of diseases information among member states and communication models. Also highlighted during the meeting was the importance of communication framework for the region and the need to have one
Regional Laboratory Network Technical Advisory Group Meeting, *	4-5 August 2011	Bangkok, Thailand	FAO-OIE	16 representatives from ASEAN Regional Reference Laboratory for HPAI (VRI), Australian Animal Health Laboratory	Regional Framework for Laboratory Capacity Building and Networking in Asia was developed taking into account other regional strategies including IDENTIFY Regional Laboratory Networking Strategy, Asia Pacific Strategy for Emerging Diseases

				(AAHL), FAO, National Institute of Animal Health (NIAH) of Thailand, OIE, OFFLU, USDA(USAID.	(APSED), ASEAN HPAI Regional Strategy
Meeting to Initiate a Strategic Plan and Strategic Framework for Epidemiology Capacity Development in Asia	18-19 August 2011,	Bangkok, Thailand	FAO - RESPOND	FAO|IDENTIFY SE Asia Coordinator supported to deliver presentation on the SE Asia Regional approach to laboratory networking	Recommendations relevant to the current developments in animal health in Asia were developed for a Strategic Framework by national, regional and international participants to represent the core elements of a five-year Strategic Plan for building epidemiology capacity in Asia.
The 4th OIE Regional Meeting on Strengthening Animal Health Information Networking in Asia	14-16 September 2011	Chiangmai, Thailand	OIE Tokyo	FAO|IDENTIFY SE Asia Coordinator supported to share experiences and lessons learnt in HPAI control and present Regional Laboratory Network activities including the Emerging Pandemic Threat Programme and IDENTIFY.	The main objectives were:(1) To share updated information and experience in animal health information networking , (2) To review progress made by OIE Members in Asia in line with the previous meeting recommendations, (3) To discuss how to improve animal health information networking to strengthen animal disease control and prevention measures at national and regional level, (4) To discuss and review current H5N1 HPAI control measures in OIE Members in Asia in particular focusing on vaccination. The meeting was attended by participants from 21 countries/territories namely: Bangladesh, Brunei, Bhutan, Cambodia, PR

					China, Chinese Taipei, Hong Kong SAR, Indonesia, Japan, RO Korea, Laos, Malaysia, Maldives, Mongolia, Myanmar, Nepal, the Philippines, Singapore, Sri Lanka, Thailand and Vietnam, local observers (Thai-DLD) and FAO. The IDENTIFY SE Asia coordinator shared experience and lessons learnt in HPAI control and present Regional Laboratory Network activities including the Emerging Pandemic Threat Programme and IDENTIFY.
WHO South East Asia Regional Workshop on theEmerging and Dangerous Pathogens Laboratory Network, +	20-22 September 2011	Jakarta, Indonesia	WHO-SEARO	FAO|IDENTIFY SE Asia Coordinator supported to share experiences and lessons learnt in HPAI control and present Regional Laboratory Network activities including the Emerging Pandemic Threat Programme and IDENTIFY	WHO regional workshop aims to convene key national, regional and global public health and animal health diagnostic laboratory scientists and EDP experts, and other stakeholders for developing the way forward for a collaborative regional laboratory preparedness and response network coordinated with Global EDPLN to enhance the region's capacity for detecting, responding to and preventing outbreaks of EDPs in SE Asia.

*** = side meetings with OIE , + = side meetings with OIE and WHO**

Annex 2: USAID EPT/IDENTIFY Project Position on Provision of Laboratory Equipment and Supplies
August 30, 2011

The IDENTIFY project seeks to strengthen national laboratory capacity for rapid and accurate detection of known key pathogens and appropriate handling of material from cases of disease with no identified cause. FAO/OIE/WHO are jointly implementing the IDENTIFY project through their existing institutional frameworks, mechanisms and networks. These project efforts by IDENTIFY are often implemented alongside a variety of host governments', donors' and international organizations' laboratory capacity building efforts and investments, and coordinating and rationalizing IDENTIFY's efforts among these other efforts needs to be done in a transparent manner.

The IDENTIFY project aims to provide sustainable inputs into: 1) the development of guidance and policy for national laboratories; 2) promoting laboratory quality (e.g. biosafety/biosecurity, quality assurance, accurate diagnosis, and specimen collection, handling and shipping); 3) strengthening laboratory capacity in support of surveillance and response; and 4) enhanced laboratory networking.

Given the EPT program's focused mission and limited funds, the IDENTIFY project doesn't intend to routinely provide or pay for partner laboratories' recurring material costs. On a case-by-case basis, where the absence of particular pieces of laboratory equipment or reagents are seriously limiting the laboratory's ability to perform normative disease testing, or where specific laboratory investments may improve a laboratory's ability to serve as a national and/or regional resource for normative disease testing, and where there is reasonable expectation that the government involved will sustain the efforts of the laboratory(ies) in question, then in these instances IDENTIFY will consider financing these needs, and then only in full cooperation with the relevant national authorities and in consultation with other EPT Partners.

While all three organizations recognize the need to engage regional parties in order to ensure sustainability and continued collaboration within and between the animal and public health sectors, the three organizations operate under separate mandates and the approach to achieving their goals sometimes differs. For example, provision of laboratory equipment and consumables in support of points 2 and 3 above is considered by all three organizations based upon need and in line with the national authority, with the following distinctions:

- For FAO, a regional approach is followed where a programmatic strategy exists in order to provide consumables such as reference reagents to countries equally, and national inputs are coordinated where need is identified and in agreement with the Ministry of Agriculture.
- While the OIE may provide laboratory equipment and supplies on a limited basis within the context of the OIE Twinning Programme, the OIE is not planning wide-spread procurement of equipment or supplies under the IDENTIFY Project.
- For WHO, both a regional and national approach is followed under existing regional platforms such as the Asia Pacific Strategy for Emerging Diseases (APSED), the Asia Pacific Strategy for Strengthening Health Laboratory Services and the Integrated Disease Surveillance and Response (IDSR) Strategy. Unlike FAO and OIE, WHO allocates funds under IDENTIFY directly to some of its Country Offices. These funds may be used to procure equipment and laboratory supplies following the agreement of the Ministry of Health of those countries.

Practically, should a USAID Mission or EPT partner in a given country wish to inquire about current or planned support for laboratory equipment or supplies through the IDENTIFY project, if the IDENTIFY Project has local representatives from WHO and FAO in that country/region,

they may approach those people to convey their request or suggestion. For inquiries regarding public health laboratories, the WHO representative may be contacted. Inquiries pertaining to support for animal health laboratories should be addressed to the FAO representative. Alternatively, if local or regional representatives are not available, USAID Mission and EPT partners may convey have queries to IDENTIFY's headquarters' representatives, or to the USAID Washington AOTR. Requests or suggestions for provision of laboratory equipment can be best considered by the IDENTIFY Project if they are submitted early, when upcoming yearly work plans are being developed.

When the IDENTIFY Project has queries related to planned support for laboratory equipment or supplies coming from USAID Missions or EPT partners, these will be directed to the USAID/Washington AOTR, or the EPT Partner headquarters counterparts, who will attempt to collect and share any details on such provisions that would be of help to IDENTIFY, and its own laboratory strengthening efforts.

Should there be an extraordinary need, for example a disease outbreak that has exhausted local supplies, a country may request additional support from the IDENTIFY Project for their laboratory services. FAO, OIE and WHO, as IDENTIFY partners and also in keeping with their respective organizations' mandates, will attempt to meet such requests. The three organizations would coordinate their response with the other EPT partners under the leadership of the relevant national authorities as appropriate.

Annex 3: Current status of the progress of the Veterinary Glossary presenting an overview for validated (new) diagnostic techniques in addition to OIE recommended methods.

DISEASE		TABLE MATRIX	Review process
1	**African Swine Fever**	available	Reviewed by 3 reference labs, comments still awaited from expert review
2	**Foot and Mouth Disease**	available	Reviewed by 2 reference lab, needs review of 3rd ref.lab
3	**Influenza A Virus**	available	Reviewed by 3 reference labs (EU, USA)
4	**Newcastle Disease**	pending	pending
5	**Peste des petits ruminants**	pending	Pending (submitted to expert review)
6	**Rabies**	available	Reviewed by 2 reference labs
7	**Classical Swine Fever**	pending	Pending (submitted to expert review)
8	**Nipah/Hendra**	pending	Pending (submitted to expert review)
9	**Porcine Respiratory and Reproductive Syndrome**	pending	Pending (submitted to expert review)
10	**Poxviruses**	pending	Pending (submitted to expert review)
11	**Anthrax**	available/pending	First draft available (done by Reference lab), needs review of further Reference labs
12	**Salmonella**	pending	Pending (submitted to expert review)
13	**Brucellosis**	available	Developed by expert, sent to Reference lab for review
14	**Hemorrhagic Septicemia**	pending	pending
15	**Leptospirosis**	pending	Pending (submitted to expert review)
16	**Tuberculosis**	available	Comments from 2 reference labs still awaited
17	**Cysticercosis**	available	Needs review of reference labs
18	**Trypanosomosis**	pending	Pending (submitted to expert review)
(19)	**Additional: EIA**	available	Reviewed by one Reference lab

Tables: Lists of IDENTIFY targeted animal and public health diseases including zoonoses

IDENTIFY Targeted Diseases: Congo Basin and SE Asia Regions (alphabetical)

For planning purposes only for the IDENTIFY Project

Jointly implemented by FAO, OIE and WHO

From SE Asia Animal Health Stakeholders Meeting, Bangkok, 20-21/01/2011	From Congo Joint Stakeholders Meeting, Entebbe, 02-04/11/2010	
SE Asia Animal Diseases	**Congo Animal Diseases**	**Congo Human Diseases**
	African Horse Sickness*	
African Swine Fever	**African Swine Fever**	
Anthrax	***Anthrax***	***Anthrax***
		Bacterial Meningitis
Brucellosis	***Brucellosis***	***Brucellosis***
Classical Swine Fever		
	Contagious Bovine Pleuropneumonia	
	Contagious Caprine Pleuropneumonia *	
	Cysticercoses*	
		Dengue
Foot and Mouth Disease	**Foot and Mouth Disease**	
Hemorrhagic Septicemia		
		Hepatitis
Influenza viruses	***Influenza viruses***	***Influenza viruses***
Leptospirosis	***Leptospirosis ****	***Leptospirosis***
		Malaria
	Monkey pox	**Monkey pox**
Newcastle Disease	**Newcastle Disease***	
Nipah		
Peste des Petits Ruminants	**Peste des Petits Ruminants**	
		Plague
Porcine Respiratory and Reproductive		
Rabies	***Rabies***	***Rabies***
		Rickettsiosis
Salmonella	***Bacterial enteric diseases***	***Bacterial enteric diseases***
Spongioform encephalopathies	**Spongioform encephalopathies***	
	Toxoplasmosis *	**Toxoplasmosis ***
	Trypanosomosis	**Trypanosomosis**
Tuberculosis	***Tuberculosis***	***Tuberculosis***
Viral haemorrhagic fevers	***Viral haemorrhagic fevers***	***Viral haemorrhagic fevers***
		Viral respiratory diseases
		Yellow Fever

* listed as diseases of secondary concern for Congo Region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

OIE Listed Animal Diseases for IDENTIFY : SE Asia Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Related other diseases, not OIE Listed
1	**African Swine Fever**	African Swine Fever	1	
2	***Anthrax***	Anthrax	2	
3	***Brucellosis***	Brucellosis (*Brucella abortus*)	3	
		Brucellosis (*Brucella melitensis*)	4	
		Brucellosis (*Brucella suis*)	5	
		Ovine Epididymitis (*Brucella ovis*)	6	
4	Classical Swine Fever	Classical Swine Fever	7	
5	**Foot and Mouth Disease**	Foot and Mouth Disease	8	
6	Haemorrhagic Septicemia	Haemorrhagic Septicemia	9	
7	***Influenza viruses***	Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	10	Swine Influenza +
		Equine Influenza	11	
8	***Leptospirosis***	Leptospirosis	12	
9	**Newcastle Disease**	Newcastle Disease	13	
10	Nipah	Nipah Virus Encephalitis	14	
11	**Peste des Petits Ruminants**	Peste des Petits Ruminants	15	
12	Porcine Respiratory and Reproductive Syndrome	Porcine Respiratory and Reproductive Syndrome	16	
13	***Rabies***	Rabies	17	
14	***Salmonella***	Fowl Typhoid †	18	*Campylobacter jejuni* +
		Pullorum Disease †	19	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	20	Verocytotoxigenic *Escherichia coli* ‡ +
15	**Spongioform Encephalopathies**	Bovine Spongiform Encephalopathy	21	Chronic Wasting Disease ‡
		Scrapie	22	
16	***Tuberculosis***	Bovine Tuberculosis	23	Avian Tuberculosis ‡ +
17	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	24	Marburg
		Epizootic Haemorrhagic Disease †	25	Lassa Fever
		Rift Valley Fever	26	Hendravirus ‡ +
		-		Ebola
		-		Hantavirus

† No designated OIE Reference Laboratory

+ Guidance available in OIE Terrestrial Manual

Bold: diseases appearing in at least 2 tables

‡ OIE Reference Laboratory designated

Italic: diseases appearing in 3 tables

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

vers. 1 18.3.11

OIE Listed Animal Diseases for IDENTIFY : Congo Basin Region (alphabetical)

For planning purposes only for the IDENTIFY Project
Jointly implemented by FAO, OIE and WHO

No.	Final Stakeholders' List	OIE Listed Disease	No.	Potential other diseases, not OIE Listed
1	African Horse Sickness*	African Horse Sickness	1	
2	**African Swine Fever**	African Swine Fever	2	
3	***Anthrax***	Anthrax	3	
4	***Bacterial enteric diseases***	Fowl Typhoid †	4	*Campylobacter jejuni* +
		Pullorum Disease †	5	*Campylobacter coli* +
		Salmonellosis (*Salmonella abortusovis*)	6	Verocytotoxigenic *Escherichia coli* ‡ +
5	***Brucellosis***	Brucellosis (*Brucella abortus*)	7	
		Brucellosis (*Brucella melitensis*)	8	
		Brucellosis (*Brucella suis*)	9	
		Ovine Epididymitis (*Brucella ovis*)	10	
6	Contagious Bovine Pleuropneumonia	Contagious Bovine Pleuropneumonia	11	
7	Contagious Caprine Pleuropneumonia *	Contagious Caprine Pleuropneumonia	12	
8	Cysticercoses*	Porcine Cysticercosis †	13	Bovine Cysticercosis +
		Echinococcosis/Hydatidosis	14	
9	**Foot and Mouth Disease**	Foot and Mouth Disease	15	
10	***Influenza Viruses***	Equine Influenza	16	Swine influenza +
		Highly Pathogenic Avian Influenza in birds/Low Pathogenicity notifiable Avian Influenza in poultry ¤	17	
11	***Leptospirosis****	Leptospirosis	18	
12	Monkey Pox	-		
13	**Newcastle Disease***	Newcastle Disease	19	
14	**Peste des Petits Ruminants**	Peste des Petits Ruminants	20	
15	***Rabies***	Rabies	21	
16	**Spongioform Encephalopathies***	Bovine Spongiform Encephalopathy	22	Chronic Wasting Disease ‡
		Scrapie	23	
17	Toxoplasmosis*	-		+
18	Trypanosomosis	Dourine	24	
		Surra (*Trypanosoma evansi*)	25	
		Trypanosomosis (tsetse-transmitted)	26	
19	***Tuberculosis***	Bovine Tuberculosis	27	Avian Tuberculosis ‡ +
20	***Viral Haemorrhagic Fevers***	Crimean–Congo Haemorrhagic Fever	28	Marburg
		Epizootic Haemorrhagic Disease †	29	Lassa Fever
		Nipah Virus Encephalitis	30	Hendravirus ‡ +
		Rift Valley Fever	31	Ebola
		-		Hantavirus

* listed as diseases of secondary concern for Congo region

Bold: diseases appearing in at least 2 tables

Italic: diseases appearing in 3 tables

† No designated OIE Reference Laboratory

‡ OIE Reference Laboratory designated

¤ as defined in Chapter 10.4 of the OIE Terrestrial Animal Health Code

\+ Guidance available in OIE Terrestrial Manual

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Annex 4: Global Laboratory Networking Strategy - June 2011

Emerging Pandemic Threats Program

IDENTIFY Project

Background:

The IDENTIFY project is the component of the USAID-funded Emerging Pandemic Threats (EPT) programme that focuses on the capacity of laboratories in the public-health and animal-health sectors to contribute to the management of emerging zoonotic pathogens through rapid detection of known pathogens and appropriate handling of material from cases of unidentifiable diseases. The IDENTIFY project is specifically designed to strengthen diagnostic capacities in the geographic "hot spot" regions identified by USAID where new diseases have previously emerged. In addition to IDENTIFY, the EPT Program has projects called PREDICT, RESPOND, and PREVENT which cover the areas of wildlife monitoring, field epidemiology and training, behavior change communications, and national planning. IDENTIFY activities have necessary connections and interactions with the activities of several of the other components of the EPT programme.

IDENTIFY is jointly implemented by the U.N. Food and Agriculture Organization (FAO), the World Organization for Animal Health (OIE), and the U.N. World Health Organization (WHO). These organizations have long-established networks of laboratories which are an integral part of their public-health or animal-health function. Under the framework of the IDENTIFY project, the three organizations will enhance the diagnostic capacity and improve networking of these laboratories – both geographically and across the public-health and animal-health sectors. The networks will include international reference laboratories which will support national and regional laboratories, when necessary, by performing full characterization and investigation of "unknown" agents. The ultimate aim of the five-year project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to OIE on listed animal diseases and unusual epidemiological events or emerging diseases, and investigating events of potential international public health concern and reporting to WHO as required by the International Health Regulations (IHR).

Laboratory networks, often vertical or disease-oriented in nature, exist and will be the foundation to which the IDENTIFY project will look to meet its goals. Gaps, both disease-specific and with respect to geographical coverage, exist. The IDENTIFY project intends to determine gaps and propose, in collaboration with national partners, mechanisms for capacity building to fill these gaps. National and regional ownership of capacity building and networking activities is critical. Regional parties are already active in regional networking and need to be engaged as early as possible in the planning process in order to ensure sustainability and continued collaboration within and between the animal and public health sectors.

Steps to support enhanced laboratory capacity and networking

A. Identification of priority diseases and laboratories

1. Identification of targeted normative diseases and emerging pathogens *[Note: steps A.1 and A.2 conducted concurrently]*
    a. For each hot spot region, IDENTIFY project partners will compile a list of targeted diseases among humans and animals (including wildlife) in each region for which improved rapid and accurate diagnosis is needed within the framework of national and regional priorities. This list is based on official disease notifications, country disease data review, regional existing disease lists and priorities, literature review, input from national and regional stakeholders, previous regional occurrence, predictive modeling, and other relevant sources.
    b. Once the list of targeted diseases is finalized following the stakeholders awareness meetings, IDENTIFY project partners will catalog recommended and updated testing methods, identify associated pathogens or syndromes, and identify diseases which use similar testing technology, in order to better coordinate and increase impact of project activities, specifically laboratory-based training on testing methods.
2. Identification of laboratories and networks in or providing services to the hot spot regions and countries *[Note: continuous and evolving approach for Congo Basin and SE Asia regions]*
    a. Within each of the hot spot regions, laboratory capacity of national animal and public health laboratories will be assessed using standard criteria in agreement with national authorities.
        1. Results of assessments previously conducted by the three IDENTIFY partners will be summarized and will act as the basis for additional data collection. This step could include incorporating available assessments conducted by other EPT partners.
        2. Additional targeted data collection on capacity will be conducted if necessary (by self-assessment and questionnaire) by IDENTIFY partners to fill in gaps in knowledge on laboratory capacity.
    b. This information plus additional information from other EPT projects on geographic areas with the highest risk of pathogen emergence and spread, and in consultation with local stakeholders such as Ministries of Health and Agriculture, will also be considered in better targeting national laboratories for support, within the framework of national and regional priorities.
    c. National laboratories (public health and animal health) will be the lowest level of engagement within a country for IDENTIFY. Exceptions will be made in cases where another laboratory has been specified by national authorities, or where this relationship could be defined and/or strengthened, and could provide the capacity to fill in gaps at national or regional levels.
    d. Continuous support to regional networking will enable information and experience sharing between countries, development of trust, regional decisions on laboratory strengthening

e. International and regional reference laboratories serving the hot spot regions, most of which are affiliated with the IDENTIFY partners' existing networks, will be incorporated to provide technical support to national laboratories in accordance with existing Terms of References or mandates if appropriate. These laboratories, along with high-capability national laboratories, can also support quality control/assurance for other national laboratories in the hot spot regions.

f. The IDENTIFY partners will support development or adaptation of standard procedures and mechanisms, and reinforcement of linkages and communication to refer specimens (or strains) between the above-mentioned laboratories. This could include decision trees and algorithms for referring specimens associated with human or animal outbreaks for which all tests for known pathogens are negative to high capability laboratories and the referral of unusual or unidentified pathogens to reference laboratories.

B. Strengthening of national laboratories in regional networks

1. For the laboratories identified (step A.2.b above), more detailed assessments may be conducted in agreement with national authorities to fill information gaps and to identify specific needs (step A.1.a above) - which could include training, supplies for shipping, equipment, reagents, etc. - that are needed to ensure that overall laboratory functioning, accuracy, and timeliness is improved according to the national laboratory's priorities with the ultimate goal of improving disease reporting to the proper national authorities.
2. Within the framework of national priorities and following laboratory assessments (see B.1), partners will provide strengthening support, such as training, protocols and documentation, quality assurance systems, proficiency testing, networking opportunities, equipment, reagents, supplies, etc. for national laboratories.
    a. Development/adaptation and provision of protocols and/or in-service training for laboratory staff related to testing, sample handling, laboratory biosafety, reporting, quality control, sample shipping, etc. Follow-up training may be required at certain intervals.
    b. Procurement and delivery of equipment, reagents, supplies, etc. For sustainability reasons, it would be ideal for national authorities to include equipment and commodities costs in their budgets or to phase in coverage of the costs so the country is fully supporting recurrent costs for commodities and maintenance of equipment. At the stakeholders meetings, participants expressed their desire to develop a strategy for ensuring sustainability (see B.3 below).

    Note: These steps will be coordinated with national, regional, and global partners to ensure that this support is not already being provided by others.
3. In collaboration with national authorities, the development of a sustainability plan by country will be facilitated to assist the identification of sources of funding, including reinforced budget lines for national laboratories, to ensure optimal use of resources.

C. Establishing/strengthening linkages among existing regional and global laboratory networks across public and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities.

1. Within each hot spot region, the mapping exercise will include the inventory of activities of existing geographical/specialized laboratory networks that already contribute to meeting IDENTIFY's goals.
2. Discussions with the key global specialized networks (e.g. OFFLU, GFN, EDPLN) will occur for the strengthening of linkages and increased collaboration between national laboratories and regional networks.
3. IDENTIFY will advocate for new and enhanced linkages between laboratory networks and epidemiological networks both within the animal and public health sectors, and across sectors.
4. For the laboratories in each hot spot region, collaborations and communication pathways will be strengthened in order to share samples, data, reports, etc. with disease control authorities. Development of mutual trust and interest within regional networks will be promoted.

Annex 5: List of Laboratories – SSEA

Region	Country	Veterinary laboratories	Abbr	Laboratory Focal point	Disease specialty/focus *	National Laboratory	PREDICT Laboratory
Southeast Asia	Cambodia	National Veterinary Research Institute	CA-NaVRI	Dr. Sorn San	n/a	Yes	Yes
	China	Langzhou Veterinary Research Institute	CH-LVRI	Hong Yin	FMD		
		Yunnan Animal Science and Veterinary Institute	CH-YASVI	Dr Li Huachun	Bluetongue		
		China Animal Disease Control Centre, Beijing	CH-CADC	Xinyan Zhai	n/a	Yes	
		China Animal Health and Epidemiology Center, Qingdao	CH-CAHEC	Song Cuiping	Newcastle and Exotic Diseases	Yes	
	Indonesia *	Directorate of Livestock Animal Health Service	ID-DGLAHS	Dr. Pudjiatmoko	n/a		
	Lao PDR	National Animal Health Center	LA-NAHC	Dr Bounlom Douangngeun	n/a	Yes	Yes
	Malaysia	Veterinary Research Institute	ML-VRI	Dr Ramlan Mohamed	Avian Influenza and Newcastle disease	Yes	Yes
		Department of Wildlife and National Parks Peninsular Malaysia	ML-PER	Dato' Abd Rasid Bin Samsudin	Wildlife		Yes
	Myanmar *	Livestock Breeding and Veterinary Department	MY-LBVD	Dr Maung Maung Kyin	n/a	Yes	
	Philippines	Philippine Animal Health Center	PH-PAHC	Dr Magdalena Cruz	n/a	Yes	
	Thailand	National Institute of Animal Health	TH-NIAH	Dr Vimol Jirathanawat	n/a	Yes	
		FMD Regional Reference Laboratory Pakchong	TH-RRL	Dr Panithan Thongtha	FMD		

		Chulalongkorn University Center for Emerging and Re-Emerging Diseases in Animals	CUEIDAs	Dr Sannipa Suradhat	n/a		
	Viet Nam	Regional Animal Health Office Number 6	VN-RAHO6	Dr Ngo Than Long	CSF and PRRS		
		Hanoi Agriculture University	VN-HNAg	Nguyen Thi Lan	Wildlife		Yes
		National Center for Veterinary Diagnosis	VN-NCVD	Dr Nguyen Tung	n/a	Yes	
South Asia	**Bangladesh**	Central Disease Investigation Laboratory	BL-CDIL	Dr Bidhan Chandra Das	n/a	Yes	
		Bangladesh Livestock Research Institute	BL-BLRI	Dr Md. Giasuddin	PPR		
	Nepal	Central Veterinary Laboratory	NE-CVL	Dr. Damodar Sedai	n/a	Yes	
	India **	High Security Animal Disease Laboratory	IN-HSADL	Dr. S. C. Dubey	OIE Reference Laboratory for Avian Influenza	Yes	

* Participation of Indonesia to regional activities in Year 3 and of Myanmar (not supported by IDENTIFY) will be funded from other sources

List of Laboratories – CONGO BASIN

Country	Veterinary laboratories	Abbreviation	Disease specialty/focus*
Cameroon	Laboratoire National Vétérinaire, Garoua, LANAVET	LANAVET	PPR, ASF, NCD and CBPP, rabies, tuberculosis, brucellosis
Central African Republic	Laboratoire Central Vétérinaire de Bangui, LACEVET	LACEVET	ASF, PPR, NCD, Rabies, brucellosis
Democratic Republic of Congo	Laboratoire Vétérinaire de Kinshasa, LCVK	LCVK	MPX, RVF in ruminants, ASF, NCD ,AI , LSD, PPR, rabies, brucellosis, CBPP, ASF, FMD
Equatorial Guinea	Laboratoire National ECAA-KM 7	ECAA-KM 7	n/a
Gabon	Laboratoire National Vétérinaire de Libreville, LNVL	LNVL	n/a
Republic of Congo	Laboratoire de diagnostic vétérinaire de Brazzaville, LDVB	LDVB	CBPP, PPR
Rwanda	National Veterinary Laboratory, RARDA, Rubirizi, Kigali	RARDA	AI, CBPP, CCPP, RVF, PPR, brucelosis
South Sudan	Central Veterinary Laboratory, Juba	CVL (S.Sudan)	n/a
Tanzania	Central Veterinary Lab, CVL in Temeke, Dar es Salaam	CVL	AI, BTB, FMD, CBPP, RVF, PPR, NCD, ASF, rabies, brucellosis
Uganda	National Veterinary Lab, NVL in Entebbe	NVL	FMD, CBPP, Influenzas (H1N5, H1N1), ASF, PPR, rinderpest, rabies.

Regional service laboratories for Congo region

Botswana	Botswana National Veterinary Laboratory, BNVL, Gaborone	BNVL	AI, NCD, CBPP
Ethiopia	National Animal Health Diagnostic Investigation Centre, NAHDIC, Sebeta (Selected by EARLN as regional service lab for AI/ND, Eastern Africa)	NAHDIC	AI/ND/IBD, AHS, PPR, CBPP, CCPP, RVF
Nigeria	National Veterinary Research Institute, NVRI, Vom (elected by RESOLAB as one of the two regional laboratories)	NVRI	CBPP, PPR, ASF, FMD, NCD, Coccidiosis, HPAI, Rabies, Anthrax, Salmonellosis, Brucellosis
Senegal	Laboratoire National de l'Elevage et de Recherches Vétérinaire, LNEVR, Dakar, (elected by RESOLAB as one of the two regional laboratories)	LNERV	Rinderpest, RVF, PPR, ASF, NCD, FMD, Tuberculosis, Rabies, Anthrax, salmonelosis, Peste equine, LSD, AHS, HPAI

Annex 6: Questionnaire adapted from the lab-mapping analysis tool

Laboratory: **Date:**

Contact: **Email:**

Lab Address:

Address 2:

Telephone: **Fax:**

Instructions: select only **one** answer per row and record score in grey shaded space below. Scores will then be transferred to excel sheet

	3	2	1	0
LOCATION	Isolated compound outside of residential area	Isolated compound in low populated area	Single building in low populated area	Building within residential area
	Proper containment + guard (24 hr) + Restricted access to building with Identity card (employees) only	Proper containment + guard (24 h)	Insufficient containment / low biosecurity level / guard present	Easy access to laboratory compound by visitor / stranger / containment insufficient / no guard
	Access to highway, airport, harbour ***and / or*** station within 30 minutes	Access to highway, airport, harbour ***or*** station within 60 minutes	Access sometimes difficult	Limitations in access to transport means (traffic jams, bad road, airport far)

	3	2	1	0
LAB BUDGET	Lab is financially autonomous, funds for lab from public source and/or self-generated	Lab is almost financially autonomous, funds for lab from public or self-generated AND development programmes	Lab has insufficient own budget, activities dependant on development partners	Lab has no own budget; all activities exclusively rely on external funding source
	Lab budget allows ample opportunity for research	Lab budget allows a little research	Lab finances are insufficient for proper research	No research activity due to insufficient lab budget
	Lab budget sufficient for independent upgrading of larger lab infrastructure	Lab budget would allow a little independent upgrading of infrastructure	Upgrading by use of lab budget only for small and cheap infrastructural changes	Upgrading only with external funding

	3	2	1	0
BAS	Constant stable electricity supply and automatic switch-on generator	Stable electricity supply and generator (manually operated)	Frequent electrical instability/voltage irregularity, manually operated generator	Electricity supply less than 10 hours per day, generator does not run permanently or not existent

ICSUPPLY	Constant supply of good-quality water (pipe)	Constant supply of water through pipe or tank; back-up tank available	Supply of water through tank, sometimes insufficient or quality low	Irregular water supply
	Unlimited access to purified water; own production of deionised and distilled water	Access to deionised and distilled water (external source)	Limited access to deionised and/or distilled water (external/internal source)	Difficult access to deionised and/or distilled water
	3	2	1	0
ORG.	Organigram and organization system in place + written description of responsibilities	Organigram and organization system in place; staff mostly know their roles	Organization system in place, but frequent changes, staff not always aware of their roles	Frequent shifting of personnel, no consequent organization system
	3	2	1	0
LINKAGE LABS	Close collaboration with and constant support of satellite labs* (hereafter: satlab)	Close contact with satellite labs, but support limited due to insufficient lab budget	Contact with satellite labs, but collaboration difficult	Collaboration with satellite labs insufficient
	Support of satlabs by training on regular basis	Support of satlabs by training on irregular basis	Support of satlabs by rare training	No transmission of training to satlabs
	Support of satlabs by provision of material/reagents/kits on regular basis	Support of satlabs by irregular provision of material/reagents/kits	Rare provision of material/reagents/kits	No possibility for provision of material/reagents/kits
	3	2	1	0
COMMUNICATI	Constant telephone/fax connectivity with good quality	Good telephone/fax connectivity, sometimes interrupted	Connectivity and quality of phone/fax sometimes poor	Bad connectivity of phone/fax due to problems with line or electricity
	Good and speedy internet connection, all staff has access in all areas (labs, office…)	Good internet connection in offices; not all staff member have access	Internet connection limited, but in general fairly well	Internet is slow and interrupted; only selected staff member have access
	Staff has free access to scientific publications (library, online journals)	Free access to library, limited access to online-journals	Library might be existent, but not up-to-date, limited access to online-j.	No access to library, and only to few online journals (non-restricted)
	Institute has website and	Institute has website and irregularly publishes	Inhouse and external informations are published	No website, no regular

O N	produces regular bulletin	information	on request	information sharing
	3	2	1	0
I N F	All lab departments are clearly separated and well contained by use of desinfections, change of lab coats; identity badges or other means	Lab departments are separated but can be accessed by lab staff from other department	Separation in place but not strictly followed	No clear separation
R A	Facilities (labs) of all departments well-maintained and well looked after by lab staff	Facilities of most of departments well-maintained and well looked after by lab staff	Only some labs are well-maintained and well looked after	Most labs of the departments are in poor status.
S T	BSL-3/4 Virology lab (BSC-III)	BSL-2/3 Virology Lab (2xBSC-II)	BSL-1/2 Virology lab (1xBSC-II)	No biosafe Virology lab (BSC-II not functioning or not existent)
R U	BSL-3/4 Postmortem room + BSC-III	BSL-2/3 PM-room + BSC-II	BSL-1/2 PM-room (BSC-II)	No biosafe PM-room, no BSC
C T	BSL-3/4 Bacteriology lab + BSC-II	BSL-2/3 Bacteriology lab + BSC-II	BSL-1/2 Bacteriology lab + 1xBSC-II	No biosafe Bacteriology lab (BSC-II not functioning or not existent)
U R E	BSL-3 Animal facility in use for experiments and bioproducts (diagnosis)	Animal facility in use production of diagnostic reagents (SPF-eggs, sera etc.)	Animal facilities available but not in use	Animal facilities not available
	PCR set-up (extraction, MM, template, machine) separated including change of lab clothes (coats and shoes)	PCR set-up (extraction, MM, template, machine) separated, but no change of lab clothes	Different rooms available, but not in consequent use for PCR set-up separation	No separation of PCR set-up
	All labs are closed rooms and harbour Air Conditioner in all departments	Labs in most of departments are closed rooms and harbour Air Conditioner	Only labs in specific departments (e.g. AI-Lab) have closed rooms and harbour Air Conditioner	Lab doors or windows do not properly close, hardly any AC in rooms
	3	2	1	0
E Q	Virology/Serology department sufficiently equipped to carry out safe diagnosis of *various viral* diseases including	Virology/Serology department sufficiently equipped to carry out safe diagnosis of *only selected* disease (e.g. HPAI)	Virology/Serology department lacks *modern* equipment for diagnosis of viral diseases	Virology/Serology department lacks *basic* equipment for diagnosis of viral diseases

	electronic microscopy			
U				
I	Molecular section sufficiently equipped to carry out diagnosis of various diseases	Molecular section sufficiently equipped to carry out diagnosis of HPAI (including realtime PCR cycler and sequencer)	Molecular section lacks modern equipment and might harbour old PCR cyclers and gel-electrophoresis equipment	Molecular section lacks even basic equipment
P				
M	Pathology department sufficiently equipped to safely carry out necropsies and histo-pathological techniques	Pathology department sufficiently equipped to carry out necropsies and limited pathological techniques	Pathology department lacks *modern* equipment for Pathological techniques	Pathology department lacks *basic* equipment for diagnosis of viral diseases
E				
N	Bacteriology department sufficiently equipped to carry out safe diagnosis of a *broad range* of bacterial diseases	Bacteriology department sufficiently equipped to carry out safe diagnosis of at *least the most important* bacterial diseases	Bacteriology department *lacks modern* equipment for diagnosis of important bacterial diseases	Bacterial department *lacks basic* equipment for diagnosis of bacterial diseases
T				
	Parasitology department sufficiently equipped to carry out safe diagnosis of a *broad range* of parasitological diseases	Parasitology department sufficiently equipped to carry out safe diagnosis of at least the *most important parasitological* diseases	Parasitology department *lacks modern* equipment for diagnosis of important parasitological diseases	Parasitology department *lacks basic* equipment for diagnosis of parasitological diseases
	A mobile BSL-3 lab (automobile) is ready for use in emergency situations	A mobile BSL-3 lab (automobile) is in place, but has not been maintained	A mobile BSL-3 lab (automobile) is under procurement / under process	Never heard of mobile BSL-3 lab
	3	**2**	**1**	**0**
R	A *broad range* of reagents can be independently procured for diagnostic use	A *limited range* of reagents can be independently procured for diagnostic use	Only *few reagents* can be independently procured for diagnostic use	All reagents for diagnostic use must be procured by *external* organization
E				
A	Reagents/material for diagnostic use can be self-produced in good quality (according to standards) and sufficient amount	*Few* reagents/material for diagnostic use can be self-produced, efforts taken to produce in good quality according to standards	Few reagents/material for diagnostic use can be produced, *quality questionable*	*No own production* or quality of produced reagents/*material is doubtful*
G				
E	Separate storage and documentation of different material (reagents, sera, samples…) according to standards of QA / QMS	Separate storage of different material (reagents, sera, samples…), but not documented	No consequent separation of storage of different material	No separation, storage doubtful because of limitations in functionality of freezer / fridges, insufficient documentation
N				
T	Virology/Serology department harbours sufficient reagents for diagnosis of a broad range	Virology/Serology department harbours sufficient reagents for diagnosis of the most important viral diseases	Virology/Serology department harbours limited reagents for diagnosis viral diseases	Virology/Serology department harbours hardly any reagents, or reagents are expired, or reagents have not been

S	of viral diseases	(e.g. AI, ND, rabies…)		properly stored
U				
P	Molecular section harbours sufficient reagents for molecular diagnosis	Molecular section harbours reagents for a limited range of molecular diagnosis	Molecular section harbours limited reagents molecular diagnosis	Molecular diagnosis cannot be carried out due to lack of valid reagents
P				
L	Bacteriology department harbours sufficient reagents for diagnosis of a *broad range* of bacterial diseases	Bacteriology department harbours sufficient reagents for diagnosis of the *most important bacterial diseases* (e.g. Anthrax, Salmonellosis, Tuberculosis, Pasteurella…)	Bacteriology department harbours *limited* reagents for diagnosis bacterial diseases	Bacteriology department harbours *hardly any* reagents, or reagents are *expired*, or reagents have *not been properly stored*
Y				
	Pathology department harbours sufficient reagents for *profound* patho-histological investigations	Pathology department harbours sufficient reagents for necropsies / gross-pathology	Pathology department harbours *limited* reagents for pathology	Pathology department harbours *hardly any* reagents, or reagents are *expired*, or reagents have *not been properly stored*
	Parasitology department harbours sufficient reagents for diagnosis of a *broad range* of parasitological diseases	Parasitology department harbours sufficient reagents for diagnosis of the *most important* parasitological diseases	Parasitology department harbours *limited* reagents for diagnosis parasitological diseases	Parasitology department harbours *hardly any* reagents, or reagents are *expired*, or reagents have *not been properly stored*
	3	**2**	**1**	**0**
S	Sufficient number of *skilled* staff in each department	Sufficient number of staff, but *not all trained* in each department or *not always available*	Number of staff *not sufficient/not available* in most of the departments	*Serious lack of skilled* personnel in most of the departments
T				
A				
F				
F	*High expertise* of staff in virology/serology department	*Well-trained but not very experienced* staff in virology/serology department	Trained staff in virology/serology department, but *lack motivation*	Staff in virology/serology department *not trained* or *not experienced* or *not motivated* or all
S				
K				
I	*High expertise* of staff in molecular section	*Well-trained* but *not very experienced* staff in molecular section	Trained staff in molecular section, but *lack motivation*	Staff in molecular section *not trained* or *not experienced* or *not motivated* or all
L				
L				
S				
&	*High expertise* of staff in bacteriology department	*Well-trained but not very experienced* staff in bacteriology department	Trained staff in bacteriology department, but lack motivation	Staff in bacteriology department not trained or not experienced or not motivated or all
A				
V	High expertise of staff in parasitology department	Well-trained but not very experienced staff in parasitology department	Trained staff in parasitology department, but lack motivation	Staff in parasitology department not trained or not experienced or not
A				

I				motivated or all
L				
A	Lab staff is actively involved in lab work for > 35 hours/week	Lab staff is actively involved in lab work for > 25 hours/week	Lab staff is present for > 25 hours/week, but not always active	Lab staff might be present, but mostly not active
B				
I				
L	Emergency service is in place for 24 hours	Weekend shifts are in place	Irregular emergency service/weekend shifts	No emergency service
I				
T				
Y	Maintenance staff (plumbing, electricity, mechanics etc.) always available	Maintenance staff during working hours available	Maintenance staff available with delay in arrival	Very difficult to get maintenance staff
	3	**2**	**1**	**0**
S	Pathology department receives >5 carcasses daily for post-mortem	Pathology department receives 5 carcasses daily for post-mortem	Pathology department receives <5 carcasses daily for post-mortem	Pathology department receives carcasses only in emergency situations
A				
M				
P	Lab daily receives >10 biological samples for routine diagnosis	Lab daily receives 5-10 biological samples for routine diagnosis	Lab daily receives <5 biological samples for routine diagnosis	Lab daily receives biological samples only in emergency situations
L				
E				
	>20 samples are investigated in PCR weekly	10-20 samples are investigated in PCR weekly	<10 samples are investigated in PCR weekly	No PCR applicable, or only in rare circumstances with doubtful results
A				
C				
C	Lab is regularly involved in active surveillance of >3 animal diseases	Lab is regularly involved in active surveillance of 2-3 animal diseases	Lab is actively involved in surveillance of <2 animal diseases	Lab is very rarely involved in active surveillance
E				
S				
S	Sample processing is immediately carried out by skilled and experienced lab staff	Sample processing is carried out sometimes with delay by skilled and experienced lab staff	Sample processing is carried out mostly with delay by lab staff	Sample processing is carried out mostly with delay; sometimes because lack of staff no processing
I				
O				
N	Back-reporting to the shipper/sender/owner of samples is immediately carried out after receiving results	Back-reporting to the shipper/sender/owner of samples is carried out with delay but within one week	Back-reporting to the shipper/sender/owner of samples often takes >1 week	Sometimes / often no back reporting of results
	3	**2**	**1**	**0**
A	Necropsies conducted by high-skilled pathologists	Necropsies conducted by trained but unexperienced pathologists	Necropsies conducted by laboratory person	No expertise in pathology / no technology / pathologist available
V				
A				
I	Histopathological investigation well applied			No means for histopathological technique

LABLE TECHNOLOGY	Electronic microscopy functional	Electronic microscope functional but no operator	Electronic microscope non functional	No electronic microscope
	Well-experienced and biosafe cell culturing with >5 different cell types	Cell-culturing possible but with limited cell types	Cell-culturing possible with limited cell types, but no expertise	No cell-culture
	Biosafe Culturing with Embryonated chicken eggs (ECE)	Culturing with Embryonated chicken eggs (ECE) under limited BSL	Limited use of ECE due to various reasons	No use of ECE
	Regular use of serological assays like ELISA, HI, Immuno-histochemistry, AGID for diagnosis of broad range of animal diseases	Use of some serological assays for specific diseases	Only use of very basic serological assays like HI, AGID for specific diseases	No use of serological assays like ELISA, HI, Immuno-histochemistry, AGID
	PCR technology (including realtime) used for >5 genome detection	PCR technology used for 1-5 genome detection	Basic PCR technology applied only for 1 genome detection	No PCR technology applied
	Sequencing technology applied and regularly used	Sequencing rarely used	Sequencing technology available but not in use	No sequencing technology available
	Animal experiments as diagnostic technology applied (ICPI, IVPI, mouse inoculation)	Animal experiments as diagnostic technology applied under limited conditions	Animal experiments may be used but lacks of appropriate expertise/other conditions	No animal experiments in use
	3	**2**	**1**	**0**
TRAINING	Staff of each department receives annual training for improvement of lab diagnosis	Not all staff, not all department	rarely	No regular training
	Staff of each department receives weekly inhouse training	Not all staff, not all department	rarely	No weekly inhouse training
	Key staff receives regular training in quality assurance (QA)/control (QC)	Not all staff, not all department	rarely	No training in QA/QC
	Key staff receives regular training in equipment maintenance and calibration	Not all staff, not all department	rarely	No training in equipment maintenance and calibration

G	Heads trained in lab management			No training in lab management
	Cleaning staff trained in biosafety/biosecurity	Not trained but instructed by head of lab	Neither trained, nor instructed, but aware	Cleaning staff not trained at all
	3	**2**	**1**	**0**
QUALITY ASSURANCE	ISO 17025 installed for some diseases or particular departments + external control program + audits	ISO 17025 principles applied and regularly checked by lab staff	In process of adapting ISO 17025 principles	No ISO 17025 principles applied
	Annual participation in Proficiency Testing for >1 disease	Annual participation in PT for 1 disease	Irregular participation for 1 disease	No PT participation until now
	SOPs for all methodology prepared and in use	SOPs only for selected methodology of most important diseases prepared and in use	Preparation of SOPs under process	Hardly any SOP
	Proper validation for inhouse methods / Checking kits before use			No experience in validation or evaluation techniques
	Quality officer/manager assigned + quality manual applied	Quality manual applied	Quality officer / manager assignment and quality manual under process	No Quality officer/manager and no quality manual
	Use of internal test quality control (QC) according to international standards	QC often, but not always applied	QC rarely applied	No experience in QC
	Identification and tracking of each sample entering the lab by use of LIMS or barcoding	Identification and tracking of each sample entering the lab by use of precise Log-Book + Excel file	Identification and tracking of samples only of some (important) diseases	Irregular identification and tracking of samples applied
	OIE guidelines are followed, and OIE Terrestrial Manual is in regular use	OIE Manual in place	OIE Manual rarely used	No notice of OIE Manual
	3	**2**	**1**	**0**
BIOSA	Biorisk officer is assigned and SOPs for personnel biosafety/biosecurity available	Key-Staff is well-trained in biosafety/biosecurity	Some staff is aware of biosafety/biosecurity principles	Only vague knowledge of biosafety/biosecurity principles
	PPE is used when required, consequent change of lab	PPE is available and under rare occasions used, change	PPE is available, but not used, inconsequent use of	PPE is not (always) available, inconsequent use

F	clothes including shoes	of lab coat but not shoes	lab clothes	of lab clothes
E				
T Y &	Lab staff has to follow an obligatory quarantine period of 3-7 days before entering any animal holding, is not involved in taking samples during active surveillance	Lab staff generally follows a quarantine period of 3 days before entering any animal holding, is not involved in taking samples during active surveillance	Lab staff is actively involved in taking samples from animals with a quarantine period of at least 3 days	Lab staff is actively involved in taking samples from animals without quarantine period
B				
I O S E	Proper waste management by compulsive use of incinerator, autoclave, treatment of chemical waste, sharp disposal	Mostly use of incinerator and autoclave…	Irregular use of incinerator, autoclave…	Improper waste management, no incinerator, no autoclaving of infectious material…
C				
U R I T Y	Controlled and restricted access only for key staff to BS-Labs and freezer rooms by use of security system (ID-badges, camera)	Controlled and restricted access only for key staff to BS-Labs and freezer rooms by use of locks		Easy access to labs and freezers / fridges during working hours
	3	**2**	**1**	**0**
S T A	Health check of all lab staff on regular basis (at least annually)	Irregular health check of lab staff	Health check of lab staff only on request / accident	No health check, in case of accident staff has to seek doctor on own expenses
F F H	Annual vaccination of some staff working with zoonotic agents following WHO recommendations (rabies, H1N1…)	Vaccination on request	Post-exposure vaccination in case of accident	No vaccination
E				
A L T H	Eye wash and shower available in each department	Eye wash and shower available in some labs	Eye wash and shower available in some labs but not regular checked	Not available or not functional
C O L L	Lab has regular contacts / collaborations with >3 labs/institutions within the country	Lab has regular contacts / collaborations with 1-3 labs/institutions within the country	Lab has regular contacts / collaborations with 1 labs/institutions within the country	Lab has no regular contacts / collaborations labs/institutions within the country
A B O R	Lab takes actively part in regional lab-networking, considers its role as key regional lab	Lab is involved in regional lab-networking	Lab is attends meetings for regional lab-networking, but is not active in regional networking	Lab is not involved in regional lab-networking
A	Lab participates in >3 international projects for TAD/zoonotic diseases of	Lab participates in 1-3 international projects for TAD/zoonotic diseases of	Lab participates in 1 international projects for TAD/zoonotic diseases of	Lab does not participate in international projects

T	major importance	major importance	major importance	
I				
O N	Lab communicates regularly with an OIE reference laboratory	Lab has some contacts to OIE reference lab	Lab has irregular contact with OIE ref lab	Lab has no contact to OIE ref lab
	Lab participates in >2 twinning projects (OIE, EU)	Lab participates in 1-2 twinning projects	Lab considers to participate in twinning	No twinning considerations
	3	**2**	**1**	**0**
D A T A	Lab regularly uses (open-access) disease-related webpages (OIE, FAO, WHO, OFFLU, Promed…)	Lab sometimes uses (open-access) disease-related webpages	Lab rarely uses (open-access) disease-related webpages	Lab does not use (open-access) disease-related webpages
B A S E S	Databases (Gene-bank, ARAHIS, EMPRES, WAHID..) are regularly used	Databases (Gene-bank, ARAHIS, EMPRES, WAHID..) are sometimes used	Databases (Gene-bank, ARAHIS, EMPRES, WAHID..) are rarely used	Databases are not used
	Regular Information sharing by use of web-based platforms	Irregular Information sharing by use of web-based platforms	Information sharing only on request	No information sharing
	Lab / Epi department routinely uses platforms (TAD-Info, GIS, others)	Lab / Epi department rarely uses platforms (TAD-Info, GIS, others)	Lab / Epi department has platforms installed, but no expertise in usage	No use of such platforms

* Satellite Labs: Labs attached to National labs, e.g. Provincial labs that have to submit samples to National lab

Annex 7: CSF-PRRS Training and Workshop Evaluation

Organization (mean score)

		Training (n=14)	Workshop (n=19)
Overall assessment of the event	Content	3.9	3.7
	Structure / Format	3.7	3.5
	Organisation	3.6	3.6
How would you rate the impact this event had or will have on:	Your technical knowledge on the subject	3.5	3.2
	Your professional activities	3.4	3.2
	Strengthen regional networks	3.6	3.6
	Improving the work of your department/unit	3.4	3.3
Logistics:	Invitation	3.6	3.9
	Flight arrangement	3.9	3.9
	Land transportation	3.5	3.5
	Accommodation	3.3	3.7
	Registration	3.6	3.8
	Venue / Room Facility	3.3	3.7
	Food and drink	3.9	3.9
	Dinner	3.1	3.8
	Supporting document	3.7	3.5

Training Programme (mean score)

	content	presentation	practice	useful	fulfill
Laboratory Biosafety	4	4	4	4	4
Working with cell culture	4	4	4	4	4
Preparation and inoculation of tissue samples	4	4	4	4	4
Serological identification of CSF and PRRS antibody	4	4	4	4	4
Identification of CSF and PRRS viruses in tissue sample using real-time PCR	4	4	4	4	4
Swine viral diseases gross pathology	3	3	3	4	3
Identification of CSF and PRRS virus in cell culture	4	4	4	4	3
Optimization of PCR assay	4	4	4	4	4
ELISA test for CSF and PRRS	3	3	3	3	3

Quality assurance	4	3	3	4	4
Proficiency testing	3	3	3	4	3
Overall training programme	4	4	4	4	4

Other comments (Training)

Strength

- Good cooperation of laboratory personnel in RAHO6
- Best capacity of trainers
- Full support of donor and host country to prepare the facilities needed
- Organization, practice, knowledge, taking care
- Should start on time to avoid finish late
- More hands-on work were conducted by participants
- First two days were a bit dis-organized – laboratory work start late
- Enhance relationship among countries

Weakness

- Training document
- PM room need more light and air condition
- Few inverted microscope available
- Only 2 BSC for participants to practice, should have 4

Suggestion

- Should rotate host country to see facilities of others
- Can split into two small groups (PCR and VI) then switch after one week so there are enough equipment for each group

.

Annex 8: Mapping Exercise –Congo Basin.

IDENTIFY Project: CONGO BASSIN NATIONAL VETERINARY DIAGNOSTIC LABORATORIES MAPPING
Background

One of the specific objective of the IDENTIFY project is to strengthen detection and reporting of common human and animal pathogens using existing laboratory networks that include regional- and country-level laboratories. These laboratories will be linked with regional- or global-level reference laboratories which can provide diagnosis confirmation services as well as additional advanced testing, including pathogen characterization, as needed.
In order to fulfil the objectives of the IDENTIFY project, laboratories will be prioritized for capacity building and other support (e.g., supply of equipment, reagents, etc.) so as to achieve adequate coverage within the hot spot region across all tiers. Additional project activities will focus on strengthening the connectivity of these laboratories with each other across tiers, sectors and disease programs.

Sub-activities

- Review of existing data on laboratory capacity and networks from existing laboratory assessments available; Analysis of National Laboratories annual reports and laboratory capacity in the region compiled, Data input into laboratory capacity matrix;
- Laboratory visits and/or follow-up assessments planned and conducted; Additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity; Data input into laboratory capacity matrix; Laboratories placed into tier corresponding to actual capacity
- Identification of laboratories to target for strengthening support of capabilities/capacities to diagnose normative and emerging/unknown pathogens significant to the region so as to achieve adequate coverage within the region

Achievements
This mapping exercise was carried out within the framework of the USAID funded IDENTIFY project on its beneficiary laboratories in Congo Basin region:

- *Laboratoire National Vétérinaire - LANAVET (Cameroon)*
- *Laboratoire Vétérinaire de Bangui – LACEVET (Central African Republic)*
- *Laboratoire Vétérinaire de Kinshasa- LCVK (Democratic Republic of Congo),*
- *Laboratoire de diagnostic vétérinaire de Brazzaville - LDVB (Republic of Congo)*
- *Laboratoire National Vétérinaire de Libreville – LNVB (Gabon)*
- *Laboratoire National ECCA (Equatorial Guinea)*
- *Central Laboratory, Rubirizi – CL_Rw (Rwanda)*
- *Central Veterinary Laboratory of Dar es Salam – CVL_Tz (Tanzania)*
- *National Animal Disease Diagnostics and Epidemiology Centre – NADDEC (Entebbe, Uganda).*

The survey covered 8 out of these 9 laboratories as one of them, the *Laboratoire National ECCA* of Equatorial Guinea, is under construction.

1. Methodology

The methodology consisted in the analysis of data collected from a questionnaire prepared and distributed in 2010 during the preparation of IDENTIFY Stakeholders meetings (2-5 Nov. 2010, Entebbe, Uganda), from the presentations made in 2009 and 2010 by each laboratory during the EARLN and the RESOLAB respective annual coordination meetings and during the two specific

workshops on Quality Assurance organized by FAO in Eastern and Central Africa. The answers from the questionnaire and reports were grouped into the following 7 group of criteria:

- *Laboratory General profile- Administrative organization;*
- *Infrastructure;*
- *Main functional equipment and materials in place;*
- *Technical platform available (lab analysis or tests routinely performed);*
- *Number of diagnostic cases received and processed annually for laboratory diagnosis;*
- *Quality Assurance (QA) System - status of QA system implementation- including biosafety and biosecurity;*
- *Collaboration and partnership.*

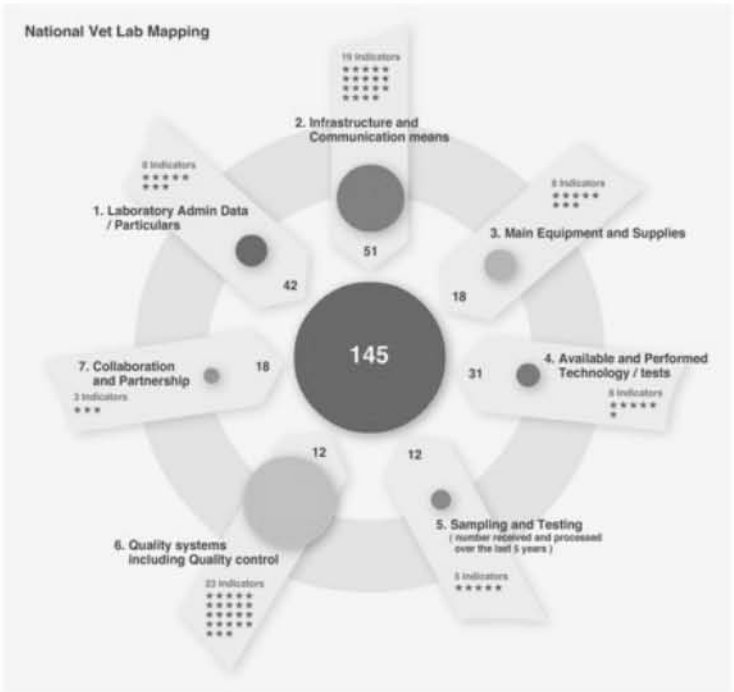
Other data collected, to have better picture on each individual laboratory functional status, were on " List of major diseases confirmed" and on "Main factors hindering the laboratory diagnosis and Quality Assurance System implementation".

Samples of questionnaires sent to all supported labs:

Lab Mapping MainQuest 3July10.d

Lab_Self assessment ques_Entebe.doc

Scoring:
The collected data are grouped in the form of quantified indicators. These indicators are the distributed across seven groups of criteria according to their nature. The score for each group of criteria is the sum of the scores of its indicators. The overall score, for a given laboratory, is the sum of scores of his seven sets of criteria.



2. Preliminary Results

Conclusion on Individual laboratories Scoring

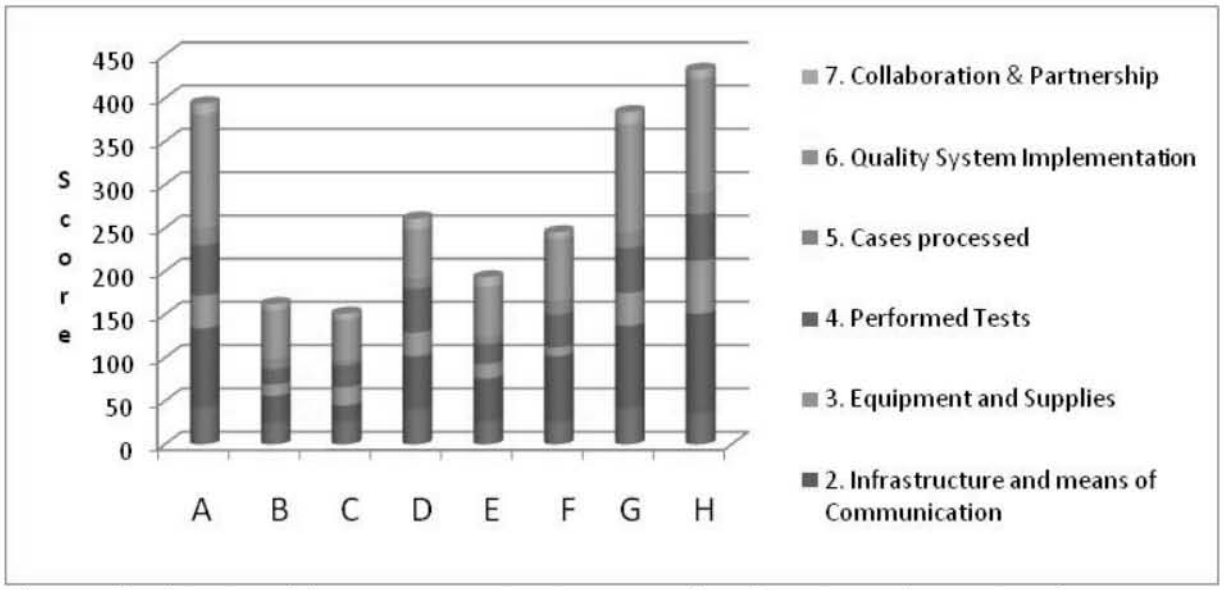
According to the individual scores recorded, three laboratories are grouped as "Basic Laboratory", two are grouped as ''Basic laboratory +'',while the remaining three are among the "Routine diagnostic laboratories". No laboratory is ranged in ''routine diagnostic laboratory +'' or ''advanced diagnostic lab[1]'' for the time being.

Table 1: Laboratories' categories Scores

Basic lab		**Basic lab +**		**Routine Diagnostic Lab.**		**Routine Diagnostic Lab +**		**Advanced lab.**	
Low		**In progress -> intermediate**		**Medium**		**In progress -> advance**		**High**	
from	to	from	to	from	to	from	to	from	to
0	245	246	320	321	566	567	641	642	887

Table 2 and graphic: Total score for Individual laboratory

Criteria	Max	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H
1. Laboratory Admin Data/ Particulars	91	43	25	26	40	26	26	42	36
2. Infrastructure and means of Communication	188	91	31	19	62	50	76	95	115
3. Equipment and Supplies	109	38	13	21	27	17	10	38	61
4. Performed Tests	110	58	18	25	51	23	38	52	54
5. Cases processed	70	20	12	6	12	8	16	18	24
6. Quality System Implementation	289	131	56	47	57	58	72	125	133
7. Collaboration & Partnership	30	13	7	7	12	11	7	14	10
	887	**394**	**162**	**151**	**261**	**193**	**245**	**384**	**433**



The specific objective of the IDENTIFY project is to strengthen detection and reporting of common human and animal pathogens using existing laboratory networks that include regional- and country-level laboratories. These laboratories will be linked with regional- or global-level reference laboratories which can provide diagnosis confirmation services as well as additional advanced testing, including pathogen characterization, as needed.

[1] Laboratories capable of more advanced diagnostic methods to identify and characterize pathogens causing animal or human disease, including novel agents with pandemic potential

The mapping exercise has been undertaken to assess the technical level and needs of the project supported laboratories so that specific "tailored and focused" assistance could be provided to them in order to achieve the project objective. This exercise data show that, in Congo Basin region", only "Basic Testing[2]" and "Routine Diagnostic[3] ", as defined in the "Laboratory Networking Strategy" distributed during Entebbe Stakeholders meeting. The collected data shall be used as indicators for further monitoring of the project achievement.

Conclusion on laboratory diagnosis work across Congo Basin IDENTIFY Supported labs

The major constraints reported by the laboratories for the adequate performing of their laboratory diagnosis works *sensu strict* are: the weaknesses of financial and material resources (29%), inadequate number of qualified human resources (26%), difficulty in procurement of reagents and consumables (23%) and the difficulties for metrology and equipment maintenance (6%). At the same time, and sometimes at the same place, the quality system development and/or implementation faces difficulties ranging from the insufficiency of financial and material resources (26%), the lack of trained personnel (23%), the suboptimal metrology and equipment maintenance operations(13%) to the irregular provision of water and electricity (7%).

With regard to the percentage of a criteria maximum score, it is seen that this percentage is below 30% for most of the criteria amongst the least advanced laboratories (colored in blue in table 3). Nevertheless, for the most advanced one it is barely above 50% for some criteria only (colored in blue in table 3).

Table 3: Individual lab % of score

Criteria	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H
1. Laboratory Admin Data/ Particulars	47,25	27,47	28,57	43,96	28,57	28,57	46,15	39,56
2. Infrastructure and means of Communication	48,40	16,49	10,11	32,98	26,60	40,43	50,53	61,17
3. Equipment and Supplies	34,86	11,93	19,27	24,77	15,60	9,17	34,86	55,96
4. Performed Tests	52,73	16,36	22,73	46,36	20,91	34,55	47,27	49,09
5. Cases processed	28,57	17,14	8,57	17,14	11,43	22,86	25,71	34,29
6. Quality System Implementation	45,33	19,38	16,26	19,72	20,07	24,91	43,25	46,02
7. Collaboration & Partnership	43,33	23,33	23,33	40,00	36,67	23,33	46,67	33,33

These identified constraints to properly carry out laboratory diagnosis works or to implement sound quality system give a good indication on needs to fill (in term of financial, human and material resources) in order to put this lab in a position to fulfil its mission with satisfaction and to fully meet its customers' expectations with timely and reliable lab results not leading to any complaint.

[2] Laboratories with the capacity to perform basic testing using a limited range of techniques
[3] Laboratories which are capable of consistently and accurately conducting the tests necessary to diagnose diseases endemic to their area or region



USAID
FROM THE AMERICAN PEOPLE



IDENTIFY | FAO

BIANNUAL REPORT

(SIX-MONTHLY PROGRESS REPORT)

REPORTING PERIOD: 1 APRIL 2013 - 30 SEPTEMBER 2013

PLANNED ACTIVITIES: 1 OCTOBER 2013 - 31 MARCH 2014

TO BE SUBMITTED TO:

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

UNDER COOPERATIVE AGREEMENT

SUBMITTED BY

IDENTIFY PROJECT PARTNER: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

Regional component: Global/Inter-regional
Three hot spot areas (with countries): • **Congo Basin:** Uganda, Democratic Republic of the Congo, Cameroon, Republic of Congo, Tanzania, Gabon, Equatorial Guinea, Rwanda, Central African Republic and South Sudan. • **Southeast Asia:** Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar,* Philippines, Thailand and Viet Nam. • **South Asia:** Bangladesh, India and Nepal (future activities pending).
Project title: Support for strengthening animal health laboratory capacities in hot spot regions to combat zoonotic diseases that pose a significant public health threat - IDENTIFY
Code: OSRO/INT/902/USA
Total budget: USD 18 794 372 (of which USD 3 500 000 were allocated for implementation of activities by the World Organisation for Animal Health (OIE) through funds transferred by FAO to OIE through a Letter of Agreement (LoA)). The activities of OIE will be reported separately by OIE. Note : An additional amount of USD 3 000 000 has been approved by USAID of which USD 400 000 is allocated to OIE. This budget increase is allocated to cover the Year 5 work plan from 1 October 2013 to 30 September 2014.
Effective starting date: 1 October 2009
Planned end date: 30 September 2014
Context of the project This project is part of a complex programme – Emerging Pandemic Threats (EPT) – designed by the United States Agency for International Development (USAID) and aimed at identifying and implementing mechanisms to detect disease emergencies, especially from wildlife. The One Health concept is an important component of the programme. The IDENTIFY project is implemented jointly by FAO, OIE and the World Health Organization (WHO).
Objectives of the project • enhance laboratories' ability to detect – to the appropriate level of characterization for the laboratories' capability – IDENTIFY targeted diseases[1]; • enhance/support laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations; • laboratories have adopted or improved quality assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system; • laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities and responsibilities.

* Myanmar is included in regional activities under separate funding.

[1] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases, and data will not be reported for diseases in those cases.

Short summary of main activities planned for the reporting period (1 April 2013 - 30 September 2013)

Main activity headings are as follows; for further details, please refer to the FAO | IDENTIFY year four work plan.

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases.

1.A Mapping national and regional laboratory resources for animal health.
1.B Provide laboratory equipment and supplies in a coordinated manner.
1.C Strengthening the linkage between the field and laboratory.
1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.
1.E Strengthening global and regional resources for selected animal diseases.
1.F Targeted support for strengthening diagnostic capacity and laboratory management.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy, to ensure flow of samples and sharing of information.

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved quality assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system.

3.H External quality management (EQA) for diagnosis of targeted animal diseases.
3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).
3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.
3.K Targeted support for laboratory quality management systems, including biosafety.

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

4.L Regional laboratory network support and coordination for animal health.
4.M Enhancing the role of Regional Leading/Support Laboratories.
4.N Supporting national laboratory networks for animal health.
4.O One Health initiatives: strengthening linkages between veterinary and public health.
4.P Support for participation in scientific conferences, trainings or workshops.

ACRONYMS AND ABBREVIATIONS

AAHL	Australian Animal Health Laboratory
AI	Avian Influenza
ASEAN	Association of Southeast Asian Nations
ASF	African swine fever
CBPP	Contagious Bovine Pleuropneumonia
CIRAD	Agricultural Research for Development
CSF	Classical Swine Fever
CVL	Central Veterinary Laboratory
CVO	Chief Veterinary Officer
DIC	Disease Investigation Centre
EARLN	Eastern Africa Veterinary and Epidemiology Laboratory Network
ECTAD	Emergency Centre for Transboundary Animal Diseases
ELISA	Enzyme-linked Immunosorbent Assay
EMPRES	FAO Emergency Prevention System
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assurance
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot-and-mouth Disease
FRET	Fluorescence Resonance Energy Transfer
FVI	*France Vétérinaire International*
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
IVM	Influenza Virus Monitoring
IZSVe	*Istituto Zooprofilattico Sperimentale delle Venezie*
LANAVET	*Laboratoire National Vétérinaire*, Cameroon
LIMS	Laboratory Information Management System
LMT	Laboratory Mapping Tool
LoA	Letter of Agreement
M&E	Monitoring and Evaluation
MORU	Mahidol-Oxford Tropical Medicine Research Unit (MORU)
NAHC	National Animal Health Centre, Lao PDR
NAHDIC	National Animal Health Diagnostic and Investigation Center
NaVRI	National Veterinary Research Institute, Cambodia
ND	Newcastle Disease
NIAH	National Institute of Animal Health, Thailand
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health
PCR	Polymerase Chain Reaction
PPP	Public-private Partnership
PPR	*Peste des petits ruminants*
PRRS	Porcine Reproductive and Respiratory Syndrome
QA	Quality Assurance
RAHO 6	Regional Animal Health Office Number 6, Viet Nam
REC	Regional Economic Community
RESEPI	Regional Network of National Epidemiosurveillance Systems for Transboundary Animal Diseases
RESOLAB	West and Central Africa Veterinary Laboratory Network for Avian Influenza and Other Transboundary Diseases
RSL	Regional Support Laboratory
RVF	Rift Valley fever
SIB	Swiss Institute of Bioinformatics
SILAB	LABs Information and Management System

SOP	Standard Operating Procedures
TAD	Transboundary Animal Disease
ToTs	Training of Trainers
TVLA	Tanzania Veterinary Laboratory Agency
USAID	United States Agency for International Development
WHO	World Health Organization

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1 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 APRIL 2013 – 30 SEPTEMBER 2013) AND PLANNED ACTIVITIES FOR THE NEXT REPORTING PERIOD (1 OCTOBER 2013 - 31 MARCH 2014)

1.1 ACTIVITIES GLOBAL COMPONENT (FAO HEADQUARTERS AND FAO/INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA))

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases.

G1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Contributed to the monitoring and evaluation (M&E) effort:
  - Initiated revision of the laboratory mapping tool (LMT) together with *France Vétérinaire International* (FVI) experts and Food and Agriculture Organization of the United Nations (FAO) staff.
  - Developed and completed on a regular basis individual laboratory sheets for all IDENTIFY supported laboratories, describing mapping data, activities conducted, follow-up actions required and progress made.
  - Integrated African national letters of agreement (LoAs) and monitored results in each laboratory sheet.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Global compilation of updated regional data on laboratory capacity and networks *(sub activity G1.A.1).*
- Contribute to the M&E effort (*sub activity G1.A2*): M&E retreat organized at headquarters before December 2013 to prepare all M&E activities for year five.
- Revision of the LMT (*sub activity G1.A3*):
  - Finalize the LMT revision and share the new version with IDENTIFY supported laboratories. A guide for LMT's application will also be developed and agreed upon by all users.
  - Link the LMT with other assessment reports (e.g, biosafety/biosecurity assessment and quality assurance (QA) auditing) to measure specific progress made. Compile and review all new data obtained from the LMT (using the results of self and external assessments in both regions), and analyse the progress made.
- Develop a laboratory biosafety/biosecurity assessment questionnaire (100 questions) for a one or two day laboratory visit.
- Laboratory sheets completed on a regular basis for all IDENTIFY supported laboratories and shared with regions (*sub activity G1.A4*).
- Help to prepare for and conduct laboratory interviews (*sub activity G1.A5*).

G1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Followed-up on the safe delivery of items procured for all laboratories, especially in Africa:
  - Finalized delivery and installation of the dry ice machine in Uganda (shipped in October 2013 to the Uganda Virus Research Institute in Entebbe).

G1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Supported ongoing development of the FAO Global Animal Disease Information System (EMPRES-i) genetic module, following its launch to the public:
  - Submitted scientific paper on the genetic module to the journal *Databases* in September 2013, as an interface between EMPRES-i and OpenFluDB.
  - Requested the Joint World Organisation for Animal Health (OIE)/FAO Network of Expertise for Animal Influenza (OFFLU) community to test the module and review the questionnaire in order to understand the influenza scientific community's needs regarding the sequence databases.
  - Further developed and maintained the publicly accessible genetic module for the linkage of outbreak (epidemiological) and sequence (genetic) data under the LoA with the Swiss Institute of Bioinformatics (SIB).
  - Created a list of additional developments required for the genetic module in the next period, including visual genetic analysis tools and mapping functions within EMPRES-i, which support epidemiological risk assessment and FAO early warning activities.
  - Officially invited Influenza Research Database to connect with EMPRES-i for further complementarities on epidemiological and virological data.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Support further developments of the EMPRES-i genetic module.
- Meet with SIB to discuss further developments of the influenza genetic module, as well as foot-and-mouth disease (FMD) and African swine fever (ASF).

G1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Developed e-modules on bioinformatics:
  - Integrated practical scenario-based learning material with the SIB's existing phylogenetic module, in collaboration with the joint FAO/IAEA division.
  - Under the new LoA signed with SIB in April 2013, two new e-learning modules were developed on virus analysis: (i) molecular database analysis and searching by sequence similarity; and (ii) multiple sequence alignments. Technical discussions took place between the FAO/IAEA joint division and SIB to agree on the scope, expected content and structure of the two new modules on multiple sequence alignment and sequence similarity search. The draft modules were prepared by SIB and reviewed by the FAO/IAEA joint division to ensure that the global scope was met and that the expected content was in agreement with the technical discussions. The multiple sequence alignment module contains 35 slides, and the sequence similarity search module 45 slides. These versions work properly on Internet Explorer 10. Tests and video tutorials were also provided.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Released new bioinformatics distance-learning module (multiple alignments) (*sub activity G1.D1*):
  - Exercise sessions will be added to the two e-learning modules. Additionally the previously developed phylogenetic module will be improved to include more exercises based on scenarios.

G1.E Strengthening global and regional resources for selected animal diseases.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Developed communication tool(s) for different audiences, stakeholders and partners (*activity G1.E.1*):
  - Finalized brochures on FAO regional laboratory networking and the Emergency Prevention System (EMPRES) Laboratory Unit.
  - Finalized leaflet content on ''Public/private partnerships and sustainability of veterinary laboratories in sub-Saharan Africa'' in English and French; design in process.
  - Designed and printed three tripartite IDENTIFY posters at global, Africa and Asia levels.
- FAO HQ provided input on H7N9 laboratory protocols to the Emergency Centre for Transboundary Animal Diseases (ECTAD) in regions and countries, as well as data: documentation on H7N9 laboratory testing; support for adaptation of regional protocols for diagnosing AI-H7N9 in Southeast Asia; and linkage with OFFLU; http://www.fao.org/docrep/018/aq251e/aq251e.pdf.
- Provided laboratories with access to sequencing services (*activity G1.E.5*):
  - Selected the sequencing services provider for both Africa and Asia; sent contract to selected service provider for final signature.
  - Initiated discussions with Agricultural Research for Development (CIRAD) to prepare an LoA to assist African countries in genotyping contagious bovine pleuropneumonia (CBPP) strains through sequencing, in accordance with the validated protocol proposed under this project.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Finalize laboratory cards (available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonosis) for IDENTIFY priority diseases, and disseminate to the laboratories (*sub activity G1.E.1*).
- Support the development of disease cards (case definitions and recommended tests repertoire for IDENTIFY listed priority diseases) (*sub activity G1.E.2, linked with Congo Basin C1.E1).*
- Develop communication tools for different audiences, including stakeholders and partners, and finalize communication documents (including tripartite publications) for the IDENTIFY project (*sub activity G1.E.3*).
- Continue to provide inputs to FAO ECTAD in regions and countries on H7N9 laboratory protocols and data.
- Continue to provide laboratories with access to sequencing services (*sub activity G1.E.4*):
  - Develop a system to manage requests by countries for sequencing services, working in close collaboration with the selected service provider;
  - Sign the LoA with CIRAD to assist countries in genotyping through sequencing of CBPP strains.
  - Finalization and dissemination of a handbook for beneficiary national laboratories to support sequencing protocols, workflow with selected service providers and sequence raw data analysis (*sub activity G1.E.5*).

- Establish with service providers a cost effective and sustainable procedure for sequencing services: (i) producing and evaluating tagged primers for Capripoxvirus, *peste des petits ruminants* (PPR) and ASF to allow polymerase chain reaction (PCR) products sequencing with universal primers (*sub activity G1.E.6.a*); (ii) evaluating the temperature stability of purified and non-purified PCR products in order to determine the maximum time that the PCR products can be stored at ambient temperature before being sent for sequencing. PPR, Capripox and ASF will serve as models. This will help to ensure cost effective and efficient shipment of PCR products to the sequencing company (*sub activity G1.E.6.b, at the FAO/IAEA joint division*).

G1.F Targeted support for strengthening diagnostic capacity and laboratory management.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Supported PCR testing for multiple diseases as a follow-up to the IAEA consultation on ''Good laboratory practices for conducting multiple disease diagnosis''; also supported standardization and validation of the major PCR testing procedures through the use of the same kits of reagents for various diseases (*activity G1.F2*).
  - Provided technical support to laboratories with standard operating procedures (SOPs) and reagents to facilitate the transfer of techniques (PCR using the fluorescence resonance energy transfer (FRET) system) described in *activity G.3.H3*:
    - Transferred a Capripoxvirus genotyping assay based on classical PCR to Senegal through provision of primers and SOPs. Follow-up actions (gel pictures) show that the laboratory is performing well.
    - Follow-up actions were performed to help the National Animal Disease Diagnostics & Epidemiology Centre (NADDEC) in Uganda, including advising on instrument and reagent handling, and checking the raw data sent by the laboratory. However, some technical problems (i.e. the type of qPCR available in this laboratory) have prevented the successful implementation of the assay. Efforts to overcome these technical difficulties are ongoing.
    - Follow-up actions with the National Animal Health Diagnostic and Investigation Center (NAHDIC) Ethiopia (exchange of data files) show that the Capripoxvirus genotyping assays transferred in February 2013 have been successfully implemented for routine use.
- Supported the joint FAO/IAEA division to validate and transfer new techniques for multiple disease diagnosis (PCR using the FRET system):
  - Developed a cost effective method for capripoxvirus genotyping using snapback primers and dsDNA intercalating dye. The results of this work were published in PLoS ONE (PLoS ONE 8(10): e75971. doi:10.1371/journal.pone.0075971). This assay was transferred to NAHDIC Ethiopia in February 2013. Further efforts to transfer this assay to additional laboratories will take place during the next reporting period.
  - Most analytical parameters of the pan-pox detection system are now available and the assay transfer will start during the next reporting period.
  - As part of multiple pathogen detection development for respiratory diseases in small ruminants, a real time PCR multiplex assay was developed targeting priority diseases of IDENTIFY: capripox, parapox, PPR, pasteurella, contagious caprine pleuropneumonia. An analytical validation was performed, including linearity, sensitivity, specificity and repeatability parameters.
    - Designed and evaluated a multiple pathogen detection assay for respiratory diseases of small ruminants based on a fluid array system (Luminex). The initial phase (designing, coupling of the micro beads with the probes, single plex PCR, and detection) was standardized. Further assessment of the performance of the

multiplex assay is needed. The microbead based assay on Luminex allows further multiplexing of more than 50 targets with the following advantages over other conventional PCR and real time PCR assays: sample utility, cost, time and labour in screening a larger number of pathogens.

- Continued the joint FAO/IAEA division's work on molecular epidemiology of PPR:
  - The PPR virus was genotyped in clinical specimens collected from different regions of Nigeria between 2010 and 2013. In total, 73 samples have been characterized and phylogenetically analysed. Of particular interest is that the PPR viruses identified belong to both lineage II and IV, indicating that viruses from both lineages are presently circulating in Nigeria. The data also indicates transboundary movement of the virus between neighbouring countries.
  - Full genome sequencing of two PPR viruses isolated in Benin 42 years apart (1969–2011) is near completion. This data will provide significant information on the evolution of the virus over an extended period.
  - The full genome sequencing of two historical isolates from Senegal isolated in 1969 and 1970, respectively, are near completion.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Provide assistance to the field support mission, including knowledge transfer on using the tagged primers for sequencing; processing post-PCR products for shipment; and establishing local capacity for sequencing raw data analysis (*activity G1.F.1, linked with regional sub activity C1.F9*).
- Produce teaching material on the introduction of new molecular assays in a diagnostic laboratory (*activity G1.F.2*).
- Write SOPs and guidelines for molecular epidemiological studies and diagnosis of PPR, ASF, animal pox diseases and ruminant respiratory diseases (*activity G1.F.3*):
  - A consultant was appointed at the Animal Production and Health Laboratory of the joint FAO/IAEA division to validate and develop guidelines and SOPs for newly developed PPR diagnostic tests, and to compare the sensitivity of newly developed cell lines for the *in vitro* isolation of PPR virus from pathological samples. This eight month consultancy started at the end of August 2013.
- Perform validation studies and transfer a multiple poxvirus detection assay to selected regional laboratories (*sub activity G1.F.4*): transfer the new techniques for multiple disease diagnosis (PCR using the FRET system):
  - Finalize the pan-pox detection system and initiate transfer: Identify potential countries with suitable qPCR platforms; prepare and distribute the SOPs; and distribute the primers.
  - Diagnostic validation of real time PCR-based method for multiple pathogen detection of respiratory diseases using clinical samples; compare the performance by testing in member state laboratories. The targeted country will be Ethiopia. Prepare SOPs to facilitate the transfer of the assay to member states.
  - Continue the development and testing of the fluid array system assay (Luminex) for multiple pathogen detection of respiratory diseases. Test the sequence tagging or ligation strategies in order to increase the efficiency of multiplex PCR, and hence sensitivity. The aim of these experiments is to allow the flexibility of including or excluding specific targets without affecting the sensitivity of the assay.
- Perform validation studies and transfer a multiple respiratory pathogen detection assay to selected regional laboratories (*activity G1.F.5*).
- Facilitate collaboration on laboratory testing based on PREDICT protocols (*activity G1.F.6, linked with regional sub activities C1.F7, C1.F8, S1.D1 and S1.D2*).

- Provide technical support to laboratories with SOPs and reagents to facilitate the transfer of techniques (PCR using the FRET system):
    - Transfer real time PCR-based Capripoxvirus genotyping assays to Senegal; Assist NADDEC in Uganda in the implementation of these assays. The Snapback primer assay will be offered to these laboratories.
    - Produce teaching material on the introduction of new molecular assays in a diagnostic laboratory to facilitate the transfer of molecular assays for multiple diseases, focusing on animal pox diseases, PPR and ASF.
- Continue the joint FAO/IAEA division's work on the molecular epidemiology of PPR:
    - Forty PCR amplicons of suspected PPR virus positive samples have been sent for characterization from Kenya.
    - The study of the Nigerian isolates will be finalized and published.
    - The full genome sequencing of isolates from Benin, Ghana, Ethiopia, Democratic Republic of the Congo, Uganda and Senegal will be finalized.
    - Continue to receive and characterize clinical samples suspected of PPR from Africa.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

G2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policies to ensure flow of samples and information sharing.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Reviewed existing animal health laboratory policies and developed laboratory policy guidelines for IDENTIFY targeted countries (*sub activity G2.G.5*):
    - Finalized working document defining laboratory policies;
    - Reviewed existing laboratory policies and gaps in selected pilot countries; noted strengths and weaknesses of existing policies at national and regional levels;
    - Based on the outcomes of the laboratory policy review, drafted guidelines on laboratory policy in selected fields of interest; this was done for senior management of the veterinary laboratories and the competent authorities in charge of laboratories, with further adaptation for regional context in Asia and Africa (still ongoing).
    - Presented the initiative in Africa, including the results of the review and discussions, during the fourth joint Eastern Africa epidemiology and laboratory annual coordination meeting (Bujumbura, Burundi, 16-19 July 2013); Presented recommendation number six in the final communiqué: ''Considering that failures in delivery of quality laboratory services in the region are mostly attributed to an inadequate policy environment, and noting that FAO through the IDENTIFY project has embarked on developing guidelines for laboratory policy, the meeting recommended that FAO finalizes the draft guidelines for laboratory policy making and explores opportunities to pilot the guidelines in a few countries through the VET GOV programme''.



Final Communique.EARLN2

    - Submitted proposal (grant under the VET GOV project) for operationalizing the laboratory policy initiative at national level in three pilot countries.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Support the development of sample referral guidelines for transboundary animal diseases (TADs) (*sub activity G2.G.10*).
- Publish document on laboratory policy definitions and review laboratory policies;
- Finalize laboratory policy guidelines for IDENTIFY targeted countries, and work with regional offices to adapt the policy guidelines to a regional setting (*sub activity G2.G.2, linked with Congo Basin sub activity C2.G3*).
- Present initiative on laboratory policy to SE Asia region (at the TAG meeting, 29-30 October 2013, Yogjakarta, Indonesia) and to West-Central Africa (annual West and Central Africa Veterinary Laboratory Network for Avian Influenza and Other Transboundary Diseases (RESOLAB) meeting, January 2014).
- Support the review of results for the public-private partnership and sustainability study of veterinary laboratories in sub-Saharan Africa, and the creation of linkages to develop laboratory policy (*sub activity G2.G.3, linked with Congo Basin sub activity C2.G.4*).

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved Quality Assurance practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system.

G3.H External quality management (EQA) for diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Provided assistance for the organization of proficiency tests (*linked with regional Congo Basin C3.H.1*):
  - Supported external quality assurance (EQA) provided for proficiency testing in avian influenza (AI)/Newcastle Disease (ND) (*linked with Congo Basin sub activity C3.H.1*).
  - Reported on proficiency test for serological diagnosis of Rift Valley fever (RVF) submitted by the Center for Emerging and Zoonotic Diseases (formerly Special Pathogens Unit), National Institute for Communicable Diseases of the National Health Laboratory Service (CEZD NICD/NHLS), Sandringham, South Africa (10 participating laboratories in Africa).

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Provide assistance for the organization of the proficiency testing (AI, ND, FMD, CBPP, RVF, PPR, ASF) (*sub activity G3.H1, linked with Congo Basin sub activities C3.H1 and C3.H2*).
- Support the organization of a backstopping mission at country level Tanzania, (South Sudan and Uganda) (*activity G3.H.2 linked with Congo Basin C3.H.2*).

C3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Signed an LoA with FVI in July 2013 and initiated the development of an e-learning module on quality assurance, through partnership with FVI and CIRAD.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Finalize the e-learning module on quality assurance under the LoA with FVI.

G3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- N/A.

G3.K Targeted support laboratory quality management systems, including biosafety.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- LoA signed with FVI in July 2013 and discussions held with experts from FVI for the planning of the on-site audit/backstopping missions on QA to be performed by FVI in Africa (*sub activity G3.K1, linked with Congo Basin C3.K.J*).
- LoA signed in April 2013 with the Institute G. Caporale, Teramo, Italy to support the implementation of laboratory information systems (LIMS) in two targeted laboratories (Tanzania and Botswana) (*sub activity G3.K2, linked with regional activity Congo Basin activity C3.K.3*).
- Discussions held with experts from FVI for the development of a road map for biosafety/biosecurity by experts from FVI.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Under the LoA with FVI: On-site audit, backstopping and/or training missions on QA performed by FVI in Africa (*sub activity G3.K1, linked with Congo Basin C3.K*).
- Meeting with FVI experts to draw conclusions on past missions in African laboratories, prepare upcoming missions and discuss services conducted under the LoA.
- Conduct activities under the LoA signed with the Institute G. Caporale, Teramo, Italy that will continue to support the implementation of LIMS in two targeted laboratories (Tanzania and Botswana) (*sub activity G3.K.1, linked with Congo Basin activity C3.K.3*).
- Apply FAO experience in supporting LIMS establishment to a World Health Organization (WHO) workshop to ''define and discuss options for developing laboratory information management system for public health laboratories'' (October 2013, Lyon, France).
- Define road map for biosafety/biosecurity strengthening in Africa with FVI experts (*sub activity G3.K1*).

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

G4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Supported regional thematic sub-networking (i.e. rabies, ASF, CBPP, FMD, PPR):
  - OFFLU has been represented in SE Asia and West/Central Africa regional network meetings; all regional laboratories in Africa and SE Asia have participated to the second OFFLU ring trial; results submitted to individual laboratories.
- Supported regional networking meetings (*linked with regional sub activities C4.L*):

- Supported the organization of and participation in the year four work plan implementation meeting and year five planning of the IDENTIFY|FAO project; the meeting was held in Douala, Cameroun on 4-6 June 2013, and included laboratory directors and Chief Veterinary Officers (CVOs).
- Supported preparation of the Eastern Africa Veterinary and Epidemiology Laboratory Network (EARLN), and participation of the IDENTIFY |FAO management team (16-19 July 2013, Bujumbura, Burundi).

- Promoted/sponsored existing disease-based, regional, and global laboratory network meetings, including OFFLU:
  - OFFLU:
    - OFFLU Swine Influenza Virus (SIV) expert meeting in Rome, 16-17 April, 2013. This meeting gathered 25 participants to discuss achievements of the SIV group, provide updates on countries activities, review achievements and plan future activities (main funding source: NIH).
    - FAO's coordination effort under OFFLU for H7N9 laboratory data sharing and dissemination (three teleconferences organised for protocol validation data, animal experiments data sharing, inventory of information for posting on OFFLU website), table of H7N9 protocols;
    - Preparation of OFFLU technical meeting on lessons learned from HPAI vaccination (4-6 December 2013, Beijing, China; co-funding with OIE and FAO AI projects);
    - Participation in OFFLU strategic meeting (Paris, France, 6 September 2013).
  - WHO Vaccine Composition meeting:
    - OFFLU's contribution to the September WHO Vaccine Composition Meeting (H5N1, H9N2, H7N7 and H7N9 virus sequences shared, a well as antigenic and epidemiologic data);
    - Received extension of agreement for OFFLU's contribution to the WHO process of vaccine strain selection for animal influenza viruses of public health concern for the 1 January 2014 to 31 December 2018 period;
    - Continued harmonization of work with WHO on antigenic data with standard reagents produced by WHO Collaborating Centres and distributed to selected OFFLU laboratories.
- Identification of potential FAO Reference Centres (*activity G4.L4*): as of October 2013, 29 new FAO Reference Centres have officially been designated.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Support regional thematic sub-networking (i.e. rabies, ASF, CBPP, FMD, PPR) (*sub activity G4.L1*).
- Support regional networking meetings (*sub activity G4.L2, linked with regional sub activities C4.L*):
  - Provide support to the preparation of the RESOLAB handover meeting (November 2013, Bamako, Mali).
  - Provide support to the preparation of the RESOLAB annual Regional Laboratory Network Meeting, tentatively planned for January 2014.
- Promote/sponsor existing disease-based regional and global laboratory network meetings, including OFFLU (*sub activity G4.L3*):
  - Disseminate outcomes of the OFFLU technical meeting on lessons learned from HPAI vaccination (4-6 December 2013, Beijing, China).
  - Update protocol tables for H5N1 and H7N9 PCR testing, and list H5 and H7 influenza virus cleavage sites for OFFLU website.

- Signature of formal agreement between WHO, OIE and FAO on OFFLU collaboration in the WHO process of vaccine strain selection for animal influenza viruses of public health concern.
- Participate in the launch of the ASF global platform and propose links between the global platform and regional AF sub-networks (Africa).

- Continued work on designation of FAO Reference Centres (*sub activity G4.L4*):
  - Continued process for final designation of FAO Reference Centres still in the pipeline.
  - Assessment panel of new applications.

G4.M Enhancing the role of Regional Leading/Support Laboratories.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Supported and promoted the establishment or development of Regional Leading/Support Laboratories by:
  - Analyzing annual reports submitted by regional support laboratories (RSLs) for M&E purposes to identify strengths and gaps.
  - Providing visibility to RSLs, including writing articles, participating in the second OFFLU ring trial, and supporting the participation of RSL staff in international events and trainings.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Support the establishment or development of Regional Leading/Support Laboratories (*sub activity G4.M1, linked with Congo Basin Activity C4.M.1*) by assisting preparations for the final meeting for validation/endorsement by beneficiary laboratories, CVOs, and commitment by key partners.

G4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Continue support to national laboratory networks (*sub activity G4.N1, linked with Congo Basin C4.N1*).
- Develop a tool to evaluate national laboratory networks (*sub activity G4.N2, linked with Congo Basin C4.N2*).

G4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- Established a four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface (*activity G4.O.1*):
  - Tripartite finalization of the four-way liking web summary



  - In Bangladesh: preparation of the four-way linking review mission, planned for November 2013.
- Coordinated OFFLU data contribution to the WHO Influenza Vaccine Composition Meeting (and other joint OFFLU-WHO initiatives).

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Four-way linking framework (*activity G4.O1*):
  - Bangladesh: conduct review mission in November 2013 and workshop (March 2014).
- Support One Health seminar on rabies in Africa (*activity G4.O.2, linked with Congo Basin C4.O.1*):
  - Develop with the *Istituto Zooprofilattico Sperimentale delle Venezie* (IZSVe) (FAO Reference Centre for rabies) a ''rabies tool kit'' to provide the methodology for a systematic approach to national trainings for rabies diagnosis and One Health seminars on rabies (*linked to regional activity 2.A.C*).

G4.P Support for participation in scientific conferences, trainings or workshops.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- N/A.

2 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 APRIL 2013 – 30 SEPTEMBER 2013) AND PLANNED ACTIVITIES FOR THE NEXT REPORTING PERIOD (1 OCTOBER 2013 - 31 MARCH 2014)

2.1 ACTIVITIES ASIA COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

S1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Conducted a biosafety risk assessment, as well as a laboratory assessment using the LMT, in the following locations: Regional Animal Health Office (RAHO) 6 in Ho Chi Minh City, Viet Nam from 26-27 May 2013; National Center of Veterinary Diagnosis (NCVD) in Hanoi, Viet Nam on 28 May 2013; FMD-Regional Reference Laboratory (FMD-RRL) in Nakorn Raschasima, Thailand from 5-6 July 2013; and the Center of Excellence for Emerging Infectious Diseases in Animals at Chulalongkorn University in Bangkok, Thailand from 19-21 July 2013 (*sub activity S1.A3.TH and S3.K1.r*).
- Data obtained from the laboratory mapping and assessment activities were compiled and updated for the laboratory network, and assessment results were shared with participating laboratories and relevant partners.

Planned activities for the next reporting period (1 October – 31 March 2013)

- Coordinate laboratory re-assessment activities in order to compile and update laboratory capacity data for project completion; refine laboratory mapping tool and biosafety risk assessment, working with participating laboratories in South and Southeast Asia (*sub activity S.1.A.1.reg*).

S1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Standardized veterinary diagnostic reagents, including proficiency testing panels, were procured from the Australian Animal Health Laboratory (AAHL) and provided to 13 participating laboratories in Southeast Asia. These materials will support the proficiency testing programme for diagnosing influenza, ND, Classical Swine Fever (CSF), porcine reproductive and respiratory syndrome (PRRS), ASF and rabies.
- The fire alarm system (consisting of four units of universal power supply [UPS] to be used with four biosafety cabinets) and other biosafety supplies were provided to the National Veterinary Research Institute (NaVRI) in Cambodia.
- Biosafety supplies were provided to the National Animal Health Laboratory in Lao PDR, based on the findings and recommendations from the biosafety risk assessment.
- Three units of Powered Air Purifying Respirator were provided to the PERHILITAN Laboratory in Malaysia.
- One unit of thermal cycler (PCR machine), one unit of digital gel imaging system, one unit of UV/visible spectrophotometer, and one unit of refrigerated microcentrifuge were procured

through tender and provided to the National Insitute of Animal Health (NIAH), Thailand to increase the capabilities of NIAH in brucellosis services (*also linked to S1.E1.TH*).

- Based on recommendations from the biosafety risk assessment, one biosafety cabinet and a control box LCD Display were provided to the Regional and OIE Reference Laboratory for FMD in South East Asia in Nakorn Rashasima, Thailand.
- The procurement tender for four units of biosafety cabinets has been launched in Indonesia for provision to four laboratories, including (i) Disease Investigation Centre (DIC) Banjarbaru; (ii) DIC Wates; (iii) Public Animal Health Centre (Pusvetma) in Surabaya; and (iv) National Veterinary Drug Assay Laboratory in Serpong. The provision of these biosafety cabinets are based on recommendations from the biosafety risk assessment conducted in Indonesia from October to December 2012 .
- Three units of TACO RNA/DNA extraction machines were procured and provided to three laboratories in Viet Nam, including the National Center for Veterinary Diagnosis (NCVD), Regional Animal Health Office No. 2 (RAHO 2), and Regional Animal Health Office No. 7 (RAHO 7).
- The enzyme-linked immunosorbent assay (ELISA) kits for antibody detection for PRRS, CSF, Aujeszky's disease virus were purchased to support studies on pig diseases in Viet Nam.
- The software of DNASTAR licenses were renewed and provided to the Veterinary Research Institute in Malaysia, the National Animal Health Institute, Thailand, and three laboratories in Indonesia, including DIC Bukittingi, DIC Wates, and Balai Besar Penelitian Veteriner.
- Pre-screen and screening reagents for the Indonesia Influenza Virus Monitoring (IVM) network were procured from AAHL and provided to laboratories in Indonesia (*sub activity S1.B2.ID).*

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Provide standardized veterinary diagnostic reagents, including proficiency testing panels, supplies and equipment as requested by the network laboratories or recommended in support of the proficiency testing programme, and disease diagnostic and surveillance activities.
- Support and/or facilitate the provisions of necessary supplies and equipment, based on the findings and recommendations of the biosafety assessment and cabinet testing activities to ensure the proper biosafety containment and practices in the network laboratories.
- Procure antigenic screening reagents and minor laboratory equipment for DICs in Indonesia for the IVM network.
- NCVD Viet Nam: procurement of diagnostic kits to complement Emerging Pandemic Threats (EPT)+ testing.

S1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Organized and delivered the Regional Laboratory Network Workshop on Laboratory-Field Epidemiology Linkage from 20 to 31 May 2013 in Bangkok, Thailand *(sub activity S1.C1.r)*. The workshop was conducted by facilitators from AAHL, an implementing partner. There were 25 veterinary laboratory and field epidemiology staff from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Viet Nam attending the workshop. Outcomes included: (i) participants with knowledge and understanding of the key features related to the laboratory-field epidemiology interface; (ii) participants understood the importance of linkage between laboratory and epidemiology field staff for the effective planning and implementation of surveillance and outbreak investigation activities; and (iii)

enhanced communication and linkage between the laboratory and field epidemiology staff at the country level.



- Supported in-country lab-field pathology linkage training in Thailand: Pathology Workshop "From Field to Laboratory and Back to the Field" from 26 to 30 August 2013. The workshop was organized by the National Institute of Animal Health (NIAH), Thailand. The workshop was attended by thirty veterinary officers from national and regional livestock offices. The training was a follow-up activity of the previously offered training-of-trainer workshop, "Basics of Field and Laboratory Diagnosis", conducted in May 2012 *(sub activity S1.C2.a.TH).*



- Supported in-country lab-field pathology linkage training in Philippines: a Downstream Training on Enhancing the Field-Laboratory Connection was organized from 23-27 September 2013. Targeted participants included veterinarians assigned to the Regional Animal Disease Diagnostic Laboratories and Animal Health Coordinators of the Regional Field Units. The training was a follow-up activity of the previously offered training-of-trainer workshop in the Philippines *(sub activity S1.C2.d.PH).*
- A 'user acceptance' testing and feedback workshop of a beta version of the IVM online software was successfully completed from 27-29 August 2013 in Yogyakarta in conjunction with the annual IVM Meeting.
- A selection of approximately 30-40 H5N1 virus isolates from 2012-2013 were collected at DIC Wates to be sent to AAHL.

Planned activities for the next reporting period (1 October – 31 March 2014)

- Conduct technical backstopping and capacity building activities in Indonesia for: quality reagent production (Pusvetma/Balai Besar Penguhian Mutu dan Sertifikasi Obat Hewan); pre-screening and antigenic characterization (DIC laboratories, industry and university partners); sequencing and sequence analysis (DICs, industry and university partners); use of data management; and analysis tools developed for IVM activities.
- IVM meeting in December 2013 in Indonesia for IVM Online implementation launch and IVM online support for DICs (technical backstopping and AI data management).

S1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Organized and delivered a regional workshop on applied veterinary bioinformatics with the Center of Excellence in Influenza Research and Surveillance, St. Jude Children's Research Hospital, and the Center of Excellence for Emerging and Re-Emerging Infectious Diseases in Animals as implementing partners from 26 June to 1 July 2013 in Bangkok, Thailand (*sub activity S1.D2.r*). Fifteen veterinary laboratory staff from Bangladesh, Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Philippines, Thailand, and Viet Nam participated in the workshop. Outcomes included: (i) participants with laboratory skills in veterinary bioinformatics, including nucleotide database search, sequencing protocol, sequence validation, sequence assembly, sequence alignment, nucleotide sequence analysis, phylogenetic analysis algorithms (NJ, Bayesian), Reference Data Query, and data interpretation; (ii) participants with knowledge of applying bioinformatics for disease surveillance, monitoring, prevention and control, especially in HPAI and veterinary related

diseases; and (iii) enhanced networking and information sharing among participants and the bioinformatics experts.

AppliedBioinfo.CN.June2013

- Organized and delivered a regional laboratory network workshop on diagnosis and characterisation of Influenza A (H7N9) and priority swine diseases, ASF, CSF, and PRRS at the Regional Animal Health Office Number 6 (RAHO 6), Ho Chi Minh city, Viet Nam, from 29 July to 9 August 2013 *(sub activity S1.D1.r).* Nineteen veterinary officers who are directly responsible for diagnosis of the above diseases attended the workshop from Cambodia, China, Indonesia, Lao PDR, the Philippines, Malaysia, Myanmar, Thailand and Viet Nam. The regional workshop will be followed by the proficiency testing activity to ensure the quality of diagnostic services for priority diseases at participating laboratories. The implementing partners were: AAHL; RAHO 6; and the Department of Animal Health, Viet Nam. Outcomes included: (i) increased quality diagnostic services for influenza (H7N9) and priority swine diseases in participating laboratories; (ii) enhanced diagnostic and research activities for influenza (H7N9) and priority swine diseases at participating laboratories; and (iii) enhanced communication among laboratory staff and the OIE/FAO reference centre (AAHL).

H7N9.SwineDiseases.29Jul.9Aug2013

- Organized and delivered a regional laboratory network workshop on diagnosis of rabies and ND at the National Institute of Animal Health, Bangkok, Thailand from 26 August to 6 September 2013 *(sub activity S1.D1.r).* Sixteen laboratory and veterinary officers directly responsible for diagnosis of rabies and ND from the national veterinary laboratories in Cambodia, Indonesia, Lao PDR, Philippines, Malaysia, Myanmar, Thailand and Viet Nam attended the workshop. The regional workshop will be followed by the proficiency testing activity to ensure quality diagnostic service for priority diseases at the participating laboratories. The implementing partners were AAHL and NIAH, Thailand. Outcomes included: (i) increased diagnostic capability for rabies and ND at the participating laboratories; and (ii) enhanced communication among laboratory staff in the region and the world reference laboratory providing technical support to the region (AAHL).

Rabies.ND.26Aug.6Sept2013.CN

Planned activities for the next reporting period (1 October 2013 – 1 March 2014)

- Backstopping missions to participating countries are scheduled to provide in-country training and follow-up on regional protocols to each laboratory, including diagnosis of three priority animal diseases, quality assurance, proficiency testing and general trouble shooting (linked to sub activity S3.H2).
- Provide training and applications of PREDICT tools for livestock samples in Indonesia and Viet Nam.

S1.E Strengthening regional resources for selected animal diseases.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Supported and strengthened the roles and responsibilities of the Regional Leading/Reference Laboratories in the region *(sub activity S1.E1.TH, S1.E2.VN, S1.E3.BD).*
- In collaboration with NIAH, Thailand, conducted the regional workshop on diagnosis of ND and rabies *(sub activity S1.E1.TH linked to sub activity S4.M2.a.TH).*
- In collaboration with RAHO 6, Viet Nam, conducted the regional workshop and training on diagnosis of swine diseases *(sub activity S1.E2.VN linked to sub activity S4.M2.b.VN).*

Planned activities for the next reporting period (1 October 2013 – 1 March 2014)

- Continue to support and strengthen the roles and responsibilities of the Regional Leading/Reference Laboratories in the region *(sub activities S1.E1.TH, S1.E2.VN, S1.E3.BD).*

S1.F Targeted support for building diagnostic capacity.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Supported the NaVRI-Institut Pasteur du Cambodge twinning programme through an LoA to strengthen capacities of the Government of Cambodia, using a joint animal-human-environment interface survey for HPAI in live bird markets *(sub activity S1.F2.CA).*
- Supported the Technical Assistance Programme for Enhancing Quality Laboratory Management and Services at the NAHL, Lao PDR with Mahidol-Oxford Tropical Medicine Research Unit (MORU), Bangkok, Thailand as an implementing partner *(linked to sub activity S3.K3.a.LA).*

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Continue to support the NaVRI-Institut Pasteur du Cambodge twinning programme to strengthen capacities of the Government of Cambodia (year two).
- Continue to support the NAHL-MORU technical assistance program (year two).

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

S2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

Activities undertaken during the current reporting period (1 April– 30 September 2013)

- Supported implementation and information update to the EMPRES-i and TADs Network Asia email list.
- Supported sharing of expertise and disease information across the network and among the international organizations and provided inputs when applicable.

Planned activities for the next reporting period (1 October 2013 – 31 Mach 2014)

- Continue to support the sharing of expertise and disease information across the network.
- Continue to support sample referral for disease confirmation upon request from the network laboratories *(sub activity S2.G1.r).*

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved QA practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system.

S3.H External Quality Assessment (EQA) for diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Conducted the Regional Proficiency Testing Programme, including procurement and distribution of the proficiency testing panels for diagnoses of influenza A, H5-influenza, PRRS, CSF, ASF, rabies and ND viruses, with AAHL as an implementing partner *(sub activity S3.H1.r).*

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Backstopping missions by AAHL experts have been planned to fourteen participating laboratories in Cambodia, Laos, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam from October to December 2013. The purpose of these missions is to ensure the implementation of appropriate diagnostic protocols under a QA system. The activity is part of the 2013 Regional Proficiency Programme *(sub activity S3.H2.r).*

S3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).

Activities undertaken during the current reporting period (1 April– 30 September 2013)

- Planned and coordinated a one-day International Air Transport Association (IATA) Certification Course for Shipper of Infectious Substances (IATA certification) to be held back-to-back with the Regional Laboratory Network Training of the Trainers (ToTs) Workshop on Biosafety Management (see below) *(sub activity S3.I1.r)*.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Provide an IATA certification training back-to-back with the Regional Laboratory Network Training of the Trainers (ToTs) Workshop on Biosafety Management with MORU as an implementing partner *(sub activity S3.I1.r)*.

S3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- The 2013 Regional Biosafety Programme has been implemented. The programme included the development of regional resource materials on biosafety practices and trainings to be used at the Regional Laboratory Network Training of the Trainers Workshop on Biosafety Management *(sub activity S3.J1.r)*.
- Planned and coordinated the organization of the Regional Laboratory Network Training of the Trainers Workshop on Biosafety Management, with MORU as an implementing partner.
- Delivered a follow-up biosafety training for the Sabah Wildlife Department, Kota Kinabaru, Malaysia from 25-28 July 2013 with the EcoHealth Alliance and Sabah Wildlife Department as implementing partners. The training course was attended by 23 participants from EcoHealth Alliance and Sabah Wildlife, as well as the Veterinary Research Institute, Ipoh and PERHILITAN, Kuala Lumpur *(sub activity S3.J2.MY).*
- A follow-up training on biosafety and good laboratory practices was conducted at the Regional Animal Health Office No. 6 (RAHO 6) from 20-22 June 2013 in collaboration with RAHO 6. The training course was attended by 36 staff from the national network laboratories under Department of Animal Health, Viet Nam *(Linked to sub activity S1.E2.VN).*

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Conduct the Regional Laboratory Network Training of the Trainers (ToTs) Workshop on Biosafety Management for participating laboratories with MORU as an implementing partner, from 9-20 December 2013 in Bangkok, Thailand *(sub activity S3.J1.r).*
- Distribute the regional resource materials for biosafety practices and trainings to the laboratory network *(sub activity S3.J1.r).*

S3.K Targeted support for laboratory quality management systems, including biosafety.

Activities undertaken during the current reporting period (1 April– 30 September 2013)

- Biosafety expert visits were provided to assess biosafety infrastructure, equipment and practices, and provide recommendations, including remedial activities, to four laboratories: National Centre for Veterinary Diagnosis in Hanoi, Viet Nam; Regional Animal Health Office No. 6 in Ho Chi Minh City, Viet Nam; FMD-Regional Reference Laboratory in Nakorn Raschasima, Thailand; and the Center of Excellence for Emerging Infectious Diseases in Animals, Chulalongkorn University in Bangkok, Thailand *(sub activity S3.K1.r).*
- The 2013 biosafety cabinet calibration and certification was scheduled from 14 August to 15 November 2013 for approximately 170 biosafety cabinets in 29 laboratory locations in 10 participating countries, including Cambodia, Lao PDR, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Viet Nam, Bangladesh, and Nepal *(sub activity S3.K2.r).*
- Coordinated and supported activities under the Technical Assistance Programme for Enhancing Quality Laboratory Management, including quality laboratory services and biosafety management at the National Animal Health Centre, Lao PDR with MORU as an implementing partner *(sub activity S3.K3.a.LA)*.
-

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Conduct the biosafety risk assessment in IDENTIFY-supported laboratories in South and Southeast Asia according to the 2014 regional biosafety programme *(linked to sub activity S1.A1.reg)*.
- Coordinate and support activities related to providing technical assistance, equipment and supplies to the laboratory network based on the expert's recommendations from the laboratory assessment missions.

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

S4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Planned and coordinated the Regional Laboratory Network Animal Health Laboratory-Technical Advisory Group back-to-back with the first Association of Southeast Asian Nations (ASEAN) Laboratory Directors' Forum meeting in collaboration with OIE and the Directorate General of Livestock Services, Indonesia *(activity S4.L1.r).*
- Provided support to activities in alignment with the ASEAN Regional Framework for Laboratory Capacity Building and Networking.
- The IDENTIFY|FAO Southeast Asia coordinator provided technical inputs at the Field Epidemiology Training Programme for Veterinarians, 14-16 August 2013, Bangkok, Thailand.
- The IDENTIFY|FAO Southeast Asia coordinator participated and provided technical inputs at the USAID EPT Program Asia Regional Meeting, 18-19 June 2013, Bangkok, Thailand.

- The IDENTIFY|FAO Southeast Asia coordinator participated and provided technical inputs at the tripartite meeting of IDENTIFY Project Headquarters, Regional and Country counterparts in South and Southeast Asia, 20 June 2013, Bangkok, Thailand.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Organize the Laboratory-Technical Advisory Group meeting scheduled from 29 to 30 October 2013 to be held back-to-back with the first ASEAN Regional Laboratory Directors' Forum scheduled from 31 October to 1 November 2013 in Yogyarkarta, Indonesia. The meetings were jointly organized by the Directorate General of Livestock Services, Indonesia, FAO and OIE. *(sub activities S4.L1.r and S4.L2.r).*
- Circulate the updated regional protocol for diagnosis of AI, including H7N9 in SE Asia.

S4.M Enhancing the role of Regional Leading Laboratories.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Provided support on laboratory capacity building activities at the SEA Regional reference/leading animal health laboratories *(sub activities S4.M2.a.TH, S4.M2.b.VN).*
- Collaborated with NIAH, Thailand to organize a regional workshop on diagnosis of ND and rabies *(sub activities S4.M2.a.TH also linked to S1.E1.TH).*
- Collaborated with RAHO 6, Viet Nam to organize a regional workshop and training on the diagnosis of swine diseases *(sub activities S4.M2.b.VN also linked to S1.E2.VN).*
- Supported studies on pig diseases including PRRS and CSF for RAHO 6, Viet Nam through the provision of reagents for diagnosis of PRRS, CSF, and Aujeszky's disease viruses (pseudorabies) *(sub activity S4.M2b.VN*).

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Continue to support activities related to enhancing the role of Regional Leading Laboratories.
- Support the visibility of the regional reference/leading laboratories at the Regional Laboratory Network Animal Health Laboratory-Technical Advisory Group, and the first ASEAN Laboratory Directors' Forum.

S4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- A national laboratory coordinator was provided to support activities related to strengthening laboratory quality services at the national laboratory networks in Indonesia *(sub activity S4.N3.ID)*.
- The IDENTIFY|FAO Southeast Asia coordinator participated and provided technical inputs at the Philippine Animal Health Centre Strategic Planning Workshop from 14-18 May 2013 in Quezon City, Philippines. The meeting was organized by OIE, in collaboration with the Philippine Animal Health Centre.
- The IDENTIFY|FAO Southeast Asia coordinator participated and provided technical inputs at a strategic planning workshop follow-up activity for NaVRI-Cambodia from 26-27 September 2013 in Preah Sihanouk province, Cambodia. The meeting was organized by OIE, in collaboration with NaVRI.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Continue to support activities related to strengthening the national laboratory network in participating countries.
- Support the Vietnamese National Veterinary Conference in collaboration with Hanoi University of Agriculture *(sub activity S4.N5.VN).*

S4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Provided support for four-way linking activities planned in Bangladesh and Indonesia to improve the linkage between laboratory and epidemiological experts from animal and public health sectors *(sub activities S4.O3.BD, S4.O4.ID).*

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Continue to provide support for four-way linking activities planned in Viet Nam, Bangladesh, and Indonesia to improve the linkage between laboratory and epidemiological experts from animal and public health sectors *(sub activities S4.O2.VN, S4.O3.BD, S4.O4.ID).*
- Four-way linking review mission (November 2013) and workshop (March 2014) in Bangladesh.

S4.P Support for participation in scientific conferences, trainings, or workshops.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- No activities during the reporting period.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Coordinate and provide support for participation in scientific conferences, trainings, and workshops upon request.

3 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 APRIL 2013 – 30 SEPTEMBER 2013) AND PLANNED ACTIVITIES FOR THE NEXT REPORTING PERIOD (1 OCTOBER 2013 - 31 MARCH 2014)

3.1 ACTIVITIES CONGO BASIN COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

C1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- No mapping took place during the reporting period, as the data call was postponed at the end of the project. However, the overall mapping data were analysed and compared. As a follow-up of this analysis, the laboratory mapping tool is being revised for better results and consistency over time (*linked to global activity G1.A*).
- Compiled and analyzed the mapping exercise results in the RSLs:
    - Results of the mapping exercise were shared with the Eastern Africa Regional Support Laboratory (NAHDIC-Ethiopia) for compilation and analysis. Feedback from NAHDIC is expected. Regarding the two RSLs based in West Africa, results of the completed LMT are expected from Vom (Nigeria) and the Laboratoire National d'Elevage et de Recherches Vétérinaires (Senegal).

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Mapping national and regional laboratory resources for animal health (*sub activity C1.A.1*).
- Contribute to global compilation of updated regional data on laboratory capacity and networks (*sub activity C1.A.2*).
- Contribute to the revision and the dissemination of the FAO LMT (*sub activity C1.A.3*).
- Contribute to the laboratory interviews (*sub activity C1.A.4, linked to the global M&E effort G1.A*).

C1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Provided equipment, supplies, manuals and equipment maintenance services (*sub activity C1.B1*):
    - Continued follow-up of diagnostic kit delivery if not yet completed. Laboratory equipment and diagnostic kits were procured for all beneficiary laboratories with a close follow-up by the FAO|IDENTIFY project team in the Congo Basin region and FAO country offices. Although there were delays in the delivery of some parcels, all procured equipment and diagnostic kits have been delivered with satisfaction.
- Assisted laboratory equipment procurement (*sub activity C1.B2*): On-site missions carried out by external and/or internal experts monitored delivery and appropriate use of procured equipment and reagents provided to beneficiary laboratories. The experts listed the items still missing that could be procured in years four or five of the project. Three on-site missions

were carried out in Congo, Democratic Republic of the Congo and Uganda during the reporting period with the following findings:

- Congo: Two experts from IZSVe took advantage of the hands-on training on rabies diagnostics held at Laboratoire de Diagnostic Vétérinaire de Brazzaville (LDVB) (Brazzaville, 3-7 June 2013) to begin using the new equipment provided by the IDENTIFY project (biological cabinet, bench autoclave, incubator, refrigerator-freezer and a UV-microscope). The experts trained laboratory staff on proper use and basic maintenance requirements. In order to optimize the use of the new equipment, a water distillatory and an auto-start power generator are urgently needed to overcome frequent power cuts and inconstant voltage issues.
- Democratic Republic of the Congo: The laboratory expert that assessed the laboratory in Goma also visited the laboratory at Kinshasa (3-6 May 2013) and checked proper reception, installation and use of laboratory equipments delivered under IDENTIFY (*also linked to sub activity C4.N).*
- Uganda: Two visits were made by FAO IDENTIFY project staff (13 July and 9 September 2013) to NADDEC (Uganda) to assess progress under the national LoA.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Provision of equipment, supplies, manuals and equipment maintenance services (*sub activity C1.B1*): purchase of basic laboratory items for the Democratic Republic of the Congo planned as a follow-up of the assessment mission in the contry.
- Assist mission for installation of procured laboratory equipment (*sub activity C1.B2*): Assistance in the proper use of laboratory equipment received will be extended to other laboratories during expert on-site visits in the coming months.
- Explore possible schemes and procedures for coordinated procurement of key reagents in Africa (*sub activity C1.B3*).

C1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- National field pathology trainings were provided under LoAs with laboratories (*activity C1.C.1*) were conducted in Cameroon (April 2013) and Congo (August 2013):
  - Cameroon: A total of 61 persons from the *Laboratoire National Vétérinaire*, Cameroon (LANAVET) and field veterinary staff participated in two trainings organized in Garoua (from 9-11 April 2013 with 22 participants, and Yaoundé from 23-25 April 2013 with 41 participants) on necropsy techniques, sample collection and good shipping practices. Training reports have been made available to FAO by the LANAVET.
  - Congo: 20 participants from LDVB and field veterinary staff from six departments (Brazzaville, Cuvette Ouest, Likouala, Plateaux, Pool and Sangha) attended the training on necropsy techniques, sample collection and good shipping practices that was held from 20 to 23 August 2013. Trainings reports have been shared with FAO by the laboratory.
- Investigation and data collection on targeted diseases (*sub activity C1.C.2*):
  - Cameroon: 1 327 samples (110 percent of the 1 200 targeted samples planned in the LoA) were collected (PPCB: 265; FMD: 265; ND: 143; PPA: 189; PPR: 202) in the Far North and the North regions and tested at LANAVET in Garoua. Additional sampling activities are underway in the Adamoua Region. Laboratory analyses a*re underway and the re*sults will be compiled in the final report of the LoA.
  - Congo: 2 224 samples were collected, out of which 1 676 were of good quality (167 percent of the 1 000 targeted samples planned in the LoA): 1 044 samples for

PPR; 476 samples for PPCB; 156 samples for ASF; 1 676 samples for FMD. The samples were submitted to LDVB as a result of a survey conducted in two departments (Cuvette and Cuvette-Ouest) from 30 June to 8 July 2013 to determine the prevalence of four priority diseases (PPR, ASF, CBPP and FMD).

- Gabon: 1 305 samples (843 for PPR and 462 for PPCB) of the 1 000 targeted samples in the LoA were collected by LNVL. Laboratory tests are underway and results will be made available in the final report of the LoA.
- Rwanda: 811 samples were collected, of which 150 were submitted to OVI for RVF confirmation.
- South Sudan: Of 500 samples targeted as per the LoA, 488 PPR and 273 RVF serum samples were submitted to CDVL, and tested using Competitive ELISA; the respective results were recorded.
- Tanzania: 616 samples (62 percent of the targeted samples as per the LoA) were collected and submitted to two zonal laboratories - Tanzania Veterinary Laboratory Agency (TVLA) centre in Iringa and TVLA centre in Tabora. 225 samples were tested for PPR; 97 for ASF; 158 for CBPP; 4 for FMD; and 132 for LSD. Sample collection activities are still ongoing and more samples are expected to be submitted to the laboratories.
- Uganda: Out of the targeted 5 000 samples, 1 931 samples (39 percent of the targeted samples as per the LoA) were submitted to NADDEC and testing is reported as ongoing.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- National Field Pathology trainings to reinforce the capacities of laboratory staff previously trained will be conducted to finalize activities under national LoAs (*sub activity C1.C.1*).
  - Central African Republic: Serious security issues following the unstable political situation prevented implementing this activity. Therefore, this activity is now planned for the next reporting period and the LoA will be extended accordingly.
  - Gabon: In the past months, many changes occurred in the management team of the LNVL, including the change of the Director. This situation has hampered the organization of the training as well as the implementation of other project activities in the country. A new scheduling of activities has been established through a no cost extension of the LoA.
- Investigation and data collection on targeted diseases will be conducted to finalize activities under national LoAs (*sub activity C1.C.2).*

C1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Develop training kits on laboratory equipment and calibration, and follow-up on previous trainings on laboratory equipment and calibration (*sub activity C1.D1*).

C1.E Strengthening regional resources for selected animal diseases.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Disseminate laboratory cards (available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses) for IDENTIFY priority diseases (*sub activity C1.E.1, linked with sub activity G1.E.1*).
- Produce and disseminate disease cards (case definition and recommended test repertoire for IDENTIFY listed priority diseases) (*sub activity C1.E.2*).
- Provide access to sequencing services to Cameroon, Ethiopia, Kenya, Democratic Republic of the Congo, Tanzania, Uganda, Nigeria, Senegal, Botswana (*sub activity C1.E.3*). The sequencing provider has been selected (*linked to sub activity G.1.E.5*). The handbook will be disseminated to users (*linked to sub activity G1.E.4*).
- Assist countries on genotyping through sequencing of CBPP strains, in accordance with the validated protocol (*sub activity C1.E.4*).

C1.F Targeted support for strengthening diagnostic capacity and laboratory management.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Supported capacity development in bush meat microbiology in Congo, Central African Republic and Gabon (*sub activity C.1.F.1*): validated the terms of reference of the missions, and recruited an international consultant.
- Continued to support capacity development in antimicrobial resistance for food safety, including training, supplies and sampling (*Uganda, sub activity C.1.F.2*): initiated planning of the training and prepared a list of items for procurement together with the laboratory. Owing to budget constraints, this activity is no longer planned under IDENTIFY.
- Continued to strengthen advanced ASF capacities (*sub activity C1.F.3*): the tools developed by the staff from Cameroon are used routinely at the FAO/IAEA joint division for ASF genotyping. Samples from Ethiopia and Democratic Republic of the Congo were genotyped using the primers and SOPs developed.
- On site missions to develop diagnostic competence:
  - Specific assessment/on-site training on ASF in Tanzania, Uganda , Congo and Gabon (*sub activities C1.F.4 and C1.F5*): the terms of reference of the consultant were prepared and approved.
  - On-site mission to develop diagnostic competence for CBPP in Bangui (Central African Republic), Brazzaville (Congo), Libreville (Gabon) and Uganda (*sub activities C1.F.5 and C1.F7):* the terms of reference are completed and the international consultant has been recruited. Planning of the missions has been initiated.
  - On-site missions to develop diagnostic competence for rabies (*sub activity C1.F.6*): on-site technical assistance and hands-on training related to rabies diagnosis including rabies blind tests were organized in the national laboratory of Republic of the Congo, under the LoA with IZSVe; a hands-on rabies diagnostic training was performed in Congo (3-7 June 2013, LDVB in Brazzaville) by two experts from IZSVe, and was attended by seven trainees from LDVB and one from a public health laboratory (Laboratoire National de Santé Publique). The training addressed general information on rabies (aetiology, pathogenesis, symptoms in animals, epidemiology) and the available techniques to diagnose the disease in animals (both OIE/WHO recommended methods, as well as techniques under evaluation for rabies diagnosis or confirmation). Management of a diagnostic sample by a diagnostic laboratory, as well as recommended storage conditions and sample shipping procedures according to the international regulations (IATA) were also presented and discussed by the trainers. The trainers also stressed the importance of the biological risk assessment evaluation in the laboratory when working

with infectious agents. The improvement of the general knowledge was estimated at about 17 percent, based on a questionnaire submitted to trainees.



Rabies training.Brazzaville.3-

- On-site mission to design a strategy for the development of the national laboratory of Equatorial Guinea (*sub activity C1.F10*): the mission was postponed in order to obtain the full commitment of the officials to implement mission findings. However, this activity is not planned in year five because of budget constraints.
- Transfer of technology of protocols developed by the FAO/IAEA joint division (PCR using the FRET system) in Senegal, Uganda and Ethiopia (*linked to activity G1.F*).

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Support competence development in bush meat microbiology (*sub activity C1.F1*) in Congo and Gabon.
- Strengthen advanced ASF diagnostic capacities in Cameroon (*sub activity C1.F2*): the scientist from Cameroon will join the FAO/IAEA joint division in October 2013 for eight months under another project. However, he will contribute to the IDENTIFY project in evaluating tagged ASF primers to support the access to sequencing services by African Laboratories.
- On-site missions to develop diagnostic competence for ASF (*sub activity C1.F3)*: the missions in Tanzania, Uganda , Congo and Gabon are tentatively scheduled in January/February 2014.
- On-site missions to develop diagnostic competence for CBPP (*sub activity C1.F4)*: missions in Central African Republic, Congo, Gabon and Uganda are tentatively planned to start in January/February 2014.
- On-site assessment mission on local situation in central African Republic (*sub activity C1.F5)*.
- On-site mission to develop diagnostic competence for rabies (*sub activity C1.F6)*: trainings will be organized in Gabon and South Sudan (staff are being vaccinated).
- Develop competencies on new and advanced laboratory testing based in Cameroon (*sub activity C.1.F7)*: two laboratory experts will participate in a four week internship at the PREDICT laboratory in Yaoundé.
- Develop competencies on laboratory testing of samples by applying PREDICT protocols on samples from domestic animals in Cameroun (*sub activity C1.F8)*.
- Field support mission held in Uganda by FAO/IAEA joint division to transfer knowledge on using tagged primers for sequencing, post-PCR product processing and shipment for sequencing, and established local capacity for post-sequencing raw data analysis (*sub activity C1.F9).*

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

C2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Provided continued support for sample referral from national laboratories to RSLs and international reference laboratories for disease confirmation for all supported laboratories (*sub activity C2.G.1):*
    - Cameroon: Samples of FMD were sent to Plum Island and the University of Ohio, USA. All FMD diagnostic laboratory results were shared with Plum Island, the

University of Ohio and Botswana Vaccine Institute with the aim of producing a FMD vaccine.
    - Rwanda: 150 suspected RVF samples were sent to Onderspoort Veterinary Institute (the OIE reference laboratory for RVF) for confirmation by DVS-Rwanda Agriculture Board on 13 November 2012.
- Contributed to the Global Consultation on laboratory policy by providing information regarding procedures in Africa (*sub activity C2.G3, linked to global sub activity G2.G.2*):
    - Five laboratories in the Congo Basin (LANAVET/Cameroon, LNVL/Gabon, Laboratoire National d'Elevage et de Recherches Vétérinaires /Senegal, NVRI/Nigeria and OVI/South Africa) were targeted as pilot laboratories for the laboratory policy review in the Congo Basin. Thus far, accurate information from laboratory policy documents was collected from Cameroon, Senegal, Gabon and Tanzania. As a result of this review, the key guidelines for laboratory policy development were presented during the EARLN annual meeting held in Bujumbura in July 2013. Three concept notes to operationalize the guidelines and strengthen laboratory policy at national level were prepared for Cameroon, Congo and Tanzania, and one concept note was prepared for a non-IDENTIFY beneficiary country (Chad). Funding to implement these pilot activities is expected from alternative sources.
- Reviewed public-private partnerships and sustainability of veterinary laboratories in sub-Saharan Africa (*sub activity C2.G.3)*:
    - The terms of reference of a national consultant for the public-private partnership (PPP) study in Tanzania were developed and submitted to the FAO Representation in Tanzania. The national expert is being selected.
    - An article on PPP was published in October 2013 (p.21-23: http://www.fao.org/docrep/018/i3470e/i3470e.pdf). A concept note and a leaflet on PPP were also finalized. *(see embedded document)* In Cameroon, the LANAVET annex in Yaoundé is now operational and started delivering priced services to the private sector in April 2013. The LANAVET annex has been very active, with a total of 1 229 samples submitted to investigate PPR, ASF, FMD and poultry diseases.



PPP leaflet.2013

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Support sample referral from national laboratories to RSLs and international reference laboratories for disease confirmation (*sub activity C2.G1).*
- Conduct sampling activities on wildlife at LDVB, Congo (*sub activity C2.G2).*
- Advocate for laboratory policy development in the Congo Basin region (*sub activity C2.G3).*
- Review public-private partnerships and sustainability of veterinary laboratories in sub-Saharan Africa (*sub activity C2.G4):* the preliminary mission of the national expert for the PPP study in Tanzania is planned on November 2013 to collect baseline information in Tanzania. This first round of the PPP study in Tanzania will be followed by another mission by international experts in Cameroon and the Democratic Republic of the Congo in 2012.

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved quality assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system.

C3.H External quality assessment (EQA) for diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Conducted regional proficiency testing (AI and ND, RVF, PPR, ASF) (*sub activity C.3. H.1):*
  - AI and ND: Results of 2012 proficiency testing (organized by IZSVe) were presented during the Eastern Africa fourth joint regional epidemiology and laboratory networks meeting held in July 2013 in Bujumbura, Burundi. For Cameroon, Congo, Gabon and Democratic Republic of the Congo, the test results will be presented at the first Central Africa RESOLAB meeting (tentatively planned in Chad, January 2014). Logistical issues hindered the completion of AI/ND proficiency testing in Rwanda; the reagents for testing were shipped from IZSVe Padova in the first week of April 2013 for Rwanda to complete the AI/ND proficiency testing. All five RSLs in sub-Saharan Africa agreed to participate to the second OFFLU ring trial (organised by NVSL-USA and FLI-Germany) and submitted their results during the reporting period.
  - PPR: The third round of the EQA for molecular detection of PPR was conducted. Panels were prepared by the Joint FAO/IAEA division and shipped to Nigeria, Cameroon, Tanzania, Ethiopia, Uganda and Democratic Republic of the Congo.
  - RVF: The first round of proficiency testing for RVF serological diagnosis was completed. Ten participants have tested the panel and submitted their results to the organiser. Feedback was sent to participating laboratories in May 2013; corrective actions will be discussed during the next reporting period. Provided an assessment of the individual performance of each laboratory and the overall score and agreement between each laboratory and the Center for Emerging and Zoonotic Diseases (former special pathogen unit) of the national institute for communicable disease (South Africa), which served as the reference laboratory. The performance of two kits (the IDVET competitive ELISA and the BDSL Inhibition ELISA) were simultaneously assessed.
- Provided backstopping missions at country level to aid with EQA (*sub activity C3.H2*):
  - South Sudan: Training on EQM was conducted on 6-13 April 2013 at the Central Veterinary Diagnostic Laboratory in Juba by an international expert to provide assistance on developing Quality Laboratory Management, SOPs and laboratory bench work guidelines. A second visit for the EQA mission will be necessary, especially when the laboratory moves to a new site.



EQA mission
Juba.6.13April2013

  - Uganda: an internal audit was conducted to adjust non-conforming items and review quality system documents according to the recommendations formulated during the last on-site mission.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Regional proficiency testing (AI and ND, FMD, RVF, PPR, ASF) (*sub activity C3.H.1)*:
  - AI and ND organized by IZSVe: Botswana, Cameroon, Ethiopia, Gabon, Kenya, Nigeria, Senegal, South Sudan, Tanzania and Uganda.

- RVF (with FAO/IAEA and the National Institute for Communicable Diseases/South Africa) organized for the Democratic Republic of the Congo, Ethiopia, Senegal, Tanzania and Uganda. Discussions to be held with the National Institute for Communicable Diseases/South Africa and a technical contract to be prepared by the FAO/IAEA joint division for the second EQA program for serological diagnostics of RVF virus.
- PPR organized by FAO/IAEA for Cameroon, Republic of Congo, Democratic Republic of the Congo, Ethiopia, Gabon, Senegal, Tanzania and Uganda.
- ASF (organized by an FAO reference centre) for Cameroon, Republic of Congo, Democratic Republic of the Congo, Ethiopia, Tanzania and Uganda.
- CBPP organized by CIRAD for CAF, Gabon, Republic of Congo and Uganda.
- FMD organized by IAH, Pirbright in collaboration with EU-FMD for the Democratic Republic of the Congo, Senegal, Nigeria and Botswana.

- Results of all proficiency testing (including rabies and other diseases, if any) from all partners will be integrated to shape regional testing programs (*sub activity C3.H.1).*
- Three backstopping missions will be organized at country level to aid with EQA 3 countries, according to results obtained during proficiency testing (*sub activity C3.H.3).*

C3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (*refer to activity group J*).

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Conducted regional trainings on equipment maintenance and calibration (*sub activity C3.I.1*): five participants from Cameroon, Central African Republic, Congo, Democratic Republic of the Congo and Gabon attended the training organized from 3-7 June 2013 in Dakar, Senegal. Other participants from non-IDENTIFY beneficiary laboratories (Burkina Faso, Côte d'Ivoire, Mali, Niger, Chad and Senegal) sponsored by another funding source also attended the training. The training gathered maintenance officers who improved their skills on maintenance of key laboratory equipment, including biological safety cabinets, controlled/dust-free rooms, spectrophotometers, CO2 incubators, optical microscopy, analytical balance and an ultra deep freezer.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- N/A.

C3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- N/A.

C3.K Targeted support for laboratory quality management systems, including biosafety (at country level).

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Continued to support the laboratory biosecurity/biosafety implementation, including the completion of minor laboratory repairs (*implemented through national LoAs, sub activity C3.K1*):

- Cameroon: As a follow-up of the assessment mission conducted by an FVI expert in February 2011, a sample reception room was set up, eight staff were vaccinated against rabies and 80 percent of SOPs and other quality documents were developed and disseminated.
- Congo: A water tank and a high water pressure pump were installed. The quality system documentation was updated.
- Gabon: 80 percent of SOPs for diagnostic tests currently performed at the laboratory were developed. Eight staff were vaccinated against rabies.
- Rwanda: Laboratory renovations were delayed because of lengthy local tender procedures. However, the major renovations have been carried out.
- Tanzania: Electronic locks were installed on all three doors whilst 20 laboratory personnel involved in rabies necropsy and diagnosis (in pathology and virology sections) were vaccinated against rabies.
- South Sudan: Renovations on the CVDL were carried out (air conditioners repaired, electricity and water system repaired, laboratory benches in place, laboratory partitioned into three units). Sustainable cold chain system put in place. As the laboratory will be moved to a new site, a visit to assess laboratory quality management needs will be required.

- Supported the implementation of LIMS in Tanzania and Botswana (*sub activity C3.K3*, *under LoA with IZS Teramo).* In Tanzania, LIMS- LABs Information and Management System (SILAB) has been installed on the local server at TVLA. Staff from the Sample Reception, Pathology, Bacteriology and Animal Science sections were trained and are now able to use the system autonomously. Final test reports generated by SILAB are currently sent to TVLA's customers. Interfacing the SILAB and TADinfo systems was discussed and will be explored by IZS Teramo.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Support laboratory biosecurity/biosafety implementation, (minor renovations in the laboratories) (*sub activity C3.K1*) in all countries except CAF, Equatorial Guinea and Rwanda.
- Conduct on-site audit and training on quality assurance (*sub activity C3.K2*, *under LoA signed with FVI*): on-site audit/backstopping missions on QA will be performed by FVI for all countries except Equatorial Guinea and Central African Republic.
- Complete support for implementation of LIMS in Tanzania and Botswana (*sub activity C3.K.3, under LoA with IZS Teramo):* in Tanzania, staff from TVLA will autonomously extend SILAB use to other sections of the laboratory with IZS Teramo's remote support.

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

C4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Provided support to regional networking:
  - Supported ASF regional network meeting (20-22 May 2013 Entebbe, Uganda) of the ASF Working Group for Eastern Africa (*sub activity C.4.L.1*). Launched the ASF Working Group

in Kampala during a meeting organised from 11-14 June 2013. Country focal points were appointed during the meeting. The meeting also adopted an action plan that includes consultations on national strategies for the control of ASF; modalities for the selection of regional diagnostic laboratories for ASF using the model from AI; a framework for sampling at the field level; harmonized surveillance of ASF; preparedness and contingency plans; mechanisms for information sharing between cross border districts; and cross-border collaboration in outbreak investigations. An *ad hoc* ASF sub-network working group was established to look into sylvatic cycles and bring on board other stakeholders, including the private sector, conservation agencies and farmers.

Provided support for rabies regional networking: Inputs and technical backstopping provided to the rabies RESOLAB sub-network, under the LoA with IZSVe; collected and shared information on the rabies situation, including confirmed cases, by laboratories in CRA, Democratic Republic of the Congo and the two RSLs (Senegal and Nigeria); prepared the first RESOLAB rabies sub-network quarterly report. Assistance was also provided by IZSVe, including the provision of sampling and laboratory diagnostic protocols, which were uploaded to the website of ECTAD Bamako. FAO and IZSVe prepared an update on the laboratories' rabies diagnosis activities in Central and West Africa[2]. Assistance has been provided for the celebration of Word Rabies Day (28 September 2013) by making flyers and key messages available to rabies country focal points.

- Organized the year four work plan implementation meeting and year five planning of the IDENTIFY|FAO project, with help from laboratory directors and Chief Veterinary Officers. IDENTIFY target countries were given the opportunity to comment, make suggestions and agree to the implementation of all activities for years four and five. The meeting was held in Douala, Cameroun from 4- 6 June 2013, with 30 participants including CVOs and laboratory directors of IDENTIFY beneficiary countries in the Congo Basin Region (except Rwanda). The project's achievements in year four were discussed. Participants developed a draft of the year five workplan. The meeting provided a good forum to discuss opportunities for collaboration with PREDICT in Cameroon and Congo regarding applying PREDICT testing protocols to diagnose disease in domestic animals. A joint session of the FAO|IDENTIFY Project and PREDICT was organized to select key stakeholders in Cameroon and address sampling activities in wildlife (Congo). The final communiqué of the meeting is available on the ECTAD Bamako website[3].
- Organized the fourth joint (EARLN/ Eastern African Region Epidemiology Network) annual coordination meeting, held from 16-19 July 2013 in Bujumbura, Burundi, with representatives from 10 countries and participants representing FAO, OIE, African Union Interafrican Bureau for Animal Resources, African Union Panafrican Veterinary Vaccine Centre, IGAD and IZSVe Padova. The meeting was organized within the framework of the implementation of the European Commission-funded programme entitled "Reinforcing Veterinary Governance in Africa". Two side meetings of the Eastern African Region Epidemiology Network and EARLN took place to discuss challenges faced by the national epidemiology networks and the central veterinary laboratories; also discussed was the needs assessment on epidemiology training and the report of the EA Regional Support Laboratory. The final communiqué of the meeting is available on the ECTAD Nairobi website[4].

[2] http://www.fao-ectad-bamako.org/fr/Update-on-animal-rabies-diagnostic?lang=en

[3] http://www.fao-ectad-bamako.org/fr/IMG/pdf/final_communique_IDENTIFY_Meeting_Douala2013_Eng.pdf

[4] http://www.fao-ectad-nairobi.org/IMG/pdf/Final_communique_EAREN_EARLN_Bujumbura_meeting.pdf

- Provided funding for an officer from headquarters to attend the ''Workshop on PPR Prevention and Control in the Southern African Development Community region- Preparing Southern African Development Community countries for the possible introduction of PPR into PPR-free areas (disease identification, control and management)'', Dar es Salaam, Republic of Tanzania, from 10-13 June 2013.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Support activities of regional thematic sub-networks (i.e. rabies, ASF, CBPP, FMD, PPR) (*sub activity C4.L1*).
- Present activities and results of rabies RESOLAB subnetwork, including support provided by IDENTIFY in two rabies conferences (Senegal and Canada): AfroREB (8-10 October 2013, Dakar, Senegal); Rabies in the Americas/Rita (27-31 October 2013, Toronto, Canada).
- Hold one regional support laboratory annual meeting in Senegal, Botswana, Ethiopia and Nigeria (*sub activity C4.L2*).
- Hold two regional animal health networks meetings (*sub activity C4.L3*).
- Hold conclusive meeting for IDENTIFY beneficiary countries (*sub activity C4.L4*).
- Hold hand-over meeting for RESOLAB coordinators (tentatively planned for November 2013) (*sub activity C4.L5*).
- Hold annual regional laboratory network meeting (RESOLAB) (tentatively planned in Chad for January 2014) (sub activity C4.L6).

C4.M Enhancing the role and status of Regional Support Laboratories.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

N/A.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Hold conclusive meeting for validation/endorsement by beneficiary laboratories, CVOs and commitment by key partners (*sub activity C.4.M.1*). This activity has been postponed to year five, as a hard commitment from Regional Economic Communities (RECs) is required in order to implement findings of the meeting. Discussion on institutional arrangements with RECs are underway.
- Review annual reports submitted by RSLs for M&E purposes, and to identify strengths and gaps.

C4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- Continued support to national laboratory network meetings and related activities (*sub activity C4.N1*): In Cameroon, 3 000 brochures and flyers on the services and products of LANAVET were produced and disseminated. At least 100 copies of scientific papers from EMPRES and IDENTIFY projects were disseminated during the workshops organized by LANAVET. An open day was organized.
- Supported the animal health laboratory in Goma (DR Congo) to carry out basic serology analysis and good practices on sampling and shipment (PPR, FMD) (*sub activity C4.N3*): a mission was conducted at the laboratoire vétérinaire de Goma (Democratic Republic of the Congo) from 6-14 May 2013 in order to: (i) assess laboratory needs (equipment and reagents) and perform routine testing (serology) on targeted diseases; and (ii) train laboratory staff on biosecurity, biosafety, sampling and shipment of samples to regional or reference laboratories. The laboratory expert also visited the laboratory at Kinshasa (from 3-

6 May 2013) to assess the implementation of the activities under the LoA, and check proper reception, installation and use of laboratory equipment delivered under IDENTIFY. Contact was also made with PREDICT to envisage collaboration between PREDICT and the national laboratory.

Planned activities for the next reporting period (1 October 2013 – 31 March 2014)

- Support minimal laboratory diagnostic capacity in Goma (Democratic Republic of the Congo) (*sub activity C4.N1*).
- Support national laboratory network in Cameroon (sub activity C4.N1).

C4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 April – 30 September 2013)

- A One Health seminar on rabies was held in Brazzaville, Congo (12-13 June 2013) (*sub activity C4.O1*): a stakeholder consultation was held before the seminar with the objective to exchange and share information on rabies and identify best practices and opportunities to control rabies in Congo. The meeting gathered fifty participants from veterinary services (central and district veterinarians) and public health services.



RabiesOneHealth.Brazza.June2013

- Held national seminars on One Health (*sub activity C4.O3*):
  - In Cameroon, 20 participants from public health, veterinary and environmental laboratories attended a national seminar on "Establishment of public health, veterinary and environmental laboratories network in Cameroon" held in Mfou on 23 August 2013. A draft of a decree to establish the network was adopted. Participants agreed to establish a list of resource personnel, and to develop information sharing mechanisms. A second One Health seminar was organized at LANAVET Garoua on 30 August 2013. Twenty participants from universities, professional schools and various ministries (livestock, public health, environment and wildlife) attended the seminar. Participants agreed to include One Health training modules in the curricula of academia and to organize a One Health seminar in each of the 10 regions of Cameroon. These meetings are part of the group dynamics for the implementation of the One Health concept in Cameroon, which resulted in another meeting on "Advocacy for intersectorial support to laboratories" (Yaoundé, 21 August 2013). This meeting was attended by LANAVET and 19 other participants from the Ministries of Livestock, Public Health, Environment and Wildlife. The meeting participants committed to develop an advocacy document to be submitted to the national authority and the regional economic communities for funding.
  - The Democratic Republic of the Congo held the One Health seminar on 27-29 May 2013. 40 participants from Universities, Ministries from public health, Agriculture, Rural development, environnement and wildlife attended the seminar. The participants recommended other ''One health'' meetings to be organized, for better networking between the different sectors, and better surveillance and control of zoonotic diseases.
  - Uganda held a One Health seminar on 12 April 2013 with 56 participants from the Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Health, Uganda National Bureau of Standards, National Drug Authority, district health

officers, district veterinary officers, College of Veterinary Medicine, Animal Resources and Bio-Security, Uganda Wildlife Authority, Central Public Health Laboratories, FAO and USAID. The workshop objectives were: Understanding the One Health approach to disease control; developing network and communication strategies for improved disease control; and discussing strategies on sustaining laboratory networks in Uganda and beyond for long-term benefits.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Hold national One Health seminars on rabies, in Gabon and South Sudan (*sub activity C4.O1*).
- Finalization and dissemination of rabies training kits (*sub activity C4.O2*).
- Linking laboratory activities with country One Health initiatives, including implementation of One Health roadmaps (*sub activity C4.O3*).

G4.P Support for participation in scientific conferences, trainings or workshops.

Activities undertaken during the current reporting period (1 April - 30 September 2013)

- N/A.

Planned activities for the next reporting period (1 October 2013 - 31 March 2014)

- Upon countries' request.

4 MAIN CHALLENGES ENCOUNTERED AND RESPONSE PROVIDED

- Owing to budget constraints in year five, FAO decreased the overall level of activities, ended some activities (especially those under LoAs with national laboratories), ended all support to one country previously supported under IDENTIFY (Equatorial Guinea, except for participation in regional networking meetings with RESOLAB), and decreased funding for proficiency testing and procurement of laboratory supplies. These changes will be communicated to the countries once the year five IDENTIFY workplan has been fully approved.
- Several constraints at the end of year four, including institutional arrangements with key stakeholders (beneficiary countries, RECs...) resulted in the postponement of several key activities in Africa, including: the handover meeting to designated coordinators for RESOLAB/ Regional Network of National Epidemiosurveillance Systems for Transboundary Animal Diseases; the conclusive meeting on Regional Support Laboratories; on-site missions for rabies, ASF, CBPP and field pathology in four countries; a public-private partnership mission in Tanzania; and a follow-up QA mission in South-Sudan, for which countries expected FAO's support. The assessment mission for strategic development of a veterinary laboratory in Equatorial Guinea has been postponed in order to obtain the full commitment of the officials to implement mission findings. However, because of year five budget constraints this activity in Equatorial Guinea is cancelled. Countries and regions have been informed of these constraints.
- The low priority given to animal health in country policies and development strategies often leads to difficulties in mobilizing technical, financial and human resources at national level, thus compromising the sustainability of activities implemented under the project. Therefore, there is a need to intensify advocacy at country level and increase sustainable financial resources.
- Great efforts are being made to strengthen biosafety in SE Asia, for which the Southeast Asia Regional Biosafety Programme has been developed. Laboratory biosafety was made a priority topic at the Laboratory Directors' Forum meeting to advocate for more support from higher-level authorities. Emphasis has been made on awareness of biosafety practices among the laboratory staff in SE Asian laboratories. In Africa, only a few activities to strengthen biosafety have been conducted (training, assessment, minor repairs in the laboratory facilities) under IDENTIFY so far. However, this is a large undertaking and the development of a road map and a project with a dedicated budget is required.
- As most of the technical inputs have focused primarily on the key national veterinary laboratories in Southeast Asia, there remains a need to expand capacity building activities to other laboratories at the subnational level, and to improve the linkage of the laboratories and field staff to ensure the sustainable quality of laboratory services. It is believed that such objectives can be achieved by supporting the training/workshops at national level, and with assistance from the Regional Leading/Reference Laboratories, key national laboratories and other implementing partners. Several activities for enhancement of laboratory quality service among the national laboratory networks were planned during the next year to fulfil the above needs.
- The low level of resources allocated to veterinary laboratories by authorities in the Congo Basin continues to present a major challenge. The project is trying to address this issue through private-public partnership consultations conducted in Cameroon, Democratic Republic of the Congo and Rwanda. Outcomes of the ongoing work include: (i) targeted identification of products and services (e.g. poultry, pig and dairy sectors; post-vaccination control; and food safety analysis) that the laboratory could offer to the private sector, including an estimate of the additional resources which would be required; (ii) preparation of appropriate communications and promotion tools or activities (such as brochures summarizing recent laboratory analyses and related costs, open days, and participation in fairs) to initiate/improve client relationship and design complementary activities with other country veterinary laboratories (e.g. samples

submission, training); and (iii) review of legal status (e.g. opening of bank accounts, strengthening/training of commercial staff). By supporting the extension or improvement of laboratory diagnosis services to the private sector and addressing internal issues, the private-public partnership consultations are expected to improve the sustainability of some project activities, as well as provide contributory references to formulate a laboratory policy. Although the IDENTIFY project is improving communication between laboratories and other technical partners (including regional laboratories, FAO/OIE reference centres, national veterinary services, FAO, OIE, joint FAO/IAEA division), findings on PPP missions demonstrated the need for laboratories to engage in more transparency and communication with the private sector and other interested stakeholders on non-technical matters, such as priced services and products. This issue will be addressed during the next missions in Tanzania and Uganda, as well as follow-up missions in Cameroon, Democratic Republic of the Congo and Rwanda.

- Engagement of Regional Economic Communities and countries remains insufficient in Africa, while ASEAN countries have made great institutional progress engaging with laboratory and animal health centres in SE Asia. Discussions with RECs on the issue of Regional Support Laboratories are ongoing in Africa. FAO would like to ensure that meeting findings from the conclusive meeting on the institutionalization of RSLs are fully endorsed by RECs. ECOWAS has paved the way for such commitment by recognizing the two RSLs in West Africa, and discussions are underway with UA IBAR with the support of FAO decentralized offices.

- Most beneficiary laboratories in the Congo Basin and Southeast Asia still face the issue of low quality and quantity samples received from the field. The IDENTIFY project does not cover any surveillance activities. Building capacities in laboratories for diseases for which there is no surveillance, although they are considered priority diseases by the veterinary services, does not fulfil the project objectives. The proper development of laboratory strategy and sustainability of the skills and activities supported by IDENTIFY is hindered by weak laboratory policy and management (e.g. shortage of laboratory reagents that prevent participation in proficiency tests, no bank accounts or possibility to generate income, etc.). It is expected that these complex issues will be addressed by the guidelines on animal health laboratory policies for both the top management of the veterinary laboratories and the authorities in charge of laboratories, with further adaptation to the context of Asia and Africa regions.

- Although LoAs have been recognized as a major tool for implementation of the project, it should be emphasized that administrative complexity observed in laboratory operations has contributed to delays in project implementation. Implementation of the agreed activities as they appear in LoAs between beneficiary countries in Congo Basin and FAO was slower than expected. However, most of the issues related to the delayed completion of LoAs are justifiable. For instance, recent events in Mali (FAO ECTAD regional office) and Central African Republic, and continued challenges faced by beneficiary laboratories have slightly limited the project delivery for the past three months. As a result, the FAO-IDENTIFY project management team agreed to extend the duration of LoAs with beneficiary laboratories. The FAO project team continues close monitoring of the LoAs and provides necessary guidance through regular and effective communication. This experience should help to ensure greater autonomy to laboratories, which will enable them to contract with the private sector. This issue is being addressed by FAO through the work on laboratory policy.

- Issues on timely delivery of reagents in some countries have contributed to delayed trainings in diagnostic techniques for priority diseases (rabies in Gabon and ASF and CBPP in Central African Republic, Congo and Gabon).

- Implementation of One Health activities remains linked to the ability of countries to engage in this initiative after the One Health meeting held in Libreville in November 2012. However, FAO supports specific activities in countries such as Cameroon through the LoAs. A number of

challenges were identified during the One Health seminar on rabies held in Brazzaville, Congo (5-6 June 2013) with participants from animal and public health. The lack of overall collaboration between sectors and the absence of functional mechanisms for collaboration and coordination between human and veterinary sectors was noted. Thus far, the authorities have not formulated any realistic goals and it seems appropriate to define activities for the short- to medium-term to improve and promote rabies prevention and control. The stakeholders were very interested in the step-wise approach developed by the global alliance against rabies group of which FAO is a member. They were able to identify the activities to be implemented in the short- and medium-term to improve intersectoral collaboration and control of rabies. No incidences of rabies have been officially reported to the OIE, although the country is surrounded by rabies endemic countries. However, after the training performed by IZSVe at LDVB from 3-7 June 2013 (*sub activity C1.B),* the country is now capable of detecting (animal) rabies and it is expected that a rabies case will be confirmed before the end of 2013. In addition, the outdated legislation from 1968 should be updated; clear protocols must be defined on how to address animal bites and follow-up outbreak investigations; various roles and responsibilities must be defined; and a coordination mechanism should be implemented.

5 MAIN PROGRESS MADE TOWARDS THE ACHIEVEMENT OF PROJECT OUTCOMES (FROM THE START OF THE PROJECT ACTIVITIES)

- The support provided by IDENTIFY has contributed to a greater understanding of regional animal health priorities, assessment of laboratory capacities and identification of regional and national gaps and resources.
- The direct support provided to laboratories in Africa has been greatly appreciated by the laboratories. Specifically, quality assurance, biosafety, and the maintenance and calibration of equipment has been improved, thus contributing to laboratories' capacity to conduct work with reference to internationally accredited standards (e.g. ISO 17025). Minor repairs have been made or orchestrated by the laboratories to improve biosecurity through national LoAs. National laboratories have improved their national visibility through open events, production of leaflets and radio messages. FAO has reviewed and provided feedback on national LoA progress and final reports; the template used was inspired by the FAO M&E framework (which includes performance indicators and means of verification). By working closely with the laboratories, this approach has also been a training exercise in project management for beneficiary laboratories.
- In Africa, laboratories have significantly improved their biosafety practices. In addition, good progress has been made in quality control through training provided on maintenance and calibration of equipment. However, much work remains in these areas. In Asia, during the past three years, the numbers of laboratories which participated in and received the benefit from the Southeast Asia Regional Biosafety Programme has expanded over 400 percent. Significantly improved awareness and biosafety management and practices are observed across the region. However, continued efforts are essential to reinforce trainings and promote the establishment biosafety management systems in the laboratories.
- The Southeast Asia Regional Quality Assurance Programme enabled the supported laboratories to improve the quality laboratory diagnostic service against six priority diseases, including Influenza A, ASF, CSF, PRRS, rabies and ND. The results from the proficiency testing activities carried out in past years indicated improvement in the laboratory performance in both accuracy and quality of the reported results. Problems identified in the previous years were, in most cases, solved in the following rounds of the proficiency testing programme. Through the regional proficiency testing activities, the supported laboratories in the regional network were able to harmonize and improve the test sensitivity to a satisfactory level. The improvement of the diagnostic quality has been observed across the region.
- As many priority diseases are TADs, a regional approach (where agreed) allows for rapid disease detection/identification. Response measures can be coordinated regionally for more effective control. The networks in the West/Central, Eastern Africa and Southeast Asia regions have set a good example regarding the formal and informal exchange of information, and collaborative efforts and responsibility to build laboratories in the regions. Other partners, such as the United States Department of Agriculture Animal and Plant Health Inspection Service, EuFMD Commission and CIRAD, have demonstrated an increased interest in and support for these laboratory networks. This growing confidence lends credence to the regional approach, and highlights FAO's comparative advantage in the coordination of such support and inputs. This project has supported regional laboratory networks, providing assistance with networking, strategy and policy development to regional service laboratories. In Southeast Asia, the establishment and endorsement by ASEAN of the regional laboratory capacity building and networking programme and the Regional Quality Assurance Programme represents a full engagement of the key regional stakeholder in supporting sustainable quality laboratory services across the region and has a significant impact on the regional preparedness against the newly emerging pathogen. Following the emergence of influenza A(H7N9) virus, updated diagnostic

protocols were rapidly distributed through the network and implemented at the member laboratories, with better confidence in quality services. In addition, through the established regional laboratory network, experienced laboratory staff could be quickly identified and recruited as regional resource to provide technical assistance and consultation to the supported laboratories in the region. This has enabled rapid risk assessment and emergency disease surveillance within a few months following the emergence of the virus.

- The FAO M&E framework was finalized based on the experience gained from both EPT data calls and the tripartite discussions held with the Donor regarding IDENTIFY deliverables. This M&E framework is being routinely implemented by the FAO|IDENTIFY team together with implementing partners (laboratories and technical partners through LoAs). In Asia, the FAO Laboratory Mapping Tool, along with the support for the assessment missions, has been a great asset for identifying gaps and needs at the laboratory level. Information obtained from the laboratory assessment tools was subsequently used to design and monitor the progress of the capacity building and technical assistance programmes at the laboratories. A harmonized approach was discussed during year four planning to assess the direct contribution of the IDENTIFY project to changes in supported laboratories; lab sheets have been developed for all IDENTIFY supported laboratories and are being completed on a regular basis (including mapping data, activities conducted, follow-up actions and success stories) in order to measure the project´s impact on laboratory functionality. A decision was made to augment the lab sheets with a survey measuring the observed (and perceived) changes in laboratories against what was done under the IDENTIFY project. The IDENTIFY project's main outcomes (including information on trainings, proficiency testing, networking activities, success stories and lessons learned) will be presented in the report for the next ''FAO Regional Conference for Africa'' (March 2014) on the results of FAO's work in the region.
- This project has enabled or will shortly enable the launching of innovative initiatives, such as the genetic module in the EMPRES-i database; the four-way linking framework; the laboratory mapping tool; the development of private-public partnerships between laboratories and the animal production sector; the provision of laboratories' access to sequencing services and the FAO guidelines on laboratory policy. The genetic module represents an ideal example of a multidisciplinary success, linking virology, epidemiology and bioinformatics, and is receiving increased interest from the scientific community and policy makers. It was released to the public in March 2013. The support provided for sequencing services receives significant interest from beneficiary laboratories. Looking toward integration within a national policy, beneficiary countries and other FAO partners recognize the need to review the laboratories' organization and performance. Such measures include FAO guidelines on laboratory policy development, as well as activities to be implemented in pilot countries through alternative funding mechanisms (e.g. the VET GOV project).
- Building on the investments made with support under AI, this project sustains previously established mechanisms, such as collaborations and communication pathways between organizations, global OFFLU and regional networks. These investments are crucial to the continued development of technical laboratory capacities, especially molecular techniques, to respond to other transboundary and priority diseases.
- The project benefits from the public's increased awareness about its activities, such as understanding the importance of early detection and intervention, as well as the potential impact of pathogens with pandemic potential.
- The project has strengthened linkages between laboratory and epidemiology services by enabling veterinary services to collect samples on priority diseases through LoAs. This supports and justifies the provision of equipment and reagents to laboratories and trainings that the project has delivered since its launch.

- Discussions with PREDICT have resulted in a significant change regarding the identification of effective opportunities for collaboration with the year five FAO IDENTIFY projects in Cameroon, Congo, Viet Nam and Indonesia.

USAID
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IDENTIFY | FAO

BIANNUAL REPORT

(SIX-MONTHLY PROGRESS REPORT)

REPORTING PERIOD 1 OCTOBER 2011 – 31 MARCH 2012

PLANNED ACTIVITIES 1 APRIL 2012 – 30 SEPTEMBER 2012

TO BE SUBMITTED TO:

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

UNDER COOPERATIVE AGREEMENT

SUBMITTED BY

IDENTIFY PROJECT PARTNER: FAO

Regional component: Global/Inter-regional

Three hot spot areas (with countries) :

- **Congo Basin:** Uganda, Democratic Republic of the Congo, Cameroon, Republic of Congo, Tanzania, Gabon, Equatorial Guinea, Rwanda, Central African Republic, South Sudan
- **Southeast Asia:** Cambodia, China, Indonesia*, Lao People's Democratic Republic, Malaysia, Myanmar,* Philippines, Thailand, Viet Nam
- **South Asia:** Bangladesh, India, Nepal (future activities pending)

Project title: Support for strengthening animal health laboratory capacities in hot spot regions to combat zoonotic diseases that pose a significant public health threat - IDENTIFY

Code: OSRO/INT/902/USA

Total budget: USD 15 419 371 (of which USD 11 919 371 were allocated for implementation of activities by FAO, and USD 3 500 000 were allocated for implementation of activities by OIE through funds transferred by FAO to OIE as per the Letter of Agreement). The activities of OIE will be reported on separately.

Effective starting date: 1 October 2009

Planned end date: 30 September 2012 (31 December 2012 for the FAO project)

Context of the project

This project is part of a complex programme – Emerging Pandemic Threats (EPT) – designed by the United States Agency for International Development (USAID) and aimed to identify and implement mechanisms to detect disease emergencies, especially from wildlife. The One Health concept is an important component of the whole programme. The IDENTIFY project is implemented jointly by the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE) and the World Health Organization (WHO).

Objectives of the project

- Enhance laboratories' ability to detect – to the appropriate level of characterization for the laboratories' capability – IDENTIFY targeted diseases[1]
- Enhance/support laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations
- Laboratories have adopted or improved Quality Assurance practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System
- Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities and responsibilities

Short summary of main activities planned (1 October 2011 – 30 September 2012)

Main activity headings are as follows – for further details, please refer to the FAO | IDENTIFY Year Three Work Plan:

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

1.A Follow-up of laboratory mapping exercise activities

1.B Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines and standards

1.C Develop and conduct trainings or workshops to build laboratory capacity and to promote

*Indonesia and Myanmar are included in regional activities under separate funding.

[1] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases and data will not be reported for diseases in those cases.

national laboratory policies and guidelines
1.D Promote and support laboratory quality management
1.E Provide laboratory equipment and supplies in a coordinated manner

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened

2.A Communication tool development and resource building
2.B Development of joint meetings and conferences to support networking and promote national laboratory policies
2.C Review and update of the tripartite Laboratory Networking Strategy (LNS) and future planning
2.D Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories
2.E Support and promote laboratory networks
2.F Support and promote laboratory partnerships

ACRONYMS AND ABBREVIATIONS

AAHL	Australian Animal Health Laboratory
AI	Avian influenza
APHIS	Animal and Plant Health Inspection Service
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
CAHEC	China Animal Health and Epidemiology Centre
CBPP	Contagious bovine pleuropneumonia
CDIL	Central Disease Investigation Laboratory, Bangladesh
CVO	Chief Veterinary Officer
DAH	Department of Animal Health, Viet Nam
EARLN	East Africa Regional Laboratory Network
ECTAD	Emergency Centre for Transboundary Animal Diseases
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot-and-mouth disease
FRET	Fluorescence resonance energy transfer
HPAI	Highly Pathogenic Avian Influenza
HPED	Highly Pathogenic Emerging and Re-emerging Diseases in Asia
IAEA	International Atomic Energy Agency
IZSVe	*Istituto Zooprofilattico Sperimentale delle Venezie*
LANAVET	*Laboratoire National Vétérinaire*, Cameroon
LIMS	Laboratory Information Management System
LoA	Letter of Agreement
NAHC	National Animal Health Centre, Lao PDR
NaVRI	National Veterinary Research Institute, Cambodia
NIAH	National Institute of Animal Health, Thailand
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health
PPR	Peste des petits ruminants
RAHO 6	Regional Animal Health Office Number 6, Viet Nam
RESOLAB	Western and Central Africa Veterinary Laboratory Network for Avian Influenza and other Transboundary Animal Diseases (RESOLAB)
RVF	Rift Valley fever
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SIV	Swine influenza virus
TAD	Transboundary animal disease
USAID	United States Agency for International Development
US CDC	United States Centers for Disease Control
USDA	United States Department of Agriculture
VRI	Veterinary Research Institute, Malaysia
WHO	World Health Organization

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1 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2011 – 31 MARCH 2012) AND PLANNED ACTIVITIES FOR THE NEXT REPORTING PERIOD (1 APRIL 2012 – 30 SEPTEMBER 2012)

1.1 ACTIVITIES GLOBAL COMPONENT (FAO HEADQUARTERS AND FAO/IAEA)

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

1.A.G Follow-up of laboratory mapping exercise activities

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The Food and Agriculture Organization of the United Nations (FAO) laboratory mapping tool (LMT) was harmonized across Asia and Africa regions. A final version of the tool was produced, and comprises five modules. The tool can be used as a whole, or in part, by focusing on just one or more modules. Before finalization of the tool, an expert-based opinion survey was conducted for ranking of the elements; no need for the weighting of elements was identified. *1.A.6.G*
- All data obtained with the LMT was compiled and analysed at headquarters for production of an overall report on the status of IDENTIFY laboratories, and for the monitoring and evaluation (M&E) and the United States Agency for International Development (USAID) data call.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Produce an overall report on the status of IDENTIFY laboratories supported by FAO. *1.A.4.G*
- Develop specific modules for LMT to ease independent application of specific modules, for example, disease-targeted modules and a module to measure the project´s impact on laboratory functionality. *1.A.6.G*
- Compare historic disease reporting data (FAO Global Animal Disease Information System [EMPRES-i]) with current data for sentinel diseases, to be determined by region. *1.A.1.G*
- Improve data collection from FAO Reference Centres. *1.A.3.G*
- Identify regional service laboratories by disease focus, based on the outcomes of laboratory mapping. *1.A.5.G*

1.B.G Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines and standards

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- None

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Support to three to four participants from South/Southeast Asia and the Congo Basin to attend the 13th Conference of the International Society for Veterinary Epidemiology and Economics (ISVEE XIII), from 20 to 24 August 2012 in Maastricht, the Netherlands. The conference will focus on Building Bridges - Crossing Borders.

1.C.G Develop and conduct trainings or workshops to build laboratory capacity and to promote national laboratory policies and guidelines

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Contract (Letter of Agreement [LoA]) with *France Vétérinaire International* was prepared to provide trainings in Africa in various expert fields (mostly trainings in French) and submitted for internal clearance.
- Contract (LoA) with *Istituto Zooprofilattico Sperimentale delle Venezie* (IZSVe), Padova was prepared and submitted for internal clearance. Its requirements are to provide on-site technical assistance for rabies diagnosis (DRC, Cameroon and Uganda) and testing services, and to contribute to the work on provision of access of sub-Saharan African laboratories to sequencing services.
- A workshop on Classical and Molecular Veterinary Virology was held in Vienna from 28 November to 9 December 2011. Ten participants from the Congo Basin (Kenya, Senegal, Tanzania and Uganda) and Southeast Asia (Indonesia, LAO PDR, Malaysia, Philippines, Thailand and Viet Nam) attended the workshop. It was jointly organized by the International Atomic Energy Agency (IAEA), FAO, the University of Veterinary Medicine, Vienna, and the European Society for Veterinary Virology (ESVV) (co-funded by the European Commission projects EPIZONE, ConFluTech and AniBioThrea). The workshop covered the topics of molecular techniques and classical virology. The participants were able to better understand the benefits of classical and molecular technologies, and their laboratory proficiencies were enhanced. *1.C.3.G.*
- Organizational support was provided for the South/Southeast Asia regional workshop, Laboratory Information Management Systems: Identifying Needs, Resources and Ways Forward in Thailand on 8 and 9 December 2011. *1.C.1.G* and *linked to global activity 2.A.4.G.*
- Preparation of training workshops and a consultation:
  - Regional training course on Major Transboundary and Zoonotic Animal Diseases: Early Detection, Surveillance and Epidemiology (*1.C.4.G)*, *Laboratoire National Vétérinaire* (LANAVET), GAROUA (Cameroon), from 11 to 22 June 2012. The following activities were carried out: drafting of the prospectus, discussions (i.e. teleconferences and email exchanges) on the course content with selected trainers, contacts established (i.e. at the training location, the Emergency Centre for Transboundary Animal Diseases (ECTAD) Bamako and Nairobi and the FAO headquarters). Location and dates were confirmed, and the host country officially contacted by IAEA. The invited countries are: Cameroon, Central African Republic, Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Gabon, Rwanda, South Sudan, Tanzania and Uganda .
  - Regional training course on Major Transboundary and Zoonotic Animal Diseases in the Region: early Detection, Surveillance and Epidemiology for Asia region *(1.C.5.SSEA)* decision to replace it with a training course on Sequencing and Sequence Analysis in Vienna in October 2012.
  - Consultation on Good Laboratory Practices for Conducting Multiple Disease Diagnosis *(1.C.5.G)*: Terms of reference (ToR) were drafted, and location and date confirmed (Vienna, September 2012).
- Validation and transfer of new techniques for multiple disease diagnosis (polymerase chain reaction [PCR] using the fluorescence resonance energy transfer [FRET] system) *1.C.6.G*
- A method developed at the Animal Production and Health Laboratory (APHL) of the joint FAO/IAEA Division for capripoxvirus detection and differentiation was taught to the participants of the workshop on Classical and Molecular Veterinary Virology, from 28 November to 9 December 2011 in Vienna.

- Terms of collaboration were defined between APHL of the joint FAO/IAEA Division and Pathofinder (Dutch company) for the development of a multiple pathogen detection assay for major pathogens causing respiratory diseases and symptoms in ruminants. This project is only partially supported by IDENTIFY.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Conduct activities under the LoA with *France Vétérinaire International*. See also *1.C.2.C, 1.C.5.C, 1.C.4.C and 1.C.7.C*
- Conduct activities under the LoA with *IZSVe, Padova*.
- Coordinate the three sessions of the regional training-of-trainers (TOT) pathology workshop Basics of Field and Laboratory Diagnosis in both regions. *1.C.2.G and linked to global activity 2.A.2.G*
- Conduct regional training course on Major Transboundary and Zoonotic Animal Diseases: early Detection, Surveillance and Epidemiology, focusing on African Swine Fever, capripox and rabies (LANAVET, GAROUA (Cameroon), from 11 to 22 June 2012). *1.C.4.G*
  - Teach the variant FRET method developed at APHL of the joint FAO/IAEA Division for which a prototype kit has been made. Distribute this prototype to participants for testing and validation of the assay. *1.C.6.G*
- Hold consultation on good laboratory practices for conducting multiple disease diagnosis (September 2012, Vienna). *1.C.5.G*
- Carry out validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system). The following laboratories are targeted: the National Animal Health Diagnostic Investigation Centre and the Pan-African Veterinary Vaccine Centre in Ethiopia and LANAVET in Cameroon. *1.C.6.G*
  - Undertake the final discussion with Pathofinder and first steps of the development of the multiple pathogens detection assay for the major pathogens causing respiratory diseases and symptoms in ruminants.

1.D.G Promote and support laboratory quality management

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Preparation of proficiency testing. *1.D.3.G:*
  - For Rift Valley fever (RFV): serology kits were delivered to the FAO/IAEA joint Division; proficiency panels were prepared and ready for shipment.
  - For peste des petits ruminants (PPR): proficiency panels were prepared.
- Access to standardized veterinary diagnostic reagents and international standards, training on recombinant RVF antigens and sera anti-RVF production (South Africa), discussion and agreement with the National Institute for Communicable Diseases (NICD), South Africa on the period and duration of the training on production of recombinant RVF antigens and anti-RVF antisera. The beneficiary countries were Senegal and Kenya. *1.D.5.G*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provide support to the activities under the LoA with France Vétérinaire International: on-site audit/backstopping missions for: (i) assessing quality assurance system implementation in the Democratic Republic of the Congo, the Central African Republic, the Republic of the Congo, Rwanda, Tanzania and Uganda; and (ii) assessing biosecurity and biosafety in Cameroon and the Democratic Republic of the Congo. *linked to regional activity 1.D.2.C*

- Provide support to the activities under the LoA with IZSVe, Padova: avian influenza (AI)/Newcastle Disease (ND) proficiency test organized. *1.D.3.G*
- Provide standardized veterinary diagnostic reagents and international standards in a coordinated manner. *1.D.5.G*
- External Quality Assurance for targeted diseases.*1.D.3.G*:
  - Deliver RVF kits and RFV and PPR proficiency panels to selected laboratories (Cameroon, the Central African Republic, the Republic of the Congo, the Democratic Republic of the Congo, Ethiopia, Gabon, Kenya, Rwanda, Tanzania and Uganda) for testing.
- Organize training on Recombinant RVF antigens and biologicals production (South Africa, one month between July and October 2012) for each of two scientists to be selected from Kenya and Senegal). *1.D.5.G*
- Sign an IAEA Technical contract with a laboratory (to be selected in the Congo basin region) for serum production to create the PPR reference sera bank at the FAO/IAEA Division. *1.D.5.G*

1.E.G Provide laboratory equipment and supplies in a coordinated manner

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Checklist of a minimum supply established per list of IDENTIFY priority diseases and provided to the Congo basin region. *linked to regional activity 1.E.1.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Launch a tender for all Congo Basin countries for procurement of equipment and consumables. *linked to regional activity 1.E.1.C*

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened

2.A.G Communication tool development and resource building

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- A glossary was developed consisting of the available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses: most chapters of the glossary written and validated by experts in the field. New name for the document: LabCards. AI LabCard was validated by the Joint OIE/FAO Network of Expertise for Animal Influenza (OFFLU) for posting on the OFFLU Web site. *2.A.3.G*
- Basics of Field Pathology training manual was provided to the Congo Basin and South/Southeast Asia regions: the manuals will be distributed during the regional (African and Asian) TOT pathology workshops Basics of Field and Laboratory Diagnosis. 2.A.2.G linked to regional 2.A.2.C and *2.A.1.SSEA*
- A road map and a self-assessment tool for laboratories to identify the elements needed for a laboratory information management system (LIMS) were developed at FAO headquarters together with the Australian Animal Health Laboratory (AAHL) to critically review the individual laboratory needs, infrastructure and resources needed for successful implementation and sustainability of LIMS platform, and to establish guidelines for selection of a "fit-for-purpose" LIMS platform. These tools were piloted and delivered to laboratory managers during the South/Southeast Asia workshop in December 2011 (refer to *1.C SSEA*) *2.A.4.G*

- EMPRES-i genetic module: second phase of collaboration with the Swiss Institute of Bioinformatics started (LoA, November 2011-June 2012). Production phase of the work was initiated. Linkages were validated between the virus and epidemiological information for H5N1 (tentatively). Applications and tools of the module are under discussion. A supportive tool was offered to the FLURISK project (EFSA pandemic influenza Risk Assessment project). *2.A.5.G*
- Access to sequencing services to Africa laboratories *2.A.7.G*:
  - Concept note on harmonization of molecular tests and provision of access to sequencing services to Africa laboratories were developed.
  - Meeting at FAO headquarters on Improving Sequencing Access for sub-Saharan African Laboratories, Rome (10 February 2012) with 14 participants including six scientists from three FAO Reference Centres, the IDENTIFY coordinator from the joint FAO/IAEA division, IDENTIFY|FAO regional coordinators from Bamako and Nairobi, and HQ IDENTIFY|FAO management team.
    - Major OUTCOMES: Beneficiary laboratories for the improved access to sequencing services were selected; work plan and coordination between the different partners were established; training objectives and logistics, as well as the modalities for the submission of samples for sequencing, procurement and tender needs were discussed.
  - Available protocols for PCR diagnosis and sequencing for the priority pathogens targeted in the Congo Basin was compared across the three FAO Reference Centres with the aim to harmonize protocols for multiple diseases testing. Beneficiary laboratories were informed, and baseline information on PCR testing and sequencing was requested.
- Development of e-learning modules on bioinformatics (phylogeny and sequence analysis) was initiated with the partner (Swiss Institute of Bioinformatics). *2.A.6.G*
  - A first draft containing the Chapter 1 of 3 was discussed between the Joint FAO/IAEA division, FAO headquarters and the Swiss Institute of Bioinformatics.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Finalize translation in French of the Basics of Field Pathology training manual, and distribute to French-speaking Congo basin TOT pathology workshop attendees of the Basics of Field and Laboratory Diagnosis. *2.A.2.G*, linked to regional *1.C.4.C* and *2.A.2.C*
- Finalize all chapters of the LabCards and disseminate them to laboratories. *2.A.3.G*
- Present EMPRES-i genetic module at the AI Symposium and OFFLU technical meeting for comments and future use by the scientific community. Support a master student from Viet Nam on the use of the EMPRES-i genetic module with a focus on Vietnamese H5N1 data. Validate the developed algorithm. Launch the genetic module to the public. Publish the work. *2.A.5.G*
- Access to sequencing services to Africa laboratories *2.A.7.G*: develop and test harmonized protocols for PCR diagnosis and sequencing. Procure reagents for PCR and preparation of products for sequencing. Develop decision trees and sequencing strategy. Carry out workshop for laboratory and epidemiology staff on PCR protocols, sequencing and bioinformatics. Tender and select sequencing provider for provision of sequencing services. Develop a moderator system for sequencing services. Promote sharing of results.
- Finalize the two e-learning modules on bioinformatics (phylogeny and sequence analysis). *2.A.6.G*

2.B.G Development of joint meetings and conferences to support networking and promote national laboratory policies

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Supported the preparation and co-funding of the Western and Central Africa Veterinary Laboratory Network for Avian Influenza and other Transboundary Animal Diseases (RESOLAB) Annual coordination meeting (from 6 to 9 December 2011, Bamako, Mali). FAO/IAEA coordinator participated in the meeting. linked to regional *2.B.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Support to the preparation of the East Africa Regional Laboratory Network (EARLN) meeting (Mombasa, July 2012). linked to regional *2.B.C*

2.C.G Review and update of the Laboratory Networking Strategy and future planning

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Routine project management at headquarters and regional levels continued through conference calls/videoconferences as needed, daily email communication and tripartite face-to-face meetings between FAO, OIE and the World Health Organization (WHO) as well as the use of the IDENTIFY SharePoint.
- Participation in monthly teleconferences with IDENTIFY project management team and USAID Agreement Officer's Technical Representative on 9 March 2012 and 10 April 2012, and face-to-face meeting on 17 January 2012.
- Continued rotating system of responsibility sharing on a monthly basis between the three partners to more effectively and rapidly handle communication with programme partners, day-to-day operations and logistic arrangements. This system also applies to document creation, revision and meeting hosting.
- IDENTIFY|FAO planning meeting with the FAO project management team, the FAO/IAEA coordinator and the FAO regional coordinators from Bamako, Nairobi and Gaborone (via teleconference) in Rome on 8 and 9 February 2012; The IDENTIFY|FAO activities were planned for the coming eight months.
- IDENTIFY project planning was discussed during the following meetings:
  - Tripartite headquarters meeting on the monitoring and evaluation process and Year 12-13 planning on 17 January 2012, Washington, DC; Tripartite headquarters' meeting on the monitoring and evaluations process and IDENTIFY indicators, Paris, France, 16 February 2012.
  - Emerging Pandemic Threats (EPT) Quarterly Partners meeting, Washington, DC, from 18 to 20 January 2012.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Routine project management at headquarters and regional levels continued.
- Participation of the IDENTIFY |FAO management team to the Congo basin IDENTIFY|FAO planning meetings, tentatively planned on 12 and 13 July 2012.
- Participation (tentative) of the IDENTIFY |FAO management team to the Congo basin and S/SE Asia Regional EPT planning meetings, July 2012.
- Moreover, project planning will be discussed during the following meetings:
  - USAID and Tripartite Meeting to discuss IDENTIFY, Rome, on 20 and 21 June 2012.

2.D.G Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Four-way linking for assessing health risks at the human-animal interface. *2.D.2.G:*
  - Planning mission carried out in Viet Nam (on 17 and 18 October 2011) to prepare the concept, agenda and logistics for the four-way linking workshop in Viet Nam, in collaboration with local FAO and WHO offices.
  - Viet Nam FAO/OIE/WHO workshop was conducted in Nha Trang, from 14 to 16 February 2012 for 26 Vietnamese participants from the animal health sector. OUTCOMES: communication, information sharing and joint risk assessment were the main gaps identified. Next steps for national, regional and provincial level on communication, data sharing and joint risk assessment for Highly Pathogenic Avian Influenza (HPAI) were developed.
  - Presentation of a four-way linking concept given at the Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia Pacific (October 2011 in Kuala Lumpur, Malaysia).
- FAO headquarters and FAO/IAEA provided assistance to the regional preparation of the Congo Basin National Veterinary Laboratories' Directors and Central Veterinary Officers (CVOs)/FAO planning meeting in Libreville, Gabon, from 3 to 5 April 2012, and Entebbe, Uganda, from 11 to 13 April 2012.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Four-way linking in Bangladesh: review mission in July 2012 and workshop in October 2012. *2.D.2.G*
- Attend the Congo Basin National Veterinary Laboratories' Directors and CVOs/FAO planning meeting in Gabon, from 3 to 5 April 2012, and Entebbe, Uganda, from 11 to 13 April 2012.

2.E.G Support and promote laboratory networks

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Inventory of training material in animal influenza was validated and made available on the OFFLU Web site.
- Contributed to the WHO VCM Meeting consultation (December 2011) aimed to improve the influenza vaccine virus selection process through: exploring ways to improve the extent, timeliness and quality of virological and epidemiological surveillance data; the development and application of new assays and new modelling approaches; the understanding of the relationship between virus characteristics and vaccine efficacy, and the general understanding of regulatory considerations. OFFLU activities were presented to the participants of the public health sector to show animal health involvement in pandemic preparedness.
- Contributed to the WHO Vaccine Composition meeting from 20 to 22 February 2012, WHO headquarters, Geneva by collecting and compiling epidemiological analysis, genetic and antigenic data. In September 2011, OFFLU shared new and previously unreported sequences from Bangladesh, Egypt, India, Indonesia, Israel, Lao PDR, Myanmar and Viet Nam (clades 1, 2.1.3, 2.2, 2.2.1, 2.3.2, 2.3.4) with the VCM. The report included 245 H5 sequences (120 non-public and 12 public domain sequences from 2011; 113 non-public 2009–2011). For H9, the OFFLU network contributed 20 pre-2011 sequences (majority from 2009), and one 2011 sequence from Bangladesh. Among these viruses, one was selected by WHO for candidate vaccine virus preparation (clade 2.3.4.2 A/chicken/Bangladesh/11rs1984-30/2011). FAO

requested the transfer of the strain from Italy to the United States Centers for Disease Control (US CDC). The agreement was provided by Bangladesh, and the strain transferred from IZSVe to US CDC.

- Support and participation in the 2nd OFFLU Swine Influenza Virus (SIV) technical meeting, Paris, on 27 and 28 March 2012: FAO's contribution to global surveillance activities for SIV was presented, and next year activities for the SIV groups were planned.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Support the annual technical meeting of OFFLU on 4 and 5 April 2012, back-to-back with the 8th International Symposium on Avian Influenza, from 1 to 4 April 2012 (co-funding), London, UK.
- Finalize the development of the OFFLU training Web site, with various training materials.
- Contribute to the next WHO Vaccine Composition meeting (end of September 2012, China).

2.F.G Support and promote laboratory partnerships

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Progress was made towards the designation of FAO Reference Centres in China, India, Kenya, South Africa and Thailand (government endorsement pending for most dossiers). *2.F.1.G*
- Concept note was developed on the roles and responsibilities of regional service laboratories in sub-Saharan Africa and submitted to OIE and the African Union-Interafrican Bureau for Animal Resources (AU-IBAR) for discussion. *2.F.2.G*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Support the organization of the regional meeting in Addis Ababa from 11 to 13 July 2012 to define the roles and responsibilities of regional service laboratories in sub-Saharan Africa with institutional, technical and funding partners. *2.F.2.G*

2 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2011 – 31 MARCH 2012) AND PLANNED ACTIVITIES FOR THE NEXT SIX-MONTH PERIOD (1 APRIL 2012 – 30 SEPTEMBER 2012)

2.1 ACTIVITIES SOUTH/SOUTHEAST ASIA COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

1.A.SSEA. Follow-up of laboratory mapping exercise activities

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Refer to backstopping visits described in 1.D.SSEA in Lao PDR (National Animal Health Centre [NAHC]) on 6 and 7 October 2011, Cambodia (National Veterinary Research Institute [NaVRI]) from 10 to 12 October 2011, Malaysia (Veterinary Research Institute [VRI]) from 11 to 13 October, Thailand (National Institute of Animal Health [NIAH]) from 14 to 18 October, Viet Nam (Regional Animal Health Office Number 6 [RAHO 6]) on 20 and 21 October, and China (China Animal Health and Epidemiology Centre [CAHEC]) from 20 to 27 November 2011.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Compile/update relevant laboratory capacity data for the network and associated laboratories through the laboratory mapping exercise; implementing partner: AAHL.

1.B.SSEA. Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines and standards

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The 2nd OFFLU SIV Technical Meeting, on 27 and 28 March 2012 Paris, France: IDENTIFY provided the support for a specialist from NIAH, Thailand, and a specialist from the National Centre for Veterinary Diagnostics (NCVD)/Department of Animal Health (DAH), Viet Nam to attend the meeting. The meeting was to discuss the progress made and to work towards developing a better understanding of the global implications of influenza infection in swine at the human-animal influenza interface. The two participants were also given the opportunity to visit the Animal Health and Veterinary Laboratories Agency (AHVLA) Weybridge and the Institute for Animal Health (IAH) Pirbright laboratories in the United Kingdom on 29 and 30 March 2012.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- The 8th Avian Influenza International Symposium, from 1 to 4 April 2012, London. The project provided support for three participants, including one participant from NIAH, Thailand, and two participants from DAH, Viet Nam to attend the conference. This conference was held for scientists, biologists, veterinarians, medics and government regulators interested in the exchange and discussion of current scientific information on AI. It intended to provide a broader understanding of the global nature of AI and a framework to develop international solutions.
- The OFFLU Annual Technical Meeting, on 4 and 5 April 2012, London, UK: Following the AI Symposium, three participants also attended the meeting that brings together the leading influenza experts from all over the world to present and discuss OFFLU's progress.

- The Asia-Pacific Biosafety Association's 7th Annual Biosafety Conference, Bali, Indonesia, from 24 to 27 April 2012: Under the support from the project, a Biosafety Officer and a Biosafety Engineer from VRI, Malaysia attended the two-day preconference workshop on 24 and 25 April and a two-day conference on 26 and 27 April 2012. This regional conference aimed at generating a formal exchange on various developments in biosafety, ranging from the strategic coalition and road map for the Asia-Pacific region to biosafety capability and capacity building in the region.

1.C.SSEA. Develop and conduct FAO/OIE/WHO trainings or workshops to build laboratory capacity and to promote national laboratory policies and guidelines

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- REGIONAL training: Advanced Biorisk Training, Geelong, Australia, from 14 to 18 November 2011. 1.C.1.SSEA:
  - With the priority given to participants who attended the Biosafety Management Training in 2011, out of ten participants, seven participants were from China, Malaysia, Thailand and Viet Nam, while three participants from India joined the training with the funding support from another project.
  - Implementing partner: AAHL.
  - OUTCOME: The trained-participants would become regional biosafety resource persons to provide technical support to other countries in the region.
- REGIONAL training: Laboratory Engineering and Equipment Maintenance Training, Geelong, Australia, from 21 to 25 November 2011:
  - With priority given to those who participated in the Biosafety Management Training in 2010, there were 13 participants from China, India, Lao PDR, Malaysia, Thailand and Viet Nam
  - Implementing partner: AAHL.
  - OUTCOME: The trained biosafety engineers would become regional resource persons to provide support to other countries in the region.
- REGIONAL workshop: Laboratory Information Management Systems: Identifying Needs, Resources, and Ways Forward in Phuket, Thailand, on 8 and 9 December 2011. *1.C.3.SSEA*
  - The workshop was attended by 19 participants from national animal health laboratories in 11 countries of South and Southeast Asia;
  - Implementing partners: AAHL and CSU.
  - OUTCOME: A self-assessment tool to aid in determining individual laboratory needs for LIMS was piloted and delivered to laboratory managers for their use in decision making and creating an action plan on selection and implementation of a LIMS.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- REGIONAL training, Laboratory and Field Epidemiology Linkage TOT Workshops: Basics of Field and Laboratory Diagnosis in Chiang Mai, Thailand, scheduled for 21-25 May 2012; implementing partner: the University of Georgia. *1.C.4.SSEA*
- REGIONAL workshop, Laboratory and Field Epidemiology Linkage TOT: Strengthen Laboratory and Field Epidemiology Linkages. Schedule is to be confirmed; implementing partner: AAHL.
- REGIONAL workshops related to regional laboratory networking of selected regional priority diseases for Asia. Schedules are to be confirmed; implementing partner: AAHL.
- Provide consultancy on risk assessment, standard operating procedures development and training on biosafety management to network laboratories; implementing partners: international/national consultants and PREDICT.

1.D.SSEA. Promote and support laboratory quality management

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Conducted backstopping missions to seven laboratories to ensure implementation of appropriate diagnostic protocols under a quality assurance system. During the visits to laboratories, AAHL laboratory experts provided the following inputs: (i) follow-up on proficiency testing results for PRRS, CSF and HPAI; (ii) trouble shooting technical problems revealed by proficiency testing results; (iii) in-house training on equipment usage and maintenance; (iv) follow-up on laboratory quality systems; (v) inputs on biosafety and biosecurity; and (vi) advocacy for laboratory support for surveillance. These missions were carried out at IDENTIFY-supported laboratories: NAHC in Lao PDR on 6 and 7 October 2011, NaVRI in Cambodia from 10 to 12 October, VRI in Malaysia from 11 to 13 October, NIAH in Thailand from 14 to 18 October, RAHO 6 in Viet Nam on 20 and 21 October, and CAHEC and the Chongqing Animal Disease Control Centre (CADCC) in China from 20 to 27 November 2011. *1.D.2.SSEA*
- Provided consultancy and technical assistance to activities related to the laboratory relocation and implementation of the Biosafety Level 3 (BSL3) facility at NAHC, Lao PDR (March-May 2012).
- Provided laboratory visits and technical consultation to assist development and implementation of laboratory quality management to the network laboratories: NAHC in Lao PDR from 22 to 24 November 2011, DAH in Viet Nam, from 18 to 20 December 2011, the Central Disease Investigation Laboratory [CDIL] in Bangladesh, on 25 January 2012, NAHC in Lao PDR on 22 March and on 29 and 30 March 2012, NaVRI in Viet Nam from 26 to 29 March 2012.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Continue to provide advice and technical assistance to activities related to the laboratory relocation and implementation of the BSL3 facility at NAHC, Lao PDR (March-May 2012).
- Provide biosafety cabinet testing and calibration to the network laboratories (Indonesia, Lao PDR, Myanmar, the Philippines and Viet Nam). *1.D.1.SSEA.*
- Provide consultation and facilitate the procurement/access of LIMS to the network laboratories (NIAH, Thailand, and NAHC, Lao PDR). *1.D.4.SSEA*
- Continue to facilitate proficiency testing programme for diagnosis of selected regional priority diseases and provide backstopping missions to the participating laboratories to ensure implementation of appropriate diagnostic protocols under a quality assurance system; implementing partner: AAHL. *1.D.6.SSEA.*
- Provide laboratory visits and technical consultation to assist development and implementation of laboratory quality management to the network laboratories. *1.D.2.SSEA.*

1.E.SSEA. Provide laboratory equipment and supplies in a coordinated manner

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Two PCR cabinets were procured: one for CDIL, Bangladesh, and one for the Central Veterinary Laboratory, Nepal.
- Eight biosafety cabinets procured in August 2011 were delivered and installed at the laboratories in: Bangladesh (one), Cambodia (one) and Malaysia (two) in January 2012, and at the laboratory in Nepal (two) in February 2012. Two biosafety cabinets were delivered to the laboratory in Lao PDR in November 2011, and will be installed in the new laboratory.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provide necessary supplies and equipment, based on the findings and recommendations of the biosafety assessment and cabinet testing activities, to ensure the proper biosafety containment and practices in the network laboratories.
- Provide standardized veterinary diagnostic reagents including proficiency testing panel complement, supplies and equipment as requested by the network laboratories, or recommended in support of the proficiency testing programme.

Output 2 Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened

2.A.SSEA. Communication tool development and resource building

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Supported production of IDENTIFY leaflets for distribution to participants attending FAO-organized meetings and workshops. *2.A.1.SSEA.*
- Provided technical inputs and supported the implementation of EMPRES-i Asia platform to share expertise and information in a real-time manner across the network.
- Provided administration and information update to the AI Network Asia email list.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Continue to support the implementation of EMPRES-i and AI Network Asia.
- Provide the guidelines and documents related to diagnosis, management and control of transboundary animal diseases (TADs) as per requested Distribution of Basics of Field Pathology Training manual for trainers.
- Develop training materials for the laboratory – Field Epidemiology Linkage Training.

2.B.SSEA. Development of joint meetings and conferences to support networking and promote national laboratory policies

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- REGIONAL Laboratory Directors' Forum meeting and Regional Laboratory Network meeting. *2.B.1.SSEA:* The Third Laboratory Directors' Forum was jointly organized by the Department of Veterinary Services Malaysia, FAO and OIE on 18 October 2011 in Kuala Lumpur, Malaysia. The meeting was attended by 35 participants from Cambodia, Lao PDR, Malaysia, Myanmar, Thailand and Viet Nam, NIAH Japan, AAHL, OIE and FAO. The Forum welcomed new members from China, Indonesia and the Philippines. The main objective of the meeting was to update the directors of key national laboratories on the ongoing activities related to laboratory capacity building and laboratory networking in Southeast Asia.
- Meeting on Laboratory Strengthening for Emerging Infectious Diseases Diagnosis in Asia and the Pacific was held from 19 to 21 October 2011 in Kuala Lumpur, Malaysia. The meeting was organized jointly by FAO/OIE/WHO. It was the first time that representatives from cross-sectoral groups, particularly the animal and public health, met to discuss laboratory issues in the region. The international organizations, FAO, OIE and WHO presented their frameworks for implementing the laboratory strengthening programme in the region: FAO Regional Strategy on Emerging Diseases, OIE Performance of Veterinary Services Pathway and WHO Western Pacific Region Asian Pacific Strategy for Emerging Diseases. Animal and public health sectors met to

discuss the issues related to strengthening capacities before convening on the third day for an information sharing session on One Health and cross-sectoral group work.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Regional Laboratory Technical Advisory Group meeting (June 2012, Bangkok, Thailand).
- The 4th Laboratory Directors' Forum meeting (July 2012, Viet Nam).
- Regional Laboratory Network meeting (September 2012, Viet Nam).

2.C.SSEA. Review and update of the tripartite Laboratory Networking Strategy and future planning

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The IDENTIFY|FAO Southeast Asia coordinator together with the OIE IDENTIFY Southeast Asia coordinator participated in the tripartite 2012 EPT Lao PDR work plan review meeting on 23 November 2011 in Vientiane, Lao PDR.
- The IDENTIFY|FAO Southeast Asia coordinator participated in the 2012 EPT Thailand work plan review meeting on 6 February 2012 in Bangkok, Thailand.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- The IDENTIFY|FAO Southeast Asia coordinator will participate in the 2nd Quarterly EPT Lao PDR Work Plan Review meeting to be held on 5 April 2012 in Vientiane, Lao PDR.
- Participation in the Regional EPT planning meeting, July 2012, and in the EPT country level work planning meetings (tentatively).

2.D.SSEA. Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Provided assistance and inputs on development of the Regional Framework for Animal Health Laboratory Capacity Building and Networking in Asia which was presented and adopted during the 3rd Laboratory Directors' Forum meeting (from 19 to 21 October 2012).
- Facilitated the development of ToR for roles and responsibilities of the regional leading laboratory for classical swine fever (CSF) (DAH, Viet Nam), foot-and-mouth disease (FMD) (Regional Reference Laboratory, Thailand) and HPAI (VRI, Malaysia), which was presented and agreed at the 3rd Laboratory Directors' Forum meeting (from 19 to 21 October 2012).

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provide technical assistance in preparation of the Regional Framework for Animal Health Laboratory Capacity Building and Networking in Asia to the Association of Southeast Asian Nations Sectoral Working Group on Livestock (ASWGL) in the upcoming ASWGL meeting in May 2012 in Myanmar.

2.E.SSEA. Support and promote laboratory networks

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The IDENTIFY|FAO SE Asia Coordinator participated in and provided technical inputs to DAH Viet Nam 10th Epidemiology Laboratory Network Meeting from 19 to 21 December 2011 in Hanoi, Viet Nam. A total of 50 participants attended the meeting including staff from DAH Epidemiology Division, NCVD and RAHOs. Representatives from the Viet Nam National Institute of Health and Epidemiology (NIHE), the Hanoi Agriculture University (HAU), USAID, US CDC and the Wildlife Conservation Society (WCS), and laboratory experts from FAO also participated in the meeting. The goals of the meeting were to share updates on diseases surveillance and diagnosis and to discuss plans for future surveillance, diagnosis and networking activities.
- The IDENTIFY|FAO Southeast Asia Coordinator provided technical inputs during the First Laboratory Directors' Forum meeting and workshop on Laboratory Networking and Proficiency Testing for Priority Highly Pathogenic Emerging and Re-emerging Diseases in Asia (HPEDs) in South Asian Association for Regional Cooperation (SAARC) countries on 23 and 24 January 2012 in Dhaka, Bangladesh. The meeting and workshop were attended by 27 participants from the SAARC countries including Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, with technical support from AAHL, OIE and FAO Regional Office for Asia and the Pacific. The ultimate goal of this Forum was to provide a platform to discuss problems and issues related to the national veterinary diagnostic laboratories and networks of member states in the SAARC region; and to act as a coordinating platform for the national veterinary diagnostic laboratories of the region to promote harmonization and to enhance laboratory capacity and standards for the diagnosis of TADs and emerging/re-emerging infectious diseases.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Continue to provide inputs and support communication and interaction among the regional network laboratories, and support national laboratory networking activities.

2.F.SSEA. Support and promote laboratory partnerships

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Support and promote the establishment/development of regional leading laboratories *2.F.1.SSEA:*
  - Supported the development and implementation of Regional Guiding Principles for Diagnosis of HPAI, FMD, CSF and porcine reproductive and respiratory syndrome (PRRS) by regional leading laboratories.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provide support to the regional leading laboratory for swine diseases in Viet Nam to host the 4th Laboratory Directors Forum meeting and the Regional Laboratory Network meeting.

3 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2011 – 31 MARCH 2012) AND PLANNED ACTIVITIES FOR THE NEXT SIX-MONTH PERIOD (1 APRIL 2012 – 30 SEPTEMBER 2012)

3.1 ACTIVITIES CONGO BASIN COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

1.A.Congo. Follow-up of laboratory mapping exercise activities

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The first report on the Congo Basin National Veterinary Diagnostic Laboratories Mapping, based on laboratory self-evaluation system data was finalized in December 2011. Translation of the report into French was carried out. *1.A.1.C*
- Harmonization of the FAO laboratory mapping tool across Asia and Africa regions (activity linked to *1.A.6.G*):
  - Review and translation of the new and consolidated laboratory mapping tool in French. *1.A.5.C*
  - Migration of data from the 2010 questionnaires and presentation into the new laboratory mapping tool. 1.A.2.C

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Outcomes of the mapping results to be presented to laboratory directors and CVOs (Libreville, Entebbe meetings, April 2012) *1.A.1.C*
- Additional targeted data collection, with laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacities; IDENTIFY supported laboratories, including regional laboratories, will be assessed with the new laboratory mapping tool by third parties. *1.A.3.C*
- Integrate the outcomes of the laboratory mapping into the Laboratory Networking Strategy. *1.A.4.C*

1.B.*Congo.* Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines and standards

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- None

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Support to quality/biosafety managers from Botswana, Cameroon and Uganda to attend the 3rd Annual African Biological Safety Association (AfBSA) conference, from 24 to 27 June 2012, Sandton Convention Centre, Johannesburg, South Africa.
- Support the participation of the Congo Basin and South/Southeast Asia countries in the global FMD conference in Bangkok in June 2012.
- Support the participation in East Africa Regional Biosurveillance workshop in Kampala in June 2012.

1.C.*Congo.* Develop and conduct trainings or workshops to build laboratory capacity and to promote national laboratory policies and guidelines

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Preparation of a series of trainings planned in year 3 was carried out: finalization of ToR undertaken, trainers and partners contacted, preparation of contracts with training providers carried out, location and dates confirmed, countries informed about the training, logistics partially prepared, etc. The preparation covered the following activities:
  - Regional workshop on Process Control - Quality Control (sample management, quality control for quantitative tests, quality control for qualitative tests), tentatively Libreville, July-September 2012. *1.C.2.C*
  - Regional workshop on Laboratory Equipment Calibration and Maintenance, Gambia, tentatively in July 2012, co-funded with the United States Department of Agriculture (USDA)/Animal and Plant Health Inspection Service (APHIS). *1.C.5.C*
  - Regional training course on Major Transboundary and Zoonotic Animal Diseases in the Region: Early Detection, Surveillance and Epidemiology, Garoua, Cameroon, from 18 to 29 June 2012, organized together with FAO/IAEA. *1.C.3.C* (see also *1.C.4.G*)
  - Regional TOT pathology workshops (location, time, main trainers): Basics of Field and Laboratory Diagnosis. *1.C.4.C*:
    - Session 1 (anglophone countries): Eastern Congo Basin, Nairobi, from 23 to 27 April 2012
    - Session 2 (francophone countries): Western Congo Basin. Venue and dates TBD. French version of the manual is under finalization. *linked to global activity 2.A.2.G*
  - Regional training on biosecurity/biosafety for Cameroon, the Central African Republic, the Democratic Republic of the Congo, the Republic of the Congo, Gabon and Equatorial Guinea, to be held tentatively in Kinshasa, September 2012. *1.C.7.C*
  - Rabies national training (location, time, main trainers) for rabies diagnosis, followed by national seminars on rabies in Cameroon, the Democratic Republic of the Congo and Tanzania.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provision to each laboratory of ISO 17025 manual, OIE terrestrial manual and OIE guidelines on biosafety in veterinary laboratory. *1.C.1.C*
- Carry out national trainings with field epidemiologists on sample collection, storage and shipping. *1.C.6.C*

1.D.*Congo.* Promote and support laboratory quality management

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Two trainings in laboratory equipment calibration and maintenance (*1.C.5.C*) were prepared in support of laboratory quality management, and as part of the regional road map for quality assurance management. Laboratory support trainings to assist in equipment maintenance and calibration:
  - Session 1: at the *Laboratoire Vétérinaire* of Kinshasa for three to four trainees from each participant national veterinary laboratory (the Democratic Republic of the Congo, the Republic of the Congo and Gabon).
  - Session 2: at LANAVET of Garoua (Cameroon) for four to five trainees from each participant national veterinary laboratory (Cameroon, the Central African Republic, Chad and the Niger).

- Preparation of activities aimed at developing specific technical testing competence to face emerging disease situations: Cameroon, the Central African Republic, the Democratic Republic of the Congo (bush meat microbiology, advanced CBPP, ASF), Gabon (rabies, CBPP), the Republic of the Congo, Rwanda (ASF), Tanzania and Uganda (Contagious bovine pleuropneumonia [CBPP]). Experts were identified. Country time frames proposed. *1.D.9.C*
- Contacts were established with AfBSA for a possible collaboration with FAO and with regional laboratory networks. As a first step, it was agreed that IDENTIFY will support the participants from beneficiary countries in the AfBSA activities (see *1.B.C*). FAO requested that participants be able to submit abstracts and present veterinary perspectives in the meeting. *1.D.6.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Conduct two training sessions on laboratory equipment calibration and maintenance.
- Issue the call for a regional consultancy for on-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation in the Central African Republic, the Democratic Republic of the Congo, the Republic of the Congo, Rwanda, Tanzania and Uganda. These missions will provide information for the IDENTIFY indicators linked to objective 3. *1.D.2.C*
- Proficiency testing for AI/ND in September 2012 for all IDENTIFY beneficiary countries (except Equatorial Guinea) and regional laboratories in Africa; RVF and PPR proficiency testing for selected countries (Cameroon, the Central African Republic, the Democratic Republic of the Congo, Ethiopia, Kenya, Senegal, Tanzania and Uganda). *linked to global activity 1.D.3.G*
- Carry out all expert missions aimed at developing specific technical testing competencies to face emerging disease situations. *1.D.9.C*
- Organize scientific visits for laboratory directors within and outside their region (all countries). *1.D.4.C*
- Conduct assessment missions (Cameroon and the Democratic Republic of the Congo) for biosafety and biosecurity infrastructures, equipment and practices. *1.D.5.C*
- Provision to the nine beneficiary countries with validated standardized veterinary diagnostic reagents (antigens and antisera) targeting priority TAD laboratory diagnosis. *1.D.8.C*

1.E.*Congo.* Provide laboratory equipment and supplies in a coordinated manner

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- A checklist of minimal equipment and consumables to be made available in each beneficiary laboratory was determined, which will be used as priority procurement items. The approach was developed on combining the checklist with the results of the mapping and with the list of needs for equipment and consumables already collected from beneficiary laboratories. *1.E.1.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Approach on procurement of equipment and consumables to be agreed during laboratory directors and CVOs meetings (Libreville, Gabon, from 3 to 5 April, 2012, and Entebbe, Uganda, from 11 to 13 April 2012). An indication of the budget range will be communicated to the laboratories. *1.E.1.C*

Output 2 Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened

2.A.*Congo.* Communication tool development and resource building

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Conception and production of a leaflet on IDENTIFY activities, in addition to the posters was produced and distributed to beneficiary laboratories. *2.A.1.C*
- The following progress was made in the second phase of the study on the development of collaborations and/or partnerships between public veterinary laboratories and the animal industry: consultant to carry out the second phase of the study was preselected, pilot countries were selected (Cameroon, the Democratic Republic of the Congo and Rwanda), and his ToR were finalized. *2.A.3.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Production, printing and dissemination of various public awareness and advocacy materials. *2.A.1.C*
- Provide the guidelines and documents related to diagnosis, management and control of TADs as per requested distribution of the Basics of Field Pathology training manual for trainers during the TOT pathology workshops on the Basics of Field and Laboratory Diagnosis. *2A.2.C*
- Production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases. The Veterinary school in Dakar, Senegal (EISMV) was selected to lead this activity through an LoA with FAO. During the implementation period of the LoA, EISMV will make available one expert and two students to develop two guides for field and laboratory diagnosis for priority diseases in the Congo Basin. *2.A.5.C*
- Initiate the second phase of the study on the development of collaborations and/or partnerships between public veterinary laboratories and the animal industry. This study will take place in three pilot countries (Cameroon, the Democratic Republic of the Congo and Rwanda) as a follow-up to the first study conducted by FAO in year 2. It aims at identifying alternative activities that will generate additional and sustainable financial resources for concerned laboratories. *2.A.3.C*
- Propose sample referral guidelines for two priority TADs. *2.A.4.C*

2.B.*Congo.* Development of joint meetings and conferences to support networking and promote national laboratory policies

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- RESOLAB annual coordination meeting conducted in December 2011, Bamako. All beneficiary countries, except Gabon, were able to participate. Meeting was co-funded by USDA/APHIS. Minutes can be found at: http://www.fao-ectad-bamako.org/fr/IMG/pdf/Report_5th_RESOLAB_Dec2011_Engl_F16Jan_GD.pdf

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- EARLN annual coordination meeting, Mombasa, Kenya, on 27 and 28 July 2012.

2.C.*Congo*. Review and update of the tripartite Laboratory Networking Strategy and future planning

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- The IDENTIFY|FAO regional coordinators from Bamako, Nairobi and Gaborone (via teleconference) participated in the IDENTIFY|FAO planning meeting with the project management team in Rome (on 8 and 9 February 2012). The IDENTIFY|FAO activities were planned for the coming eight months.

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Tripartite regional coordination meetings, date and venue TBD.
- Participation of the IDENTIFY |FAO regional coordinators in the Regional EPT planning meeting, July 2012.

2.D.*Congo.* Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- None

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Year 3 work plan implementation meeting of IDENTIFY|FAO project with the Western Congo Basin National Veterinary Laboratories' Directors and CVOs, from 3 to 5 April 2012, Libreville, Gabon. OIE, WHO and AU-IBAR will participate. Intersectoral discussions at national levels will be supported through national LoA.
- Year 3 work plan implementation meeting of IDENTIFY|FAO project with the Eastern Congo Basin National Veterinary Laboratories' Directors and CVOs, from 11 to 13 April 2012, Entebbe, Uganda. OIE, WHO, USAID and AU-IBAR are invited. Intersectoral discussions at national levels will be supported through national LoA.
- Facilitate national rabies seminars in Cameroon, the Democratic Republic of the Congo and Tanzania, with all stakeholders (public health, universities, WHO, laboratories, veterinary services and private veterinarians).

2.E.*Congo.* Support and promote laboratory networks

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Annual regional networking meetings: participation in RESOLAB annual coordination meeting, Bamako, Mali, from 12 to 16 December 2012 for nine participants from five Congo Basin countries (Cameroon, the Central African Republic, the Republic of the Congo, the Democratic Republic of the Congo and Equatorial Guinea), two participants from RESOLAB Regional laboratories (LNERV of Senegal and NVRI of Nigeria), three participants from FAO/OIE Reference laboratory (IZSVe of Padova, Italy) and three participants from the EARLN network. Implementing partners: *France Vétérinaire International*, USDA/APHIS, AIEA, USAID, CIRAD, OIE and AU-IBAR. *2.E.1.C*

- An OFFLU representative was present at the RESOLAB meeting and ensured good linkage between OFFLU activities and RESOLAB (e.g. information on OFFLU activities, invitation to contribute to OFFLU technical work). *2.E.1.C*
- Representatives of Eastern and Southern African Development Community (SADC) Africa regional laboratory networks were present at the RESOLAB meeting and maintained linkages between sub-Saharan Africa regional laboratory networks. *2.E.1.C*
- Participation of EARLN interim coordinator and the National Animal Disease Diagnostics and Epidemiology Centre of Uganda Executive Manager and one senior staff in the RESOLAB 5th Annual coordination meeting. *2.E.1.C*
- Coordination of the activities of the subnetworks on PPR, FMD and rabies for Western and Central Africa region. *2.E.1.C*
- Information collection and dissemination via emailing list and Web site. Support for sharing of information and biological materials: technical information was shared through RESOLAB Web site (www.fao-ectad-bamako.org) and mailing list. In addition, contacts are underway with the International Livestock Research Institute (ILRI) to implement joint activities that aim at sequencing the gene of ASF virus isolated in Cameroon; *2.E.3.C*
- Support participants to attend an EARLN-FMD subnetwork coordination meeting and regional FMD progressive control pathway meeting in Nairobi (from 5 to 7 March 2012). *2.E.1.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Provide support to RESOLAB and EARLN network and subnetwork meetings. *2.E.1.C*
- Facilitate common workshops, at country level, between laboratory technicians and epidemiologists. *2.E.2.C*
- Resume with information collection and dissemination via emailing list and Web site. *2.E.3.C*
- Invite RESOLAB/SADC Laboratory Network members, FMD subnetwork coordinator and OFFLU representative(s) to the EARLN annual coordination meeting in July 2012 in Kenya. *2.E.1.C*
- Develop linkages with the joint AU-IBAR/OIE/FAO project entitled, Reinforcing Veterinary Governance in Africa, that will be launched in May 2012, and which includes, under FAO component, activities to support the regional networks (laboratory, epidemio-surveillance, etc.).

2.F.Congo. Support and promote laboratory partnerships

Activities undertaken during the current reporting period (1 October 2011 - 31 March 2012)

- Contribution to concept notes developed at FAO headquarters on:
  - definition of the roles and responsibilities of regional laboratories in sub-Saharan Africa and establishment/development of regional service laboratories; OIE was contacted for review and comments on the proposed approach, and a concept note was transmitted to WHO. *linked to global activity 2.F.G*
  - provision of access to sequencing services for sub-Saharan veterinary laboratories.
- Contact was established with AfBSA to explore a possible membership for RESOLAB/EARLN networks. *linked to activity 1.D.C*

Planned activities for the next reporting period (1 April 2012 - 30 September 2012)

- Meeting on regional laboratory services from 9 to 11 July 2012 in Addis Ababa. *linked to global activity 2.F.2.G*

4 MAIN CHALLENGES ENCOUNTERED AND RESPONSE PROVIDED

- The implementation of the project activities under the Year 3 work plan, corresponding to this reporting period (1 October 2011 - 31 March 2012), was delayed owing to the completion of the validation process of the Year 3 work plan in November 2011, which resulted in the adoption of a new timetable of project activities.
- In the Congo Basin, there is still a need to improve the involvement of the beneficiary laboratories in IDENTIFY|FAO activities. FAO meetings with veterinary laboratory directors and CVOs are planned in the next reporting period to present and discuss the project's implementation, common constraints, current and future work plans, and to improve the project ownership by beneficiary laboratories. For a better implementation of the IDENTIFY project at the national level, with a more active role played by the beneficiary laboratories, FAO will discuss the designation (and Terms of Reference) of national coordinators responsible for follow-up and linkages with other national and EPT partners. LoA will be signed with each laboratory, with activities carried out by beneficiary laboratories.
- IDENTIFY|FAO is seeking to fill the gaps defined from the first mapping exercise result in the Congo Basin. The major constraints reported by the laboratories with respect to the adequate performing of laboratory diagnosis were: financial and material resources (reported by 29 percent of the laboratories), inadequate number of qualified human resources (26 percent), difficulties in procurement of reagents and consumables (23 percent) and difficulties in metrology and equipment maintenance (6 percent). Furthermore, the quality system development and/or implementation have faced difficulties ranging from an insufficiency of financial and material resources (26 percent), lack of trained personnel (23 percent), suboptimal metrology and equipment maintenance operations (13 percent) to an irregular provision of water and electricity (7 percent). FAO will address the issue of advocacy to national authorities and regional institutions as well as development of national laboratory policy.
- The low priority given to animal health in country policies and development strategies often leads to difficulties in mobilizing technical, financial and human resources at national level, thus compromising the sustainability of activities implemented under the project. Therefore, there is a need to intensify advocacy at country level and increase sustainable financial resources.

5 MAIN PROGRESS MADE TOWARDS THE ACHIEVEMENT OF PROJECT OUTCOMES (FROM THE START OF THE PROJECT ACTIVITIES)

- The support provided by IDENTIFY to-date has contributed to a greater understanding of the regional animal health priorities, assessment of laboratory capacities, and identification of regional and national gaps and resources.
- The direct support afforded to laboratories is substantial, and has allowed for an expansion of the activities to include: quality assurance, biosafety, and maintenance and calibration of equipment, thus contributing to laboratories' capacity to conduct work in accordance with internationally accredited standards (e.g. ISO 17025). Many national laboratories never had the opportunity to consider these major issues. The support provided is neither isolated nor sequential; the project builds upon previous and current investments in laboratory networking and allows for a programmatic approach, proper approval of planned activities by countries and a regional approach to TADs.
- As many priority diseases are TADs, a regional approach (where agreed) allows for rapid disease detection/identification. Response measures can be coordinated regionally for more effective control. The networks in the West/Central, Eastern Africa and Southeast Asia regions have set a good example, with both the formal and informal exchange of information, collective effort and responsibility to build laboratories in the regions. Other partners, such as USDA/APHIS, EU-FMD Commission and CIRAD have demonstrated an increasing interest in and support for these laboratory networks. The growing confidence lends credence to the regional approach, and FAO has a comparative advantage in the coordination of such support and inputs. This project has provided support to regional laboratory networks, allowing networking and progress in the strategy of these networks, especially related to the status and mandate of regional service laboratories.
- While laboratory capacities and national needs are heterogeneous within each region, the laboratory mapping tool developed by FAO is contributing to a regional perspective on laboratory capacities and gaps. This tool can serve for laboratories themselves, as well as decision-makers and technical partners, to identify the regional and individual support required. It is also an invaluable tool for FAO to tailor its capacity building support in line with the project's objectives, measuring the progress made and the impact of the project. This tool is also applicable in other contexts, or under other FAO projects in the future. It will continue to evolve, through the development of specific modules and according to the feedback received.
- This project has enabled or will shortly enable the launching of innovative initiatives, such as the genetic module in the EMPRES-i database, the four-way linking framework, the laboratory mapping tool, the development of private-public partnerships between laboratories and the animal production sector and the provision of access of laboratories to sequencing services. The genetic module represents an ideal example of a multidisciplinary success, linking virology, epidemiology and bioinformatics, and is receiving increasing interest from the scientific community and from policy makers.
- Building on the investments made with support under AI, this project sustains previously established mechanisms: collaborations and communication pathways between organizations, global OFFLU and regional networks, and benefits from the momentum gained through public good concepts, such as the recognition of the importance of early detection and intervention and impacts of pathogens with pandemic potential. These investments are crucial to the continued development of technical laboratory capacities, especially molecular techniques, to respond to other transboundary and priority diseases.

USAID
FROM THE AMERICAN PEOPLE

IDENTIFY | FAO

BIANNUAL REPORT

(SIX-MONTHLY PROGRESS REPORT)

REPORTING PERIOD: 1 OCTOBER 2012 - 31 MARCH 2013

PLANNED ACTIVITIES: 1 APRIL 2013 - 30 SEPTEMBER 2013

TO BE SUBMITTED TO:

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

UNDER COOPERATIVE AGREEMENT

SUBMITTED BY

IDENTIFY PROJECT PARTNER: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

Regional component: Global/Inter-regional
Three hot spot areas (with countries) : • **Congo Basin:** Uganda, Democratic Republic of the Congo, Cameroon, Republic of Congo, Tanzania, Gabon, Equatorial Guinea, Rwanda, Central African Republic and South Sudan. • **Southeast Asia:** Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar*, the Philippines, Thailand and Viet Nam. • **South Asia:** Bangladesh, India and Nepal (future activities pending).
Project title: Support for strengthening animal health laboratory capacities in hot spot regions to combat zoonotic diseases that pose a significant public health threat - IDENTIFY
Code: OSRO/INT/902/USA
Total budget: USD 18 444 372 (of which USD 14 944 372 were allocated for implementation of activities by the Food and Agriculture Organization of the United Nations (FAO), and USD 3 500 000 were allocated for implementation of activities by the World Organisation for Animal Health (OIE) through funds transferred by FAO to OIE as per the letter of agreement (LoA). The activities carried out by OIE will be reported on separately.
Effective starting date: 1 October 2009
Planned end date: 30 September 2013
Context of the project This project is part of a complex programme – Emerging Pandemic Threats (EPT) – designed by the United States Agency for International Development (USAID) and aimed at identifying and implementing mechanisms that detect disease emergencies, especially from wildlife. The One Health concept is an important component of the programme. The IDENTIFY project is implemented jointly by FAO, OIE and the World Health Organization (WHO).
Objectives of the project • enhance laboratories' ability to detect – to the appropriate level of characterization for the laboratories' capability – IDENTIFY targeted diseases[1]; • enhance/support laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations; • laboratories have adopted or improved quality assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system; and • laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities and responsibilities.

* Myanmar is included in regional activities under separate funding.

[1] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases, and data will not be reported for diseases in those cases.

Short summary of main activities planned for the reporting period (1 October 2012 – 31 March 2013)

Main activity headings are as follows; for further details, please refer to the FAO | IDENTIFY year four work plan.

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases.

1.A Mapping national and regional laboratory resources for animal health.
1.B Provide laboratory equipment and supplies in a coordinated manner.
1.C Strengthening the linkage between the field and laboratory.
1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.
1.E Strengthening global and regional resources for selected animal diseases.
1.F Targeted support for strengthening diagnostic capacity and laboratory management.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved QA practices, inclusive of biosafety and biosecurity measures, and a comprehensive quality management system.

3.H External Quality Assessment (EQA) for the diagnosis of targeted animal diseases.
3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).
3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.
3.K Targeted support for laboratory quality management systems, including biosafety.

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

4.L Regional laboratory network support and coordination for animal health.
4.M Enhancing the role of Regional Leading/Support Laboratories.
4.N Supporting national laboratory networks for animal health.
4.O One Health initiatives: strengthening linkages between veterinary and public health.
4.P Support for participation in scientific conferences, trainings, or workshops.

ACRONYMS AND ABBREVIATIONS

AAHL	Australian Animal Health Laboratory
AGAH	FAO Animal Health Service
AHVLA	Animal Health and Veterinary Laboratories Agency
AI	Avian influenza
APHIS	Animal and Plant Health Inspection Service
ASEAN	Association of Southeast Asian Nations
ASF	African swine fever
ASWGL	ASEAN Sectoral Working Group on Livestock
AU	African Union
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
AUM	African and Malagasy Union
AU-PANVAC	African Union-Panafrican Veterinary Vaccine Centre
CCPP	Contagious caprine pleuropneumonia
CBPP	Contagious bovine pleuropneumonia
CIRAD	*Centre de coopération internationale en recherche agronomique pour le développement* – Agricultural Research for Development
CSF	Classical swine fever
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CU-EIDAs	Center of Excellence for Emerging Infectious Diseases in Animals, Chulalongkorn University, Thailand
CVL	Central Veterinary Laboratory
CVO	Chief Veterinary Officer
DAH	Department of Animal Health, Viet Nam
DIC	Disease Investigation Centres
DGLAHS	Directorate General of Livestock and Animal Health Services
EAC	East African Community
EARLN	Eastern Africa Veterinary and Epidemiology Laboratory Network
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community Of West African States
ECTAD	Emergency Centre for Transboundary Animal Diseases
EISMV	Interstate School of Veterinary Science and Medicine
ELISA	enzyme-linked immuno sorbent assay
EMPRES	FAO Emergency Prevention System
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
EuFMD	European Commission for the Control of Foot-and-Mouth Disease
FAO	Food and Agriculture Organization of the United Nations
FETP	Field Epidemiology Training Programme
FETPV	Field Epidemiology Training Programme for Veterinarians
FMD	Foot-and-mouth disease
FRET	Fluorescence resonance energy transfer
FVI	*France Vétérinaire International*
HPAI	Highly Pathogenic Avian Influenza
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
ISRA	*Institut Sénégalais de Recherché Agronomique*
IVM	Influenza Virus Monitoring (system), Indonesia
IPC	Institut Pasteur du Cambodge
IZSVe	*Istituto Zooprofilattico Sperimentale delle Venezie*
LACEVET	Central Veterinary Laboratory
Lao PDR	Lao People's Democratic Republic
LANAVET	*Laboratoire National Vétérinaire*, Cameroon
LIMS	Laboratory information management system
LITI	Livestock Training Institute, Tanzania
LMT	Laboratory mapping tool
LNERV	*Laboratoire National d'Elevage et de Recherches Vétérinaires*
LoA	Letter of agreement
M&E	Monitoring and evaluation
MARF	Ministry of Animal Resources and Fisheries, South Sudan
MoH	Ministry of Health, South Sudan
MORU	Mahidol-Oxford Tropical Medicine Research Unit
MUHAS	Muhimbili University of Health and Allied Sciences

NADDEC	National Animal Disease Diagnostics & Epidemiology Centre
NAHC	National Animal Health Centre, Lao People's Democratic Republic
NAHDIC	National Animal Health Diagnostic and Investigation Center
NaVRI	National Veterinary Research Institute, Cambodia
NCVD	National Center of Veterinary Diagnosis, Viet Nam
NIAH	National Institute of Animal Health, Thailand
ND	Newcastle disease
NVDAL	National Veterinary Drug Assay Laboratory
NVL	National Veterinary Laboratory, Rwanda
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health
PCR	Polymerase chain reaction
PPP	Public private partnership
PPR	*Peste des petits ruminants*
PPRV	*Peste des petits ruminants* virus
PRRS	Porcine reproductive and respiratory syndrome
PT	Proficiency testing
PUSVETMA	Pusat Veterinaria Farma
RAHO 6	Regional Animal Health Office Number 6, Viet Nam
RECs	Regional Economic Communities
RESEPI	Regional Network of National Epidemiosurveillance Systems for Transboundary Animal Diseases
RESOLAB	West and Central Africa Veterinary Laboratory Network for Avian Influenza and Other Transboundary Diseases
RRL	Regional Reference Laboratory
RSL	Regional Support Laboratory
RVF	Rift Valley fever
SIB	Swiss Institute of Bioinformatics
SIV	Swine influenza virus
SOPs	Standard operating procedures
SWD	Sabah Wildlife Department
TAD	Transboundary animal disease
TAWIRI	Tanzania Wildlife Research Institute
UEMOA	West African Economic and Monetary Union
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
US CDC	United States Centers for Disease Control and Prevention
USDA	United States Department of Agriculture
VAR	Veterinary and Agrochemical Research Centre, Belgium
VRI	Veterinary Research Institute, Malaysia
WHO	World Health Organization

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1 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2012 – 31 MARCH 2013) AND PLANNED ACTIVITIES FOR THE NEXT REPORTING PERIOD (1 APRIL 2013 – 30 SEPTEMBER 2013)

1.1 ACTIVITIES GLOBAL COMPONENT (FAO HEADQUARTERS AND FAO/INTERNATIONAL ATOMIC ENERGY AGENCY [IAEA])

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases.

G1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Global compilation of updated regional data on laboratory capacity and networks (FAO laboratory mapping tool [LMT] exercise) *(activity G1.A.1, linked to regional activities C.1.A and S.1.A)*:
  - All new data obtained with the LMT (through results of self and external assessments in both regions) were compiled and reviewed to analyse the progress made by IDENTIFY outcome indicator.
  - Comparisons were made on results obtained through self-application of the LMT versus expert assessment. The analyses of the strengths and weaknesses of the LMT provided a basis for the review of progress measurement under IDENTIFY, the review of the LMT and best practices in its application *(linked with activity G1.A.2)*.
  - A regional profile of laboratories was examined for determining the status of regional support laboratories based on the outcomes of laboratory mapping.
- Development of additional modules for the LMT *(activity G1.A.2):*
  - The LMT revision to improve LMT objectivity, consistency and address other issues was initiated together with external experts.
- Contribute to the Monitoring and Evaluation (M&E) effort *(activity G1.A.3):*
  - A tracking mechanism for LoAs with IDENTIFY beneficiary labs in Africa was developed to help capture activities accomplished by the laboratories under such agreements and link them back to the IDENTIFY project results framework. This mechanism will also help assess satisfactory fulfilment of obligations stated in the LoAs, and thus, serve as a basis of whether or not to renew such agreements wherever applicable.
  - The "Progress against Log Frame" project monitoring mechanism was operationalized as stipulated in the project M&E framework. This document will show global level accomplishments and show progress towards the attainment of targets set for the project.
  - Available output information was disaggregated by laboratory level and by USAID objective in order to help explain changes in individual IDENTIFY supported laboratories. A ''laboratory sheet'' template was developed to help compile detailed information on activities conducted, follow-ups required, progress made and status of each individual laboratory.
  - A harmonized approach to assess the direct contribution of the IDENTIFY project to changes in supported laboratories was discussed. It would involve the development of a specific LMT module to measure the project´s impact on laboratory functionality as well

as a survey to measure the observed (and perceived) changes in laboratories against what was carried out under the project.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Global compilation of updated regional data on laboratory capacity and networks (FAO LMT exercise) *(activity G1.A.1):*
  - Produce individual laboratory cards on the status of IDENTIFY laboratories in the Congo basin, so that they may be shared with the countries to provide feedback on the: (i) year three LMT exercise; (ii) progress made since the year two LMT exercise; and (iii) year five planning process.
- Development of additional modules for the LMT *(activity G1.A.2)*:
  - Finalize the revision of the LMT and share the new version with the IDENTIFY laboratories. A guide for LMT's application will also be developed and agreed upon by all users.
  - Link the LMT with other assessment reports (e.g. biosafety/biosecurity assessment, QA auditing) to measure specific progress made. Compile and review all new data obtained with the LMT (through results of self and external assessments in both regions), and analyse the progress made.
- Contribute to the M&E effort *(activity G1.A.3)*:
  - Operationalize the "Progress against Log Frame" project monitoring mechanism. Thresholds will be established in a participatory way to facilitate measurement against set targets.
  - Complete laboratory sheets for all IDENTIFY supported laboratories on a regular basis.
  - Assess the direct contribution of the IDENTIFY project to changes in supported laboratories, through the use of: (i) the specific LMT module to measure the project´s impact on laboratory functionality; and (ii) surveys to measure the observed (and perceived) changes in laboratories against what was done under the project.

G1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The safe delivery of items procured to all laboratories, especially in Africa, was followed up on.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Undertake assistance missions to install procured laboratory equipment (*link with Congo Basin activity C1.B2)*:
  - Assist in organizing on-site missions to support the installation of procured equipment.
  - Launch tenders for the procurement of equipment and consumables that would be identified during the on-site missions.

G1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Supported the ongoing development of the FAO Global Animal Disease Information System (EMPRES-i) genetic module and its needs, following launch to the public:
  - Sequence-outbreak data was linked for several countries with H5N1 Highly Pathogenic Avian Influenza (HPAI) outbreaks (Lao People's Democratic Republic [PDR], China, Bangladesh and Viet Nam data have already been processed); three-month consultancy of the master's student (October-December 2012).

- The EMPRES-i influenza genetic module was released to the public in March 2013 and an article was published (in English: http://www.fao.org/docrep/017/i2910e/i2910e.pdf and French: http://www.fao.org/docrep/017/i2910f/i2910f.pdf, pages 28-30) on the FAO Emergency Prevention System (EMPRES) bulletin. Guidelines on the use of the module were also developed.
- A new LoA was prepared with the Swiss Institute of Bioinformatics (SIB) for maintenance and further integration of phylogenetic tools in the genetic module.

Planned activities for the next reporting period (1 April – 30 September 2013)

- EMPRES-i genetic module:
  - Finalize scientific papers on the applications of the genetic module.
  - Request the Joint OIE-FAO Network of Expertise on Animal Influenza (OFFLU) community to test the module.
  - Ensure that activities to be conducted under the LoA signed with SIB for maintenance of fully functioning publicly accessible genetic module are established for the linkage of outbreak (epidemiological) and sequence (genetic) data.
  - Develop visual genetic analysis tools and mapping functions within the module to support epidemiological, risk assessment and FAO early warning activities.
- Finalize the development of the EMPRES-i laboratory directory.

G1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Provision of access to sequencing services to laboratories*(activity G1.D.1)*:
  - A training course on ''sequencing and molecular epidemiology of animal pathogens'' took place in the IAEA's Laboratories in Seibersdorf, Austria from the 10 to 21 December 2012. The training was organized by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, FAO's Animal Health Service (AGAH) and the FAO Emergency Centre for Transboundary Animal Diseases (ECTAD) regional units in Africa, and was jointly funded by the IDENTIFY and the South Africa-funded African renaissance fund project. The course was delivered by experts from the Veterinary and Agrochemical Research Centre (VAR) in Belgium, the *Istituto Zooprofilattico Sperimentale delle Venezie* (IZSVe) in Italy, *Centre d'Étude et de Recherches Vétérinaires et Agrochimiques*/Veterinary and Agrochemical Research Center CODA-CERVA-VAR in Belgium, *Centre de coopération internationale en recherche agronomique pour le développement* (CIRAD) in France, SIB in Switzerland and IAEA in Austria. Two participants from each of the following countries attended the training course: Tanzania, Uganda, Cameroon, Democratic Republic of the Congo, Ethiopia, Nigeria, Senegal and Botswana. The course covered details on methology of sample preparation for outsourcing, Sanger sequencing raw data analysis, sequencing data handling and management, submission to public databases, multiple sequence alignment, phylogenetic analysis and epidemiological studies with hands-on training in different bioinformatic softwares for analysing sequence data from selected genes of foot-and-mouth disease (FMD), avian influenza (AI), Newcastle disease (ND), *peste des petits ruminants* (PPR), Capripox and contagious bovine pleuropneumonia (CBPP) disease causing pathogens.
  - Participating countries (in both the training course above and the training course conducted in September 2012 [Nairobi] for epidemiologists) were asked to develop joint

laboratory/epidemiology national workplans regarding sequencing and submit them at the end of January 2013. Most workplans have been submitted by countries and some feedback has been provided by FAO/IAEA. Countries are now expecting the direct access to sequencing services (see also *activity G1.E*).

- A Concept note was updated on ''Increase PCR (polymerase chain reaction) testing efficacy and support sequencing capacities and access by national laboratories to genomic sequencing services in sub-Saharan Africa''.
- Development of e-modules on bioinformatics, *activity G1.D.2*: First e-learning module "*Phylogenetics of animal pathogens: basic principles and applications*":
  - Additional feedback was collected from experts of the joint FAO/IAEA Division and the FAO reference centre (IZSVe), and allowed for the improvement of the existing module and the selection of new modules to be added.
  - The first e-learning module was released to the public on March 2013. It is organized in four chapters: 1) basic notions on phylogenetic trees; 2) how to build phylogenetic trees; 3) how to interpret phylogenetic trees; and 4) exercises. It includes many examples based on influenza, FMD and PPR viruses, as well as several quizzes for the trainees to assess his/her understanding: http://www.fao.org/ag/againfo/programmes/en/empres/news_010313b.html. The module can also be publicly accessed at http://viralzone.expasy.org/e_learning/. It was used to introduce phylogenetics during the "Training on sequencing and molecular epidemiology of animal pathogens" (5-16 November 2012).
- Discussions were initiated for the development of new modules (multiple sequence alignment and genetic databases), to be developed under a new LoA with SIB, in collaboration with the joint FAO/IAEA Division.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Development of e-modules on bioinformatics *(activity G1.D.2)*:
  - Integration of practical scenario based learning material to the existing phylogenetic module, under the new LoA with SIB, in collaboration with joint FAO/IAEA Division.
  - Under the LoA signed with SIB, develop two new e-learning modules on virus analysis: (i) molecular database analysis and searching by sequence similarity; and (ii) multiple sequence alignments.

G1.E Strengthening global and regional resources for selected animal dise*ases.*

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Communication tool(s) were developed for different audiences, stakeholders and partners *(activity G1.E.1)*:
  - Brochures on FAO regional laboratory networking and the EMPRES Laboratory Unit were revisited and are currently in the finalization stage.
  - A global leaflet was drafted on ''Public/private partnership and sustainability of veterinary laboratories in sub-Saharan Africa''.
- Work continued on the provision of access to sequencing services to laboratories *(activity G1.E.5)*:
  - Work was coordinated by the three partners (CERVA, IZSVe and CIRAD) to (i) develop and test harmonized protocols for PCR diagnosis and sequencing; and (ii) develop decision trees and sequencing strategy. All detailed validated protocols for each of the partners were provided in March 2013, following a format proposed by FAO, and for a list of priority diseases that require sequencing for diagnosis/advanced characterization. FAO will compile all these protocols and make them available to beneficiary countries.

- A tender for provision of sequencing services was launched in March 2013 (open for one month) to select a sequencing provider for the provision of sequencing services for both Africa and Asia. The contract will also include the provision of primers and probes.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Finalize and disseminate ''lab cards'' (available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses) for IDENTIFY priority diseases to the laboratories *(activity G1.E.3).*
- Support the development of diseases cards (cases definition and recommended tests repertoire for IDENTIFY listed priority diseases) *(activity G1.E.4, linked with Congo Basin C1.E1).*
- Continue the work on the provision of access to sequencing services to laboratories:
  - Select a sequencing provider for the provision of sequencing services.
  - Develop a moderation system for the submission of requests by countries and records of sequencing services.
  - Prepare a new LoA contract with CIRAD to assist countries on genotyping through sequencing of CBPP strains, in accordance with the validated protocol proposed under this project.

G1.F Targeted support for strengthening diagnostic capacity and laboratory management.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- PCR testing for multiple diseases *(activity G1.F2)*:
  - A consultant meeting on "Applying Good Laboratory Practices in Molecular Testing of Multiple Diseases in Veterinary Laboratories" was held at IAEA, Vienna from 16 to 18 October 2012. Experts from Institut Sénégalais de Recherché Agronomique-Laboratoire National d'Elevage et de Recherches Vétérinaires (ISRA-LNERV) in Senegal, National Centre for Veterinary Diagnostics (Viet Nam), and National Institute of Animal Health (Thailand), discussed the (i) current status of molecular tools being implemented; (ii) further measures to be taken for a successful approach in better disease management; and (iii) guidelines needed to strategically implement good laboratory practices compliant with molecular testing in veterinary laboratories. Experts were from the National Veterinary Institute and the Swedish University of Agricultural Sciences (SLU) in Uppsala, Sweden, CIRAD-*Institut National de la Recherche Agronomique* (INRA) in France, Institute of Tropical Medicine Antwerp in Antwerp, Belgium, the Animal Health and Veterinary Laboratories Agency (AHVLA) in New Haw Surrey, United Kingdom, Laboratoire de Virologie at ISRA-LNERV in Senegal, IZSVe in Italy, Commonwealth Scientific and Industrial Research Organisation (CSIRO) Livestock Industries in Australia, National Centre for Veterinary Diagnostics in Viet Nam, National Institute of Animal Health in Thailand, FAO headquarters and the Joint FAO/IAEA Division.
- A technical officer of the joint FAO/IAEA Division travelled to the National Animal Health Diagnostic and Investigation Center (NAHDIC) Ethiopia, Regional Support Laboratory for East Africa (from 25 February to 1 March 2013) to:
  - transfer molecular assays for capripoxviruses genotyping by real-time PCR; and
  - further enable the laboratory to use the kits donated by FAO for conventional and real time PCR tests for CBPP, Rift Valley fever (RVF), African swine fever (ASF) and PPR.
- A consultant at the Joint FAO/IAEA Division worked on the molecular epidemiology of PPR:
  - The PPR virus (PPRV) was genotyped in clinical specimens taken from outbreaks in five countries including three supported by IDENTIFY (Senegal, Uganda and Democratic

Republic of the Congo). For one country, an attempt was made to identify possible temporal and spatial changes in PPRV, however, little genetic variation was observed between the isolates.
  - The sequencing of the full genomes of isolates from five countries, including three supported by IDENTIFY (Ethiopia, Uganda and Democratic Republic of the Congo) are nearing completion.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support PCR testing for multiple diseases as a follow-up to the IAEA Consultation on *''Good laboratory practices for conducting multiple disease diagnosis''* and standardization and validation of the different major PCR testing procedures through the use of the same kits of reagents for various diseases *(activity G1.F2):*
  - Provide technical support to laboratories with standard operating procedures (SOPs) and reagents to facilitate the transfer of techniques (PCR using the fluorescence resonance energy transfer [FRET] system) described in *activity G.3.H3*.
- Continue the joint FAO/IAEA Division's work on molecular epidemiology of PPR:
  - Complete the full genome sequencing of the selected isolates as described above.
  - Complete the full genome sequencing of additional PPRV isolates.
  - Provide updated information on the molecular epidemiological situation of PPRV in Africa, based on the data generated.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

G2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Existing animal health laboratory policies were reviewed and the development of lab policy guidelines for IDENTIFY targeted countries were initiated *(activity G2.G.5)*:
  - A concept note was developed, three international experts were appointed and the review was initiated in March 2013. Discussions were initiated with Africa region *(see Congo Basin activity C2.G.2)* on existing lab policies and gaps.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support the development of sample referral guidelines for transboundary animal diseases (TADs) *(activity G2.G.2).*
- Develop a standard approach for sharing information and biological materials *(activity G2.G.3).*
- Sample referral for disease confirmation (stopgap measure where urgent disease confirmation is needed) *(activity G2.G.4).*
- Finalize the review of existing animal health laboratory policies and development of laboratory policy guidelines for IDENTIFY targeted countries *(activity G2.G.5)*:
  - The review - to be completed by June 2013 - will describe the strengths and weaknesses of existing policies at national and regional levels across continent and focus on some pilot countries in the different regional economic communities.
  - Based on the outcomes of the review, guidelines will be developed on laboratory policy in selected fields of interest, for both the top management of the veterinary laboratories

and the competent authorities in charge of laboratories, with further adaptation to the context of Asia and Africa (first draft to be ready by September 2013 and finalized by November 2013).

- Support the review of results for the public-private partnership (PPP) and sustainability study of veterinary laboratories in sub-Saharan Africa and the creation of linkages to development of laboratory policy (*activity G2.G.6, linked with Congo Basin activity C2.G.3*).

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved QA practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

G3.H EQA for the diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Assistance was provided for the organization of proficiency testing PT *(linked with regional Congo Basin C3.H.1)*:
  - Support to EQA provided for proficiency testing in AI/ND, *(linked with Congo Basin C3.H.1).*
- Assistance was provided for the organization of a backstopping mission at country level (Tanzania) *(activity G3.H.2 linked with Congo Basin C.3.H.2).*
- Joint FAO/IAEA Division validated and transferred new techniques for multiple disease diagnosis (PCR using the FRET system) to Uganda and Ethiopia *(activity G3.H.3)*:
  - Several conventional and real-time PCR methods for capripoxvirus genotyping were transferred to NAHDIC Ethiopia in February 2013 *(see also activity G1.F)*. Reagents were shipped to Uganda for the capripox differentiation assay.
  - Analytical validation of the pan-pox detection assay to simultaneously differentiate capripox, parapox and orthopox is in progress.
  - A consultant at the Joint FAO/IAEA Division worked on the development of the multiple pathogen detection system for pathogens causing respiratory symptoms in ruminants. It is anticipated that these techniques will be transferred mainly to the regional service laboratories:
    - Fourteen different pathogens including RNA viruses, DNA viruses and bacteria were selected for the panel.
    - The immediate action is focused on the development of multiplex real-time PCR assays targeting some "IDENTIFY priority diseases" associated with respiratory like symptoms in small ruminants: capripox, parapox, PPR, pasteurella, contagious caprine pleuropneumonia (CCPP) and RVF.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Provide assistance for the organization of the PTs *(activity G3.H1 linked with Congo Basin activity C3.H1).*
- Support the organization of a backstopping mission at country level (South Sudan and Uganda) *(activity G3.H.2 linked with Congo Basin C3.H.2).*
- Transfer the new techniques for multiple disease diagnosis (PCR using the FRET system), under a*ctivity C3.H.3,* to LNERV (Senegal), by providing reagents and technical assistance for capripoxvirus genotyping, and follow up with the National Animal Disease Diagnostics and Epidemiology Centre (NADDEC) in Uganda to ensure effective transfer of capripoxvirus genotyping assays.
  - Carry out the final steps towards the analytical validation and transfer of the pan-pox detection assay.

- Carry out analytical validation of the real-time PCR based multiple pathogen detection assay for respiratory disease of small ruminants and develop a suspension array based (Luminex) assay for 14 pathogens.

C3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- None.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Sign LoA with *France Vétérinaire International* (FVI) to support:
  - on-site audit/backstopping missions on QA, biosafety and biosecurity performed by FVI in Africa *(activity linked with Congo Basin C3.I/C3.J);* and
  - the development of an e-learning module on QA, through partnership with FVI and CIRAD.

G3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support was provided to the biosafety/biosecurity training performed by FVI in Kinshasa, Democratic Republic of the Congo under the LoA with FVI from 1 to 5 October 2012 - *linked with Congo Basin activity C3.J.*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Sign LoA with FVI to support:
  - on-site audit/backstopping missions on biosafety and biosecurity performed by FVI in Africa *(activity linked with Congo Basin activities C3.I/C3.J);* and
  - the development of a road map for biosafety/biosecurity by experts from FVI.

G3.K Targeted support laboratory quality management systems, including biosafety.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support was provided to the on-site audit/backstopping missions performed by FVI in Africa under the LoA with FVI for (i) assessing QA system implementation in Central Veterinary Laboratory (LACEVET) in Bangui, Central African Republic (15-18 October 2012), and the Central Veterinary Laboratory (CVL) in Temeke, Tanzania (5-9 November 2012). Discussions were held with experts from FVI and new LoA with FVI will be prepared.
- Discussions were held and an LoA prepared with the *Istituto G. Caporale* in Teramo, Italy to support the implementation of laboratory information systems (LIMS) in two targeted laboratories in Tanzania and Botswana *(linked with regional activity Congo Basin activity C3.K.3.*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conducted activities under the LoA to be signed with the *Istituto G. Caporale* to support the implementation of LIMS in two targeted laboratories in Tanzania and Botswana *(activity G3.K.1, linked with Congo Basin activity C3.K.3).*

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

G4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support was provided to routine regional and global networking meetings:
  - OFFLU:
    - The OFFLU/FAO influenza vaccination handbook has been mostly drafted. Some visuals have been received from vaccine manufacturers and some chapters have been circulated for review by experts.
    - An OFFLU conference on lessons learned from HPAI vaccination is being prepared (tentatively planned for October/November 2013 in Beijing, China and co-funded by OIE and FAO AI projects).
  - WHO Vaccine Composition meeting:
    - OFFLU's contribution was compiled by FAO officers (mid February 2013 in Geneva).
    - Continued harmonization work with WHO on antigenic data with standard reagents was produced by WHO Collaborating Centres and distributed to selected OFFLU laboratories.
  - Support was provided for the preparation of the West and Central Africa Veterinary Laboratory Network for AI and other transboundary diseases (RESOLAB) meeting (from 3 to 7 December 2012 in Dakar, Senegal) *(linked to Congo Basin activity C4.L.4)*.
  - Support was provided for the participation of two persons from NADDEC in the ''First Participatory Epidemiology Network for Animal and Public Health (PENAPH) Technical Workshop'' in Thailand (11-13 December 2012).
- Laboratory and epidemiology networks were linked *(activity G4.L2):*
  - There has been continuous sharing of pertinent information between networks.
- Existing disease-based, regional, and global laboratory network meetings were promoted/sponsored *(activity G4.L3)*:
  - Linkages with European Commission for the Control of Foot-and-Mouth Disease (EuFMD): support was provided for participants from regional support laboratories (RSLs) in Ethiopia, Nigeria and Senegal and one FAO /OIE reference lab in India to participate in the FMD reference lab network meeting in Jerez de la frontera, Spain (1-2 November 2012).
  - OFFLU has been represented in the Southeast Asia and West/Central Africa regional network meetings - all regional laboratories in Africa and SE Asia have agreed to participate in the OFFLU ring trial.
- Potential FAO Reference Centres were identified *(activity G4.L4)*:
  - Six new FAO Reference Centres have officially been designated (China for animal influenza and ND; Germany for classical swine fever (CSF); Italy for rabies; Portugal for CBPP, South Africa for FMD and ASF).
  - A webpage on FAO Reference Centres in animal health has been developed: http://www.fao.org/Ag/AGAInfo/partners/en/ref_centres.htm

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support routine regional and global networking meetings *(activity G4.L1)*:
  - OFFLU swine influenza virus (SIV) expert meeting in Rome (16-17 April 2013). This meeting will gather 25 participants to discuss achievements of the SIV group, update on countries activities, review achievements and plan future activities (main funding source: National Institute of Health, USA).
  - Support to the preparation of the Eastern Africa Veterinary and Epidemiology Laboratory Network (EARLN) and participation in the IDENTIFY | FAO management team (tentative dates: 16-19 July 2013 in Bujumbura, Burundi) *(activity linked to regional C.4.L.4).*
- Continue efforts for designation of FAO Reference Centres that are in the pipeline *(activity G4.L4)*.

G4.M Enhancing the role of Regional Leading/Support Laboratories.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Efforts on the status of RSLs in sub-Saharan Africa were supported (*activity G4.M1*) by:
  - supporting the finalization of the concept note on "Defining the status, roles and responsibilities of regional laboratories in sub-Saharan Africa" and of the template of annual report provided to the RSLs; and
  - assisting in the preparation of the dossier for submission to the Regional Economic Communities (RECs) and of the co-signed FAO/African Union-Interafrican Bureau for Animal Resources (AU-IBAR) letter, sent to RECs in January 2013.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue the efforts on the status of RSLs in sub-Saharan Africa (*activity G4.M1, linked with Congo Basin activity C4.M.1)* by:
  - supporting the preparation of the conclusive meeting for validation/endorsement by beneficiary laboratories, Chief Veterinary Officers (CVOs), and commitment by key partners; and
  - analysing annual reports submitted by RSLs for M&E purposes and identifying strengths and gaps.

G4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- None

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue support to the national laboratory networks *(activity G4.N1, linked with Congo Basin C4.N1).*
- Develop a tool to evaluate national laboratory networks *(activity G4.N2, linked with Congo Basin C4.N2).*

G4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface *(activity G4.O.1)*:
  - A tripartite review mission was organized in Indonesia from 3 to 14 December 2012.
- Competence development in detection of antimicrobial resistance for food safety, including training, supplies and sampling in Uganda was supported *(activity G4.O.2, linked to Congo Basin activity C1.F.2)*.
- A One Health seminar on rabies in Africa was supported *(activity G4.O.3, linked with Congo Basin C4.O.1):*
  - A concept note was finalised on ''Control and prevention of rabies in sub-Saharan Africa. How to improve collaboration between key stakeholders?''

Planned activities for the next reporting period (1 April – 30 September 2013)

- Four-way linking framework *(activity G4.O1)*:
  - Bangladesh: review mission and workshop planned between April 2013 and September 2013;
  - Indonesia: national workshop scheduled from 8 to 12 April 2013; and
  - Viet Nam: activities initially planned will most likely be replaced by exchanges between China and Viet Nam, under the same framework, in the context of H7N9.
- Support One Health seminar on rabies in Africa *(activity G4.O.3, linked with Congo Basin C4.O.1):*
  - Develop, with IZSVe (FAO Reference Centre for rabies), a rabies tool kit to provide the methodology for the organization in a systematic approach to national trainings for rabies diagnosis and One Health seminars on rabies *(linked to regional activity 2.A.C)*.
- Continue to support competence development in detection of antimicrobial resistance for food safety, including training, supplies and sampling, in Uganda and Cambodia *(activity G4.O4)*.

G4.P Support for participation in scientific conferences, trainings, or workshops.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support was provided to the participation of one virologist from the RSL in Senegal to the ''Real Time Training Course in Foot and Mouth Disease, NTC12'' (Nakuru, Kenya, 14-18 January 2013) organized by the EuFMD.

Planned activities for the next reporting period (1 April – 30 September 2013)

- None.

2 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2012 – *31 MARCH 2013)* AND PLANNED ACTIVITIES FOR THE NEXT SIX-MONTH PERIOD (1 APRIL – 30 SEPTEMBER 2013)

2.1 ACTIVITIES SOUTH/SOUTHEAST ASIA COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

S1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Laboratory assessments were conducted in Indonesia, using the FAO LMT, at 10 laboratories of the Directorate General of Livestock and Animal Health Services (DGLAHS), including eight Disease Investigation Centres (DICs), National Veterinary Drug Assay Laboratory (NVDAL) and Pusat Veterinaria Farma (PUSVETMA), from October to December 2012; *S1.A2.ID.*
- Data obtained from the lab mapping and assessment activities were compiled and updated for the laboratory network and sharing of the assessment results with the participating laboratories and relevant partners.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Compile and update laboratory capacity data, through laboratory mapping and biosafety assessment activities, at the FMD-Regional Reference Laboratory (FMD-RRL) in Nakorn Raschasima, Thailand, the Center of Excellence for Emerging Infectious Diseases in Animals, Chulalongkorn University (CU-EIDAs) in Bangkok, Thailand, the National Center of Veterinary Diagnosis (NCVD) in Hanoi, Viet Nam, the Regional Animal Health Office (RAHO) 6 in Ho Chi Minh City, Viet Nam, and the National FMD Laboratory in Kota Bharu, Malaysia; *S1.A3.TH (also linked to S3.K1.r).*

S1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Laboratory consumables, supplies, diagnostic reagents for AI active surveillance programme and one refrigerated microcentrifuge were provided to the National Animal Health Center (NAHC) in Lao PDR.
- Diagnostic reagents for AI diagnosis and one egg incubator were provided to the National Veterinary Research Institute (NaVRI) in Cambodia.
- Laboratory equipment, including two biosafety cabinets, PCR Hood, autoclave, one set of powered air purifying respirator system, two sets of eye-wash drench, and biosafety supplies were provided to the Sabah Wildlife Department (SWD), one of the PREDICT laboratories in Malaysia, based on the findings and recommendations from biosafety risk assessment.
- The need for Indonesia Influenza Virus Monitoring (IVM) system pre-screening and screening reagents was assessed and a procurement list was prepared in consultation with the Australian Animal Health Laboratory (AAHL); *S1.B2.ID.*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Provide standardized veterinary diagnostic reagents, including proficiency testing panels, supplies and equipment as requested by the network laboratories or recommended in support of the proficiency testing programme and the disease diagnostic and surveillance activities.
- Provide necessary supplies and equipment, based on the findings and recommendations of the biosafety assessment and cabinet testing activities to ensure the proper biosafety containment and practices in the network laboratories.
- Procure pre-screen and screening reagents for the Indonesia IVM system from AAHL and ship them to Indonesia.

S1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support and consultancy were provided on the development of a course outline and curriculum for the Regional Laboratory Network Workshop on Laboratory-Field Epidemiology Linkage. The curriculum will be used for the Regional Laboratory Network Workshop on Laboratory-Field Epidemiology Linkage to be delivered at the end of May 2013 *(activity S1.C1.r).*
- JSI DELIVER and the Directorate of Animal Health were provided support to conduct a field assessment of inventory, storage and distribution of field/laboratory sampling supplies in relation to the National Veterinary Service logistics project in Indonesia – field assessments were conducted in Sumatra and Bali in March 2013 *(activity S1.C3.ID)*.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct the Regional Laboratory Network Workshop on Laboratory-Field Epidemiology Linkage in Bangkok, Thailand with AAHL as an implementing partner *(activity S1.C1.r)*.
- Support in-country lab-field pathology linkage trainings in Thailand and the Philippines. The training is a follow-up activity of the previously offered training-of-trainer workshop, Basics of Field and Laboratory Diagnosis, conducted in May 2012 *(activity S1.C2.a.TH, S1.C2.d.PH)*.
- Support advanced virus characterization of selected viruses in Indonesia through the LoA with AAHL *(activity S1.C5.ID)*.
- Develop the Alat Skrin Lengkap (IVM On-line) antigenic characterization and visualization software under the LoA with AAHL *(activity S1.C5.ID)*.

S1.D Develop and conduct trainings or workshops to build diagnostic laboratory capacity.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The development of a course curriculum and coordinate activities related to organizing the Regional workshop in Applied Veterinary Bioinformatics was supported (to be held, tentatively, in June 2013) *(activity S1.D2.r).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct a series of regional trainings on diagnosis of the targeted diseases, including rabies, ND, swine diseases with AAHL, RAHO 6 and the National Institute of Animal Health (NIAH) of Thailand as implementing partners *(activity S1.D1.r).*
- Conduct a Regional Workshop in Applied Veterinary Bioinformatics with St. Jude Children's Research Hospital and CU-EIDAs as implementing partners *(activity S1.D2.r)*.
- Organize the national workshop, user acceptance training – antigenic characterization software tool in Indonesia in August 2013 *(activity S3.K4.ID).*

S1.E Strengthening regional resources for selected animal diseases.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The development and compiling of the regional diagnostic algorithms and SOPs for diagnoses of ND, rabies, CSF, porcine reproductive and respiratory syndrome (PRRS) and ASF was supported with AAHL as an implementing partner. This carry-over activity is part of technical support for regional diagnostics capacity from 2012.
- The work plan for updating the regional guideline for diagnosis of brucellosis was facilitated with NIAH, Thailand as an implementing partner *(activity S1.E1.TH).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue to support and strengthen the roles and responsibilities of the Regional Leading/Reference Laboratories in the region *(activity S1.E1.TH, S1.E2.VN, S1.E3.BD).*
- In collaboration with NIAH, Thailand, conduct the Regional workshop on diagnosis of Newcastle disease and rabies *(activity S1.E1.TH linked to activity S4.M2.a.TH).*
- In collaboration with the RAHO 6, Viet Nam, conduct the Regional workshop and training on diagnosis of swine diseases *(activity S1.E2.VN linked to activity S4.M2.b.VN).*

S1.F Targeted support for building diagnostic capacity.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The NaVRI-Institut Pasteur du Cambodge (IPC) Twinning programme was supported to strengthen capacities of the Government of Cambodia, using a joint animal-human-environment interface survey for HPAI in live birds markets through an LoA *(activity S1.F2.CA).*
- Two participants from Thailand (Director of Virology Unit, the National Institute of Animal Health [NIAH]) and Viet Nam (Vice Director of the National Centre for Veterinary Diagnostics) were coordinated and supported to attend the joint FAO/IAEA consultation meeting on the "Application of Good Laboratory Practices in Molecular Testing of Multiple Disease in Veterinary Laboratory", in Austria from 16 to 18 October 2012 *(see global activity G1.F2)*.

Planned activities for the next reporting period (1 April - 30 September 2013)

- Support the Technical Assistance Programme for Enhancing Quality Laboratory Management and Services at NAHC, Lao PDR with Mahidol-Oxford Tropical Medicine Research Unit (MORU) Bangkok, Thailand as an implementing partner *(linked to S3.K3.a.LA).*
- Explore and facilitate the establishment of the PPP programme for NAHC, Lao PDR (a new activity is planned between June and December 2013).
- Conduct a national workshop to launch the antigenic characterisation/visualisation tool and genetic analysis workshop in Indonesia *(activity S2.F4.ID)*.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

S2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The implementation and information update to the EMPRES-i and TADs Network Asia email list was supported.
- The sharing of expertise and disease information across the network and among the international organizations was supported and input was provided.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue to support the sharing of expertise and disease information across the network.
- Continue to support sample referral for disease confirmation upon request from the network laboratories *(activity S2.G1.r).*

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved QA practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

S3.H External Quality Assessment (EQA) for diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Backstopping missions by AAHL experts were provided to the participating laboratories in Cambodia, Laos, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam from September to February 2012 to ensure the implementation of appropriate diagnostic protocols under a QA system. The activity is a part of the 2012 Regional Proficiency Programme *(activity S3.H2.r).*
- The procurement of PT panels under the 2013 Regional Proficiency Testing Programme was coordinated, in consultation with the participating laboratories *(activity S3.H1.r).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct the Regional Proficiency Testing Programme, including procurement and distribution of the PT panels for diagnoses of influenza A, H5-influenza, PRRS, CSF, ASF, rabies and ND viruses, with AAHL as an implementing partner *(activity S3.H1.r).*
- Support proficiency testing for priority diseases in Indonesia through an LoA with AAHL; *(activity S3.H3.ID).*

S3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (refer to activity group J).

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The provision of International Air Transport Association (IATA) Certification Course for Shipper of Infectious Substances (IATA certification) was planned to be held back-to-back with the regional training programme for biosafety manager with Mahidol-Oxford Tropical Medicine Research Unit, Bangkok, Thailand (MORU) as an implementing partner *(activity S3.I1.r)*.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Provide an IATA certification training, back-to-back with the regional training programme for biosafety manager with MORU as an implementing partner *(activity S3.I1.r)*.
- Plan and coordinate the organization of the Regional Laboratory Network Training on Quality Assurance and Standardization of Diagnostic Reagents with AAHL as an implementing partner.

S3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The work plan was developed and the 2013 Regional Biosafety Programme was facilitated. The programme included the development of regional resource materials on biosafety practices and trainings to be used at the regional training programme for biosafety manager *(activity S3.J1.r)*.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Coordinate and provide a resource person at the training on laboratory biosafety for the laboratory network in Viet Nam with RAHO 6 as an implementing partner.
- Conduct the regional training programme for biosafety managers of the participating laboratories with MORU as an implementing partner *(activity S3.J1.r).*
- Develop and distribute the regional resource material for biosafety practices and trainings to the laboratory network *(activity S3.J1.r).*

S3.K Targeted support for laboratory quality management systems, including biosafety.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The training on biosafety management and practices for Sabah Wildlife Laboratory (PREDICT laboratory) was provided with EcoHealth Alliance as an implementing partner *(activity S3.J2.MY).*
- Expert visits were provided to assess biosafety infrastructure, equipment and practices, and provide recommendations, including remedial activities to the 10 participating laboratories in Indonesia, including eight DICs, NVDAL and PUSVETMA from October to December 2012 *(activity S3.K1.r).*
- Annual biosafety cabinet calibration and certification were provided for 55 biosafety cabinets in the 10 participating laboratories in Indonesia in November 2012 *(activity S3.K2.r).*
- A work plan was coordinated for conducting the laboratory biosafety risk assessment at the participating laboratories, including FMD-RRL (Nakorn Raschasima, Thailand), CU-EIDAs (Bangkok, Thailand), NCVD (Hanoi, Viet Nam), RAHO 6 (Ho Chi Minh City, Viet Nam), and the National FMD laboratory (Kota Bharu, Malaysia) *(activity S3.K1.r).*
- The establishment of and support to the Technical Assistance Programme for Enhancing Quality Laboratory Management, including quality laboratory services and biosafety management at NAHC, Lao PDR was coordinated with MORU as an implementing partner *(activity S3.K3.a.LA)*.
- The IDENTIFY | FAO Southeast Asia coordinator participated at the Regional Biosafety Programme Debrief Meeting and Donor Coordination Meeting to provide technical input and discussion on issues specific for the laboratory biosafety management at DGLAHS, Directorate of Animal Health, Indonesia in December 2012 and February 2013, respectively *(activity S3.K1.r).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct the biosafety risk assessment in five laboratories in Thailand, Viet Nam, and Malaysia according to the regional biosafety programme *(activity S3.K1.r)*.
- Provide annual biosafety cabinet calibration and certification to biosafety cabinets located in IDENTIFY-supported laboratories in Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, Thailand, Viet Nam, Bangladesh and Nepal *(activity S3.K2.r).*
- Continue to support the Technical Assistance Programme for Enhancing Quality Laboratory Management, including quality laboratory services and biosafety management at NAHC, Lao PDR with MORU as an implementing partner *(activity S3.K3.a.LA)*.

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

S4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The fourth Regional Laboratory Directors Forum meeting was organized from 10 to 11 October 2012 in Nha Trang, Viet Nam. The meeting was jointly organized by DAH, Viet Nam, FAO and OIE. The objectives of the meeting were to (i) update member laboratory directors on the information on laboratory policy and management issues; and (ii) review the activities undertaken under the Regional Laboratory Network and the Regional Leading/Reference Laboratories *(activity S4.L2.r).*
- The IDENTIFY | FAO SEA coordinator participated and provided technical inputs at the South East Asia and China Foot and Mouth Disease (SEACFMD) Labnet Meeting in Lanzhou, China from 15 to 17 October 2012. It was agreed that FAO's Regional Office for Asia and the Pacific (RAP) will work closely with OIE's Sub-Regional Representation for South-East Asia (SRR-SEA) on the possibility to include SEACFMD laboratory members into the existing regional biosafety improvement and QA programmes, under the Regional Laboratory Network framework.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Plan and coordinate the organization of the Regional Laboratory Network Animal Health Laboratory-Technical Advisory Group, back-to-back with the Laboratory Directors' Forum meetings in collaboration with OIE and DGLAHS, Indonesia *(activity S4.L1.r).*
- Provide support to activities in alignment with the Association for Southeast Asian Nations (ASEAN) Regional Framework for Laboratory Capacity Building and Networking

S4.M Enhancing the role of Regional Leading Laboratories.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- laboratory capacity as the leading animal health laboratory *(activity S4.M2.a.TH, S4.M2.b.VN).*
- There was coordination with, and support provided to, DAH, Viet Nam and its Regional Leading Laboratory, for the 4th Laboratory Directors' Forum *(activity S4.M2.b.VN, also linked to S4.L2.r).* Drafting and obtaining the agreement on the roles and responsibility of the Regional Leading Laboratories was facilitated *(also linked to S4.L2.r).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Collaborate with NIAH, Thailand to organize a regional workshop on diagnosis of ND and rabies *(activity S4.M2.a.TH also linked to S1.E1.TH).*
- Collaborate with RAHO 6, Viet Nam to organize a regional workshop and training on the diagnosis of swine diseases *(activity S4.M2.b.VN also linked to S1.E2.VN).*
- Continue to provide support for the Regional Leading Laboratories to enhance their role as the leading animal health laboratories *(activity S4.M2.a.TH, S4.M2.b.VN).*
- Support studies on pig diseases including PRRS and CSF for RAHO 6, Viet Nam through the provision of reagents for diagnosis of PRRS, CSF, and Aujeszky's disease viruses (pseudorabies) *(activity S4.M2b.VN).*

S4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- A national laboratory coordinator was recruited to support activities related to strengthening of the laboratory quality services at the national laboratory networks in Indonesia *(activity S4.N3.ID)*.
- The IVM Network Meeting from 19 to 21 November 2012 in Indonesia was supported *(activity S4.N4.ID).*

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support the Vietnamese National Veterinary Conference in collaboration with Hanoi University of Agriculture *(activity S4.N5.VN).*
- Continue to support activities related to strengthening of the national laboratory network in the participating countries.
- Continue to provide a national laboratory coordinator to support activities related to strengthening of the laboratory quality services at the national laboratory networks in Indonesia *(activity S4.N3.ID)*.

S4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The joint mission on four-way linking activity in Indonesia was supported to improve the linkage between laboratory and epidemiological data *(activity S4.O4.ID, linked with global activity G4.O1)*.
- The IDENTIFY | FAO SEA coordinator provided technical input at the Workshop on Scientific Writing in Field Epidemiology. The workshop was jointly organized by the Field Epidemiology Training Programme (FETP), under the Ministry of Public Health, and the Field Epidemiology Training Programme for Veterinary (FETPV), under the Department of Livestock Development, Thailand, with financial support from the Field Epidemiology Training Network (FETN), FAO, and United States Centers for Disease Control and Prevention (US CDC). The objective of this workshop was to strengthen the capacity on writing scientific manuscript in the region.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue to provide support for four-way linking activities planned in Viet Nam, Bangladesh, and Indonesia to improve the linkage between laboratory and epidemiological; experts from animal and public health sectors *(activity S4.O2.VN, S4.O3.BD, S4.O4.ID).*

S4.P Support for participation in scientific conferences, trainings, or workshops.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- None

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue to provide support for participation in scientific conferences, trainings, and workshops upon request.

3 ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD (1 OCTOBER 2012 – 31 MARCH 2013) AND PLANNED ACTIVITIES FOR THE NEXT SIX-MONTH PERIOD (1 APRIL – 30 SEPTEMBER 2013)

3.1 ACTIVITIES CONGO BASIN COMPONENT

Output 1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced.

USAID | IDENTIFY OBJECTIVE 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases.

C1.A Mapping national and regional laboratory resources for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- FAO LMT exercise *(activity C.1.A, implemented through national LoAs):*
  - Accurate lab data of all beneficiary laboratories were compiled through lab self-assessments.
  - External assessments were conducted in some countries during on-site missions carried out within the reporting period – by FVI during QA/biosecurity/biosafety audit missions in Central African Republic in October 2012, and field pathology training in Democratic Republic of the Congo in October 2012 and by IZSVe during the rabies lab diagnostic training in Rwanda in November 2012 *(see also activity C1.F)*.
  - Results of the lab mapping exercise, including individual laboratories cards were presented during the 6th RESOLAB annual coordination meeting held at Dakar from 3 to 7 December 2012.
  - An LMT was requested by and shared with AU-IBAR to broaden its use among African Union (AU) Member States in the framework of the AU-IBAR VetGov project.
  - Comments were received from IDENTIFY beneficiary laboratories and external experts for the revision of the LMT.
  - A meeting was held between FAO headquarters, the FAO | IDENTIFY Africa Liaison Officer, FVI and FVI experts (Paris, January 2013) to (i) review the activities conducted under the previous LoA; (ii) receive feedback from visiting experts on progress in laboratories, challenges, main needs; and (iii) agree on report formats for audit/assessment missions and discuss activities to be conducted under the next LoA under year four.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Compile and analyse the results of the mapping exercise in the RSLs.

C1.B Provide laboratory equipment and supplies in a coordinated manner.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- There was close follow up of delivery of equipment and diagnostic kits procured for beneficiary labs, in collaboration with FAO country offices.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Assistance for procured laboratory equipment *(activity C1.B2)*:
  - Continue follow up of good delivery of diagnostic kits if not yet completed.

- On-site missions are to be carried out by external and/or internal experts *(activities under C.1.F.)* who will extend their duties to control effectiveness, good delivery and appropriate use of procured equipment and reagents provided to beneficiary laboratories. The experts will list any items still missing that could be procured in year four or five of the project.

C1.C Strengthening the linkage between the field and laboratory.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- National field pathology trainings were carried out through national LoAs in various countries organized by the national veterinary laboratory *(activity C1.C.1):*
  - **Democratic Republic of the Congo:** Thirteen participants from Kinshasa veterinary laboratory and field veterinary staff from three provinces (Bandundu, Bas-Congo, Equateur) attended the training from 19 to 21 December 2012. The training addressed necropsy techniques, sample collection and good practices on shipment. Knowledge of participants improved (from 48 percent of correct answers to 65.6 percent respectively), based on a pre- and post-evaluation questionnaire.
  - **Congo**: Fifteen participants from five departments (Bouanza, Kouilou, Lékoumou, Niari and Pointe Noire) attended the training organized in Dolisie from 12 to 15 January 2013. Necropsy techniques, sample collection and good practices on shipment were the main topics of the training. Knowledge of participants improved (from 65 percent of correct answers to 84 percent respectively), based on a pre- and post-evaluation questionnaire.
  - **South Sudan:** Twenty-six laboratory and field staff were trained through a workshop on basic laboratory techniques at the Ministry of Animal Resources and Fisheries (MARF) headquarters, and the Central Veterinary Diagnostic Laboratory, in Juba from 30 October to 2 November 2013. It was intended to build capacity for both the laboratory technicians/researchers in the Central Veterinary Diagnostic Laboratory and the field staff. The participants were exposed to background information on the IDENTIFY project, FAO referral laboratories, OIE manual and codes and their roles in the laboratory services. There was a field trip to the Ministry of Agriculture/FAO MAFAO demonstration dairy farm near Juba, practical exposure to post mortem procedure on a goat, and blood collection from the poultry wing vein. The training ceremonies at the opening and closing were attended by the Deputy Minister Animal Resources and Fisheries.
  - **Rwanda:** Training of field and laboratory staff was carried out on the 16 March 2013; a detailed report is pending.
  - **Tanzania:** Thirty field and lab personnel from eastern and western geographic zones (15 participants for each zone) were trained on (i) necropsy; (ii) types and collection of good quality samples for submission to lab for diagnosis; (iii) packaging of samples collected as per Tanzania Veterinary Laboratory Agency (TVLA) SOPs; (iv) preservation of samples before and during shipment to the laboratory; (v) lines of communication and linkages between the field and laboratory; and (vi) types and the range of tests performed in the laboratory diagnosis of animals. The training was held in the eastern zone at the Livestock Training Institute (LITI) in Morogor on, 17 January 2013 and in the western zone at the TVLA Centre in Tabora from 1 to 2 February 2013.
- Investigation and data/sample collection on targeted diseases *(activity to C1.C.2, implemented through LoAs):*
  - **Democratic Republic of the Congo:** Two Thousand samples (organs, sera and swabs) were shipped from four provinces (Equateur, Bas Congo, Kivu and Kinshasa) to the central veterinary laboratory. Laboratory tests are currently underway.

- **Uganda:** A total of 30 000 quality surveillance samples were received from the field and submitted to NADDEC. Guidance for sample submission were also distributed by the laboratory to the field. Laboratory analyses are underway.
- **South Sudan**: Between 270 and 300 PPR and RVF samples were collected from three payams (administrative areas) in Torit County by random sampling for field sero-surveillance. These payams included Nyong, Hiyalla and Bur; the results were tested and analysed.
- **Rwanda**: Two hundred and sixty FMD and CBPP samples have been collected. FMD samples were tested by enzyme-linked immuno sorbent assay (ELISA). Sero-typing of FMD samples will be performed by Onderstepoort University Laboratory. Five hundred and twenty six samples of RVF were collected but have not yet been tested. Owing to the "One Cow" project, the laboratory receives over 1 000 brucellosis samples every month and conducts ELISA test routinely. No PPR samples were collected.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct national field pathology trainings *(activity C1.C.1)* in Cameroun (31 May 2013), Congo (tentative date: 31 May 2013), Central African Republic (30 June 2013), Gabon (15 May 2013) and Tanzania (12 April 2013).
- Investigate and collect data on targeted diseases *(activity to C1.C.2).*
  - **Cameroun, Congo, Central African Republic** and **Gabon**: Activities are planned.
  - **Rwanda:** Routine testing of samples received by the lab, such as FMD, brucellosis, RVF, and PPR, and other IDENTIFY priority diseases will continue throughout the project.
  - **Tanzania:** Facilitate collection, transportation and testing of up to 500 samples of IDENTIFY priority diseases.

C1.D Develop and Conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- A sequencing workshop was held in Vienna, Austria from 10 to 21 December 2012 *(activity C1.D.1 linked to global activity G1.D1)*:
  - Participating countries were: Cameroon, Democratic Republic of the Congo, Ethiopia, Kenya, Tanzania, Uganda, Nigeria, Senegal and Botswana *(see activity G1.D.1 for details)*.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Conduct workshops to promote laboratory management *(activity C1.D.2).*

C1.E Strengthening regional resources for selected animal diseases.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- None.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Produce and disseminate disease and labs cards *(activity C1.E.1, linked to global activities G1.E.3 and G1.E.4).*

C1.F Targeted support for strengthening diagnostic capacity and laboratory management.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- The competence development in antimicrobial resistance for food safety, including training, supplies and sampling was supported *(activity C1.F.2 linked to global activity G4.O.4):*
  - The first field mission of the FAO Expert in Uganda (22-24 January 2013): NADDEC shared the first draft of the study including the list of required equipment and supplies needed for the project. The list of equipment was reviewed by FAO headquarters.

- Advanced ASF diagnostic capacities were strengthened *(activity C1.F.3):*
  - A staff member from the Laboratoire National Vétérinaire (LANAVET) in Cameroon was trained in the diagnosis and molecular epidemiology of the ASF at the joint FAO/IAEA Division from August 2012 to February 2013. Major outcomes included:
    - Staff were trained on sequencing data analysis and phylogenetics.
    - ASF samples from Cameroon, Central African Republic and Senegal were analysed and genotyped using the full and partial B646L gene (encoding vp72).
    - Intragenotypic variation the ASFV isolates were assessed using genetic information of four other ASF genes: the B602L gene (encoding vp9RL or central variable region), the CP204L (encoding vp30), the E183L gene (encoding vp54) and the E184L gene (encoding vpE184L).
    - The sequence data generated will soon be made available in public databases.
- On-site missions to develop diagnostic competence*:*
  - Bench training by two experts from IZSVe on rabies diagnosis at the National Veterinary Laboratory (NVL) in Rwanda, from 19 to 23 November 2012. Skills in rabies diagnosis techniques, including PCR and indirect fluorescent-antibody test, improved for 11 technicians.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support competence development in bush meat microbiology in Congo, Central African Republic and Gabon *(activity C.1.F.1).*
  - Terms of reference (TORs) were validated and international consultant was identified. Planning of the mission will start in April 2013 for a mission to be held tentatively in May-June 2013.
- Continue to support competence development in antimicrobial resistance for food safety, including training, supplies and sampling, Uganda *(activity C1.F.2).*
- Strengthen ASF capacities *(activity C1.F.3):*
  - Continue to strengthen advanced ASF diagnostic capacities in Cameroon through the training of a staff member from LANAVET. The work initiated with the LANAVET staff member will continue with the sampling of new ASF outbreaks in Central Africa and the sequencing of the full genome of genotypically and epidemiologically different isolates.
- Develop diagnostic competence through on-site missions.
  - Carry out specific assessment/on-site training on ASF in Ethiopia, Tanzania, Uganda *(activity C1.F.4)* and in Congo, Central African Republic and Gabon *(activity C1.F.5):*
    - ToRs were validated and an international consultant was identified. Planning of the mission will start in April 2013 and the mission will tentatively be held in May/June 2013.
  - Carry out an on-site mission to develop diagnostic competence for CBPP in Bangui (Central African Republic), Brazzaville (Congo), Libreville (Gabon) and Uganda - activities *C.1.F.5 and C.1.F.7:*
    - ToRs were validated and an international consultant was identified. Planning of the mission will start in April 2013 and the mission will tentatively be held in May/June 2013.
  - Carry out an on-site missions to develop diagnostic competence for rabies to provide technical assistance and hands-on training related to rabies diagnosis including rabies blind tests in three national laboratories in the Congo Basin, i.e. the national laboratories of Central African Republic, Republic of the Congo, and Gabon *(activity C1.F.5)* and in South Sudan *(activity C1.F.6)*, under the LoA with IZSVe.
  - Carry out a mentoring programme and laboratory management Cameroon, Democratic Republic of the Congo and Uganda *(activity C1.F.9)*.
- Develop the national laboratory of Equatorial Guinea *(activity C.1.F.10)*:

- Carry out a laboratory expert assessment mission in Equatorial Guinea to propose a strategy for laboratory development based on determined needs for testing in virology, parasitology and bacteriology. There is ongoing discussion with the Government to plan the mission (validation of ToRs, timing, agreement on the expert's profile) and obtain full commitment to implement the mission findings.

USAID | IDENTIFY OBJECTIVE 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations.

C2.G Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation *(activity C2.G.1)*:
  - **Democratic Republic of the Congo**: Samples for PPR (74 g of organs) and ASF (144 g of organs and 16 ml of supernatant) were sent to the laboratory of the joint FAO/IAEA Division. Tissues and sera for ASF were sent to Pirbright laboratory (United Kingdom).
- PPP and sustainability of veterinary laboratories in sub-Saharan Africa *(activity C2.G.3)*:
  - Findings of the three missions carried out in Cameroon, Democratic Republic of the Congo and Rwanda were presented during the sixth annual RESOLAB meeting held in Dakar (3-7 December 2012).
  - The final report of the three missions has been completed. The outcomes are: (1) the studies confirmed that (a) poultry, pig and milk sectors are likely the most reliable areas for the labs to develop diagnostic business across the three countries; and (b) food safety is an increasing concern with good opportunities for labs to develop their testing services; (2) the PPP approach should be broadened to publically funded projects (e.g. recovering or surveillance programmes) since Governments and NGOs are playing a key role in improving livestock production, especially in countries where the economy is developing; (3) based on the findings of the PPP mission in Cameroon, the Government has authorized LANAVET to open new branches in the southern provinces to improve its client relationship with the private poultry and pig sectors. LANAVET Yaoundé branch has already started performing laboratory analyses.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue to support sample referral from national laboratories to RSLs and international reference laboratories for disease confirmation for all supported laboratories *(activity C2.G.1)*.
- Contribute to the global consultation on laboratory policy: providing information on African setting. *(activity C2.G.2, linked to global activity G2.G.5)*:
  - Five laboratories in the Congo Basin, including LANAVET in Cameroon, Laboratoire National Vétérinaire de Libreville in Gabon, the LNERV in Senegal, the National Veterinary Research Institute in Nigeria and the Onderstepoort Veterinary Institute in South Africa, will be targeted as pilot laboratories to provide the working group on laboratory policy with reference documents.
- For PPP and the sustainability of veterinary laboratories in sub-Saharan Africa, publish an article in the EMPRES Bulletin, and finalize the concept note and leaflet. Findings of the PPP studies will serve as reference information for the working group on laboratory policy. *(activity C2.G.3)*:

- **Cameroun, Democratic Republic of the Congo and Rwanda**: follow up on the PPP studies to improve laboratory client relationships with the private sector. A mission is to be conducted by an FAO Expert.
- **Tanzania and Uganda**: A PPP study is to be conducted by FAO experts.

USAID | IDENTIFY OBJECTIVE 3: Laboratories have adopted or improved QA practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

C3.H External Quality Assessment EQA for diagnosis of targeted animal diseases.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Regional proficiency testing was carried out for AI and ND, RVF, PPR and ASF. *(activity C.3.H.1. Linked to activity G3.H.1)*:
  - AI/ND EQA: Results of PT for AI/ND were presented during the RESOLAB annual coordination meeting held in Dakar (3-7 December 2012)
    - In Central African Republic, Cameroon, Congo, Democratic Republic of the Congo, Gabon, Nigeria, Tanzania, Uganda, Ethiopia, Botswana and Senegal, the PT was completed, the results were submitted and analysed by IZSVe Padova reference laboratory and the outcome was submitted to FAO headquarters.
  - EQA by the Joint FAO/IAEA Division:
    - RVF (collaboration with the National Institute for Communicable Disease [NICD], South Africa): The first EQA programme for serological diagnostics of RVFV virus in livestock has now been completed and the results have been sent back to the participants. Evaluation and feedback analysis is in progress. The following countries were involved: Cameroon, Central African Republic, Congo, Democratic Republic of the Congo, Ethiopia, Kenya, Rwanda, Senegal, Tanzania and Uganda.
- PPR: The second round of EQA for molecular detection of PPR has been completed. Participants were sent feedback and overall results were presented during the RESOLAB annual coordination meeting held in Dakar (3-7 December 2012). There was also a backstopping mission at country level to aid with EQA *(activity C3.H.2)*:
  - In Tanzania, an on-site audit mission on quality management system implementation at TVLA was carried out by an international consultant from FVI (from 5 to 09 Nov 2012). A number of quality documents have been developed, including 15 quality procedures, 57 SOPs and 16 forms, worksheets and schedules, which were developed in accordance with ISO 17025.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Regional proficiency testing for AI and ND, RVF, PPR and ASF *(activity C.3. H.1)*:
  - Determine the status progress of preparation of the AI/ND PTs.
  - In Rwanda, the reagents will be shipped from IZSVe Padova in the first week of April 2013 to enable the completion of the PT. Feedback from the first EQA programme for serological diagnostics of RVFV in livestock will be sent to participating laboratories. Corrective actions are to be discussed.
  - The third round of for molecular detection of PPR will be conducted.
  - Discussion will be held with the NICD (South Africa) and a technical contract will be prepared for the second EQA programme for serological diagnostics of RVFV.
- Backstopping missions at country level to aid with EQA *(activity C.3.H.2)*:

- In South Sudan, training on EQM is scheduled for April 2013, to be conducted by an international expert for five days to provide assistance on quality laboratory management documents and SOPs and the development of lab bench work guidelines.
- In Uganda, an internal audit will take place to assist in implementing non-conformity management and review quality system documents according to the recommendations formulated during the last on-site mission.

C3.I Develop and conduct trainings or workshops to promote laboratory quality management, excluding biosafety/biosecurity (*refer to activity group J*).

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Regional training on quality assurance in diagnostic laboratories: process control and quality control activities (sample management and quality control for quantitative and qualitative tests) were held at Libreville from 8 to 12 October 2012 in collaboration with FVI. Targeted participants included the laboratory Directors and QA Managers. The training was attended by 16 participants from Cameroon, Central African Republic, Congo, Democratic Republic of the Congo, Equatorial Guinea and Gabon. The training resulted in the improved knowledge of participants on topics addressed (from 59.3 percent to 73.7 percent of correct answers, respectively, based on a pre- and post-training evaluation questionnaire).

Planned activities for the next reporting period (1 April – 30 September 2013)

- Regional trainings on equipment maintenance and calibration *(activity C.3.I.1):*
  - Regional training on equipment maintenance and calibration (IDENTIFY participating countries: Central African Republic, Congo and Gabon). Tentative dates are from 3 to 7 June 2013 in Dakar, Senegal.
- QA (activities under LoA to be signed with FVI): on-site audit/backstopping missions on QA will be performed by FVI in all countries except Equatorial Guinea *(activity linked with C3.J).*

G3.J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Regional training in biosafety/biosecurity was held in Kinshasa, Democratic Republic of the Congo (1-5 October 2012) and was attended by QA managers and laboratory directors from Cameroon, Central African Republic, Democratic Republic of the Congo, Congo, Equatorial Guinea and Gabon. The training resulted in the improved knowledge of participants on topic addressed (from 50 percent to 60 percent of correct answers, respectively, based on a pre- and post-evaluation questionnaire).

Planned activities for the next reporting period (1 April – 30 September 2013)

- Perform on-site audit/backstopping missions on biosafety and biosecurity by FVI to all countries except Equatorial Guinea (*activity linked with C3.I*). Activities under the LoA are to be signed with FVI.

C3.K Targeted support for laboratory quality management systems, including biosafety (at country level).

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support to national biosecurity/biosafety implementation (minor renovations in the laboratories and laboratory staff security) (*activity C.3.K.1)* through national LoAs:
  - **Congo**: Three bay windows were installed and four staff members were vaccinated against rabies.

- **Democratic Republic of the Congo**: The autopsy room was painted, fully isolated with the installation of an air conditioner, and the water heater was repaired. Ten staff members were vaccinated against rabies**.** SOPs were developed for 80 percent of diagnostic tests routinely performed by the lab. A quality manual was developed and the quality system documentation (SOPs, quality statement, etc.) was updated.
- **Gabon**: A water tank and high water pressure pump were installed.
- **South Sudan:** Air conditioners and the electric and water systems were repaired. Laboratory benches were provided for appropriate locations within the laboratory. Necessary laboratory partitioning into three units was completed. Cleaning and disinfection documents were developed, and repairs of the laboratory for better biosafety were completed.
- **Uganda**: Quality correspondents were named in each unit to supervise the quality system at the unit level provided. The door, locks and windows were refurbished. The surface of the wood working bench was replaced. An extent of roof was repaired and repair of records is underway. At least 10 staff vaccinated against rabies.
- **Tanzania:** A total of 80 doses of rabies vaccine were purchased and the vaccination regime has already started. Lab staff in pathology and virology have already received the first and the second dose.

- On-site audit/backstopping missions were performed by FVI in Africa under the LoA with FVI for (i) assessing the QA system implementation in Central African Republic (15-18 October 2012), and Tanzania (5-9 November 2012).

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue completion of minor reparations in the laboratories through national LoAs *(activity C3.K.1).*
- Provide on-site trainings on equipment maintenance and calibration; training will be provided by the African Union-Panafrican Veterinary Vaccine Centre (AU-PANVAC) *(activity C3.K.2)*.
- Support the implementation of LIMS in Tanzania and Botswana *(activity C3.K.3, linked to global activity G3.K.1 under LoA with IZS Teramo).*

Output 2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

USAID | IDENTIFY OBJECTIVE 4: Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

C4.L Regional laboratory network support and coordination for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Annual Regional Laboratory Network Meetings *(activity C4.L.4):*
  - The sixth annual RESOLAB coordination meeting was held in Dakar, Senegal from 3 to 7 December 2012 and was attended by 73 participants, including representatives of 21 members country of the RESOLAB, representatives of regional (West African Economic and Monetary Union [UEMOA], AU-IBAR, AU-PANVAC and the Interstate School of Veterinary Science and Medicine [EISMV]) and international partners (joint FAO/IAEA Division, OIE, the United States Department of Agriculture, Animal and Plant Health Inspection Service [USDA-APHIS], CIRAD, IZSVe, Spanish Animal Health Research Centre [Centro de Investigación en Sanidad Animal] and FVI). The

participation of members from non-IDENTIFY countries was covered by co-funding from another project. Participants agreed on the following: (i) to split the RESOLAB into two entities RESOLAB-West Africa and RESOLAB-Central Africa in order to facilitate their anchorage within the Regional Economic Communities (the Economic Community Of West African States [ECOWAS] and Economic Community of Central African States [ECCAS]); (ii) to establish a sub-network of ASF in addition to PPPR, FMD and rabies; (iii) that RESOLAB members to engage into a process of regular self-assessment using the standardized LMT developed by FAO; and iv) to support FAO's initiative on RSLs.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Support regional networking:
  - Support ASF regional networking *(activity C.4.L.1)* meeting that will take place from 20 to 22 May 2013 in Entebbe, Uganda.
  - Provide inputs and technical backstopping to the rabies RESOLAB sub-network, under the LoA with IZSVe.
  - Organize two RSL meetings in (tentatively) July 2013 with originating countries to ensure continued commitment and good coordination of RSL activities towards national laboratories *(activity C.4.L.2)*.
  - Organize one year four work plan implementation meeting and year five planning of IDENTIFY | FAO project, with laboratory directors and CVOs, so that IDENTIFY target countries are informed on all planned activities and are able to comment and make suggestions on the implementation. The activities to be conducted by each laboratory under year four and year five are to be discussed and agreed upon *(activity C.4.L.3)*.
  - The EARLN annual meeting is planned 16-19 July 2013 in Bujumbura, Burundi *(activity C.4.L.4)*.

C4.M Enhancing the role and status of Regional Support Laboratories.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Follow up of the Addis Ababa meeting on the status of RSLs was completed:
  - developed of the concept note on "Defining the status, roles and responsibilities of regional laboratories in sub-Saharan Africa";
  - prepared of the dossier for submission to the RECs and of the co-signed FAO/AU-IBAR letter, sent to RECs in January 2013;
  - published the article in the EMPRES bulletin: EMPRES Transboundary Animal Diseases Bulletin No. 41 – 2012. FAO supports regional animal health networks (page 17) http://www.fao.org/docrep/017/i2910e/i2910e.pdf; and
  - prepared and provided template of annual report to the RSLs.
- Discussions were initiated for the organization of the conclusive meeting for validation/endorsement of RSLs in Sub-Saharan Africa region by beneficiary laboratories, CVOs, and commitment by RECs *(activity C.4.M.1)*.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Plan for the conclusive meeting for validation/endorsement by beneficiary laboratories, CVOs, and commitment by key partners *(activity C.4.M.1)*.
- Prepare for the meeting, including preliminary discussion with RECs and institutional arrangements with AU-IBAR and RECs.
- Review the annual reports submitted by RSLs for M&E purposes and identify strengths and gaps.

C4.N Supporting national laboratory networks for animal health.

Activities undertaken during the current reporting period (1 October 2012 – 31 March 2013)

- Support was provided to national laboratory network meetings and related activities (*activity C.4.N.1).* through national LoAs. The following national communication activities or products were developed by IDENTIFY target laboratories:
  - **Congo:** The record system for submitted samples received improved. Two hundred guides and commemorative sheets for sample were submitted, produced and disseminated. An Internet connection was established.
  - **Democratic Republic of the Congo:** One thousand brochures and flyers on service and products of the *Laboratoire Vétérinaire de Kinshasa* were produced and disseminated. At least 100 field and laboratory staffs received regular and updated documents on lab tests. The database was computerized, allowing sample traceability and making it easier to release the final report of the lab analysis. An open house day was organized. Timely production of test results after receiving samples was reduced to three days. The project participation to the launch of the national crop by the Government.
  - **Rwanda:** Over 500 leaflets were distributed for mastitis and brucellosis awareness in December 2012.
  - **South Sudan**: Communication materials were produced and distributed in various institutions for display.
  - **Tanzania**: A national multi-sector diagnostic laboratory network coordination meeting comprising of animal health, public health, universities and wildlife laboratories representatives was held on 8 January 2013, at Millennium Sea Breeze Resort in Bagamoyo. A total of 20 multidisciplinary participants from different sectors participated. The meeting attracted participants from: veterinary diagnostic labs (national and satellite/zonal labs), public health diagnostic labs (National Health Laboratory and Quality Assurance Training Centre), Wildlife laboratory (the Tanzania Wildlife Research Institute [TAWIRI] lab), academic/higher learning institutions (Sokoine University of Agriculture [SUA], Muhimbili University of Health and Allied Sciences [MUHAS]), National Predict Project Coordinator, and representatives from CDC-Tanzania, epidemiology units, Tanzania Bureau of Standard – Department of Testing and Calibration.
  - **Uganda:** Various types of information were exchanged between CVL and other national and regional labs. At least 1 000 samples of good quality were submitted to NADDEC.

Planned activities for the next reporting period (1 April – 30 September 2013)

- Continue support to national laboratory network meetings and related activities *(activity C4.N.1).*
- Review the status of the national laboratory network by a national consultant in Cameroon, Democratic Republic of the Congo, Rwanda, Tanzania and Uganda *(activity C4.N.2).*
- Carry out an assessment mission at the laboratoire vétérinaire de Goma in Democratic Republic of the Congo in April 2013. Activities will cover the asse assessment mment of laboratory needs (equipment and reagents) to perform routine testing (serology) on targeted diseases, training lab staff on biosecurity, biosafety, sampling and shipment of samples to regional or reference laboratories. The expert will also visit the laboratory at Kinshasa and assess the implementation of the activities under the LoA, and check proper reception, installation and use of laboratory equipment delivered *(activity C4.N.3).*
- Support to national laboratory network in partnership with DELIVER in Uganda *(activity C4.N.4).*

C4.O One Health initiatives: strengthening linkages between veterinary and public health.

Activities undertaken during the current reporting period (1 October 2012 - 31 March 2013)

- Support national One Health meetings through national LoAs *(activity C4.O.3)*:
  - **Central African Republic**: Details of the meeting (21 March 2013) have not yet been provided owing to the current political situation in the country.
  - **Congo**: The meeting was attended by 12 participants from the Ministry of Agriculture and Livestock, Ministry of Forest economy and Sustainable development, Ministry of Tourism and Environment, Ministry of Scientific research and Technological innovation and Ministry of Health and Population (8 March 2013). The meeting was attended by several agencies, including public health and universities. As a result, a working group was established to prepare legal documents and find operational arrangements to develop a national framework with the objective of improving inter-sectoral collaboration.
  - **South Sudan:** Participants from multiple sectors including animal and human health as well as wild life attended the meeting in February 2013. Participants were from the MARF, Ministry of Health (MOH), FAO, the United Nations Children's Fund (UNICEF), WHO, Vétérinaires Sans Frontières (Belgium and Germany), National Bureau of Standards, Directorate of Standards and Meteorology, and the Ministry of Wildlife, Conservation and Tourism. The following topics were addressed: (1) emerging diseases that link human health, animal health and the environment pertaining to disease association such as AI; (2) acknowledging and appreciating the importance of the One Health concept in synergizing the implementation of animal health, public health and environmental activities; (3) understanding of the One World One Health concept as a multi-sectorial approach that brings together wildlife, animal and health professionals and other relevant stakeholders to address the world's most challenging health concerns; (4) food safety in which the participants were explained the global concern on food production, processing and controls to ensure acceptable standards; and (5) acknowledging an improved value and safety standards of animal foods in pastoral communities of South Sudan to protect consumers from zoonotic diseases.
  - **Rwanda:** The One Health seminar took place on 15 March 2013. A bi-annual report will be generated and submitted by May 2013.

Planned activities for the next reporting period (1 April – 30 September 2013)

- "One Health" seminars on rabies will be held in Congo (tentatively in June 2013), Gabon (tentatively in July 2013) and Central African Republic *(activity C.4.O.1).*
- Disseminate rabies training kits *(activity C.4.O.2, linked to global activity G4.O.3).*
- National seminars on "One Health" are expected to take place in Cameroon (31 July 2013), Gabon (31 July 2013), Democratic Republic of the Congo (30 May 2013), and Uganda (12 April 2013) *(activity C.4.O.3, linked with global activity G4.O.5).*

4 MAIN CHALLENGES ENCOUNTERED AND RESPONSE PROVIDED

- The low priority given to animal health in country policies and development strategies often leads to difficulties in mobilizing technical, financial and human resources at the national level, thus compromising the sustainability of activities implemented under the project. Therefore, there is a need to intensify advocacy at the country level and increase sustainable financial resources.

- One of the findings from the recent laboratory assessments activities in Southeast Asia indicated that there is a need for improved biosafety practices at the laboratory levels. This is mainly owing to the lack of awareness on biosafety practices among the laboratory staff. To reinforce the awareness and subsequent sustainable laboratory biosafety practice and management, an on-site biosafety training programme and a biosafety training of trainer course for the laboratory biosafety manager will be conducted during the next year, through the Southeast Asia Regional Biosafety Programme. In addition, laboratory biosafety was placed as one of the priority topics to be discussed at the Laboratory Directors' Forum meeting to advocate for more support from the high-level authorities.

- As most of the technical inputs have primarily focused on the key national veterinary laboratories across Southeast Asia, there is still a need to expand the capacity building activities to other laboratories at the sub-national level and to improve the linkage of the laboratories and the field staff to ensure the sustainable quality of laboratory services. It is believed that such objectives can be achieved by supporting the trainings/workshops at the national level, and assistance from the Regional Leading/Reference Laboratories, key national laboratories and other implementing partners. Several activities for enhancement of the laboratory quality service among the national laboratory networks were planned during the next year to fulfil the above needs.

- The low level of resources allocated to veterinary laboratories by the authorities in the Congo Basin is still a major challenge that the project is trying to address through the PPP consultations conducted in Cameroon, Democratic Republic of the Congo and Rwanda. Outcomes of the ongoing work include: (i) targeted identification of products and services (e.g. poultry/pig/dairy sectors, post-vaccination control, food safety analysis, etc.) that the laboratory could offer to the private sector and estimation of consequent additional resources; (ii) preparation of appropriate communication and promoting tools/activities (brochures of revised list of laboratory analyses and related costs, open days, participation in fairs, etc.) to initiate/improve client relationship and design complementary activities with other national veterinary laboratories (sample submission, training); and (iv) review of legal status (opening of bank accounts, strengthening/training of commercial staff, etc.). By supporting the extension/improvement of laboratory diagnostic services to the private sector and addressing internal functioning issues of laboratories, the PPP consultations are expected to suggest solutions for the sustainability of some activities of the project and, at the same time, provide contributory references to formulate a laboratory policy.

- Most beneficiary laboratories, both in the Congo Basin and Southeast Asia, still face the issue of low quality and quantity of samples received from the field. The IDENTIFY project does not cover any surveillance activities. Building capacities in laboratories for diseases for which there is no surveillance, although they are considered as priority diseases by the veterinary services, does not confer satisfactory impact of the project. The proper development of laboratory strategy and sustainability of the skills and activities supported by IDENTIFY is hindered by weak laboratory policy and management (e.g. shortage of laboratory reagents that prevent participation in PTs, no bank accounts or possibility to generate income, etc.). Therefore, these complex issues will be addressed by the review of existing animal health laboratory policies. Based on the outcomes of

the review, guidelines will be developed on laboratory policy in selected fields of interest, for both the top management of the veterinary laboratories and the competent authorities in charge of laboratories, with further adaptation to the context of Asia and Africa.

- The implementation of agreed activities as they appear in the LoAs between beneficiary countries in the Congo Basin and FAO was slower than expected. However, most of the issues related to the late completion of LoAs are justifiable. For instance, recent events in Mali and Central African Republic and continued challenging ownership of LoA mechanisms by beneficiary laboratories have slightly limited the project delivery for the last past three months. As a result, the FAO | IDENTIFY project management team agreed to extend the duration of LoAs with beneficiary laboratories. The FAO project team will continue close monitoring of the LoAs and provide necessary guidance through regular and effective communication.

- In the Congo Basin region, delivering laboratory equipment and reagents has been impacted by logistic issues.

- Although the IDENTIFY project is improving communication between laboratories and other technical partners (regional laboratories, FAO/OIE reference centres, national veterinary services, FAO, OIE, joint FAO/IAEA Division, etc.), findings on PPP missions demonstrated the need for laboratories to engage in more transparency and communication towards the private sector and other interested stakeholders on non-technical matters such as priced services and products. The next missions in Tanzania and Uganda, as well as follow-up missions in Cameroon, Democratic Republic of the Congo and Rwanda, will address this issue specifically among others.

- The revision of the LMT was initiated during year four in order to address some consistency and objectivity issues of the tool, as observed from both EPT data calls. The decision was also taken to develop guidelines for use of the LMT.

5 MAIN PROGRESS MADE TOWARDS THE ACHIEVEMENT OF PROJECT OUTCOMES (FROM THE START OF THE PROJECT ACTIVITIES)

- The support provided by IDENTIFY to-date has contributed to a greater understanding of the regional animal health priorities, assessment of laboratory capacities and identification of regional and national gaps and resources.

- The direct support afforded to laboratories is substantial, and has allowed for an expansion of the activities to include QA, biosafety, and the maintenance and calibration of equipment, thus contributing to laboratories' capacity to conduct work that meets internationally accredited standards (e.g. ISO 17025). Minor repairs to improve biosecurity through national LoAs are accurately contributing to this end. Many national laboratories have never had the opportunity to consider these major issues. At this point in time, all the laboratories have been able to conduct tests they had never performed prior to IDENTIFY.

- At present, the 2012 and 2013 Southeast Asia Regional Biosafety Programme has covered the activities related to biosafety assessment and management in 23 national laboratories in ten countries. The 2012 and 2013 Southeast Asia proficiency testing programme has expanded to diagnoses of five priority diseases, including influenza, ND, rabies, CSF, PRRS and ASF. The list of the priority diseases to be included in the proficiency testing programme was agreed upon and regularly reviewed by the Southeast Asia laboratory directors under the assistance of the Southeast Asia Regional Laboratory Network framework.

- As many priority diseases are TADs, a regional approach (where agreed to) allows for rapid disease detection/identification. Response measures can be coordinated regionally for more effective control. The networks in the West/Central, Eastern Africa and Southeast Asia regions have set a good example, with both the formal and informal exchange of information, collective effort and responsibility to build laboratories in the regions. Other partners, such as USDA/APHIS, EuFMD and CIRAD have demonstrated an increased interest in and support for these laboratory networks. The growing confidence lends credence to the regional approach, and FAO has a comparative advantage in the coordination of such support and inputs. This project has provided support to regional laboratory networks, allowing networking and progress in the strategy of these networks, especially related to the status and mandate of regional service laboratories. For Southeast Asia, the Regional Framework for Animal Health Laboratory Capacity Building and Networking in Southeast Asia, which has been drafted through consultation with the Southeast Asia Laboratory Directors, was presented at the 20th ASEAN Sectoral Working Group on Livestock (ASWGL) meeting in Myanmar in May 2012. The framework was subsequently endorsed by ASEAN in August 2012. This represents major progress in the engagement of key stakeholders to support sustainable quality laboratory services across the region.

- The FAO M&E framework has been finalized based upon the experience gained from both EPT data calls and the tripartite discussions held with the Donor towards the IDENTIFY deliverables. This M&E framework is being routinely implemented by the FAO|IDENTIFY team, together with the implementing partners (laboratories and technical partners through LoAs). A harmonized approach to assess the direct contribution of the IDENTIFY project to changes in supported laboratories was discussed under year four. The decision was made to develop "lab sheets" by beneficiary laboratory, to develop a specific LMT module to measure the project´s impact on laboratory functionality, and to initiate a survey to measure the observed (and perceived) changes in laboratories against what was done under the IDENTIFY project.

- In the Congo Basin, beneficiary laboratories are requested to prepare LoAs' progress reports on a generic template inspired by the FAO M&E framework, which includes performance indicators and means of verification (e.g. systematic use of pre- and post-evaluation questionnaire for every training). By using this template, beneficiary laboratories (and to some extent, technical implementing partners) improve their ownership of the project, including a common understanding of objectives and outcomes, as well as consistency of data collected.

- This project has enabled or will shortly enable the launching of innovative initiatives, such as the genetic module in the EMPRES-i database, the four-way linking framework, the LMT, the development of PPPs between laboratories and the animal production sector and the provision of access of laboratories to sequencing services. The genetic module represents an ideal example of a multidisciplinary success, linking virology, epidemiology and bioinformatics, and is receiving increased interest from the scientific community and from policy makers. It was released to the public in March 2013. The support to sequencing services receives a lot of interest from beneficiary laboratories.

- Building on the investments made with support under AI, this project sustains previously established mechanisms such as collaboration and communication pathways between organizations, global OFFLU and regional networks. It also benefits from the momentum gained through public goods concepts, such as the recognition of the importance of early detection and intervention and the impact of pathogens with pandemic potential. These investments are crucial to the continued development of technical laboratory capacities, especially molecular techniques, to respond to other transboundary and priority diseases.

- The first "Inter-Regional FAO | IDENTIFY Project experts and managers" meeting held at Bangkok (5-7 March 2013) was a welcome and beneficial event for headquarters, Southeast Asia and the Congo Basin regions. It provided exchange of experiences, clarity on where every country is, in terms of implementation and how the project is perceived by the different teams. For instance, the very focused approach to improve biosecurity in cabinets is undoubtedly an inspiring example for the Congo Basin region to fulfil the third objective of the IDENTIFY project. Conversely, the PPP approach promoted in the Congo Basin region raised a great deal of interest for Southeast Asia. The meeting was particularly robust as it included experts in fields such as communications and M&E. It was also encouraging to see that the understanding and approaches of both regions were in line with the EPT programme's expectations. It was equally uplifting to see that collaboration among the other EPT projects such as Predict, Prevent and Deliver were offered and accepted by all.

- As a follow up to the working meeting held in July 2012 (Addis Ababa, Ethiopia), which resulted in defining the roles and responsibilities of RSLs in the Congo Basin, AU-IBAR and FAO sent a co-signed information letter to the seven functional RECs recognized by the AU (the East African Community, ECCAS, ECOWAS, the Common Market for Eastern and Southern Africa, the Intergovernmental Authority on Development, the African and Malagasy Union and the Southern African Development Community). If the RECs endorse the status of RSLs, this will be a great achievement of this project in improving sustainability and networking as to ensure quality laboratory diagnosis services. Furthermore, the RESOLAB annual coordinating meeting held in Dakar (3-7 December 2012) took the resolution to split the RESOLAB network into two networks in order to align the new entities with the concerned RECs in Central and Western Africa (respectively ECCAS and ECOWAS). Although the anchorage of RESOLAB networks within their respective RECs and institutionalization of RSLs are still challenging, this demonstrates the active contribution of the IDENTIFY project in improving the sustainability and networking needed to ensure quality laboratory diagnosis services.

USAID
FROM THE AMERICAN PEOPLE

IDENTIFY | FAO

EPT Global/Regional/Country Level Implementation Plan

1st October 2011 – 30 September 2012
(12 months)

To be submitted to:
United States Agency for International Development
under Cooperative Agreement

Submitted by

IDENTIFY Project Partner: **FAO**

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1. Acronyms & Abbreviations

AAHL	Australian Animal Health Laboratory
AfBSA	African Biological Safety Association
APBA	Asia-Pacific Biosafety Association
APSED	Asian Pacific Strategy for Emerging diseases
ARAHIS	ASEAN Regional Animal Health Information System
ASEAN	Association of Southeast Asian Nations
ASF	African Swine Fever
AU-IBAR	African Union-Interafrican Bureau for Animal Resources
AusAID	Australian Agency for International Development
CBPP	Contagious Bovine Pleuropneumonia
CEBEVIRHA	Economic Commission on Cattle Meat and Fish Resources
CEMAC	Economic and Monetary Community of Central Africa
CIRAD	Centre International de Recherche Agronomique pour le Développement
CTTBD	Centre for Ticks and Tick-borne Diseases
CVO	Chief Veterinary Officer
EARLN	Eastern Africa Region Laboratory Network
ECLAC	Economic Commission for Latin America and the Caribbean
EDPLN	WHO Emerging and Dangerous Pathogens Laboratory Network
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
FAO	Food and Agriculture Organization of the United Nations
FAO-ECTAD	Food and Agriculture Organization of the United Nations Emergency Center for Transboundary animal diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific
FAO-RLC	Food and Agriculture Organization of the United Nations Regional Office for Latin America and the Caribbean
FLI	Friedrich Loeffler Institute, the national veterinary laboratory, Germany
FVI	France Vétérinaire International
FETP	Field Epidemiology Training Program
FETPV	Field Epidemiology Training Program for Veterinarians
FRET	Fluorescence resonance energy transfer
GFN	WHO Global Food-borne Infections Network
GF-TADs	Global Framework for the Progressive Control of Transboundary Animal Diseases
GLNS	FAO/OIE/WHO Global Laboratory Networking Strategy for IDENTIFY
GLEWS	FAO/OIE/WHO Global Early Warning Systems for Animal Diseases including Zoonoses
HPAI	Highly Pathogenic Avian Influenza
HPED	Regional Cooperation Programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia
IAEA	International Atomic Energy Agency
FAO/AIEA	FAO/AIEA joint division for nuclear techniques in food and agriculture
IATA	International Air Transport Association
IDSR	Integrated Disease Surveillance and Response

IHR	International Health Regulations
ILRI	International Livestock Research Institute
IRCM	AU-IBAR Integrated Regional Coordinating Mechanism
LIMS	Laboratory Information Management Systems
MoA	Ministry of Agriculture
MoH	Ministry of Health
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health
RVF	Rift Valley Fever
PCR	Polymerase chain reaction
PANAFTOSA	Pan American Foot and Mouth Disease Center
PAHO	Pan American Health Organization
PPR	Peste des Petits Ruminants
PSVS	*OIE*/AusAID Programme to Strengthen Veterinary Services in South East Asia
PT	Proficiency Testing
PVS	OIE Performance of Veterinary Services Pathway
QA	Quality Assurance
RAHC	Regional Animal Health Centres
RESOLAB	West and Central Africa Veterinary Laboratory Network for Avian Influenza and other Transboundary Diseases
RVF	Rift Valley Fever
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SEACFMD	Southeast Asia and China Foot and Mouth Disease Campaign
SOP	Standard Operating Procedures
TADs	Transboundary Animal Diseases
USAID	U.S. Agency for International Development
WHO	World Health Organization
WHO AFRO	World Health Organization Regional Office for Africa
WHO AMRO	World Health Organization Regional Office for the Americas
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office

2. BACKGROUND

Tripartite FAO/OIE/WHO IDENTIFY Project
USAID Emergent Pandemic Threats Program

The IDENTIFY project is the component of the USAID-funded Emerging Pandemic Threats (EPT) programme that focuses on the capacity of laboratories in the public health and animal health sectors to contribute to the management of emerging zoonotic pathogens through rapid detection of known pathogens and appropriate handling of material from cases of uncharacterised diseases. The IDENTIFY project is specifically designed to strengthen diagnostic capacities in the geographic “hot spot” regions identified by USAID where new diseases have previously emerged. In addition to IDENTIFY, the EPT Program has projects called PREDICT, RESPOND, and PREVENT which cover the areas of wildlife monitoring, field epidemiology and training, behavior change communications, and national planning. IDENTIFY activities have necessary connections and interactions with the activities of several of the other components of the EPT programme.

IDENTIFY is jointly implemented by the Food and Agriculture Organization of the UN (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO). These organizations have long-established networks of laboratories which are an integral part of their public health or animal -health function. Under the framework of the IDENTIFY project, the three organizations will enhance the diagnostic capacity and improve networking of these laboratories – both geographically and across the public-health and animal-health sectors. The networks include international reference laboratories which will support national and regional laboratories, when necessary, by performing full characterization and investigation of "unknown" agents. The ultimate aim of the five-year project is to link together a global cooperative network that is fully capable of rapidly diagnosing and reporting to OIE on listed animal diseases and unusual epidemiological events or emerging diseases, and investigating events of potential international public health concern and reporting to WHO as required by the International Health Regulations (IHR).

Laboratory networks, often vertical or disease-oriented in nature, exist and will be the foundation to which the IDENTIFY project will look to meet its goals. Gaps, both disease-specific and with respect to geographical coverage, exist. The IDENTIFY project intends to determine gaps and propose, in collaboration with national partners, mechanisms for capacity building to fill these gaps. National and regional ownership of capacity building and networking activities is critical. Regional parties are already active in regional networking and need to be engaged as early as possible in the planning process in order to ensure sustainability and continued collaboration within and between the animal and public health sectors.

FAO, OIE, and WHO remain committed to close collaboration as a part of the IDENTIFY Project and beyond at global, regional, and country levels. As requested by USAID, the three organizations are submitting separate work plans for year 3 of the project. The levels of collaboration and coordination between FAO, OIE and WHO when conducting the different activities in the three workplans will vary but at a minimum, consultations at headquarters,

regional and country levels as appropriate will occur and often a much higher level of collaboration (weekly teleconferences, meetings at headquarters and regional levels) is planned. In the individual work plans, each organization has noted those sub-activities which are actively tripartite by indicating partnership with the other two organizations. The details of the collaboration will be outlined in the implementation plans as they evolve through the year. It is important to remember that consultation, collaboration and coordination are an essential part of the planning process.

FAO, OIE and WHO have a long-standing commitment to build capacity to prepare for and respond to disease threats at the country level. To assist these efforts, a range of platforms have been developed. Some are collaborative and operate globally such as the 4-way linking[1] and WHO-OFFLU collaborations. Others have been developed by individual organizations to cover a specific geographic region or topic such as the Asia Pacific Strategy for Emerging Diseases (APSED) and the Integrated Disease Surveillance and Response Strategy (IDSR), the Regional Veterinary Laboratory Networks, and the OIE PVS Pathway. The capacity building objectives of these platforms are fully compatible with those of the EPT program in general and the IDENTIFY project more specifically, and it was the expressed desire of USAID to build upon the existing platforms of the three organizations to expand the impact of the EPT funded activities. From the perspective of the three organizations it is logical to present a single coherent approach to capacity building to countries and as such, IDENTIFY activities would frequently be conducted as part of these existing platforms. One aim of this approach is to show the countries that the three organizations, USAID and other partners are working in a coordinated manner to achieve the best outcomes at the country level. Effective communication between all partners is important to deliver this coordinated support, and USAID support for these activities will be acknowledged in all cases.

[2] While working as much as possible in harmony, FAO, OIE and WHO each pursue their own mandate and mission and complement each other in a way that seeks to bring out the agency specific comparative advantages. Indeed OIE's mission in animal health is distinctly normative in nature. FAO's activities in food and agriculture are mostly field directed. WHO with its global mandate to protect human health shares an important veterinary public health agenda with the agencies responsible for animal health. The IDENTIFY project workplans and budgets reflect the notion that each agency operates as a single entity. This entails separate accounting and project administration procedures.

The estimated allocation of funds to FAO for year 3 is provided for the global, regional and country levels and by sub-activity (refers to tables in Annex 1). In addition, the table in Annex 2 provides estimates of FAO's contribution to each activity/sub-activity, taking into account the bi- and tripartite work as described in the global and regional work plans. FAO is to implement

[1] Tripartite framework for assessing health risks at the human-animal interface by improving the linkages between human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 at the national level and facilitating implementation of a mechanism for joint national risk assessment

[2] These last two paragraphs have been added by FAO only

several activities in the workplan solely – not in partnership with OIE or WHO- (eg. certain trainings/workshops; the development of the genetic module in Empres-i). The IDENTIFY partners will be kept informed on progress regarding these activities. For activities that are described as tripartite (partners: FAO, OIE, WHO), collaboration may can be categorized as: (1) joint implementation and coordination of activities between the three agencies (eg. preparing and holding a stakeholder meeting) – often with varying levels of contribution by each organization; (2) separate implementation and tripartite coordination of activities (eg. integration of the outcomes of the laboratory mapping into the Laboratory Networking Strategy); (3) separate implementation and very restricted coordination of activities serving common goals (eg. certain trainings; twinning projects).

3. NARRATIVE DESCRIPTION OF ACTIVITIES BY LINE OF WORK

LOW3: Outbreak Response Capacity Building

Notes:
- *G=global, C=Congo Basin Region; S= South and Southeast Asia Region*
- *Expected results are indicated for each Activity and only for Sub-Activities where specific expected results are additional to the overall expected results.*

GLOBAL AND REGIONAL Activities 3.1-3.3

- **Activity 3.1 (G, C, S)**
  Ongoing tripartite project management and coordination, monitoring, and planning

  Expected results: Regular communication among focal points; joint activities elaborated and planned; ongoing activities aligned with IDENTIFY's goals within each organization shared; points of collaboration and coordination identified

  - **Sub-Activity 3.1.1** Global and regional coordination
    - Global Project Coordinators
      - **Partners**: FAO/OIE/WHO, FAO/AIEA
    - Global and regional Project Coordinators
      - **Partners**: FAO/OIE/WHO
    - All Project Coordinators and USAID
      - **Partners**: FAO/OIE/WHO, USAID
    - All Project Coordinators and relevant regional network partners
      - **Partners**: FAO/OIE/WHO, regional network partners (e.g. RAHC, RESOLAB, ASEAN, etc.)
    - All Project Coordinators and other EPT partners
      - **Partners**: FAO/OIE/WHO, EPT partners (e.g. PREDICT, US CDC, etc.)
    - All Project Coordinators and other global partners
      - **Partners**: FAO/OIE/WHO, OFFLU, GFN, EDPLN, GLEWS, etc.

  - **Sub-Activity 3.1.2** Ongoing communication and sharing critical project documents among project members.
    - Further development of SharePoint as the method of sharing critical project documents for access by project members
      - **Partners**: FAO/OIE/WHO
      - **Expected results**: Project team members have access to common files; Routine usage of SharePoint by all HQ focal points; Documents circulated and comments shared routinely; Shared documents and standardized methods of implementation agreed amongst the project staff

- **Activity 3.2 (G, C, S)**
  Retention and recruitment of staff to support IDENTIFY activities
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Staff resources available to plan, coordinate, and conduct activities

- **Activity 3.3 (G, C, S)**
  Preparation and review of global, regional, and country-level work plans and other project documents
  - **Partners**: FAO/OIE/WHO, USAID, EPT partners
  - **Expected results**: Annual work plan submitted on time; Annual work plan approved for implementation; Global/Regional/National priorities reflected in work plans; activities to strengthen laboratory capacity developed at all levels

GLOBAL Activities: 3.4-3.13

- **Activity 3.4.G**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.G**: Development of communication tool(s) for different audiences, stakeholders and partners

  - **Sub-Activity 3.4.2.G**: Resource building – Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.3.G:** Development of a glossary of the available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses
    - **Partners:** FAO/OIE/WHO; FLI, multiple laboratory partners.

  - **Sub-Activity 3.4.4.G**: Development of an assessment tool to determine the specific laboratory needs and identify the elements needed for laboratory information systems (FLI, multiple university and laboratory partners)

  - **Sub-Activity 3.4.5.G:** Validation and further developments of the EMPRES-i genetic module linking key virologic data to epidemiologic data

  - **Sub-Activity 3.4.6.G**: Development of e-learning modules on bioinformatics (phylogeny and sequence analysis) (FAO/IAEA/laboratory partners)

- **Sub-Activity 3.4.7.G**: Supporting sequencing capacities and access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider
    - **Sub-Activity 3.4.7.1. G -** Building sequencing capacities and use of bioinformatics tools for selected countries -FAO/IAEA

- **Activity 3.5.G**
  Annual review of the Laboratory Networking Strategy
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Review of Laboratory Networking Strategy conducted; Modifications to regional approaches based on interaction with national stakeholders and IDENTIFY Laboratory Networking Strategy integrated into and situated under existing global/regional/national activities and priorities

- **Activity 3.6.G**
  Follow-up of laboratory mapping exercise activities

  Partners: FAO/OIE/WHO, PREDICT
  Expected results: Identification of global, regional, and national resources leading to enhanced networks that integrate available resources

    - **Sub-Activity 3.6.1.G:** Comparison of historic FAO, OIE and WHO disease reporting data with current data for sentinel diseases, to be determined by region (refer to GLNS in Annex 3)
        - Partners: FAO/OIE/WHO
            - **Expected results:** Timeliness of diagnosis and referral of specimens analyzed

    - **Sub-Activity 3.6.2.G:** Identification of the most commonly occurring diseases among humans and animals (including wildlife) based on official disease notifications, country disease data review, etc.
        - **Partners:** FAO/OIE/WHO, MoH & MoA
        - **Expected results:** Common diseases affecting both animals and humans assessed and prioritized; List of normative and emerging/unknown diseases in each region updated (when needed).

    - **Sub-Activity 3.6.3.G**: Develop a new format for annual reporting by FAO Reference Centers and new mechanism for report submission

    - **Sub-Activity 3.6.4.G**: Support to regional ongoing desktop review of existing data on laboratory capacity and networks from existing laboratory assessments

- **Sub-Activity 3.6.5.G** Identification of key regional laboratories as targets for support provided to strengthen capabilities/capacities to diagnose normative and major emerging/unknown pathogens in the region

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

  - **Sub-Activity 3.7.1.G**: Coordination and development with regional counterparts of global framework for regional Stakeholders' meetings in each hot spot region
    - **Partners**: FAO/OIE/WHO, EPT partners

  - **Sub-Activity 3.7.2.G**: Definition of the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases
    - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, and others

- **Activity 3.8.G**.
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - Sub-Activity 3.8.1 International and regional meetings/conferences
  - Sub-Activity 3.8.2 International and regional trainings and workshops
  - Sub-Activity 3.8.3 National trainings and workshops

- **Activity 3.9.G**
  Develop and conduct FAO/OIE/WHO meetings, conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines and standards, on themes such as:
  - Diagnosis of normative pathogens
  - Diagnosis of emerging and unknown pathogens
  - Regional standardization of reagents
  - Laboratory policy development and planning
  - Harmonization of testing and referral decision trees
  - Laboratory Biosafety/Biosecurity

- Platforms for regional reporting
- Laboratory Quality Management Systems
- Laboratory Information Management systems

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.G:** Organizational support for regional workshops, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."
  - **Partners:** FAO/OIE, UC Davis, AAHL, and open-source LIMS developers
  - **Expected results:** development of a tool kit to allow laboratories/countries to define their LIMS needs and to assist in determining a fit-for-purpose LIMS; regionally relevant discussions of LIMS issues; access to open-source platforms as a resource for those seeking to implement appropriate LIMS for their national laboratories

- **Sub-Activity 3.9.2.G:** Regional pathology train-the-trainer workshops "Basics of Field and Laboratory Diagnosis" coordinated and conducted in both regions
  - **Partners:** FAO/OIE with WHO, PREDICT, RESPOND, University of Georgia, and national laboratories
  - **Expected results:** enhance the cycle of information between field and the laboratory; improve the quality and quantity of samples submitted to the laboratory and thus the capacity of the laboratory to provide accurate diagnosis

- **Sub-Activity 3.9.3.G**: "Training on classical and molecular virology" (FAO/IAEA)

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5:** Consultation on good laboratory practices for conducting multiple disease diagnosis.
  - **Partners**: FAO/IAEA, OIE, WHO, PREDICT
  - **Expected results**: Development/transfer of new techniques and reference material for multiple disease diagnosis with multiplex PCR

- **Sub-Activity 3.9.6.G**: Two rounds of ring tests for both Congo Basin and S/SE Asia regions based upon regional needs (e.g. RVF, PPR, AI/ND) (FAO/IAEA)

- **Sub-Activity 3.9.7.G**: Validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system) (FAO/IAEA)

- **Activity 3.10.G**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.G**: Provision of validated standardized veterinary diagnostic reagents and development of international standards (RVF and PPR positive controls including serum bank)- (FAO/IAEA)
    - **Expected results**: The use of quality reagents for test reliability in laboratories is increased

  - **Sub-Activity 3.10.2.G**: Support participation of laboratories in EQA
    - **Sub-Activity 3.10.2.1S:** Support participation of laboratories in international EQA
    - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA

    - **Sub-Activity 3.10.2.1G:** Support national EQA programs, including raising awareness of the importance of EQA
    - **Partners**: WHO/FAO/IAEA, Laboratory quality national counterparts at MoH, International experts in EQA including a WHO Collaborating Centre
    - **Expected results**: Progress towards establishing national EQA programs; Increased number of countries in each region with EQA programs

  - **Sub-Activity 3.10.3.G** Installation and staff training for an open-source LIMS platform in the national animal health laboratories of one pilot country (Cameroon) – (FAO/IAEA)

  - **Sub-activity 3.10.4.G** Joint FAO/IAEA/OIE/WHO Global Survey on External Quality Assessment (proficiency testing) Schemes
    - **Partners**: FAO/IAEA/OIE/WHO
    - **Expected result(s)** : Results analyzed and publicly available

- **Activity 3.11.G**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.G**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments (refer to Activity 3.6 and Annex 4)
    - **Partners**: FAO/WHO, FAO/IAEA, DELIVER
    - **Expected results**: Laboratory needs defined based on the outcomes of the mapping Communication with regional laboratories established; Immediate needs identified; Identified equipment/supplies provided; Increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region

- **Activity 3.12.G**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.1.G**: Strengthen linkages among existing regional and global laboratory networks within and across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities
    - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP, CORDS

  - **Sub-Activity 3.12.2.G**: Support for strengthening the human-animal health linkage in OFFLU
    - **Partners**: FAO/OIE
    - **Expected results**: Key activities of OFFLU sustained, interface with WHO (GISN/GIP) and GLEWS further developed, influenza genetic module validated.

  - **Sub-Activity 3.12.3.G**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis

- **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP, CORDS

- **Sub-Activity 3.12.4.G**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Formal agreements initiated, including material transfer agreements, or mechanisms for the sharing of samples, data, reports etc. between laboratories and networks; Mutual trust and interest within regional and global laboratory networks developed and promoted, collaboration and communication pathways strengthened

- **Sub-activity 3.12.5.G** Collection of sample throughput data for targeted diseases from laboratories supported by IDENTIFY as a part of project monitoring (refer to GLNS in Annex 3)
  - **Partners:** FAO/OIE/WHO
  - **Expected result(s)**: Project monitoring tool developed ; Data collected through regional and country offices

- **Sub-Activity 3.12.6.G**: Improving the linkage between laboratory and epidemiological data (targeting influenza)
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

    - **Sub-Activity 3.12.6.1. G**: Develop the four-way-linking framework in pilot countries: FAO/WHO assessment missions and FAO/WHO/OIE workshops in three countries
    - **Sub-Activity 3.12.6.2. G** Further developments and validation of the genetic module linking EMPRES-i and influenza virus databases (FAO)

- **Activity 3.13.G**
  Support and promote laboratory twinning initiatives and partnerships

  Partners: FAO, OIE, WHO, Reference Laboratories/Centers
  Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.G**: Identification of Reference Laboratories/Centres and Collaborating Centres in the regions and beyond prepared to offer expertise in diseases or technical areas relevant to each region

- **Sub-Activity 3.13.2.G**: Identification of suitable candidate laboratories in the region or beyond, likely to meet requirements for twinning and possible future recognition as a Reference Laboratory for scientific disciplines or diseases relevant to each region and willing to provide services to that region

- **Sub-Activity 3.13.3.G** Encourage the development of laboratory twinning arrangements within regions and, where appropriate, between international reference laboratories and laboratories in hot spot regions

REGIONAL Activities: CONGO BASIN 3.4-3.13

- **Activity 3.4.C**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners (all 9 IDENTIFY-supported countries)
    - **Partners**: FAO, OIE, WHO
    - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites

  - **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature (all 9 IDENTIFY-supported countries)
  - **Sub-Activity 3.4.3.C:** Second phase of the study on the development of collaborations and/or partnerships between public veterinary laboratories and the animal industry (Cameroon, DRC)

- **Activity 3.7.C**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories (all 9 IDENTIFY-supported countries)

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

  - **Sub-Activity 3.7.1C**: Annual stakeholders' event
    - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
    - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

- **Activity 3.8.C**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards (all 9 IDENTIFY-supported countries)

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as (all 9 IDENTIFY-supported countries):
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012, Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops on themes such as (all 9 IDENTIFY-supported countries):
  - Diagnosis of normative pathogens
  - Diagnosis of emerging and unknown pathogens
  - Regional standardization of reagents
  - Laboratory Biosafety/Biosecurity
  - Laboratory Quality Management Systems implementation
  - Lab equipment maintenance and calibration

- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives (all 9 IDENTIFY-supported countries)
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities (all 9 IDENTIFY-supported countries)
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

- **Activity 3.9.C**
  Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing," for DRC, Rwanda, Tanzania, Uganda, Cameroon, including regional service laboratories

- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests" (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA) (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "Basics of Field and Laboratory Diagnosis" (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN) (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector" (all 9 IDENTIFY-supported countries)

- **Sub-Activity 3.9.8.C:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
    - **Expected results**: animal and public health laboratory assessment tools adapted for monitoring and evaluation; individual assessment tools provided to partners

- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists in Gabon, CAR, Congo and DRC
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists

- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

- **Activity 3.10.C**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory needs and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries with validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs (all 9 IDENTIFY-supported countries)

  - **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease (Cameroon, CAR, Eq. Guinea, Gabon, Congo, Rwanda, Tanzania, Uganda)

- **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA

- **Sub-Activity 3.10.2.2.C**: Support for implementation of national EQA programs, including raising awareness of the importance of EQA
  - Four national workshops in Tanzania, Uganda, DRC and Rwanda

- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation (DRC, Congo, CAR, Rwanda, Tanzania and Uganda).
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation – procurement of manuals, procedures (DRC, Congo, CAR, Rwanda, Tanzania and Uganda).
  - **Sub-Activity 3.10.3.3. C:** Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea

- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, OIE, WHO, IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified

- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions (Cameroon, Congo, Tanzania, Uganda, Rwanda)
  - Supply of specific reagents, materials and equipment for emergent diseases in the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides SC* (Congo, DRC, Gabon and CAR) and strain molecular characterization (Cameroon, DRC, Uganda)
  - Support to competence development in bush meat microbiology (Gabon, Congo, CAR)
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

- **Activity 3.11.C**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments (all 9 IDENTIFY-supported countries) (refer to Activity 3.6)
    - **Partners**: FAO/WHO/OIE, IAEA
    - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

  - **Sub-Activity 3.11.2.C:** Assessment missions (Cameroon, DRC) for biosafety and biosecurity infrastructures, equipment and practices
    - **Partners**: FAO/IAEA, WHO, OIE
    - **Expected results**: Biosafety infrastructure, equipment and practices assessed in the beneficiary laboratories; needs defined for improved biosafety infra-structure, equipment, consumables, and practices.

- **Activity 3.12.C**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
    - **Partners**: FAO/OIE/WHO

- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP

- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks (all 9 IDENTIFY-supported countries)
  - Contracts with courier companies to facilitate sharing

- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

- **Activity 3.13.C**
  Support and promote laboratory twinning initiatives and partnerships

  Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

  - **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region

  - **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

COUNTRY Activities: CONGO BASIN 3.4-3.13

9 IDENTIFY-supported countries (USAID priority 1 indicated by asterisk, 2 by ^):

- Cameroon
- CAR (Central African Republic)
- DRC (Democratic Republic of the Congo)*
- Eq. (Equatorial) Guinea
- Gabon
- Congo
- Rwanda
- Tanzania
- Uganda*

+ South Sudan (only activity 1.9.8.C)

Cameroon

Activity 3.4.C:
Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
- **Partners**: FAO, OIE, WHO
- **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites

- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature
- **Sub-Activity 3.4.3.C:** Second phase of the study on the development of collaborations and/or partnerships between public laboratories and the animal industry

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
- **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
- **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:
Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops on themes such as:
  - Diagnosis of normative pathogens
  - Diagnosis of emerging and unknown pathogens
  - Regional standardization of reagents
  - Laboratory Biosafety/Biosecurity
  - Laboratory Quality Management Systems implementation
  - Lab equipment maintenance and calibration
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities,
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:
Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional

system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing"
- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "Basics of Field Laboratory Diagnosis"
- **Sub-Activity 3.9.6.C** FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (i.e GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.8.C:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - **Expected results:** animal and public health laboratory assessment tools adapted for monitoring and evaluation; individual assessment tools provided to partners
- **Sub-Activity 3.9.9.C** Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists in Gabon, CAR, Congo and DRC
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety;

[NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries with validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
  - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
  - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.
- **Sub-Activity 3.10.4.C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:

Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.
- **Sub-Activity 3.11.2.C:** Assessment missions (in main labs) for biosafety and biosecurity infrastructures, equipment and practices
  - **Partners**: FAO/IAEA, WHO, OIE
  - **Expected results**: Biosafety infrastructure, equipment and practices assessed in the beneficiary laboratories; needs defined for improved biosafety infra-structure, equipment, consumables, and practices.

Activity 3.12.C:
Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contracts with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data

- **Partners**: FAO/OIE/WHO
- **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centers and Collaborating Centers in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

CAR (Central African Republic)

Activity 3.4.C:
Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

- **Expected results:** Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  - **Sub-Activity 3.7.1.C**: Annual stakeholders' event
    - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
    - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of

project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:
Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities,
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:
Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"

- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "Basics of Field Laboratory Diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists

- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease

- **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation –procurement of manuals, procedures
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.
- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
  - Support to competence development in bush meat microbiology
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:
Support and promote laboratory networks
Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

DRC (Democratic Republic of the Congo)*

Activity 3.4.C: Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature
- **Sub-Activity 3.4.3.C:** Second phase of the study on the development of collaborations and/or partnerships between public laboratories and the animal industry

Activity 3.7.C:

Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:

Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Afric**a**

- Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities,
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:
Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing"
- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.8.C:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - **Expected results**: animal and public health laboratory assessment tools adapted for monitoring and evaluation; individual assessment tools provided to partners
- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:

  - Four in-situ study tours by regional scientists
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientist
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
    - **Sub-Activity 3.10.2.2.C**: Support for implementation of national EQA programs, including raising awareness of the importance of EQA
      - Four national workshops
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1. C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation –procurement of manuals, procedures
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.

- **Sub-Activity 3.10.4.C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner
Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.
- **Sub-Activity 3.11.2.C:** Assessment missions (in main labs) for biosafety and biosecurity infrastructures, equipment and practices
  - **Partners**: FAO/IAEA, WHO, OIE
  - **Expected results**: Biosafety infrastructure, equipment and practices assessed in the beneficiary laboratories; needs defined for improved biosafety infra-structure, equipment, consumables, and practices.

Activity 3.12.C:
Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations

developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Eq. (Equatorial) Guinea

Activity 3.4.C:
Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:
Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops

- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:
Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "Basics of Field and Laboratory Diagnosis
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.
- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:
Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Gabon

Activity 3.4.C:
Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:
Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:
Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**:Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"

- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.

- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
  - Support to competence development in bush meat microbiology (Gabon, Congo, CAR)
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:
Support and promote laboratory networks
Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and

EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared
- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Congo

Activity 3.4.C: Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination
- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:

Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:
Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities,
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:

Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1. C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation –procurement of manuals, procedures
  - **Sub-Activity 3.10.3.3.C**: Onsite training in equipment maintenance and calibration at LCVK, Kinshasa, DRC with national lab staff of Congo and Gabon, and at LANAVET, Garoua, Cameroon with national lab staff of Central Africa and Equatorial Guinea.
- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions
  - Supply of specific reagents, materials and equipment for emergent diseases In the region (e.g. CBPP, ASF, rabies)
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
  - Support to competence development in bush meat microbiology
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified

biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:

Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:

Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centers in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Rwanda

Activity 3.4.C:

Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:

Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:

Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:

- OFFLU technical meeting(s)
- RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
- Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
- African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
- Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:

Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing"
- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**: Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management
Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
    - **Sub-Activity 3.10.2.2.C**: Support for implementation of national EQA programs, including raising awareness of the importance of EQA
      - Four national workshops
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1. C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation –procurement of manuals, procedures
- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region

- Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions
  - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner
Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:
Support and promote laboratory networks
Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data

- **Partners**: FAO/OIE/WHO
- **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships
Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Tanzania

Activity 3.4.C:
Communication tool development and resource building
Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories
Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:

Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:

Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing"
- **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.C**:Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:
Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease
      - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
    - **Sub-Activity 3.10.2.2.C**: Support for implementation of national EQA programs, including raising awareness of the importance of EQA
      - Four national workshops
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1. C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2. C:** Support to local costs of QA implementation –procurement of manuals, procedures

- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions
  - Support to competence development in bush meat microbiology
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:
Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:
Support and promote laboratory networks
Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)

  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:
Support and promote laboratory twinning initiatives and partnerships
Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared
- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

Uganda*

Activity 3.4.C:
Communication tool development and resource building
Expected results: Readily accessible tools available for data access, sharing, and coordination
- **Sub-Activity 3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners
  - **Partners**: FAO, OIE, WHO
  - **Expected results**: Audiences to be targeted by communication tools listed; IDENTIFY tags in FAO ECTAD and OIE Africa websites
- **Sub-Activity 3.4.2.C**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

Activity 3.7.C:
Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels

- **Sub-Activity 3.7.1.C**: Annual stakeholders' event
  - **Partners**: FAO, OIE, WHO, MoH, MoA, Wildlife counterparts, National Veterinary and Public Health Laboratories, EPT partners, USAID
  - **Expected results**: List of invitees finalized; IDENTIFY Project achievements and planned activities presented to regional/national stakeholders; Endorsement of project activities by regional/national stakeholders obtained; Proceedings of the meeting distributed

Activity 3.8.C:

Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences such as:
  - OFFLU technical meeting(s)
  - RESOLAB Annual Coordination meeting, 5-9 December 2011, Bamako, Mali
  - Regional laboratory /epidemiology networks meetings such as Public Health Lab Network, RESOLAB, SADC Vet Labs and Epidemiology and Informatics Sub-committees, EARLN, IDSR, etc.
  - African Biological Safety Association (AfBSA) 3rd Annual Biological Safety Conference, 24-27 June, 2012 Johannesburg South Africa
  - Other meetings/workshops/conferences in line with IDENTIFY's goals scheduled throughout Year 3
- **Sub-Activity 3.8.2.C**: Invitation to international and regional trainings and workshops
- **Sub-activity 3.8.3.C** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.
- **Sub-Activity 3.8.4.C**: Facilitation of the development of national sustainability plans in conjunction with national authorities
  - **Partners**: FAO/OIE/WHO, MoH & MoA
  - **Expected results**: national sustainability plans initiated; sources of funding identified and use of staff and equipment optimized

Activity 3.9.C:

Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional

system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing" **Sub-Activity 3.9.2.C** Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"
- **Sub-Activity 3.9.3.C**: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector
- **Sub-Activity 3.9.4.C**: Regional training course on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
- **Sub-Activity 3.9.5.C**:Regional train-the-trainer pathology workshops "basics of field laboratory diagnosis"
- **Sub-Activity 3.9.6.C**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)
- **Sub-Activity 3.9.7.C**: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"
- **Sub-Activity 3.9.10.C**: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases.
  - **Expected results:** Capacity built within both field and laboratory veterinarians for improved identification and prompt reporting of IDENTIFY listed priority diseases

Activity 3.10.C:

Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated; Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.C:** Provision to the nine beneficiary countries of validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs
- **Sub-Activity 3.10.2.C:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories
    - **Sub-Activity 3.10.2.1 C:** Participation of selected countries to external quality assessment (EQA) schemes targeting avian influenza/Newcastle disease, Rift Valley Fever, Peste des Petits Ruminants, and Foot-and-Mouth Disease

    - **Partners**: WHO/FAO/IAEA, International providers of EQA programs, including a WHO Collaborating Centre on EQA
  - **Sub-Activity 3.10.2.2.C**: Support for implementation of national EQA programs, including raising awareness of the importance of EQA
    - Four national workshops
- **Sub-Activity 3.10.3.C:** Support to laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.C:** On-site audit/backstopping missions for assessing quality assurance system implementation and development of quality documentation
  - **Sub-Activity 3.10.3.2.C:** Support to local costs of QA implementation – procurement of manuals, procedures
- **Sub-Activity 3.10.4C**: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)
  - **Partners**: FAO, WHO, FAO/IAEA
  - **Expected results**: Share list of OIE prescribed and alternative tests for IDENTIFY-targeted diseases with FAO and WHO; Test for PT identified; Participating veterinary laboratories identified
- **Sub-Activity 3.10.5.C:** Development of specific technical competence to face emergent disease situations in the region
  - Support to sampling, sample shipment, and advanced virus characterization for ASF spreading in new regions
  - Support to sampling, sample shipment, and basic lab diagnosis of *Mycoplasma mycoides* SC and strain molecular characterization
    - **Expected results:** Competence developed/ expanded for emergent diseases characterization

Activity 3.11.C:

Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments
  - **Partners**: FAO/WHO/OIE, FAO/IAEA
  - **Expected results**: Laboratory needs defined based on the outcomes of the mapping; communication with regional laboratories established; immediate needs identified; identified equipment/supplies provided to detect priority pathogens in the region; increasingly well-equipped laboratories using appropriate reagents to detect priority pathogens in each region; procurement of adapted biosecurity and biosafety equipment and material.

Activity 3.12.C:

Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)
  - **Partners**: FAO/OIE/WHO
- **Sub-Activity 3.12.2.C**: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
  - **Partners**: FAO/OIE/WHO, RESPOND, FETPV, FETP
- **Sub-Activity 3.12.3.C**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - Contract with courier companies to facilitate sharing
- **Sub-Activity 3.12.4.C**: Improving the linkage between laboratory and epidemiological data
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Activity 3.13.C:

Support and promote laboratory twinning initiatives and partnerships

Expected results: Global / regional / national resources identified; laboratory exchange initiatives prepared

- **Sub-Activity 3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region
- **Sub-Activity 3.13.2.C**: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions

+ South Sudan

Activity 3.9.C:

Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.9.C**: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories:
  - Four in-situ study tours by regional scientists
  - Two technical missions in support to diagnostics and Quality Assurance of South Sudan by regional scientists

REGIONAL Activities: SOUTH / SOUTHEAST ASIA 3.4-3.13

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing (all 10 S/SEA IDENTIFY- supported countries)
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature (all 10 S/SEA IDENTIFY-supported countries)

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider (all 10 S/SEA IDENTIFY- supported countries)

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia (all 10 S/SEA IDENTIFY- supported countries)

  - **Sub-Activity 3.7.2.G**: Definition of the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases (Viet Nam, other pilot countries TBD)
    - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, and others

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3 (all 10 S/SEA IDENTIFY- supported countries)

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops (all 10 S/SEA IDENTIFY- supported countries)

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives (all 10 S/SEA IDENTIFY- supported countries)
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment." (all 10 S/SEA IDENTIFY- supported countries)

  - **Sub-Activity 3.9.2.S**: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities (Viet Nam, China, Thailand, Philippines)
    - **Partners:** FAO, AAHL, APBA

  - **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens (the 8 SEA IDENTIFY- supported countries only)
    - **Partners:** FAO/OIE, PREDICT

- **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis'' (all 10 S/SEA IDENTIFY- supported countries)

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA) (all 10 S/SEA IDENTIFY- supported countries)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN) (all 10 S/SEA IDENTIFY- supported countries)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector" (all 10 S/SEA IDENTIFY- supported countries)

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation" (all 10 S/SEA IDENTIFY- supported countries)
    - Expected results: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills (9 S/SEA IDENTIFY- supported countries: Vietnam, Cambodia, Lao PDR, China, Malaysia, Thailand, Philippines, Bangladesh, Nepal)

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc. (9 S/SEA IDENTIFY- supported countries: Vietnam, Cambodia, Lao PDR, China, Malaysia, Thailand, Philippines, Bangladesh, Nepal)
    - **Partners:** APBA, AAHL
    - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting (all 10 S/SEA IDENTIFY- supported countries)

- **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
- **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
    - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
      - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents (the 8 SEA IDENTIFY-supported countries only)

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes (all 10 S/SEA IDENTIFY- supported countries)
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases (all 10 S/SEA IDENTIFY- supported countries)

    - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases (all 10 S/SEA IDENTIFY- supported countries)

  - **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems

- **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories (9 S/SEA IDENTIFY- supported countries: Vietnam, Cambodia, Lao PDR, China, Malaysia, Thailand, Philippines, Bangladesh, Nepal)

- **Sub-Activity 3.10.4.S** Assessment and consultation for upgrading laboratory information management systems will be provided to selected and key laboratories in the region in order to strengthen the efficiency of sample sharing both among sub-national laboratories within a country or among national laboratories by implementing LIMS with capability to interface with other existing systems in the region. (LaoPDR, Malaysia, and Thailand)

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments (Vietnam, Cambodia, Lao PDR, China, Malaysia, Thailand)

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis (all 10 S/SEA IDENTIFY- supported countries)
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks (all 10 S/SEA IDENTIFY- supported countries)
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

- **Sub-Activity 3.12.5.S**: Improving the linkage between laboratory and epidemiological data (targeting influenza) (Viet Nam, China, Thailand, Philippines)
  - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, MoA, MoH, others
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

COUNTRY Activities: SOUTH / SOUTHEAST ASIA 1.4-1.13

10 IDENTIFY-supported countries (USAID priority 1 indicated by asterisk, 2 by ^):
Southeast Asia (8 countries supported)
- Indonesia *
- Vietnam *
- Cambodia ^
- Lao PDR ^
- China
- Malaysia
- Thailand
- Philippines

South Asia (2 countries supported)
- Bangladesh
- Nepal

A. Southeast Asia

Indonesia *

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Sub-Activity 3.7.1S**: Regional and national stakeholders meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

- **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

- **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
    - Expected results: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
    - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
    - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to

identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
  - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
    - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

- **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

  - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

  - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

Vietnam *

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Sub-Activity 3.7.1S**: Regional and national stakeholders' (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Sub-Activity 3.7.2.G**: Definition of the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases
    - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, and others

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-Activity 3.9.2.S**: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities

- **Partners:** FAO, AAHL, APBA

- **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
  - **Partners:** FAO/OIE, PREDICT

- **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - **Expected results**: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
  - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
  - **Partners:** APBA, AAHL
  - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting

- **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
- **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
    - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
      - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

    - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

  - **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
    - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

    - **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated
  - **Sub-Activity 3.12.5.S**: Improving the linkage between laboratory and epidemiological data (targeting influenza)

- **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, MoA, MoH, others
- **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Cambodia

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

  - **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

  - **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - Expected results: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
  - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
  - **Partners:** APBA, AAHL
  - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
  - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
  - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to

identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
  - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
    - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

- **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

  - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

  - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
        - Regional Animal Health Laboratory Network Meeting
        - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

Lao PDR

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

    - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
        - **Partners**: FAO, OIE
        - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

- **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

- **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**

Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

- **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

- **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
    - Expected results: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
  - **Partners:** APBA, AAHL
  - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
  - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
  - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
    - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
      - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

- **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

- **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Sub-Activity 3.10.4.S** Assessment and consultation for upgrading laboratory information management systems will be provided to selected and key laboratories in the region in order to strengthen the efficiency of sample sharing both among sub-national laboratories within a country or among national laboratories by implementing LIMS with capability to interface with other existing systems in the region.

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across

human and animal health, including implementation of regional guiding principles for surveillance and diagnosis

- **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
  - Regional Animal Health Laboratory Network Meeting
  - Regional Laboratory Director's Forum for Animal Health (expanded)

Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

China

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives (all 10 S/SEA IDENTIFY- supported countries)
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

- **Sub-Activity 3.9.2.S**: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities
    - **Partners:** FAO, AAHL, APBA

- **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

- **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
    - Expected results: animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
    - **Partners:** APBA, AAHL
    - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
  - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
  - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
    - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
      - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

    - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

  - **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems

- **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

  - **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

- **Sub-Activity 3.12.5.S**: Improving the linkage between laboratory and epidemiological data (targeting influenza)
  - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, MoA, MoH, others
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Malaysia

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' mmeting (primarily the directors of national public health and veterinary laboratories and representatives

from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

  - **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

- **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

- **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

- **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"

    - **Expected results:** animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
    - **Partners:** APBA, AAHL
    - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
    - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
    - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

- **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents
  - Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
    - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

    - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

  - **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
    - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

  - **Sub-Activity 3.10.4.S** Assessment and consultation for upgrading laboratory information management systems will be provided to selected and key laboratories in the region in order to strengthen the efficiency of sample sharing both among sub-national laboratories within a country or among national laboratories by implementing LIMS with capability to interface with other existing systems in the region.

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

- **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

  - **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

Thailand

- **Activity 3.4.S**
  Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
  - **Partners**: FAO, OIE
  - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

- **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

- **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia.

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

- **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**

  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-Activity 3.9.2.S**: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities
    - **Partners:** FAO, AAHL, APBA
  - **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT

  - **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

  - **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)
  - **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

  - **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - **Expected results:** animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
  - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
  - **Partners:** APBA, AAHL
  - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
  - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
  - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents

- Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
  - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

- **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

  - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

  - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Sub-Activity 3.10.4.S** Assessment and consultation for upgrading laboratory information management systems will be provided to selected and key laboratories in the region in order to strengthen the efficiency of sample sharing both among sub-national laboratories within a country or among national laboratories by implementing LIMS with capability to interface with other existing systems in the region.

- **Activity 3.11.S**
  Provision of laboratory equipment and supplies in a coordinated manner

  Expected results: Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration

  - **Sub-Activity 3.11.1.S**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

  - **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

  - **Sub-Activity 3.12.5.S**: Improving the linkage between laboratory and epidemiological data (targeting influenza)
    - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, MoA, MoH, others
    - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

Philippines

- **Activity 3.4.S**
  Communication tool development and resource building

Expected results: Readily accessible tools available for data access, sharing, and coordination

- **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
  - **Partners**: FAO, OIE
  - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

- **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

- **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

- **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-Activity 3.9.2.S**: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities
    - **Partners:** FAO, AAHL, APBA

  - **Sub-activity 3.9.3.S:** Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens
    - **Partners:** FAO/OIE, PREDICT
  - **Sub-Activity 3.9.4.S**: Regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis''

  - **Sub-Activity 3.9.4.G**: Regional training courses on ''Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)

  - **Sub-Activity 3.9.5.S**: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (e.g. GFN, EDPLN)

  - **Sub-Activity 3.9.6.S:** FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"

- **Sub-Activity 3.9.7.S:** FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"
  - **Expected results:** animal and public health laboratory assessment tools adapted for monitoring and evaluation; Individual assessment tools provided to partners

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
  - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
  - **Partners:** APBA, AAHL
  - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
  - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
  - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.1.S:** Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents

- Expected results: National laboratories can prepare standard diagnostic and quality assurance reagents to meet the diagnostic needs within their own countries
  - **Sub-Activity 3.10.1.1.S**: Training on quality assurance and standardization of diagnostic reagents

- **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
  - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

  - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

  - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
  - **Partners**: FAO/OIE/WHO
  - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

- **Sub-Activity 3.12.5.S**: Improving the linkage between laboratory and epidemiological data (targeting influenza)
  - **Partners**: FAO/OIE/WHO, PREDICT, RESPOND, MoA, MoH, others
  - **Expected results**: Human and animal influenza epidemiological information and virological (including sequence) information for HPAI H5N1 better linked at the national and global levels; National, regional, and global level qualitative risk assessments for zoonotic HPAI H5N1 improved.

B. South Asia

Bangladesh

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

  - **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

  - **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
    - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.9.1.S:** Workshop on "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

- **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

- **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
    - **Partners:** APBA, AAHL
    - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration
- **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
    - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors
    - **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

    - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
        - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

- **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

- **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

- **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
  - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

  - **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
      - Regional Animal Health Laboratory Network Meeting
      - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

  - **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

Nepal

- **Activity 3.4.S**
  Communication tool development and resource building

  Expected results: Readily accessible tools available for data access, sharing, and coordination

  - **Sub-Activity 3.4.1.S**: Support use of regional communication tool(s) for information and data sharing
    - **Partners**: FAO, OIE
    - **Expected results**: Improved awareness and use of regional platforms such as EMPRES-i Asia and ARAHIS, and contribution to the ongoing efforts to link epidemiologic and virologic data.

  - **Sub-Activity 3.4.2.S**: Resource Building - Provision of documents, manuals, books and database access to scientific literature

  - **Sub-Activity 3.4.7.G**: Supporting access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider

- **Activity 3.7.G**
  Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories.

  Expected results: Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels
  Partners: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

  - **Sub-Activity 3.7.1S**: Regional and national stakeholders' meeting (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia

- **Activity 3.8.S**
  Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards

  Expected results: National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strengthened links within the laboratory network and other programmes including EPT

- **Sub-Activity 3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3

- **Sub-Activity 3.8.2.S**: Invitation to joint international and regional trainings and workshops

- **Sub-activity 3.8.3.S** Provision of support to national trainings and workshops related with IDENTIFY objectives
  - **Partners**: FAO/OIE/WHO, including national counterparts from MoH, MoA, Wildlife counterparts, national veterinary and public health laboratories, EPT partners, etc.

- **Activity 3.9.S**
  Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards

  Expected results: Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT

  - **Sub-Activity 3.9.1.S:** Workshop, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."

  - **Sub-Activity 3.9.8.S**: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories
    - Promotion of Laboratory Management Mentoring program between Managers of IDENTIFY-supported laboratories and facilitate exchange of personnel to share knowledge and develop skills

  - **Sub-Activity 3.9.9.S** Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.
    - **Partners:** APBA, AAHL
    - **Expected results:** Follow up on initial biosafety assessments and biosafety cabinet testing; procurement for cabinet repair and calibration

  - **Sub-Activity 3.9.10.S:** Planning and Support of Regional Laboratory Technical Advisory Group Meeting
    - **Partners**: FAO, WHO, USDA, USAID, APBA, Reference Laboratories and Collaborating Centres, National Laboratory Directors

- **Expected results**: Regional Laboratory Networking meeting(s) planned and conducted; Regional Laboratory Networking Strategy and Regional Framework for Capacity Building for Diagnosis of Emerging and Priority Animal Diseases updated

- **Activity 3.10.S**
  Promote and support laboratory quality management

  Expected results: National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated
  Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety; [NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]

  - **Sub-Activity 3.10.2.S:** Support to participation of laboratories in EQA schemes
    - **Expected results**: Increased participation in EQA programs; improved performance in EQA programs for priority diseases; diagnostic capabilities of the participating laboratories assessed and reliable indicators provided to better design future training courses and other technical support for these laboratories

    - **Sub-Activity 3.10.2.1.S:** Support regional proficiency testing programme for priority diseases

    - **Sub-Activity 3.10.2.2.S:** Training to build national laboratories capacity to design, implement and analysis national proficiency testing program for priority diseases

  - **Sub-Activity 3.10.3.S:** Support laboratories to develop and implement quality management systems
    - **Sub-Activity 3.10.3.1.S:** Conduct backstopping missions to support quality assurance and diagnostic to animal health laboratories

- **Activity 3.12.S**
  Support and promote laboratory networks

  Expected results: Activities of regional and global key FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-based networks

- **Sub-Activity 3.12.3.S**: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis
    - **Sub-Activity 3.12.3.1 S**: Planning and Support of Regional Laboratory Technical and Networking meeting(s)
        - Regional Animal Health Laboratory Network Meeting
        - Regional Laboratory Director's Forum for Animal Health (expanded)

    Partners: FAO, WHO, ASEAN, National Veterinary Services, Experts from OIE Reference Laboratories and Collaborating Centres, National Laboratory Directors, regional partners, EPT Partners, FETPV, FETP

- **Sub-Activity 3.12.4.S**: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks
    - **Partners**: FAO/OIE/WHO
    - **Expected results**: Discussions between laboratory and epidemiological networks, both within and between the sectors initiated

4. IMPLEMENTATION PLAN (PROVISIONAL)

Major activity heading	FAO ACTIVITIES by LOW (IDENTIFY is fully contained in LOW 3: Outbreak Response Capacity Building)	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 2011	FY12 Q2 JAN-MAR 2012	FY12 Q3 APR-JUN 2012	FY12 Q4 JUL-SEP 2012	GLOBAL (HQ)	South / Southeast (S/SE) ASIA REGION	CONGO BASIN REGION	GRAND TOTAL
3.1	Ongoing tripartite project management and coordination, monitoring, and planning	Regular communication among focal points; joint activities elaborated and planned; ongoing activities aligned with IDENTIFY's goals within each organization shared ; points of collaboration and coordination identified	X	X	X	X	40,000	1,902	209,750	**251,652**
3.2	Retention and recruitment of staff to support IDENTIFY activities	Staff resources available to plan, coordinate, and conduct actvities	X	X	X	X	359,665	265,400	522,587	**1,147,652**
3.3	Preparation and review of global, regional, and country-level work plans and other project documents	Annual work plan submitted on time; Annual work plan approved for implementation; Global/Regional/National priorities reflected in work plans; Activities to strengthen laboratory capacity developed at all levels	X			X	0	960	0	**960**
3.4	Communication tool development and resource building	Readily accessible tools available for data access, sharing, and coordination	X	X	X	X	297,110	0	38,900	**336,010**
3.5	Annual review of the Laboratory Networking Strategy	Review of Laboratory Networking Strategy conducted; modifications to regional approaches based on interaction with national stakeholders and IDENTIFY Laboratory Networking Strategy integrated into and situated under existing global/regional/national activities and priorities				X	0	0	0	**0**
3.6	Follow-up of laboratory mapping exercise activities	Identification of global, regional, and national resources leading to enhanced networks that integrate available resources	X		X		0	1,902	46,000	**47,902**
3.7	Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories	Increased awareness of issues at the human-animal interface; improved networking and opportunities for collaboration at the grassroots level; development of joint recommendations and shared information leading to advocacy at national levels			X		0	0	50,000	**50,000**
3.8	Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards	National laboratory staff capacity improved; competence developed/ expanded for laboratory quality management and normative disease diagnosis; strenthen links within the laboratory network and other programmes including EPT	X	X	X	X	40,000	105,325	24,000	**169,325**

IMPLEMENTATION PLAN (CONT'D)

Major activity heading	FAO ACTIVITIES by LOW (IDENTIFY is fully contained in LOW 3: Outbreak Response Capacity Building)	EXPECTED RESULTS 1 October 2011 – 30 September 2012	FY12 Q1 OCT-DEC 2011	FY12 Q2 JAN-MAR 2012	FY12 Q3 APR-JUN 2012	FY12 Q4 JUL-SEP 2012	GLOBAL (HQ)	South / Southeast (S/SE) ASIA REGION	CONGO BASIN REGION	GRAND TOTAL
3.9	Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards	Competence for laboratory quality management and normative disease diagnosis improved; national laboratory policies, guidelines, and standards promoted; regional system for specimen referral agreed; strengthened links within the laboratory network and other programmes including EPT	X	X	X	X	241,213	441,510	496,250	**1,178,973**
3.10	Promote and support laboratory quality management	National laboratory staff capacity improved; improved awareness and implementation of laboratory quality management systems; sustainability plans initiated Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased awareness and program implementation for laboratory biosafety [*NOTE: activities here include review of laboratory assessments to identify and prioritize laboratory need and available funds may be subsequently used for procurement of such]	X	X	X	X	691,096	96,460	174,450	**962,006**
3.11	Provision of laboratory equipment and supplies in a coordinated manner	Improved laboratory testing capacity with relevant, functioning equipment and supplies; logical work flow patterns; increased laboratory safety with access to certified biosafety cabinets; local preventive maintenance of laboratory equipment and capacities developed for basic calibration	X	X	X	X	10,000	150,000	160,000	**320,000**
3.12	Support and promote laboratory networks	FAO/OIE/WHO networks (GLEWS, OFFLU, GFN, EDPLN, etc.) supported; discussions with the key global specialized networks initiated; linkages and collaborations with regional networks established; recommendations developed to strengthen collaboration; networking pathways and tools developed or strengthened; enhanced connectivity of laboratories across tiers, sectors and disease-	X	X	X	X	414,932	60,400	133,200	**608,532**
3.13	Support and promote laboratory twinning initiatives and partnerships	Global / regional / national resources identified; laboratory exchange initiatives prepared			X	X	50,000	0	30,000	**80,000**
						Subtotal	**2,144,016**	**1,123,859**	**1,885,137**	**3,149,511**
		Project management cost FAO					Project Support Cost Year 3			545,455
							Technical Support Services			301,672
									GRAND TOTAL	**6,000,139**

5. PERFORMANCE MONITORING PLAN (PROVISIONAL – TRIPARTITE)

INDICATOR	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARNTER(S)
Cumulative number of hot spot regions for which IDENTIFY, with the agreement of relevant national authorities, has defined the laboratories and list of diseases targeted [2009 baseline = 0; end of CY2010 target = 2; end of CY2011 target = 3].	annual	FAO/OIE/WHO
Evaluation of countries by region where targeted national laboratories, have received capacity building. Each measurement is by category and country and adjusted by the year in which the region entered the project. [baseline and targets: TBD] 1. Protocols for laboratory practices and targeted diseases 2. Training for targeted disease diagnosis 3. Training on laboratory practices (e.g., biosecurity, equipment calibration, etc.) 4. Focused capacity building (e.g., twinning, quality assurance programme) 5. Laboratory procurement (e.g., equipment, reagents, etc.) Non-expendable: • Biosafety/Biosecurity equipment/service • Quality Assurance equipment • Diagnostic, pathology, or other related equipment • Other (documents, manuals, books, database access) Expendable: • Reagent supply • Shipment supply	annual	FAO/OIE/WHO
Number of participants to global/regional conferences, trainings or workshops organized on laboratory activities	annual	FAO/OIE/WHO
Indicator for timeliness of diagnosis: a. Comparison of historic OIE, FAO and WHO disease reporting data with current data for sentinel diseases, to be determined by region. [baseline and targets: TBD] b. Where possible, for two proxy diseases (1 viral, 1 bacterial), participating countries will be asked for timeliness data, which could include comparing date of sample submission to date of results. [baseline and targets: TBD]	annual	FAO/OIE/WHO
Cumulative amount of laboratory supplies procured by region [targets TBD following assessments]: Non-expendable: • Biosafety/Biosecurity equipment/service • Quality Assurance equipment • Diagnostic, pathology, or other related equipment • Other (documents, manuals, books, database access) Expendable: • Reagent supply • Shipment supply	annual	FAO/OIE/WHO
Sample throughput data for 2 proxy targeted diseases (1 viral, 1 bacterial) from countries supported by the IDENTIFY project. [baseline and targets: TBD]	annual	FAO/OIE/WHO
Number of outbreak investigations during which laboratory people have been involved by country/region. [2009 baseline = TBD; end of project target = 100%]	annual	FAO/OIE/WHO
Number of scientific publications as a result of collaborative work	annual	FAO/OIE/WHO
Proportion of laboratories by region and sector (e.g. animal vs public health) that have received communications and networking support, adjusted by the year in which the region entered the project. [2009 baseline = TBD following assessments; end of CY2010 target =10%; end of CY2011 target = 40%; end of CY2012 target = 70%; end of CY2013 target = 80%; end of CY2014 target = 100%]	annual	FAO/OIE/WHO
User statistics and distribution lists demonstrating country participation for existing regional platforms by region and sector [baseline and targets: TBD].	annual	FAO/OIE/WHO
Proportion of laboratories by region that maintain or have established new focal points for international/global networks by region and sector. [baseline and targets: TBD by assessments]	annual	FAO/OIE/WHO
Number and type of specimens/strains for proxy targeted diseases from each hot spot submitted to FAO, OIE, and WHO affiliated referral laboratories by year. [baseline and targets: TBD]	annual	FAO/OIE/WHO

6. REGIONAL PROJECT MANAGEMENT – CONGO REGION

Describe the organizational relationship between headquarters and the regional/country-level offices

FAO

FAO shares the responsibility for the IDENTIFY project management among three part-time regional officers in Africa: Nairobi, Kenya and Gaborone, Botswana with primary coordination from the Bamako, Mali ECTAD office. The IDENTIFY regional team will work under the supervision of the FAO HQ-based Operation Officers and Project Coordinator, and under the technical supervision of the Africa Liaison Officer. In addition, short term experts will be hired when and where required.

OIE

The OIE, as one of the implementing agencies under the IDENTIFY project, assigns part of the responsibility for project management to one of its regional representations in Africa, i.e. the Sub-Regional Representation for Southern Africa, based in Gaborone, Botswana. Oversight of regional activities will be managed by an IDENTIFY Focal Point in Gaborone, with additional support from staff in the Sub-Regional Representation for Eastern Africa and the Horn of Africa, based in Nairobi, Kenya, and will hire short term experts when and where required.

WHO

The Regional Office for Africa (AFRO) will take primary responsibility for management of implementation of activities under IDENTIFY although activities in individual countries will be coordinated through the respective WHO Country Offices. Support will also come from the offices of the WHO Intercountry Support Teams (ICT). The Regional Office has nominated focal points for IDENTIFY and will hire project officers to be based in the ICT offices and some country offices. These Project Officers will be the main point of contact between WHO and national counterparts.

Partnerships at the regional/country level

Partnerships at regional level will include (but are not limited to): Food and Agriculture Organization HQ and FAO-ECTAD Bamako, Gaborone, Nairobi, World Organisation for Animal Health HQ and OIE Gaborone, World Health Organization HQ and WHO HQ and AFRO Brazzaville, Regional Economic Communities covering the Congo basin region, other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC), regional technical agencies (e.g. AU-IBAR, CEBEVIRHA, CTTBD, ILRI, international and regional reference laboratories situated in Africa, private sector laboratories, universities, and non-governmental organizations.

Reporting

Reporting will follow the reporting requirements and deadlines as required by USAID. FAO, OIE, and WHO Headquarters will submit joint reporting documents (quarterly reports and annual planning documents), to which the contributions of all regional focal points are added. Regional focal points will use the same templates for ease of integration into the joint global FAO/OIE/WHO reports.

In addition, the OIE is obligated by the Letter of Agreement signed 19 May 2010 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project) to report to FAO on a biannual basis. Similarly, OIE regional focal points' contributions are added and they will use the same templates for ease of integration into the joint global FAO/OIE/WHO reports.

REGIONAL PROJECT MANAGEMENT – SOUTH EAST ASIA REGION

Describe the organizational relationship between headquarters and the regional/country-level offices

FAO

FAO project management for IDENTIFY will be coordinated from the FAO-RAP ECTAD Office in Bangkok. The IDENTIFY regional team will work under the supervision of the FAO-RAP Regional Manager and focal point for EPT, with support from the HQ-based Operation Officers and Project Coordinator, and under the technical supervision of the SE Asia Liaison Officer. In addition, short term experts will be hired when and where required.

OIE

The OIE, as one of the implementing agencies under the IDENTIFY project, assigns part of the responsibility for project management to one of its regional representations in Asia, i.e. the Sub-Regional Representation for Southeast Asia, based in Bangkok, Thailand. Oversight of regional activities will be managed by an IDENTIFY Focal Point. In addition, the OIE will hire short term experts when and where required.

WHO

The WHO South East Asia Regional Office (SEARO) and Western Pacific Regional Office (WPRO) will jointly take primary responsibility for management of implementation of activities under IDENTIFY although activities in individual countries will be coordinated through the respective WHO Country Offices. The Regional Offices have nominated focal points for IDENTIFY. Project officers to be based in the Regional Offices and some Country Offices will be hired. These Project Officers will be the main point of contact between WHO and national counterparts.

Partnerships at the regional/country level

Partnerships at regional level will include (but are not limited to): Food and Agriculture Organization HQ, FAO-RAP Bangkok, World Organisation for Animal Health HQ and OIE Bangkok, World Health Organization HQ and WHO SEARO New Delhi and WPRO Manila, Regional Economic Communities covering the region (ASEAN), other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC), regional networks (e.g. OFFLU, EDPLN, GFN, etc.), international and regional reference laboratories situated in SE Asia, private sector laboratories, universities, and non-governmental organizations.

Reporting

Reporting will follow the reporting requirements and deadlines as required by USAID. FAO, OIE, and WHO Headquarters will submit joint reporting documents (quarterly reports and annual planning documents), to which the contributions of all regional focal points are added. Regional focal points will use the same templates for ease of integration into the joint global FAO/OIE/WHO reports.

In addition, the OIE is obligated by the Letter of Agreement signed 19 May 2010 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project) to report to FAO on

a biannual basis. Similarly, OIE regional focal points' contributions are added and they will use the same templates for ease of integration into the joint global FAO/OIE/WHO reports.

REGIONAL PROJECT MANAGEMENT – SOUTH ASIA REGION

Describe the organizational relationship between headquarters and the regional/country-level offices

FAO

FAO project management for IDENTIFY will be coordinated from the FAO-RAP ECTAD Office in Bangkok with a focal point at the Kathmandu, Nepal ECTAD Office. The IDENTIFY regional team will work under the supervision of the FAO-RAP Regional Manager and focal point for EPT, with support from the HQ-based Operation Officers and Project Coordinator, and under the technical supervision of the SE Asia Liaison Officer. In addition, short term experts will be hired when and where required.

OIE

The OIE, as one of the implementing agencies under the IDENTIFY project, assigns part of the responsibility for project management to one of its regional representations in Asia, i.e. the Sub-Regional Representation for Southeast Asia, based in Bangkok, Thailand. Oversight of regional activities will be managed by an IDENTIFY Focal Point. In addition, the OIE will hire short term experts when and where required.

WHO

The WHO South East Asia Regional Office (SEARO) will take primary responsibility for management of implementation of activities under IDENTIFY although activities in individual countries will be coordinated through the respective WHO Country Offices. The Regional Office has nominated focal points for IDENTIFY and will hire project officers to be based in the regional office. These Project Officers will be the main point of contact between WHO and national counterparts.

Partnerships at the regional/country level

Partnerships at regional level will include (but are not limited to): Food and Agriculture Organization HQ, FAO-RAP Bangkok, and the Nepal ECTAD Office, World Organisation for Animal Health HQ and OIE Bangkok, World Health Organization HQ and WHO SEARO New Delhi, Regional Economic Communities covering the region (SAARC), other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC), regional networks (e.g. OFFLU, EDPLN, GFN, etc.), international and regional reference laboratories situated in South Asia, private sector laboratories, universities, and non-governmental organizations.

Reporting

Reporting will follow the reporting requirements and deadlines as required by USAID. FAO Headquarters will submit reporting documents (biannual reports and annual planning documents), to which the contributions of all regional focal points are added.

In addition, the OIE is obligated by the Letter of Agreement signed 19 May 2010 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project) to report to FAO on a biannual basis. Similarly, OIE regional focal points' contributions are added and they will use the same templates for ease of integration into the joint global FAO/OIE/WHO reports.

Annex 1: Estimated Allocation of Funds, Year 3

A: By Global/Regional/Country

Country/Region/Global		Total
S/SE Asia	Indonesia	85,133
	Vietnam	187,519
	Cambodia	131,961
	Lao PDR	249,693
	China	128,980
	Malaysia	101,511
	Thailand	392,330
	Philippines	63,704
	Bangladesh	66,771
	Nepal	52,434
S/SE Asia Regional		326,160
S/SE Asia Subtotal		**1,123,859**
Congo	Cameroon	216,721
	CAR	128,629
	DRC	235,131
	Eq. Guinea	74,463
	Gabon	124,629
	Rep. of Congo	139,629
	Rwanda	136,446
	Tanzania	137,915
	Uganda	201,290
	S.Sudan	2,000
Congo Regional		869,437
Congo Subtotal		**1,885,137**
Global		**1,100,532**
TOTAL		5,153,015

B. By Sub-Activity

Code	Activity	HQ	S/SEA	CONGO	TOTAL
Activity 3.1	Ongoing tripartite project management and coordination, monitoring, and planning	40,000	1,902	209,750	**251,652**
Activity 3.2	Recruitment of staff to support IDENTIFY activities	359,665	265,400	522,587	**1,147,652**
Activity 3.3	Preparation and review of global, regional, and country-level work plans and other project documents	0	960	0	**960**
Activity 3.4	Communication tool development and resource building	297,110	0	38,900	**336,010**
Activity 3.5	Annual review of the Laboratory Networking Strategy	0	0	0	**0**
Activity 3.6	Follow-up of laboratory mapping exercise activities	0	1,902	46000	**47,902**
Activity 3.7	Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories	0	0	50,000	**50,000**
Activity 3.8	Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards	40,000	105,325	24,000	**169,325**
Activity 3.9	Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards	241,213	441,510	496,250	**1,178,973**
Activity 3.10	Promote and support laboratory quality management	691,096	96,460	174,450	**962,006**
Activity 3.11	Provision of laboratory equipment and supplies in a coordinated manner	10,000	150,000	160,000	**320,000**
Activity 3.12	Support and promote laboratory networks	414,932	60,400	133,200	**608,532**
Activity 3.13	Support and promote laboratory twinning initiatives and partnerships	50,000	0	30,000	**80,000**
	Subtotal	**2,144,016**	**1,123,859**	**1,885,137**	**5,153,012**
	Project management cost FAO		Project Support Cost year 3		545,455
			Technical Support Services Year 3		301,672
				GRAND TOTAL	**6,000,139**

Annex 2: Estimation of FAO's contribution for global and regional activities

This table provides estimates of FAO's contribution to each activity/sub-activity, taking into account the bi- and tripartite work as described in the global and regional work plans. There are three categories of implementation: (1) joint implementation and coordination of activities between the three agencies (marked as X -FAO only, bi- or tripartite); (2) separate implementation and tripartite coordination of activities (marked as C); (3) separate implementation and very restricted coordination of activities serving common goals (marked as A). The figures in the last column indicate the percent of work[3] that FAO contributes in the implementation of each activity. For activities where there is FAO implementation and coordination, note that the second figure indicates the estimated percent of work dedicated to bi- or tripartite coordination. Bipartite work implying partnership with OIE or WHO has been indicated in the table.

Activity	Subactivity	FAO	Bipartite	Tripartite	FAO Contribution
Global and regional (3.1 - 3.3)					
3.1 Ongoing tripartite project management and coordination, monitoring, and planning (G,C,S)	**3.1.1** Global and regional coordination	X		A	100
	3.1.2 Ongoing communication and sharing critical project documents among project members.			X	40
3.2 Retention and recruitment of staff to support IDENTIFY activities (G, C, S)		X		A	100
3.3 Preparation and review of global, regional, and country-level work plans and other project documents (G,C,S)		X		C	85 / 15
Global (3.4 - 3.13)					
3.4.G Communication tool development and resource building	**3.4.1.G**: Development of communication tool(s) for different audiences, stakeholders and partners	X		X	60 / 40
	3.4.2.G: Resource building – Provision of documents, manuals, books and database access to scientific literature	X		A	100
	3.4.3.G: Development of a glossary of the available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses	X	X FAO/OIE		80 / 20
	3.4.4.G: Development of an assessment tool to determine the specific laboratory needs and identify the elements needed for laboratory information systems	X			100
	3.4.5.G: Validation and further developments of the EMPRES-i genetic module linking key virologic data to epidemiologic data	X			100
	3.4.6.G: Development of e-learning modules on bioinformatics (phylogeny and sequence analysis) (FAO/IAEA/laboratory partners)	X			100
	3.4.7.G: Supporting sequencing capacities and access by national laboratories to genomic sequencing services and to provision of primers and probes in both regions through FAO contract with service provider	X			100
3.5.G Annual review of the Laboratory Networking Strategy				X	33.3
3.6.G Follow-up of laboratory mapping exercise activities	**3.6.1.G:** Comparison of historic FAO, OIE and WHO disease reporting data with current data for sentinel diseases, to be determined by region (refer to GLNS in Annex 2)	X		C	80 / 20
	3.6.2.G: Identification of the most commonly occurring diseases among humans and animals (including wildlife) based on official disease notifications, country disease data review, etc.	X		C	65 / 35
	3.6.3.G: Develop a new format for annual reporting by FAO Reference Centres and new mechanism for report submission	X			100
	3.6.4.G: Support to regional ongoing desktop review of existing data on laboratory capacity and networks from existing laboratory assessments	X	C FAO/OIE		80 / 20
	3.6.5.G Identification of key regional laboratories as targets for support provided to strengthen capabilities/capacities to diagnose normative and major emerging/unknown pathogens in the region	X		C	60 / 40
3.7.G Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories	**3.7.1.G**: Coordination and development with regional counterparts of global framework for regional Stakeholders' meetings in each hot spot region			X	40
	3.7.2.G: Definition of the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases			X	50
3.8.G Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards	**3.8.1** International and regional meetings/conferences	X		C	90 / 10
	3.8.2 International and regional trainings and workshops	X		C	90 / 10
	3.8.3 National trainings and workshops	X		C	90 / 10
3.9.G Develop and conduct FAO/OIE/WHO meetings, conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines and standards	**3.9.1.G:** Organizational support for regional workshops, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."	X		C	90 / 10
	3.9.2.G: Preparation of regional pathology train-the-trainer workshops "Basics of Field and Laboratory Diagnosis" coordinated and conducted in both regions	X	X FAO/OIE		90 / 10
	3.9.3.G: Organize and conduct "Training on Classical and molecular virology" (FAO/IAEA)	X			100
	3.9.4.G: Organize and conduct two regional training courses on "Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)	X			100
	3.9.5.G: Organize and conduct a consultation on good laboratory practices for conducting multiple disease diagnosis	X		C	90 / 10
	3.9.6.G: Develop and conduct two rounds of ring tests for both Congo Basin and S/SE Asia regions based upon regional needs (e.g. RVF, PPR, AI/ND) (FAO/IAEA)	X			100
	3.9.7.G: Validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system) (FAO/IAEA)	X			100
3.10.G Promote and support laboratory quality management	**3.10.1.G**: Provision of validated standardized veterinary diagnostic reagents and development of international standards (RVF and PPR positive controls including serum bank)- (FAO/IAEA)	X			100
	3.10.2.G: Support participation of laboratories in EQA	X	C FAO/WHO		90 / 10
	3.10.3.G Installation and staff training for an open-source LIMS platform in the national animal health laboratories of one pilot country (Cameroon) – (FAO/IAEA)	X			100
	3.10.4.G Joint FAO/IAEA/OIE/WHO Global Survey on External Quality Assessment (proficiency testing) Schemes			X	15
3.11.G Provision of laboratory equipment and supplies in a coordinated manner	**3.11.1.G**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by mapping exercise and other assessments (refer to Activity 3.6)	X		A	100
3.12.G Support and promote laboratory networks	**3.12.1.G**: Strengthen linkages among existing regional and global laboratory networks within and across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities	X		C	60 / 40
	3.12.2.G: Support for strengthening the human-animal health linkage in OFFLU			X	50
	3.12.3.G: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis	X		C	60 / 40
	3.12.4.G: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks	X		C	60 / 40
	3.12.5.G Collection of sample throughput data for targeted diseases from laboratories supported by IDENTIFY as a part of project monitoring	X		C	70 / 30
	3.12.6.G: Improving the linkage between laboratory and epidemiological data (targeting influenza)	X		C	50 / 50
3.13.G Support and promote laboratory twinning initiatives and partnerships	**3.13.1.G**: Identification of Reference Laboratories/Centres and Collaborating Centres in the regions and beyond prepared to offer expertise in diseases or technical areas relevant to each region	X		C	90 / 10
	3.13.2.G: Identification of suitable candidate laboratories in the region or beyond, likely to meet requirements for twinning and possible future recognition as a Reference Laboratory for scientific disciplines or diseases relevant to each region and willing to provide services to that region			C	10
	3.13.3.G Encourage the development of laboratory twinning arrangements within regions and, where appropriate, between international reference laboratories and laboratories in hot spot regions			C	10

NOTE: X = coordination/implementation; C = coordination only; A = activity conducted by all organizations in parallel

[3] Based largely on staff time to guide the approximate resource allocation

Activity	Subactivity	FAO	Bipartite	Tripartite	FAO Contribution
Regional activities					
Congo basin (3.4 - 3.13)					
3.4.C Communication tool development and resource building	**3.4.1.C**: Development of communication tool(s) for different audiences, stakeholders and partners	X		X	50 / 50
	3.4.2.C: Resource Building - Provision of documents, manuals, books and database access to scientific literature	X		A	100
	3.4.3.C: Second phase of the study on the development of collaborations and/or partnerships between public veterinary laboratories and the animal industry	X			100
3.5.C Annual review of the Laboratory Networking Strategy				X	33.3
3.6.C Follow-up of laboratory mapping exercise activities	**3.6.1.C**: Review and compilation of national laboratories annual/biannual reports and information generated by members of the West and Central regional laboratory network (RESOLAB), Eastern Africa network (EARLN) and FAO laboratory assessments/mission reports	X		C	90/10
	3.6.2.C: Additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity	X		C	85 / 15
	3.6.3.C: Integration of the outcomes of the laboratory mapping into the Laboratory Networking Strategy	X		C	60 / 40
	3.6.4.C: Identification of key national laboratories as targets for support provided to strengthen capabilities/capacities to diagnose normative and major emerging/unknown pathogens in the region	X		C	80 / 20
3.7.C Engage with stakeholders to support the development of cross-sectoral approach(es) concerning laboratories	**3.7.1C**: Organization of annual stakeholders' event			X	40
3.8.C Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards	**3.8.1.C**: Participation of laboratory staff in international and regional meetings / conferences	X		C	90 / 10
	3.8.2.C: Invitation to international and regional trainings and workshops	X		C	90 / 10
	3.8.3.C Provision of support to national trainings and workshops related with IDENTIFY objectives	X		C	90 / 10
	3.8.4.C: Facilitation of the development of national sustainability plans in conjunction with national authorities			X	33.3
3.9.C Develop and conduct FAO conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards	**3.9.1.C**: Regional workshop, "Targeting the needs for genetic sequencing," for DRC, Rwanda, Tanzania, Uganda, Cameroon, including regional service laboratories	X			100
	3.9.2.C Regional workshop, "Diagnostic laboratory quality Assurance: Workshop on Process Control - Quality Control (Sample Management; Quality Control for Quantitative Tests; Quality Control for Qualitative Tests"	X			100
	3.9.3.C: Regional workshop for harmonization of testing and development or adaptation of standard procedures for referral decision trees between national laboratories within animal health sector	X		C	90 / 10
	3.9.4.C: Organizational support and participation to a regional training course on "Major transboundary and zoonotic animal diseases in the region: early detection, surveillance and epidemiology" (FAO/IAEA)	X			
	3.9.5.C: Coordination and conducting regional train-the-trainer pathology workshops "Basics of Field and Laboratory Diagnosis"	X	X FAO/OIE		90 / 10
	3.9.6.C: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (ie GFN, EDPLN)	X		C	50 / 50
	3.9.7.C: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"	X	X FAO/OIE		90 / 10
	3.9.8.C: FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"	X		X	80 / 20
	3.9.9.C: Promotion of laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories	X	C FAO/OIE		80 / 20
	3.9.10.C: FAO collaboration with OIE for production, printing and dissemination of case definition and recommended test repertoire for IDENTIFY listed priority diseases to help animal health personnel (both field and lab) in the identification and prompt reporting of diseases		X FAO/OIE		70
3.10.C Promote and support laboratory quality management	**3.10.1.C:** Provision to the nine beneficiary countries with validated standardized veterinary diagnostic reagents -antigens and antisera- targeting priority TADs	X			100
	3.10.2.C: Support to participation of laboratories in EQA schemes	X	C FAO/WHO		90 / 10
	3.10.3.C: Support to laboratories to develop and implement quality management systems	X	C FAO/WHO		90 / 10
	3.10.4C: Distribution and use of glossary of OIE prescribed and alternative tests for IDENTIFY-targeted diseases for participation in proficiency testing (PT)			X	40
	3.10.5.C: Development of specific technical competence to face emergent disease situations in the region	X			100
3.11.C Provision of laboratory equipment and supplies in a coordinated manner	**3.11.1.C**: Procurement and delivery of equipment and supplies in accordance with national policies and informed by the mapping exercise and other assessments	X			100
	3.11.2.C: Conduct assessment missions (Cameroon, DRC) for biosafety and biosecurity infrastructures, equipment and practices	X			100
3.12.C Support and promote laboratory networks	**3.12.1.C**: Establishing/strengthening linkages among existing regional (e.g. RESOLAB, EALRN) and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities - RESOLAB and EARLN annual coordination meetings (5-9 Dec 2011, Bamako, Mali ; June 2012, Bujumbura, Burundi)	X		C	60 / 40
	3.12.2.C: Establishing/strengthening linkages among existing regional laboratory networks and epidemiological networks across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis	X		C	60 / 40
	3.12.3.C: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks	X		C	60 / 40
	3.12.4.C: Improving the linkage between laboratory and epidemiological data	X		C	70 / 30
3.13.C Support and promote laboratory twinning initiatives and partnerships	**3.13.1.C**: Identification of Reference Laboratories/Centres and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to the region			C	10
	3.13.2.C: Encouragement for the development of laboratory twinning arrangements within regions and, where appropriate, between advanced laboratories and laboratories in hot spot regions			C	10

NOTE: X = coordination/implementation; C = coordination only; A = activity conducted by all organizations in parallel

Activity	Subactivity	FAO	Bipartite	Tripartite	FAO Contribution
South/South East Asia (3.4 - 3.13)					
3.4.S Communication tool development and resource building	**3.4.1.S**: Support use of regional communication tool(s) for information and data sharing	X	X FAO/OIE		50 / 50
	3.4.2.S: Resource Building - Provision of documents, manuals, books and database access to scientific literature	X		A	100
3.5.S Annual review of the Laboratory Networking Strategy				X	33.3
3.6.S Follow-up of laboratory mapping exercise activities	**3.6.1.S**: Ongoing desktop review of existing data on laboratory capacity and networks from existing laboratory assessments	X		C	90 / 10
	3.6.2.S: Additional targeted data collection, including laboratory visits and/or follow-up assessments if necessary, to fill in gaps in knowledge on laboratory capacity	X		C	85 / 15
	3.6.3.S: Integration of the outcomes of the laboratory mapping into the Laboratory Networking Strategy	X		C	60 / 40
	3.6.4.S: Identification of key national laboratories as targets for support provided to strengthen capabilities/capacities to diagnose normative and major emerging/unknown pathogens in the region	X		C	80 / 20
3.7.S Engage with stakeholders to support the development of cross-sectoral approach (es) concerning laboratories	**3.7.1S**: Organization of a meeting of regional and national stakeholders (primarily the directors of national public health and veterinary laboratories and representatives from the MoH and MoA. This meeting is scheduled for October 2011, to take place in Kuala Lumpur, Malaysia			X	40
	3.7.2.S: Definition of the four-way linking framework for assessing health risks at the human-animal interface, to be applicable to various countries and to various diseases			X	50
3.8.S Support to and participation in conferences, trainings or workshops related to laboratory capacity building, and national laboratory policies, guidelines, and standards	**3.8.1.S**: Participation of laboratory staff in international and regional meetings / conferences in line with IDENTIFY's goals scheduled throughout Year 3	X		C	90 / 10
	3.8.2.S: Invitation to joint international and regional trainings and workshops	X		C	90 / 10
	3.8.3.S Provision of support to national trainings and workshops related with IDENTIFY objectives	X		C	90 / 10
3.9.S Develop and conduct conferences, trainings or workshops to build laboratory capacity and to promote national laboratory policies, guidelines, and standards	**3.9.1.S**: Develop and conduct workshop, "Laboratory Information Systems (LIMS): Open-Source Platforms and Tools to Aid in Needs Assessment."	X		C	90 / 10
	3.9.2.S: Advanced biorisk management training for laboratories with BSL2+ and BSL3 facilities	X			100
	3.9.3.S: Strengthen capabilities /capacities through workshops and conferences to support diagnosis of pathogens significant to the region and for emerging and unknown pathogens	X		C	90 / 10
	3.9.4.S: Coordination and conducting regional train-the-trainer pathology workshop "Basics of Field and Laboratory Diagnosis"	X	X FAO/OIE		90 / 10
	3.9.5.S: FAO collaboration with OIE and WHO in the organization of joint conferences, trainings and workshops trainings (ie GFN, EDPLN)	X		C	50 / 50
	3.9.6.S: FAO collaboration with OIE on "Development or adaptation of standard procedures and/or mechanisms to refer specimens or strains between national laboratories within animal health sector"	X	X FAO/OIE		90 / 10
	3.9.7.S: FAO collaboration with OIE and WHO on: "Adaptation of animal and public health laboratory (individual and country-level) assessment tools for monitoring and evaluation"	X		X	80 / 20
	3.9.8.S: Laboratory management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories	X	C FAO/OIE		80 / 20
	3.9.10.S: Support the development and adoption of national laboratory strategies covering both public health and veterinary laboratories, on subject areas such as regulation, laboratory quality, biosafety, accreditation, etc.	X		X	60 / 40
	3.9.11S: Planning and Support of Regional Laboratory Technical Advisory Group Meeting		X FAO/OIE		60 / 40
3.10.S Promote and support laboratory quality management	**3.10.1.S**: Support for production of reference reagents under a quality assurance system for sustainable and standardized veterinary diagnostic reagents	X			100
	3.10.2.S: Support to participation of laboratories in EQA schemes	X	C FAO/WHO		90 / 10
	3.10.3.S: Support laboratories to develop and implement quality management systems	X		X	60 / 40
	3.10.4.S: Assessment and consultation for upgrading LIMS in selected and key laboratories	X			100
3.11.S Provision of laboratory equipment and supplies in a coordinated manner		X			100
3.12.S Support and promote laboratory networks	**3.12.1.S**: Establishing/strengthening linkages among existing regional and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities	X		C	60 / 40
	3.12.2.S: Support for strengthening the human-animal health linkage for OFFLU			X	50
	3.12.3.S: Strengthen linkages among existing regional laboratory networks and between laboratory and epidemiological networks and across human and animal health, including implementation of regional guiding principles for surveillance and diagnosis	X		C	60 / 40
	3.12.4.S: Strengthen collaboration and communication platforms and pathways in order to encourage the sharing of samples, data, reports, etc. within regional and global networks	X		C	60 / 40
	3.12.5.S: Improving the linkage between laboratory and epidemiological data (targeting influenza)	X		C	70 / 30
3.13.S Support and promote laboratory twinning initiatives and partnerships	**3.13.1.S**: Identification of Reference Laboratories and Collaborating Centres in the region and beyond prepared to offer expertise in diseases or technical areas relevant to each region			C	10
	3.13.2.S Encourage the development of laboratory twinning arrangements within regions and, where appropriate, between international reference laboratories and laboratories in hot spot regions			C	10

NOTE: X = coordination/implementation; C = coordination only; A = activity conducted by all organizations in parallel

Annex 3: Global Laboratory Networking Strategy

For IDENTIFY, the 3 organizations have drafted the Global Laboratory Networking Strategy - June 2011 update. This internal document indicates deliverables and outcomes.

Steps to support enhanced laboratory capacity and networking

A. Identification of priority diseases and laboratories

1. Identification of targeted normative diseases and emerging pathogens *[Note: steps A.1 and A.2 conducted concurrently]*
    a. For each hot spot region, IDENTIFY project partners will compile a list of targeted diseases among humans and animals (including wildlife) in each region for which improved rapid and accurate diagnosis is needed within the framework of national and regional priorities. This list is based on official disease notifications, country disease data review, regional existing disease lists and priorities, literature review, input from national and regional stakeholders, previous regional occurrence, predictive modeling, and other relevant sources.
    b. Once the list of targeted diseases is finalized following the stakeholders awareness meetings, IDENTIFY project partners will catalog recommended and updated testing methods, identify associated pathogens or syndromes, and identify diseases which use similar testing technology, in order to better coordinate and increase impact of project activities, specifically laboratory-based training on testing methods.

2. Identification of laboratories and networks in or providing services to the hot spot regions and countries *[Note: continuous and evolving approach for Congo Basin and SE Asia regions]*
    a. Within each of the hot spot regions, laboratory capacity of national animal and public health laboratories will be assessed using standard criteria.
        1. Results of assessments previously conducted by the three IDENTIFY partners will be summarized and will act as the basis for additional data collection. This step could include incorporating available assessments conducted by other EPT partners.
        2. Additional targeted data collection on capacity will be conducted if necessary (by self-assessment and questionnaire) by IDENTIFY partners to fill in gaps in knowledge on laboratory capacity.
    b. This information plus additional information from other EPT projects on geographic areas with the highest risk of pathogen emergence and spread, and in consultation with local stakeholders such as Ministries of Health and Agriculture, will also be considered in better targeting national

laboratories for support, within the framework of national and regional priorities.

c. National laboratories (human and animal) will be the lowest level of engagement within a country for IDENTIFY. Exceptions will be made in cases where another laboratory has been specified by national authorities, or where this relationship could be defined and/or strengthened, and could provide the capacity to fill in gaps at national or regional levels.

d. Continuous support to regional networking will enable information and experience sharing between countries, development of trust, regional decisions on laboratory strengthening

e. International and regional reference laboratories serving the hot spot regions, most of which are affiliated with the IDENTIFY partners' existing networks, will be incorporated to provide technical support to national laboratories in accordance with existing Terms of References or mandates if appropriate. These laboratories, along with high-capability national laboratories, can also support quality control/assurance for other national laboratories in the hot spot regions.

f. The IDENTIFY partners will support development or adaptation of standard procedures and mechanisms, and reinforcement of linkages and communication to refer specimens (or strains) between the above-mentioned laboratories. This could include decision trees and algorithms for referring specimens associated with human or animal outbreaks for which all tests for known pathogens are negative to high capability laboratories and the referral of unusual or unidentified pathogens to reference laboratories.

*Deliverables and outcomes **A***:

1. A list of the national laboratories to be strengthened by the IDENTIFY project for each of the hot spot regions. [*Note: the process will start with the Congo and Southeast Asia regions in 2010 and expand to the South Asia region in 2011. **NB**: Following a request from USAID, activities in the South Asia are currently on hold*]
    - Where possible, information could be provided on human and animal laboratories that hold key positions across existing networks, by disease specialty/focus (if any) and roles/responsibilities as defined by their respective networks.
2. A list of targeted animal and human diseases for which the project will strengthen the national laboratories' ability to provide accurate and timely diagnosis within the framework of national priorities.

Note: A.1 and A.2 are developed from regional stakeholders' inputs, and therefore reflect their endorsement.

*Monitoring and evaluation indicator **A**:*

1. Cumulative number of hot spot regions for which IDENTIFY, with the agreement of relevant national authorities, has defined the laboratories and list of diseases targeted [2009 baseline = 0; end of CY2010 target = 2; end of CY2011 target = 3]. ***NB**: Following a request from USAID, activities in the South Asia are currently on hold.*

B. <u>Strengthening of national laboratories in regional networks</u>

1. For the laboratories identified (step A.2.b above), more detailed assessments may be conducted to fill information gaps and to identify specific needs (step A.1.a above) - which could include training, supplies for shipping, equipment, reagents, etc. - that are needed to ensure that overall laboratory functioning, accuracy, and timeliness is improved according to the national laboratory's priorities with the ultimate goal of improving disease reporting to the proper national authorities.
2. Within the framework of national priorities and following laboratory assessments (see B.1), partners will provide strengthening support, such as training, protocols and documentation, quality assurance systems, proficiency testing, networking opportunities, equipment, reagents, supplies, etc. for national laboratories.
    a. Development/adaptation and provision of protocols and/or in-service training for laboratory staff related to testing, sample handling, laboratory biosafety, reporting, quality control, sample shipping, etc. Follow-up training may be required at certain intervals.
    b. Procurement and delivery of equipment, reagents, supplies, etc. For sustainability reasons, it would be ideal for national authorities to include equipment and commodities costs in their budgets or to phase in coverage of the costs so the country is fully supporting recurrent costs for commodities and maintenance of equipment. At the stakeholders meetings, participants expressed their desire to develop a strategy for ensuring sustainability (see B.4 below).

    Note: These steps will be coordinated with national, regional, and global partners to ensure that this support is not already being provided by others.
3. In collaboration with national authorities, the development of a sustainability plan by country will be facilitated to assist the identification of sources of funding, including reinforced budget lines for national laboratories, to ensure optimal use of resources.

*<u>Deliverables and outcomes **B**</u>:*

1. Assistance provided for the development of cross-sectoral laboratory strengthening plans in each hot spot region based upon country and regional priorities.
2. Laboratory twinning projects between regional and international reference laboratories and national laboratories proposed to address gaps in diagnostic capacity and to achieve national priorities.

3. Support provided for the development of sustainability plans for targeted national laboratories. At the stakeholders meetings, participants expressed desire to develop a strategy for ensuring sustainability (see B.4 above).
4. A list of conducted and planned activities intended to strengthen national and regional laboratories by hot spot region (to be provided within the framework of the semi-annual report).
5. Summary report on laboratory strengthening achievements by hot spot region based upon monitoring and evaluation process (to be provided within the framework of the semi-annual report).

*Monitoring and evaluation indicators **B***:

1. Evaluation of countries by region where targeted national laboratories, have received capacity building. Each measurement is by category and country and adjusted by the year in which the region entered the project. [baseline and targets: TBD]

   1.1 Protocols for laboratory practices and targeted diseases

   1.2 Training for targeted disease diagnosis

   1.3 Training on laboratory practices (e.g., biosecurity, equipment calibration, etc.)

   1.4 Focused capacity building (e.g., twinning, quality assurance programme)

   1.5 Laboratory procurement (e.g., equipment, reagents, etc.)

   Non-expendable:

   - Biosafety/Biosecurity equipment/service
   - Quality Assurance equipment
   - Diagnostic, pathology, or other related equipment
   - Other (documents, manuals, books, database access)

   Expendable:

   - Reagent supply
   - Shipment supply

2. Number of participants to global/regional conferences, trainings or workshops organized on laboratory activities
3. Indicator for timeliness of diagnosis:
   a. Comparison of historic OIE, FAO and WHO disease reporting data with current data for sentinel diseases, to be determined by region. [baseline and targets: TBD]
   b. Where possible, for two proxy diseases (1 viral, 1 bacterial), participating countries will be asked for timeliness data, which could include comparing date of sample submission to date of results. [baseline and targets: TBD]
4. Cumulative amount of laboratory supplies procured by region [targets TBD following assessments]:

Non-expendable:

- Biosafety/Biosecurity equipment/service
- Quality Assurance equipment
- Diagnostic, pathology, or other related equipment
- Other (documents, manuals, books, database access)

Expendable:

- Reagent supply
- Shipment supply

5. Sample throughput data for 2 proxy targeted diseases (1 viral, 1 bacterial) from countries supported by the IDENTIFY project. [baseline and targets: TBD]
6. Number of outbreak investigations during which laboratory people have been involved by country/region. [2009 baseline = TBD; end of project target = 100%]
7. Number of scientific publications as a result of collaborative work

C. Establishing/strengthening linkages among existing regional and global laboratory networks across human and animal health (e.g. OFFLU, GFN, EDPLN) and with relevant disease control authorities.

1. Within each hot spot region, the mapping exercise will include the inventory of activities of existing geographical/specialized laboratory networks that already contribute to meeting IDENTIFY's goals.
2. Discussions with the key global specialized networks (e.g. OFFLU, GFN, EDPLN) will occur for the strengthening of linkages and increased collaboration between national laboratories and regional networks.
3. IDENTIFY will advocate for new and enhanced linkages between laboratory networks and epidemiological networks both within the animal and human health sectors, and across sectors.
4. For the laboratories in each hot spot region, collaborations and communication pathways will be strengthened in order to share samples, data, reports, etc. with disease control authorities. Development of mutual trust and interest within regional networks will be promoted.

*Deliverables and outcomes **C**:*

1. Facilitation of access to regional collaboration/communication platforms (e.g. membership to specific networks, online platforms) for each hot spot region [*Note: the process will start with the Congo and Southeast Asia regions in 2010 and expand to the South Asia region in 2011. **NB**: Following a request from USAID, activities in the South Asia are currently on hold.*]
2. A list of conducted and planned activities including collaboration/ communication pathways (to be provided within the framework of the semi-annual report).

3. Assistance provided to develop or strengthen networking pathways and tools within each hot spot region and with global specialized networks (e.g. OFFLU, GFN, EDPLN).

*Monitoring and evaluation indicators **C***:

1. Proportion of laboratories by region and sector (e.g. animal vs public health) that have received communications and networking support, adjusted by the year in which the region entered the project. [2009 baseline = TBD following assessments; end of CY2010 target =10%; end of CY2011 target = 40%; end of CY2012 target = 70%; end of CY2013 target = 80%; end of CY2014 target = 100%]
2. User statistics and distribution lists demonstrating country participation for existing regional platforms by region and sector [baseline and targets: TBD].
3. Proportion of laboratories by region that maintain or have established new focal points for international/global networks by region and sector. [baseline and targets: TBD by assessments]
4. Number and type of specimens/strains for proxy targeted diseases from each hot spot submitted to FAO, OIE, and WHO affiliated referral laboratories by year. [baseline and targets: TBD]

Annex 4: USAID EPT/IDENTIFY Project Position on Providing Laboratory Equipment and Supplies _(Version of Aug 31)

The IDENTIFY project seeks to strengthen national laboratory capacity for rapid and accurate detection of known key pathogens and appropriate handling of material from cases of disease with no identified cause. FAO/OIE/WHO are jointly implementing the IDENTIFY project through their existing institutional frameworks, mechanisms and networks. These project efforts by IDENTIFY are often implemented alongside a variety of host governments', donors' and international organizations' laboratory capacity building efforts and investments, and coordinating and rationalizing IDENTIFY's efforts among these other efforts needs to be done in a transparent manner.

The IDENTIFY project aims to provide sustainable inputs into: 1) the development of guidance and policy for national laboratories; 2) promoting laboratory quality (e.g. biosafety/biosecurity, quality assurance, accurate diagnosis, and specimen collection, handling and shipping); 3) strengthening laboratory capacity in support of surveillance and response; and 4) enhanced laboratory networking.

Given the EPT program's focused mission and limited funds, the IDENTIFY project doesn't intend to routinely provide or pay for partner laboratories' recurring material costs. On a case-by-case basis, where the absence of particular pieces of laboratory equipment or reagents are seriously limiting the laboratory's ability to perform normative disease testing, or where specific laboratory investments may improve a laboratory's ability to serve as a national and/or regional resource for normative disease testing, and where there is reasonable expectation that the government involved will sustain the efforts of the laboratory(ies) in question, then in these instances IDENTIFY will consider financing these needs, and then only in full cooperation with the relevant national authorities and in consultation with other EPT Partners.

While all three organizations recognize the need to engage regional parties in order to ensure sustainability and continued collaboration within and between the animal and public health sectors, the three organizations operate under separate mandates and the approach to achieving their goals sometimes differs. For example, provision of laboratory equipment and consumables in support of points 2 and 3 above is considered by all three organizations based upon need and in line with the national authority, with the following distinctions:

- For FAO, a regional approach is followed where a programmatic strategy exists in order to provide consumables such as reference reagents to countries equally, and national inputs are coordinated where need is identified and in agreement with the Ministry of Agriculture.

- While the OIE may provide laboratory equipment and supplies on a limited basis within the context of the OIE Twinning Programme, the OIE is not planning wide-spread procurement of equipment or supplies under the IDENTIFY Project.

- For WHO, both a regional and national approach is followed under existing regional platforms such as the Asia Pacific Strategy for Emerging Diseases (APSED), the Asia Pacific Strategy for Strengthening Health Laboratory Services and the Integrated Disease Surveillance and Response (IDSR) Strategy. Unlike FAO and OIE, WHO allocates funds under IDENTIFY directly to some of its Country Offices. These funds may be used to procure equipment and laboratory supplies following the agreement of the Ministry of Health of those countries.

Practically, should a USAID Mission or EPT partner in a given country wish to inquire about current or planned support for laboratory equipment or supplies through the IDENTIFY project, if the IDENTIFY Project has local representatives from WHO and FAO in that country/region, they may approach those people to convey their request or suggestion. For inquiries regarding public health laboratories, the WHO representative may be contacted. Inquiries pertaining to support for animal health laboratories should be addressed to the FAO representative. Alternatively, if local or regional representatives are not available, USAID Mission and EPT partners may convey have queries to IDENTIFY's headquarters' representatives, or to the USAID Washington AOTR. Requests or suggestions for provision of laboratory equipment can be best considered by the IDENTIFY Project if they are submitted early, when upcoming yearly work plans are being developed.

When the IDENTIFY Project has queries related to planned support for laboratory equipment or supplies coming from USAID Missions or EPT partners, these will be directed to the USAID/Washington AOTR, or the EPT Partner headquarters counterparts, who will attempt to collect and share any details on such provisions that would be of help to IDENTIFY, and its own laboratory strengthening efforts.

Should there be an extraordinary need, for example a disease outbreak that has exhausted local supplies, a country may request additional support from the IDENTIFY Project for their laboratory services. FAO, OIE and WHO, as IDENTIFY partners and also in keeping with their respective organizations' mandates, will attempt to meet such requests. The three organizations would coordinate their response with the other EPT partners under the leadership of the relevant national authorities as appropriate.

USAID
FROM THE AMERICAN PEOPLE

IDENTIFY | FAO

GLOBAL/REGIONAL/COUNTRY LEVEL IMPLEMENTATION PLAN

PERIOD 1ST OCTOBER 2012 – 30 SEPTEMBER 2013

(12 MONTHS)

TO BE SUBMITTED TO:

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

UNDER COOPERATIVE AGREEMENT

SUBMITTED BY

IDENTIFY PROJECT PARTNER: FAO

ACRONYMS AND ABBREVIATIONS

AAHL	Australian Animal Health Laboratory
ASEAN	Association of Southeast Asian Nations
ASF	African Swine Fever
AU-IBAR	African Union-Interafrican Bureau for Animal Resources, Kenya
BSL	Biosafety Level
CBPP	Contagious Bovine Pleuropneumonia
CDC	Centre for Disease Control and prevention
CEBEVIRHA	Economic Commission on Cattle Meat and Fish Resources, Chad
CODA-CERVA VAR	Veterinary and Agrochemical Research centre, Belgium
CIRAD	Centre International de Recherche Agronomique pour le Développement
CTTBD	Centre for Ticks and Tick-borne Diseases
CVO	Chief Veterinary Officer
EARLN	Eastern Africa Region Laboratory Network
EDPLN	WHO Emerging and Dangerous Pathogens Laboratory Network
EIDs	Emerging Infectious Diseases
EMPRES-i	FAO Global Animal Disease Information System
EPT	Emerging Pandemic Threats
EQA	External Quality Assessment
FAO	Food and Agriculture Organization of the United Nations, Italy
FAO-ECTAD	FAO Emergency Center for Transboundary animal diseases
FAO-RAP	Food and Agriculture Organization of the United Nations Regional Office for Asia Pacific, Thailand
FETPV	Field Epidemiology Training Program for Veterinarians
FMD	Foot and Mouth Disease
FRET	Fluorescence Resonance Energy Transfer
GFN	WHO Global Foodborne Infections Network
GF-TADs	Global Framework for the programmatic control of Transboundary Animal Diseases
HPAI	Highly Pathogenic Avian Influenza
HPED	Regional Cooperation Programme on Highly Pathogenic Emerging and Re-emerging Diseases in Asia
IAEA	International Atomic Energy Agency, Austria
FAO/IAEA	FAO/AIEA Joint Division for Nuclear Techniques in Food and Agriculture, Austria
IATA	International Air Transport Association
IHR	International Health Regulations
ILRI	International Livestock Research Institute, Kenya
IZSVe	Istituto Zooprofilattico Sperimentale delle Venezie, Italy
LIMS	Laboratory Information Management Systems
MoA	Ministry of Agriculture
OFFLU	Joint OIE/FAO Network of Expertise for Animal Influenza
OIE	World Organisation for Animal Health, France
OIE-PVS	World Organisation for Animal Health Performance of Veterinary Services
PCR	Polymerase Chain Reaction
PANVAC	Pan African Veterinary Vaccine Centre, Ethiopia
PPR	Peste des Petits Ruminants
PHEICs	Public Health Emergencies of International Concern
QA	Quality Assurance
RAHO	Regional Animal Health Office
RESOLAB	West and Central Africa Veterinary Laboratory Network for Avian Influenza and other Transboundary Diseases
RVF	Rift Valley Fever
SAARC	South Asian Association for Regional Cooperation, Nepal
SIB	Swiss Institute of Bioinformatics
SOP	Standard Operating Procedures

TADs	Transboundary Animal Diseases
USAID	U.S. Agency for International Development
WHO	World Health Organization, Switzerland
WHO AFRO	World Health Organization Regional Office for Africa
WHO SEARO	World Health Organization South East Asia Regional Office
WHO WPRO	World Health Organization Western Pacific Regional Office, Philippines

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1. INTRODUCTION

IDENTIFY | EPT

Early detection of zoonotic pathogens emerging in wild and domestic animal populations before they become a threat to human health is a priority for the public health and animal health sectors. An effective and credible laboratory service is an essential component of any early detection system and is needed by countries to fulfill their reporting obligations to OIE on listed animal diseases and unusual epidemiological events or emerging diseases, and for investigating events of potential international public health concern and reporting to WHO as required by the International Health Regulations (IHR). Recognizing the unique role played by FAO, OIE and WHO in promoting human and animal health at the global level, the United States Agency for International Development (USAID) invited the three organizations to jointly implement the IDENTIFY project, a component of their Emerging Pandemic Threats (EPT) Program. The IDENTIFY project seeks to strengthen national laboratory capacity for rapid and accurate detection of targeted diseases in regions defined by USAID as those where the risk of emerging human and/or animal diseases is highest. These regions have been identified as: the **Congo Basin** in central Africa and countries in **South and South East Asia**. The other components of the EPT program address detecting novel pathogens in wildlife (PREDICT); strengthening outbreak response capacity (RESPOND); and developing behaviour modification strategies to reduce the risk of disease transmission between animals and people (PREVENT). IDENTIFY activities have necessary connections and interactions with the activities of several of the other components of the EPT programme.

TRIPARTITE WORK

FAO/OIE/WHO are implementing the IDENTIFY project through their existing institutional frameworks, mechanisms and networks.

IDENTIFY Project objectives are:

Objective 1: Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

Objective 2: Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

Objective 3: Laboratories have adopted or improved Quality Assurance (QA) practices, including of biosafety and biosecurity measures, and a comprehensive Quality Management System

Objective 4: Laboratories are participating in the relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities

The strengthening of laboratory networks within and across sectors along with meaningful investments in regional and national capacity building should result in more accurate and timely identification of pathogens threatening animal and human health.

****

FAO, OIE and WHO have a long-standing commitment to build capacity to prepare for and respond to disease threats at the country level. To assist these efforts, a range of platforms have been developed. Some are collaborative and operate globally such as the 4-way linking project, which seeks to better coordinate data from public health and veterinary sectors together with virologic and epidemiological data, and WHO-OFFLU collaborations. Others have been developed by individual organizations to cover a specific geographic region or topic such as the Asia Pacific Strategy for Emerging Diseases (APSED) and the Integrated Disease Surveillance and Response Strategy (IDSR), the Regional Veterinary Laboratory Networks, and the OIE PVS Pathway. The capacity building objectives of these platforms are fully compatible with those of the EPT program in general and the IDENTIFY project more specifically, and it was the expressed desire of USAID to build upon the existing platforms of the three organizations to expand the impact of the EPT funded activities. From the perspective of the three organizations it is logical to present a single coherent approach to capacity building to countries and as such, IDENTIFY activities would frequently be conducted as part of these existing platforms. One aim of this approach is to show the countries that the three organizations, USAID and other partners are working in a coordinated manner to achieve the best outcomes at the country level. Effective communication between all partners is important to deliver this coordinated support, and USAID support for these activities will be acknowledged in all cases.

FAO | IDENTIFY

In years 1-3, FAO|IDENTIFY has taken stock of strengths and weaknesses in targeted laboratories and networks, and implemented activities which improve the ability to detect diseases of concern in a safe, reliable, and accurate manner at the national and regional levels. Previous activities focused on provision of needed supplies and equipment for the targeted laboratories and strengthening staff capability in core thematic areas such as pathology, biosafety/biosecurity, quality assurance, necropsy and sampling. These activities have contributed to strengthening of laboratory capacities and addressed specific gaps to the extent possible. Complementary efforts have also been made to strengthen linkages among laboratories in the region through networking activities. Additionally, a monitoring and evaluation system, responsive to progressive achievements and lessons learned during the project, was developed based on the project logical framework and in line with USAID IDENTIFY Objectives. This system guides systematic data collection, analysis, reporting (as with the April 2012 data call report).

The current work plan is the result of a consultative process unique to each of the regions. In the Congo Basin region, consultations were carried out at regional level through IDENTIFY stakeholders meetings conducted in mid-Year 3, and at the laboratory level through use of a questionnaire developed from the laboratory mapping results to further define needs and compile specific requests. For the S/SEA region, country-level EPT planning meetings were held in several countries, facilitated by the USAID regional hub. Additionally, the S/SEA region now has a cohesive strategic framework for laboratory capacity building and networking, which is in

the process of endorsement by ASEAN, and also has a technical advisory group which helps to guide activities in the region.

Activities have therefore been tailored to match the priorities identified through the different consultative processes. Overall for Year 4, efforts in regional and/or national capacity building (training in quality assurance, equipment maintenance and calibration, biosafety and disease diagnosis) will be maintained as well as regional networking activities (regional trainings, proficiency testing, annual meetings, support to regional support or leading laboratories). Technical and institutional collaborations with veterinary and field services, including One Health activities and seminar, will be supported. Comparatively more resources will be focused on country specific and country-led activities including support to national laboratory networks, while less will be allocated to provision of equipment and supplies. Greater emphasis will be placed on laboratory management and policy.

2. REVIEW OF PROJECT OBJECTIVES

Impact and outcome

The project's impact (long-term, higher order objective) is to contribute to *minimizing the risk for the emergence and spread of new pandemic disease threats*. In order to contribute to that, the project will specifically aim at *strengthening animal health laboratory networks and diagnostic capacities in geographic "hot spots."*

Outputs and activities

In order to achieve the outcome (short and medium-term positive effects of the project), the project activities will be geared toward two outputs (project results):

1. Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced
2. Output 2: Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens strengthened.

The USAID IDENTIFY Objectives and the activity categories planned for each are summarized in Table 2.1 below.

TABLE 2.1 SUMMARY OF THE FAO|IDENTIFY OUTPUTS, USAID IDENTIFY OBJECTIVES, AND THE ACTIVITY CATEGORIES

OUTPUTS	USAID IDENTIFY Objectives	Activity Catetories
Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced	**1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases**	**A** Mapping national and regional laboratory resources for animal health
		B Provide laboratory equipment and supplies in a coordinated manner
		C Strengthening the linkage between the field and laboratory
		D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management
		E Strengthening regional resources for selected animal diseases
		F Targeted support for strengthening diagnostic capacity and laboratory management
	2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities	**G** Support timely diagnosis and reporting for priority animal health diseases, including support of laboratory policy to ensure flow of samples and sharing of information
	3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System	**H** External quality assurance management (EQA) for diagnosis of targeted diseases
		I Develop and conduct trainings or workshops to promote laboratory quality management
		J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity
		K Targeted support for laboratory quality management systems, including biosafety
Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic pathogens	**4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities**	**L** Regional laboratory network support and coordination for animal health
		M Enhancing the role of Regional Leading Laboratories for animal health
		N Supporting National laboratory networks for animal health
		O One Health initiatives: strengthening linkages between veterinary and public health
		P Support to and participation in scientific conferences, trainings or workshops

TABLE 2.2 SUMMARY OF THE FAO|IDENTIFY OUTPUTS, USAID IDENTIFY OBJECTIVES, AND INDICATORS

OUTPUTS	USAID IDENTIFY Objectives	FAO IDENTIFY Indicators
1. Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced	1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	Ability of each lab to diagnose noted priority diseases (NPDs)
		Number of WORKSHOP/TRAINING/TECHNICAL CONFERENCES conducted
		Number of staff trained by topic, professional category and type of WORKSHOP/TRAINING/TECHNICAL CONFERENCES
		Value of equipment/supplies provided to support laboratories
		Percentage of lab requested equipment/supplies provided by FAO/IDENTIFY
	2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations	Reporting of proxy disease (e.g. AI in endemic countries) Note: data compiled for proxy disease
	3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System	Ability of each laboratory to implement critical elements of a laboratory quality management system by NPD
		Ability of each lab to safely handle X of XX NPDs in a biosecure environment
2. Linkages and communication pathways across national, regional and global laboratory and epidemiologic networks for the management of emerging zoonotic	4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	Number of meetings & conferences held for LABORATORY NETWORKING
		Number of participants to meetings and conferences for LABORATORY NETWORKING
		Level of laboratory engagement in regional and international networks (low, medium, high)
		Level of information sharing (low, medium, high)
		Level of communication with other laboratories (low, medium, high)

3. NARRATIVE DESCRIPTION OF ACTIVITIES BY LINE OF WORK

In concordance with USAID, all IDENTIFY activities are included as part of Line of Work #3: *Outbreak Response Capacity Building*. FAO | IDENTIFY activity categories (**A-P**) as listed in **Table 2.1** on page 7 are further described below in the **a-j** format as below, referenced to each USAID objective.

a. **DESCRIPTION**: Brief Description of Activity: A very succinct description of proposed activity.
b. **MEETS OBJECTIVES:** State how activity concretely contributes to stated mission of project (i.e. "...linking together a global cooperative network that is fully capable of rapidly diagnosing and reporting to OIE/WHO on animal/human epidemiological events, emerging diseases and PHEICs").
c. **STAFF:** Specify how the described Activity will be staffed...what parts of your organization will be directly responsible for implementing the activity.
d. **FUNDING**: State whether Activity is an addition/expansion of one of your organization's existing programs/initiatives, or whether it is an activity that is unique to IDENTIFY effort. If it's the former, then name the specific program that these USAID-IDENTIFY funds are contributing to, and how they are distinguished from activities funded by other donors' funds.
e. **PREVIOUS WORK:** State whether this activity builds on any work done by IDENTIFY in prior year. If yes, note what work that was.
f. **CONTACT:** State who are the points of contact for this Activity, those who are able to speak for it to others in the region or country. (USAID will be sharing these names with our field personnel, so they can help facilitate in-region and in-country program efforts).
g. **TIMING:** Provide estimated Start Date and Stop Date(s) of Activity.
h. **COMPLETION:** State how "completion" or "accomplishment" of this Activity will be determined or defined.
i. **LABS:** Name the specific labs which will be engaged in the conducting of this Activity. If lab's/labs' names are not presently known, then note "to be determined" (TBD), but for every TBD - state how and when you will determine which labs will participate/benefit from the activity.
j. **PARTNERS**: Name, specifically, any other organizations that will be partners or participants in this activity. State whether there is explicit intention to partner/collaborate with any of the other EPT partners.

The numbering of the activity categories below defines which region: letter code (G [Global], C [Congo Basin], or S [South/Southeast Asia]); which USAID IDENTIFY Objective (correlating to USAID Objective 1-4); and activity category (A-P as listed in Table 2.1) as follows:

- **G1.A** = Global, USAID Objective 1, activity category A

3.1 ACTIVITY SCHEDULE HQ

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

G1.A. Mapping national and regional laboratory resources for animal health

a. Update of the FAO Laboratory Mapping Tool (LMT) and ongoing analysis of laboratory assessment data from the FAO Laboratory Mapping Tool, including development and use of specific modules of the LMT, of FAO and partner laboratory expert assessments/mission/backstopping reports, and of outcomes from regional proficiency testing programmes for integration of new data into database and analysis for monitoring and evaluation of progress.
b. Analysis of laboratory assessment contributes to baseline evaluations and progress of laboratory capacity and disease detection. These activities contribute to enhancing diagnostic capacity through the identification of national and regional resources and

gaps which guide ongoing capacity building, strengthen national and regional laboratory networks, and improve disease control efforts

c. FAO HQ to provide technical expertise, coordination, and operational support; inputs from FAO regional offices
d. IDENTIFY is the major funding for this activity
e. Building on previous work funded by IDENTIFY, progress includes an updated LMT and compilation and analysis of results to establish baseline
f. Gwenaelle Dauphin , FAO HQ
g. **TIMING**: Ongoing OCT 2012 – SEPT 2013

Activity	*Timing*
1. Global compilation of updated regional data on laboratory capacity and networks	OCT 2012 – SEPT 2013
2. Development of additional modules for the LMT	OCT 2012 – SEPT 2013
3. Contribute to the Monitoring and Evaluation (M&E) effort	OCT 2012 – SEPT 2013

h. Available laboratory assessment data are analyzed and integrated for monitoring and evaluation of IDENTIFY-supported laboratories; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2
i. Global activity, link with all IDENTIFY-supported animal health laboratories and Regional leading/support laboratories
j. M&E experts, Laboratory experts, OIE, WHO

G1.B. Provide laboratory equipment and supplies in a coordinated manner

a. Assistance to the regional provision of laboratory equipment, supplies, and reference materials based on the identified needs in accordance with national priorities
b. This effort directly impacts the laboratories' ability to safely conduct diagnostic activities, and strengthen laboratory support for national and regional surveillance efforts
c. FAO HQ to provide technical expertise, coordination, and operational support; inputs from FAO regional offices
d. IDENTIFY is the major funding source for this activity; correspondence and published materials will be branded appropriately using partner logos where other funding is included
e. Coordinated based upon identified needs from country requests, the LMT, and biosafety assessments
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**: OCT 2012-SEPT 2013 as requests confirmed and processed
h. Laboratory equipment/supplies are present and operational in recipient laboratories; FAO|IDENTIFY Indicators: 1.3-1.4
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to Lists in 5.1 and 6.1 for Asia and Africa respectively); to include other supported laboratories in line with government request
j. To coordinate with other procuring partners such as PREDICT and DELIVER

G1.C. Strengthening the linkage between the field and laboratory

a. Support the regional organization of trainings or workshops, including providing tools such as the EMPRES-i laboratory directory, and training in investigation methods to strengthen the linkage between the field and laboratory staff.
b. These activities contribute to improving the quality of information and samples received from the field and strengthening the 2-way communication between the laboratory and the field
c. FAO HQ to provide technical expertise, coordination, and operational support; with inputs from FAO regional offices and expertise of EMPRES epidemiologists
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos where other funding is included

e. There will be new activities included in the overall support provided to the Regional Laboratory Networks, which specifically build upon previous training: *Basics of field pathology (MAY2012)*.
f. Gwenaelle Dauphin
g. **TIMING**:

Activity	*Timing*
1. Support ongoing development of the EMPRES-i genetic module and needs following launch to the public	SEPT 12-FEB 13
2. Finalize the development of the EMPRES-i laboratory directory	SEPT 12-DEC 12
3. Develop tools to improve the linkage between field and epi: focus on pathology	Q4 2012

h. Tools developed and delivered; Support provided to trainings or workshops and conducted in the regions; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to Lists in sections 5.1 and 6.1); expanding to other supported laboratories where relevant
j. **From Item G above:** 1) SIB, 3) UGA, PREDICT

G1.D. Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management

a. Trainings or workshops, jointly organized when possible, to address themes such as: diagnosis of priority and emerging pathogens; regional harmonization of testing; and overall laboratory management. The majority of training activities will be conducted at the global level, with specific needs being targeted for regions.
b. These activities contribute to enhancing diagnostic capacity through improving the technical ability of laboratory staff, and deliver management tools. Collectively, these trainings strengthen laboratory support for national and regional surveillance efforts.
c. FAO HQ and FAO/IAEA joint division to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is one of the major funding sources for these activities; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Networks, and specifically build upon: *Training on Bioinformatics (JULY2011), Workshop for epidemiology staff on PCR, sequencing and bioinformatics (SEPT2012).*
f. Gwenaelle Dauphin, FAO HQ and Adama Diallo, FAO/IAEA
g. **TIMING**:

Activity	*Location / Timing / Activity Type*
1. Support for Regional workshop: "Targeting the needs for genetic sequencing"	Vienna / 5 days NOV 2012/ technical[1]
2. Development of bioinformatics e-modules	Regional/available Q3 2013 / tool delivery
3. Develop documents/training kits on equipment maintenance and calibration	Regional / available Q3 2013 / tool delivery

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to Lists in sections 5.1 and 6.1); consideration of other supported laboratories upon request and in line with national priorities
j. **From Item G above:** 1) FAO/IAEA joint division, IZSVe (Italy), CIRAD (France) and CODA-CERVA-VAR (Belgium) 2) International reference laboratories, SIB, FAO/IAEA joint division

[1] For technical workshops, 1-2 laboratory staff to be invited per lab

G1.E. Strengthening global and regional resources for selected animal diseases

a. Strengthen global and regional capacity and resources - including in regional leading/support laboratories- for selected diseases
b. Improving the services provided by National and Regional leading/support laboratories by enhancing their capacity for selected diseases
c. FAO HQ and FAO/IAEA joint division to provide technical expertise, coordination, and operational support; with inputs from FAO regional offices
d. IDENTIFY is the major funding for this activity
e. Continuing activity for National laboratories and new activity for the regional leading/support laboratories
f. Gwenaelle Dauphin, FAO HQ and Adama Diallo, FAO/IAEA
g. **TIMING**:

Activity

1. Development of communication tool(s) for different audiences, stakeholders and partners
2. Resource Building – Provision of documents, manuals, books and database access to scientific literature
3. Development of Lab Cards (available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses) for IDENTIFY priority diseases
4. Support to the development of Diseases Cards (cases definition and recommended tests repertoire for IDENTIFY listed priority diseases), *sub activity linked with C1.E1*
5. Support access by national laboratories to genomic sequencing services in sub-Saharan Africa

h. National and Regional leading/support laboratory demonstrates a) the ability to diagnose the selected disease under a quality management system (per expert review and data from LMT); Regional leading/support laboratory i) prepares a report on the regional status of the selected disease and the recommended diagnostic approach, and ii) conducts confirmatory testing or other activity targeting the selected disease for the region; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2 where relevant
i. Prioritized for IDENTIFY-supported **national animal health laboratories** and **regional leading laboratories** (refer to Lists in sections 5.1 and 6.1); other supported laboratories considered case by case
j. **From Item G above:** 3) and 4) International experts; 5) sequencing company TBD

G1.F. Targeted support for strengthening diagnostic capacity and laboratory management

a. Laboratory experts provided for technical inputs as well as overall laboratory management to address demonstrated need and country requests; Terms of Reference developed in coordination with country officials
b. Promoting strategic laboratory management, enhance managerial and leadership skills for laboratory directors and/or managers of IDENTIFY countries, to elevate diagnostic capacity and strengthen laboratory support for national and regional surveillance efforts, including EPT
c. FAO HQ and FAO/IAEA joint division to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia
f. Gwenaelle Dauphin, FAO HQ and Adama Diallo, FAO/IAEA
g. **TIMING**:

Activity ***Timing***

1. Develop global approach on Laboratory Management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories OCT 2012 - JUNE 2013
2. Support PCR testing for multiple diseases as a follow-up to the IAEA Consultation on *''Good laboratory practices for conducting multiple disease diagnosis''* and standardization and validation of the different major PCR testing procedures through the use of the same kits of reagents for various diseases) TBD

h. Expert mission conducted and report produced; laboratory feedback received; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2 where relevant
i. Prioritized for IDENTIFY-supported **national animal health laboratory(s)** (refer to List in sections 5.1 and 6.1); other supported laboratories considered in line with government request
j. **From Item G above:** 1) WHO, 2) FAO/IAEA, Laboratory experts, international reference laboratories (IZSVe, Italy; CIRAD, France; and CODA-CERVA-VAR, Belgium, AU-PANVAC)

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

G2.G. Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information

a. Support national animal health policy to ensure flow of samples and sharing of information
b. Ensure the adequate allocation of resources (human, technical) and policy guidance available to conduct timely diagnosis, and promote appropriate information sharing and reporting at national, regional and global levels
c. FAO HQ to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is the major funding for this activity
e. Contributes to sustainable, early and accurate disease confirmation, particularly where emerging or unknown diseases are suspected
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity	*Timing*
1. Review of data from EMPRES-i	Q4 2012
2. Support to development of sample referral guidelines for transboundary animal diseases (TADs)	Q1 2013
3. Development of a standard approach for sharing of information and biological materials	Q1 2013
4. Sample referral for disease confirmation (stopgap measure where urgent disease confirmation is needed)	
5. Review of existing animal health laboratory policies and develop lab policy for IDENTIFY targeted countries, Q1 2013, *sub activity linked with C2.G2*	
6. Support the review of results for the Public-private partnership and sustainability study of veterinary laboratories in sub-Saharan Africa and the creation of linkages to development of laboratory policy	Q1 2013

h. Demonstrated support for laboratory budget and surveillance at national level; samples shipped, disease confirmation obtained

i. For IDENTIFY-supported **national animal health laboratories** (summary below, refer to Lists in sections 5.1 and 6.1)
j. **From Item G above:** 2) in coordination with OIE, 3) International reference laboratories, regional leading/support laboratories, 4) Company for International Shipment; and in coordination with OIE, 5) International expert, 6) International and national experts

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

G3.H. External quality management (EQA) for diagnosis of targeted animal diseases

a. Support participation in External Quality Assurance and analyze regional ring trial for proficiency of targeted diseases
b. Contributes to improving national laboratory staff competency, harmonization of diagnostic and EQA approaches, determination of gaps, and confirmation of actual diagnostic capacity for targeted diseases in the regions
c. For AI/ND, FMD and CBPP: FAO HQ to provide technical and coordination inputs; for RVF, PPR, ASF: FAO/IAEA staff provide technical expertise, coordination, and operational support. Regional offices provide coordination; external expertise from FAO Reference Centre.
d. IDENTIFY is the major funding source for these activities; correspondence and published materials will be branded appropriately using partner logos
e. These activities build upon previous proficiency trials conducted in both regions
f. Gwenaelle Dauphin, FAO HQ - Adama Diallo, FAO/IAEA
g. **TIMING**:

Activity	*Timing*
1. Provide assistance for the organization of the PT *sub activity linked with C3.H*	Oct 2012-Sept 2013
2. Backstopping missions at country level	APR-JUNE 2013
3. Validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system)	Q1/2 2013

h. Ring trial for proficiency conducted, data analyzed and reported; backstopping missions to each participating laboratory for troubleshooting; integration into LMT data; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to List in lists in sections 5.1 and 6.1)
j. **From Item G above:** 1) International reference laboratory (IZSVe, CIRAD, IAEA), 2) Laboratory experts, 3) FAO/IAEA

G3.J. Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity

a. Trainings or workshops, jointly organized when possible, to promote laboratory biosafety and biosecurity; and to develop regional biosafety managers and engineers. The majority of training activities will be conducted at the regional level.
b. Contributes to enhancing diagnostic capacity through improved understanding and implementation of biosafety and biosecurity programmes. Collectively, these trainings

strengthen laboratory support for national and regional surveillance efforts, including EPT

c. FAO HQ to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities specifically build upon previous trainings on biosafety and biosecurity
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity	*Timing*
1. Biosecurity/biosafety experts meeting at HQ for development of a road map for biosafety/biosecurity (and expand the lab mapping tool) Global	Q2/3 2013

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2
i. Prioritized for all IDENTIFY-supported **national animal health laboratories** (summary below, refer to List in sections 5.1 and 6.1), other supported laboratories considered in line with government request
j. Laboratory biosafety experts

G3.K. Targeted support laboratory quality management systems, including biosafety

a. Targeting in-country laboratory management through provision of laboratory experts to improve implementation of quality management systems, including biosafety/biosecurity programs
b. Contributes to greater capacity for biosafety/biosecurity, as well as sample tracking, analysis of results, and reporting under a quality management system, and strengthens laboratory support for national and regional surveillance efforts
c. FAO HQ to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Networks
f. Gwenaelle Dauphin
g. **TIMING**:

Activity	*Timing*
1. Support the implementation of laboratory information systems (LIMS) in targeted laboratories, *sub activity linked with C3.K3*	OCT 2012 – SEPT 2013

h. Expert mission conducted and LIMS installed
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to List in sections 5.1 and 6.1); other supported laboratories considered in line with government request
j. LIMS experts

Output 2: Linkages and communication pathways across national, regional and global laboratory and epidemiology networks for the management of emerging zoonotic pathogens strengthened

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

G4.L. Regional laboratory network support and coordination for animal health

a. Meetings and other activities conducted to maintain and strengthen the regional laboratory network
b. Laboratory networks are strengthened at the regional level to build trust, harmonize diagnostic approaches, and improve information sharing. These activities enhance the rapid identification of emerging and zoonotic diseases.
c. FAO HQ provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Networks
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity	*Timing*
1. Support to routine regional and global networking meetings, *sub activity linked with C4.L4*	Dec 2012 – Sept 2013
2. Linking laboratory and epidemiology networks	TBD
3. Promote/sponsor existing disease-based, regional, and global laboratory network meetings	OCT 2012 – SEPT 2013
4. Identification of potential FAO Reference Centres.	OCT 2012 – SEPT 2013

h. Laboratory networks maintained and operational, scientific outputs from the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3
i. Prioritized for IDENTIFY-supported **national and regional animal health laboratories** (summary below, refer to List in sections 5.1 and 6.1); other supported laboratories to be considered upon request and in line with regional priorities
j. 1) RESOLAB, EARLN, 2) Epidemiology Consortium, 3) OFFLU, GF-TADs, EDPLN, and others, 4) laboratory experts

G4.M. Enhancing the role of Regional Leading/Support Laboratories

a. Strengthen the role of regional leading/support laboratories for selected diseases
b. Improving the services provided by regional leading laboratories such as provision of reference reagents and implementation of ring trials for proficiency testing
c. FAO HQ provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is the major funding for this activity
e. These are ongoing and new activities for the regional leading/support laboratories which will be integrated into the support provided to the Regional Laboratory Network in the regions
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity	*Timing*
1. Support and promote the establishment/development of regional Support Laboratories, *sub activity linked with C4.M1*	Nov 2012

h. Following on the activities under **G1.E, S1.E and C1.E** - Regional leading/support laboratory demonstrates i) the ability to diagnose the selected disease under a quality management system (per expert review and data from LMT), ii) prepares a report on the regional status of the selected disease and the recommended diagnostic approach, and iii) conducts confirmatory testing or other activity targeting the selected disease for the region; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2 where relevant
i. Prioritized for **regional leading/Support Laboratories** (refer to List in sections 5.1 and 6.1); other supported laboratories considered case by case
j. International reference laboratories and other laboratory experts as needed

G4.N. Supporting national laboratory networks for animal health

a. Meetings and other activities conducted to develop and/or maintain a national laboratory network
b. Laboratory networks are strengthened at the national level improve communication, harmonize diagnostic approaches, and improve delivery of information. These activities enhance the rapid disease identification and communication of results for improved disease control at the national level.
c. FAO HQ to provide technical expertise, coordination, and operational support and with close collaboration with the FAO regional offices
d. IDENTIFY is one of the major funding sources for these activities[1]; national AI programmes at country level will be involved; correspondence and published materials will be branded appropriately using partner logos
e. These are new activities to develop and/or support national laboratory networks which contribute to the outcomes of the Regional Laboratory Networks in both regions. Some activities will specifically build upon previous work undertaken at national level for HPAI.
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity	*Timing*
1. Support National laboratory networks, *sub activity linked with C4.N1*	Oct 2012 – Sept2013
2. Develop a tool to evaluate national laboratory networks, *sub activity linked with C4.N2*	Q1 2013

h. Laboratory networks maintained and operational, scientific outputs from the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to List in sections 5.1 and 6.1); consideration of other supported laboratories upon request and in line with national priorities
j. **From Item G above:** partner with DELIVER

G4.O. One Health initiatives: strengthening linkages between veterinary and public health

a. Meetings and other activities conducted to develop and/or maintain cross-sectoral communication and linkages at country and regional levels
b. Strengthening cross-sectoral communication and linkages to enhance/improve networking for detection and control of emerging and zoonotic diseases
c. FAO HQ coordination and technical expertise with technical and operational support from regional and country level offices
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos; national AI programmes at country level will be involved where relevant
e. These activities represent both ongoing and new efforts that develop and/or support One Health initiatives. The 4-way linking (4WL) activities are continuation from Year 3: 4WL in Viet Nam - joint risk assessment (JUN2011), planning meeting (OCT2011), and workshop for AH and PH labs and epi-units (FEB 2012). A follow up mission is planned for Viet Nam, and initial assessment missions as well as country level workshops are planned for Indonesia and Bangladesh.
f. Gwenaelle Dauphin, FAO HQ
g. **TIMING**:

Activity[2]	*Location/Timing/Activity type*
1. Four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface	VN/TBD; BD and ID/5 days; TBD/ technical[3] and strategic[4]
2. Link with FETPV programmes	TBD
3. Support One Health seminar on Rabies in Africa, *sub activity linked with* C4.O3	
4. Support competence development in detection of antimicrobial resistance for food safety, including training, supplies and sampling	Regional / OCT 2012–SEPT 2013 / support of ongoing activity in Cambodia and potential launch of assessment for the region
5. Develop guidelines for implementation of One Health at National level.	

h. Missions and workshops conducted and reports produced; FAO|IDENTIFY Indicators: 4.2, 4.3, 4.4
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to List in section 5.1 and 6.1); from **Item G above**, 1) for VN, BD, ID; 3) CAR, Gabon, Congo, 4) Cambodia with consideration of other supported laboratories upon request and in line with national priorities
j. OIE, WHO, FAO AI National programme, EMPRES wildlife unit, laboratory and epidemiology experts from animal and public health, PREDICT, RESPOND

G4.P. Support for participation in scientific conferences, trainings, or workshops

a. Support for laboratory staff to attend/present country data at meetings or trainings to address specific needs/requests
b. Strengthens capacity and networking of laboratory staff, improves visibility for research conducted at country and regional levels
c. FAO-HQ to provide coordination in close collaboration with the FAO regional offices
d. IDENTIFY is the major funding sources for these activities
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia
f. Gwenaelle Dauphin
g. **TIMING**: upon request and review
h. Pre-meeting justification and post-meeting report completed by participant; new information shared during regional network meeting; FAO|IDENTIFY Indicators: 1.2 and 4.1
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to List in sections 5.1 and 6.1); consideration of other supported laboratories upon request and in line with national priorities
j. n/a

[2] Concept notes provided upon request for further information regarding specific meetings/workshops

[3] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

[4] Participants include national laboratory directors

3.1.1 SUMMARY TABLE OF GLOBAL ACTIVITIES

USAID IDENTIFY Objectives	Activity Category	Timing
1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	**A Mapping national and regional laboratory resources for animal health** *1. Global compilation of updated regional data on laboratory capacity and networks* *2. Development of additional modules of the LMT* *3. Contribute to the Monitoring and Evaluation (M&E) effort*	OCT 2012 - SEPT 2013
	B Provide laboratory equipment and supplies in a coordinated manner	
	C Strengthening the linkage between the field and laboratory *1. Support ongoing development of the EMPRES-i genetic module and needs following launch to the public* *2. Finalize the development of the EMPRES-i laboratory directory* *3. Develop tools to improve the linkage between field and epi: focus on pathology*	SEPT 12 - FEB 13 SEPT 12 - DEC 12 Q4 2012
	D Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management *1. Support for Regional workshop: "Targeting the needs for genetic sequencing"* *2. Development of bioinformatics e-modules* *3. Develop documents/training kits on equipment maintenance and calibration*	NOV 2012 Q3 2013 Q3 2013
	E Strengthening regional resources for selected animal diseases *1. Development of communication tool(s) for different audiences, stakeholders and partners* *2. Resource Building - Provision of documents, manuals, books and database access to scientific literature* *3. Development of Lab Cards (available diagnostic assays and cross-cutting technologies for selected animal diseases, including zoonoses) for IDENTIFY priority diseases* *4. Support to the development of Diseases Cards (cases definition and recommended tests repertoire for IDENTIFY listed priority diseases), sub activity linked with C1.E1* *5. Support access by national laboratories to genomic sequencing services in sub-Saharan Africa*	ongoing
	F Targeted support for strengthening diagnostic capacity and laboratory management *1. Develop global approach on Laboratory Management mentoring program between laboratory directors and/or managers of IDENTIFY-supported laboratories* *2. Support PCR testing for multiple diseases as a follow-up to the IAEA Consultation on "Good laboratory practices for conducting multiple disease diagnosis" and standardization and validation of the different major PCR testing procedures through the use of the same kits of reagents for various diseases)*	OCT 2012 - JUNE 2013 TBD
2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities	**G Support timely diagnosis and reporting for priority diseases, including support of laboratory policy to ensure flow of samples and sharing of information** *1. Review of data from EMPRES-i* *2. Support to development of sample referral guidelines for transboundary animal diseases (TADs)* *3. Development of a standard approach for sharing of information and biological materials Support to development of sample referral guidelines for transboundary animal diseases (TADs)* *4. Sample referral for disease confirmation* *5. Review of existing animal health laboratory policies and develop lab policy for IDENTIFY targeted countries, sub activity linked with C2.G2* *6. Support the review of results for the Public-private partnership and sustainability study of veterinary laboratories in sub-Saharan Africa and the creation of linkages to development of laboratory policy*	Q4 2012 Q1 2013 Q1 2013 Q1 2013 Q1 2013

USAID IDENTIFY Objectives	Activity Category	Timing
3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System	**H External quality assurance management (EQA) for diagnosis of targeted diseases**	
	1. Provide assistance for the organization of the PT; linked with C3.H	OCT 2012- SEPT 2013
	2. Backstopping missions at country level	APR- JUNE 2013
	3. Validation and transfer of new techniques for multiple disease diagnosis (PCR using the FRET system)	Q1/2 2013
	J Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity	
	1. Biosecurity/biosafety experts meeting at HQ for development of a road map for biosafety/biosecurity (and expand the lab mapping tool)	Q2/3 2013
	K Targeted support for laboratory quality management systems, including biosafety	
	1. Support the implementation of laboratory information systems (LIMS) in targeted laboratories, sub activity linked with C3.K3	OCT 2012 - SEPT 2013
4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	**L Regional laboratory network support and coordination for animal health**	
	1. Support to routine regional and global networking meetings, sub activity linked with C4.L4	DEC 2012 - SEPT 2013
	2. Linking laboratory and epidemiologic networks	TBD
	3. Promote/sponsor existing disease-based, regional, and global laboratory network meetings	OCT 2012 - SEPT 2013
	4. Identification of potential FAO Reference Centres	OCT 2012 - SEPT 2013
	M Enhancing the role of Regional Leading Laboratories for animal health	
	1. Support and promote the establishment/development of regional Support Laboratories, sub activity linked with C4.M1	NOV 2012
	N Supporting National laboratory networks for animal health	
	1. Support National laboratory networks, sub activity linked with C4.N1	OCT 2012 - SEPT2013
	2. Develop a tool to evaluate national laboratory networks, sub activity linked with C4.N2	Q1 2013
	O One Health initiatives: strengthening linkages between veterinary and public health	
	1. Four-way linking framework to improve the linkage between laboratory and epidemiological data (for H5N1 zoonotic influenza) for assessing health risks at the human-animal interface	TBD
	2. Link with FETPV programmes	TBD
	3. Support One Health seminar on Rabies in Africa, sub activity linked with C4.O3	OCT 2012-SEPT 2013
	4. Support competence development in detection of antimicrobial resistance for food safety, including training, supplies and sampling	OCT 2012-SEPT 2013
	5. Develop guidelines for implementation of One Health at National level	
	P Support to and participation in scientific conferences, trainings or workshops	upon request and review

3.2 ACTIVITY SCHEDULE ASIA

NOTE: The Regional Laboratory Networks for **South and Southeast Asia** + **China** are supported by FAO, in collaboration with other international organizations. Under a programmatic approach, FAO receives several funding sources to support these networks, with major contributions from USAID-IDENTIFY and EU-HPED jointly. Eight of the nine countries participating in the Southeast Asia network will be supported under FAO | IDENTIFY in Year 4: Cambodia, China, Indonesia, Lao PDR, Malaysia, Philippines, Thailand, and Viet Nam. Participation of Myanmar will be funded through alternative sources. Bangladesh and Nepal (officially part of the **South Asia** Laboratory Network (SAARC)) will be supported under IDENTIFY to join Southeast Asia regional activities wherever relevant.

3.2.1 IDENTIFY-SUPPORTED LABORATORIES – SOUTH/SOUTHEAST ASIA

Region	Country	Veterinary laboratories	Abbrev.	Laboratory Focal point	Disease specialty and/or focus	ASEAN Regional lab	National lab	PREDICT lab
Southeast Asia	**Cambodia (CA)**	National Veterinary Research Institute	CA-NaVRI	Dr. Sorn San	n/a		Yes	Yes
	China (CN)	Langzhou Veterinary Research Institute	CN-LVRI	Hong Yin	FMD		Yes	
		Yunnan Animal Science and Veterinary Institute	CN-YASVI	Dr Li Huachun	Bluetongue		Yes	
		China Animal Disease Control Centre, Beijing	CN-CADC	Xinyan Zhai	n/a		Yes	
		China Animal Health and Epidemiology Center, Qingdao	CN-CAHEC	Song Cuiping	Newcastle and Exotic Diseases		Yes	
	Indonesia (ID)	Disease Investigation Centres and associated national laboratories under the Directorate of Livestock Animal Health Service	ID-DGLAHS	Dr. Pudjiatmoko	n/a		Yes	
	Lao PDR (LA)	National Animal Health Center	LA-NAHC	Dr Bounlom Douangngeun	n/a		Yes	Yes
	Malaysia (MY)	Veterinary Research Institute	MY-VRI	Dr Ramlan Mohamed	Avian Influenza and Newcastle disease	Yes	Yes	Yes
		Department of Wildlife and National Parks Peninsular Malaysia	MY-PER	Dato' Abd Rasid Bin Samsudin	Wildlife			Yes
		Sabah Wildlife Department	MY-SABA	Dr. Senthivel Nathan	Wildlife			Yes
	Myanmar * (MM)	Livestock Breeding and Veterinary Department	MM-LBVD	Dr Maung Maung Kyin	n/a		Yes	
	Philippines (PH)	Philippine Animal Health Center	PH-PAHC	Dr Magdalena Cruz	n/a		Yes	
	Thailand (TH)	National Institute of Animal Health	TH-NIAH	Dr Vimol Jirathanawat	n/a	Yes	Yes	
		FMD Regional Reference Laboratory Pakchong	TH-RRL	Dr Somjai Kamolsiripichaiporn	FMD		Yes	
	Viet Nam (VN)	Regional Animal Health Office Number 6	VN-RAHO6	Dr Ngo Than Long	CSF and PRRS	Yes	Yes	

		Hanoi Agriculture University	VN-HAU	Nguyen Thi Lan	Wildlife			Yes
		National Institute of Veterinary Research	VN-NIVR	Dr Nguyen Viet Khong	n/a		Yes	
		National Center for Veterinary Diagnosis	VN-NCVD	Dr To Lonh Thanh	n/a		Yes	
South Asia	**Bangladesh (BD)**	Central Disease Investigation Laboratory	BD-CDIL	Dr Bidhan Chandra Das	n/a		Yes	
		Bangladesh Livestock Research Institute	BD-BLRI	Dr Md. Giasuddin	PPR			
		Chittagong Veterinary Animal Science University †	BD-CVAS	*Dr. Kazi M. Kamaruddin*	n/a			
		Bangladesh Agricultural University †	BD-BAS	*Dr. Emdadul Haque Chowdhury*	n/a			
	Nepal (NP)	Central Veterinary Laboratory	NP-CVL	Dr. Damodar Sedai	n/a		Yes	
	India **	High Security Animal Disease Laboratory	IN-HSADL	Dr. C. Tosh	OIE Reference Laboratory for Avian Influenza		Yes	

* Participation of Myanmar (not supported by IDENTIFY) will be funded from other sources

** Supported as regional reference laboratory and FAO/OIE Reference Centre for Avian Influenza

† included in coordination with national government and efforts under EPT+

3.2.2 Regional Activities for South and Southeast Asia

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

S1.A. Mapping national and regional laboratory resources for animal health

a. Ongoing analysis and update of laboratory assessment data from the FAO Laboratory Mapping Tool (LMT), FAO and partner laboratory expert assessments/mission/backstopping reports, as well as outcomes from regional proficiency testing programmes for integration into progress indicators
b. These activities contribute to enhancing diagnostic capacity through the identification of national and regional resources and gaps which guide ongoing capacity building, strengthen national and regional laboratory networks, and improve disease control efforts
c. FAO-RAP office in Bangkok will provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. Building on previous work funded by IDENTIFY, progress includes an updated LMT and compilation and analysis of results to establish baseline
f. Mia Kim FAO-HQ and Sanipa Suradhat FAO-RAP
g. **TIMING**: Ongoing OCT 2012 – SEPT 2013

Activity	*Location / Timing / Activity Type*
1. Consultant for analysis and reporting	Regional / biannual / reporting
2. On site visit	ID / OCT-NOV 2012 / assessment
3. On site visit	TH: FMD OIE Reference Lab / Q1 2013 / assessment
Others upon request	

h. Available laboratory assessment data are analyzed and integrated for monitoring and evaluation of IDENTIFY-supported laboratories; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2
i. Regional activity available for all IDENTIFY-supported animal health laboratories (refer to Table 3.2.1)
j. Laboratory experts

S1.B. Provide laboratory equipment and supplies in a coordinated manner

a. Provision of laboratory equipment, supplies, and reference materials based on the identified needs and in accordance with national priorities
b. This effort directly impacts the laboratories' ability to safely conduct diagnostic activities, and strengthen laboratory support for national and regional surveillance efforts, including EPT
c. FAO-RAP office in Bangkok provide technical expertise, coordination, and operational support
d. IDENTIFY is one of the major funding sources for this activity[5]; correspondence and published materials will be branded appropriately using partner logos where other funding is included
e. Coordinated based upon identified needs from country requests, the LMT, and biosafety assessments - procurement support is integral to the support provided to the Regional Laboratory Network in Southeast Asia
f. Sanipa Suradhat FAO-RAP
g. **TIMING**: OCT 2012-SEPT 2013 as requests confirmed and processed
h. Laboratory equipment/supplies are present and operational in recipient laboratories; FAO|IDENTIFY Indicators: 1.3-1.4
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); to include other supported laboratories in line with government request

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	--	per MoA	NAHC	VRI, PER, SABA	PAHC	NIAH	per MoA, HAU	per MoA	--

j. To coordinate with other procuring partners such as PREDICT and DELIVER

S1.C. Strengthening the linkage between the field and laboratory

a. Trainings or workshops, jointly organized when possible, to strengthen the linkage between the field and laboratory staff. Trainings envisioned at the regional and country level
b. These activities contribute to improving the quality of information and samples received from the field and strengthening the 2-way communication between the laboratory and the field
c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos where other funding is included

[5] Under a programmatic approach, activities supporting the Regional Laboratory Networks for Southeast Asia are funded by several sources, with major contributions from USAID-IDENTIFY and EU-HPED jointly

e. There will be new activities included in the overall support provided to the Regional Laboratory Network in Southeast Asia, which specifically build upon: *Basics of field pathology (MAY2012)*.
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity[6]	***Location / Timing / Activity Type***
1. Linking field and laboratory workshop	Regional / 5 days Q12013 / technical[7]
2. Support In-country Lab-Field linkage	Country / as below/ technical[3]
i. TH; 4-5 days Q2 2013	
ii. LA; 4-5 days Q2 2013	
iii. MY; 4-5 days Q2 2013	
iv. PH; 4-5 days Q2 2013	
3. Ensuring access to supplies in the field (with DELIVER)	ID/ Q4 2012 – Q3 2013 / assessment & series of meetings for tool development and training
4. Support advanced virus characterization of selected viruses from national network activities	ID / annual / lab service

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); expanding to other supported laboratories where relevant

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. **From Item G above:** 1 and 5) International reference laboratory (AAHL), 2) UGA, PREDICT, national partners; 3) DELIVER with national partners, 4) AAHL

S1.D. Develop and conduct trainings or workshops to build diagnostic laboratory capacity

a. Trainings or workshops, jointly organized when possible, to address themes such as: diagnosis of priority and emerging pathogens; regional harmonization of testing; and platforms for animal health information. The majority of training activities will be conducted at the regional level, with specific needs being targeted at the national level.
b. These activities contribute to enhancing diagnostic capacity through improving the technical ability of laboratory staff. Collectively, these trainings strengthen laboratory support for national and regional surveillance efforts, including EPT and EPT+
c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concurrence with HQ.
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia, and specifically build upon: *Workshop for diagnosis of CSF/PRRS (JUL2011), Diagnosis of Swine Diseases including ASF/CSF/PRRS (AUG2012), Diagnosis of rabies and Newcastle disease (AUG2012), etc.*
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

[6] Concept notes provided upon request for further information regarding specific trainings/workshops

[7] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

Activity[8]	*Location / Timing / Activity Type*
1. Diagnostic workshop for targeted diseases	Regional / 5 days Q2 2013 / technical[9]
2. Applied Veterinary Bioinformatics Workshop	Regional / 5 days Q2 2013 / technical[5]
3. e-Learning Module for phylogeny	Regional/available Q4 2012 / tool delivery
4. Testing of data module for national network	ID/ 2.5 days Q4 2012 / technical[5]

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); consideration of other supported laboratories upon request and in line with national priorities

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI +PERH SABA for 2.	PAHC	NIAH	per MoA	per MoA	CVL

j. **From Item G above:** 1) International reference laboratories, PREDICT as relevant to training topics, 2-3) bioinformatics experts, 3) refer to Global component; 4) AAHL

S1.E. Strengthening regional resources for selected animal diseases

a. Strengthen capacity and resources in regional leading laboratories for selected diseases

b. Improving the services provided by regional leading laboratories by enhancing their capacity for selected diseases

c. FAO-RAP office in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is the major funding for this activity

e. This is a new activity for the regional leading laboratories which will be integrated into the support provided to the Regional Laboratory Network in Southeast Asia

f. Sanipa Suradhat FAO-RAP

g. **TIMING**:

Activity	*Location / Timing*
1. Strengthening FMD and brucellosis services:	TH-NIAH / Q1-4 2013
2. Strengthening swine disease diagnostics:	VN-RAHO6 / Q1-4 2013
3. Strengthening PPR disease diagnostics:	BD-BLRI / Q1-4 2013

h. Regional leading laboratory i) demonstrates the ability to diagnose the selected disease under a quality management system (per expert review and data from LMT), ii) prepares a report on the regional status of the selected disease and the recommended diagnostic approach, and iii) conducts confirmatory testing or other activity targeting the selected disease for the region; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2 where relevant

i. Prioritized for **regional leading laboratories** (summary below, refer to Table 3.2.1); other supported laboratories considered case by case

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
--	--	--	--	VRI	--	NIAH, RRL-FMD	RAHO6	BLRI	--

j. International reference laboratories, other laboratory experts as needed

S1.F. Targeted support for building diagnostic capacity

a. Laboratory experts provided for technical inputs to address demonstrated need and country requests; Terms of Reference developed in coordination with country officials

b. Targeting in-country bench side skills and promoting quality management strategies to elevate diagnostic capacity and strengthen laboratory support for national and regional surveillance efforts, including EPT

[8] Concept notes provided upon request for further information regarding specific trainings/workshops

[9] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

c. FAO-RAP office in Bangkok will provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity	*Location / Timing*
1. Harmonization of diagnostics for influenza	BD/Q4 2012
2. Collaboration with reference laboratory to build diagnostic capacity and deliver training on diagnostic approaches (6 months)	CA/Q4 2012
3. Develop user friendly tools for antigenic data analysis	ID/Q1 2013

h. **From Item G above:** 1-2) Expert mission conducted and report produced; laboratory feedback received; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2 where relevant; 3) Tools developed, tested, validated, and transferred
i. Prioritized for IDENTIFY-supported **national animal health laboratory(s)** (excluding regional leading laboratories, refer to Table 3.2.1); other supported laboratories considered in line with government request

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	--	per MoA	NAHC	--	--	--	--	per MoA	--

j. Laboratory experts, international reference laboratories

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

S2.G. Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information

a. Support national animal health policy to ensure flow of samples and sharing of information
b. Ensure the adequate allocation of resources (human, technical) and policy guidance available to conduct timely diagnosis, and promote appropriate information sharing and reporting at national, regional and global levels
c. FAO-RAP office in Bangkok provide coordination and operational support
d. IDENTIFY is the major funding for this activity
e. Contributes to sustainable early and accurate disease confirmation, particularly where emerging or unknown diseases are suspected
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity
1. Sample referral for disease confirmation (stopgap measure where urgent disease confirmation is needed)
2. Advocate for adequate laboratory budget and surveillance (*ad hoc*)

h. Demonstrated support for laboratory budget and surveillance at national level; samples shipped, disease confirmation obtained
i. For IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1)

KH	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. EMPRES shipping service, International reference laboratories, regional leading laboratories, and in coordination with OIE

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

S3.H. External quality assurance management (EQA) for diagnosis of targeted animal diseases

a. Coordinate, conduct, and analyze regional ring trial and support activities related to national proficiency program for targeted diseases
b. Contributes to improving national laboratory staff competency, harmonization of diagnostic and EQA approaches, determination of gaps, and confirmation of actual diagnostic capacity for targeted diseases in the region
c. FAO-RAP office in Bangkok provide coordination and operational support; AAHL to conduct the ring trials for proficiency
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia, and build upon previous proficiency trials for avian influenza conducted for the region, as well as the "*Quality Assurance and Standardization of Diagnostic Reagents*" organized under IDENTIFY-support in Year 2
f. Sanipa Suradhat, FAO-RAP
g. **TIMING**:

Activity	***Timing***
1. Provision of reference panels for proficiency trial:	Reagent delivery AUG 2012 / Results NOV 2012
a. Avian influenza	
b. Classical swine fever	
c. Porcine respiratory and reproductive syndrome	
d. African swine fever	
e. Rabies	
f. Newcastle disease	
4. Backstopping missions at country level	NOV 12-MAR 13
5. Support for National proficiency program for priority diseases	annual
a. ID (Avian influenza)	
b. TH (Avian influenza)	
c. VN (Swine diseases)	

h. Ring trial for proficiency conducted, data analyzed and reported; backstopping missions to each participating laboratory for troubleshooting; integration into LMT data; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (refer to Table 3.2.1) from **Item G** above: **a-f** for Cambodia (CA-NaVRI), Indonesia (per MoA),

Laos (LA-NAHC), Malaysia (MY-VRI), Philippines (PH-PAHC), Thailand (TH-NIAH), Viet Nam (VN-RAHO6, VN-NCVD), and **b-d** for China (CN-CADC)

j. International reference laboratory (AAHL/OIE)

S3.I. Develop and conduct trainings or workshops to promote laboratory quality management, *excluding biosafety/biosecurity (refer to activity group J)*

a. Trainings or workshops, jointly organized when possible, to promote laboratory quality management. The majority of training activities will be conducted at the regional level, with specific needs being targeted at the national level.

b. Contributes to enhancing diagnostic capacity through improving the understanding and implementation of quality management approaches. Collectively, these trainings strengthen laboratory support for national and regional surveillance efforts, including EPT

c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos

e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia, and specifically build upon previous certification workshops for IATA (OCT2010), and *Laboratory Information Management Systems: Workshop to Identifying Needs, Resources, and Ways Forward (DEC2011).*

f. Sanipa Suradhat FAO-RAP

g. **TIMING**:

Activity	***Location / Timing / Activity Type***
1. Training/IATA certification for sample shipment	Regional/2 days Q2 2013/ technical[10]
2. TBD based upon outcomes of Laboratory Directors' Forum and Regional Laboratory Networking meeting	

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); additional supported laboratories considered in line with government request

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. International reference laboratories, Laboratory experts

S3.J. Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity

a. Trainings or workshops, jointly organized when possible, to promote laboratory biosafety and biosecurity; and to develop regional biosafety managers and engineers. The majority of training activities will be conducted at the regional level.

b. Contributes to enhancing diagnostic capacity through improved understanding and implementation of biosafety and biosecurity programmes. Collectively, these trainings strengthen laboratory support for national and regional surveillance efforts, including EPT

c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos

[10] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia, and specifically build upon: *Biosafety Management Training (OCT2010), Advanced Biorisk Training (NOV2011),* and *Laboratory Engineering and Equipment Maintenance Training (NOV2011);* the latter trainings targeted advanced laboratories with BSL3 and/or BSL4.
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity[11]	***Location / Timing / Activity Type***
1. Regional training course for biosafety officers	Regional/10 days Q2 2013/ technical[12]
2. Biosafety training course: PREDICT labs	MY/ 5 days Q4 2012 / technical[10]
3. Biosafety training course	TH-NIAH and RRL-FMD / 5 days Q4 2012 / technical[10]

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1), other supported laboratories considered in line with government request

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	--	*under separate funding*	NAHC	VRI +PERH SABA for 1	PAHC	NIAH	per MoA +HUA for 1	per MoA	CVL

j. International reference laboratories (AAHL) and laboratory biosafety experts from both AH and PH

S3.K. Targeted support laboratory quality management systems, including biosafety

a. Targeting in-country **laboratory management** through provision of laboratory experts to improve implementation of quality management systems, including biosafety/biosecurity programs
b. Contributes to greater capacity for biosafety/biosecurity, as well as sample tracking, analysis of results, and reporting under a quality management system, and strengthens laboratory support for national and regional surveillance efforts
c. FAO-RAP office in Bangkok provide technical expertise, coordination, and operational support, in concordance with HQ
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity	***Timing***
1. Backstopping support following Biosafety risk assessments	OCT 12- JUN 13
2. Biosafety cabinet testing/repair/certification at country level	AUG 12-MAR 13
3. In-country international consultant engaged to strengthen diagnostic capacity and quality management	LA/6 months
4. Further development of laboratory SOPs and guidelines	LA/Q1 2013
5. Integration of antigenic data modules into updated LIMS	ID/Q3 2013
6. Support implementation of updated Laboratory Information Management Systems (LIMS) through use of self assessment tools; development of specifications for national selection; and identification of gaps/needs for hardware and customization for provision of selected LIMS	
a. LA/OCT-DEC 2012	

[11] Concept notes provided upon request for further information regarding specific trainings/workshops

[12] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

b. TH/ JAN-JUN 2013

h. **From Item G**: 1, 3-6) Expert mission conducted and report produced; laboratory feedback received; 2) cabinets tested and report produced; cabinets repaired/replaced; cabinets certified;

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (country specific activities reflected in Item G, summary below, refer to Table 3.2.1); other supported laboratories considered in line with government request

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	--	*under separate funding*	NAHC	VRI PERH SABA	PAHC	NIAH	per MoA HUA	per MoA	CVL

j. Laboratory biosafety and quality management experts, IT specialists

Output 2: Linkages and communication pathways across national, regional and global laboratory and epidemiology networks for the management of emerging zoonotic pathogens strengthened

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

S4.L. Regional laboratory network support and coordination for animal health

a. Meetings and other activities conducted to maintain and strengthen the regional laboratory network

b. Laboratory networks are strengthened at the regional level to build trust, harmonise diagnostic approaches, and improve information sharing. These activities enhance the rapid identification of emerging and zoonotic diseases.

c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos

e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia, and specifically build upon the annual meetings initially launched in support of the network for HPAI in 2006, and expanded per regional agreement to include broader issues of laboratory capacity building and transboundary animal diseases in 2010.

f. Sanipa Suradhat FAO-RAP

g. **TIMING**:

Activity[13]	***Location / Timing / Activity Type***
1. Animal Health (AH) Laboratory Technical Advisory Group	Bangkok/ 2 days JUN 2013 / strategic[14]
2. AH Laboratory Director's Forum	Hanoi/ 2 days OCT2012 / strategic[15]
3. Regional AH Laboratory Networking Meeting	TBD/ 3 days / strategic[11] and technical[16]

[13] Concept notes provided upon request for further information regarding specific trainings/workshops

[14] Participants include leading laboratories for the region, FAO/OIE, and other lab experts as relevant

[15] Participants include laboratory directors in the region, FAO/OIE, and other lab experts as relevant

[16] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

h. Laboratory networks maintained and operational, scientific outputs from the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); other supported laboratories to be considered upon request and in line with regional priorities

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. **From Item G above:** 1) OIE, WHO, CDC, International Reference Laboratories; 2) OIE, International Reference Laboratories (AAHL); 3) OIE, WHO, EPT partners DELIVER, PREDICT, RESPOND invited to participate

S4.M. Enhancing the role of Regional Leading Laboratories

a. Strengthen the role of regional leading laboratories for selected diseases
b. Improving the services provided by regional leading laboratories such as provision of reference reagents and implementation of ring trials for proficiency testing
c. FAO-RAP office in Bangkok provide technical expertise, coordination, and operational support
d. IDENTIFY is the major funding for this activity
e. These are ongoing and new activities for the regional leading laboratories which will be integrated into the support provided to the Regional Laboratory Network in Southeast Asia
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity

1. Build capacity in leading animal health laboratories to design, implement a proficiency testing program for priority diseases
   a. TH-NIAH for avian influenza / Q1-4 2013
   b. VN-RAHO6 for swine diseases / Q1-4 2013

h. Following on the activities under **S1.E** - Regional leading laboratory i) demonstrates the ability to diagnose the selected disease under a quality management system (per expert review and data from LMT), ii) prepares a report on the regional status of the selected disease and the recommended diagnostic approach, and iii) conducts confirmatory testing or other activity targeting the selected disease for the region; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2 where relevant
i. Prioritized for **regional leading laboratories** (summary below, refer to Table 3.2.1); other supported laboratories considered case by case

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
--	--	--	--	VRI	--	NIAH, RRL-FMD	RAHO6	BLRI	--

j. International reference laboratories and other laboratory experts as needed

S4.N. Supporting national laboratory networks for animal health

a. Meetings and other activities conducted to develop and/or maintain a national laboratory network
b. Laboratory networks are strengthened at the national level improve communication, harmonize diagnostic approaches, and improve delivery of information. These activities enhance the rapid disease identification and communication of results for improved disease control at the national level.
c. FAO-RAP in Bangkok to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is one of the major funding sources for these activities[1]; national AI programmes at country level will be involved; correspondence and published materials will be branded appropriately using partner logos
e. These are new activities to develop and/or support national laboratory networks which contribute to the outcomes of the Regional Laboratory Network in Southeast Asia. Some activities will specifically build upon previous work undertaken at national level for HPAI.
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

Activity[17]	***Location / Timing / Activity Type***
1. Bangladesh Laboratory Response Network Meeting	BD/ 3 days Q2 2013 / technical[18]
2. National veterinary laboratory conference/training	CA/5 days Q2 2013 / technical[18]
3. Provision for national laboratory coordinator	ID/ 12 months
4. National network meeting and lab director's forum	ID/2.5 days Q2 2013 / technical[18] and strategic[19]
5. Vietnamese Veterinary Conference	VN/5 days Q2 2013 / technical[18]

h. Laboratory networks maintained and operational, scientific outputs from the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); consideration of other supported laboratories upon request and in line with national priorities

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	-	per MoA	NAHC	VRI	PAHC	NIAH	NCVD RAHO6	per MoA	CVL

j. **From Item G above:** 1) FAO AI National programme, AAHL; 2) FAO AI National programme, International Reference Laboratories

S4.O. One Health initiatives: strengthening linkages between veterinary and public health

a. Meetings and other activities conducted to develop and/or maintain cross-sectoral communication and linkages at country and regional levels
b. Strengthening cross-sectoral communication and linkages to enhance/improve networking for detection and control of emerging and zoonotic diseases
c. FAO HQ coordination and technical expertise with technical and operational support from regional and country level offices
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos; national AI programmes at country level will be involved where relevant
e. These activities represent both ongoing and new efforts that develop and/or support One Health initiatives. The 4-way linking activities are continuation from Year 3 with follow up activities planned for Viet Nam, and assessment missions as well as country level workshops planned for Indonesia and Bangladesh.
f. Sanipa Suradhat FAO-RAP
g. **TIMING**:

[17] Concept notes provided upon request for further information regarding specific trainings/workshops

[18] For technical workshops, 2-3 laboratory staff to be invited per lab in Item I

[19] Participants include national laboratory directors

Activity[20]	*Location / Timing / Activity Type*
1. AH-PH Laboratory Strengthening for emerging infectious diseases in Asia Pacific Region	Region / 5 days Q1 2013 / technical[18] and strategic[21]
2. Follow up to 4-way linking Workshop	VN/TBD
3. 4-way linking Workshop (assessment for Y3)	BD/5 days TBD / technical[18] and strategic[22]
4. 4-way linking Workshop (assessment for Y3)	ID/ 5 days TBD / technical[18] and strategic[22]

h. Missions and workshops conducted and reports produced; FAO|IDENTIFY Indicators: 4.2, 4.3, 4.4

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); consideration of other supported laboratories upon request and in line with national priorities

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. OIE, WHO, FAO AI National programme, laboratory and epidemiology experts from animal and public health, PREDICT, RESPOND

S4.P. Support for participation in scientific conferences, trainings, or workshops

a. Support for laboratory staff to attend/present country data at meetings or trainings to address specific needs/requests

b. Strengthens capacity and networking of laboratory staff, improves visibility for research conducted at country and regional levels

c. FAO-RAP in Bangkok to provide coordination and operational support

d. IDENTIFY is the major funding sources for these activities

e. These activities are integral to the support provided to the Regional Laboratory Network in Southeast Asia

f. Sanipa Suradhat FAO-RAP

g. **TIMING**: upon request and review

h. Pre-meeting justification and post-meeting report completed by participant; new information shared during regional network meeting; FAO|IDENTIFY Indicators: 1.2 and 4.1

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.2.1); consideration of other supported laboratories upon request and in line with national priorities

CA	CN	ID	LA	MY	PH	TH	VN	BD	NP
NaVRI	per MoA	per MoA	NAHC	VRI	PAHC	NIAH	per MoA	per MoA	CVL

j. n/a

[20] Concept notes provided upon request for further information regarding specific trainings/workshops

[21] Participants include national laboratory directors

3.2.3 Country Supplements for South and Southeast Asia

In concordance with USAID, the country level work plans are summarized in table format with activities listed in the context of the four USAID IDENTIFY objectives as in Table 2.1; country-specific activities are *italicized*. Each of the USAID IDENTIFY objectives (1-4) are indicated using a descriptive "tag" in the following tables. Full description of each objective is included in summary Table 3.2.4 on page 43.

Cambodia

USAID Obj		2012-13 CAMBODIA	
DETECT	A	Mapping laboratory resources - Onsite lab visits	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
	D	Regional workshops on diagnosis of targeted diseases	Q2 2013
		Regional workshop for Applied Veterinary Bioinformatics	Q2 2013
		e-Modules for bioinformatics	Q4 2012
	F	*- Collaboration with Institut Pasteur to support Cambodia, delivery of training on diagnostic approaches*	2 months
REPORT	G	Support sample referral for disease confirmation	as needed
		Advocate for adequate laboratory budget and surveillance	ongoing
QA/QC	H	Regional Proficiency testing	Q3-4 2012
		Backstopping missions at country level to aid with EQA	Q1-2 2013
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments	Q4 2012
		Regional AH laboratory biosafety cabinet testing, repair, certification	Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	N	*- National veterinary laboratory conference/training*	Q2 2013
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

China

USAID Obj		2012-13 CHINA	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
	D	Regional workshops on diagnosis of targeted diseases	Q2 2013
		Regional workshop for Applied Veterinary Bioinformatics	Q2 2013
		e-Modules for bioinformatics	Q4 2012
REPORT	G	Support sample referral for disease confirmation	as needed
		Advocate for adequate laboratory budget and surveillance	ongoing
QA/QC	H	Regional Proficiency testing	Q3-4 2012
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Indonesia

USAID Obj		2012-13 INDONESIA	
DETECT	A	Mapping laboratory resources *- Onsite lab visits*	Q4 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment *- Equipment needs to support IVM data module (Alat Preskrin) for Indonesia*	
	C	Strengthening the linkage between the field and laboratory *- Ensuring access to supplies in the field (with DELIVER)* *- Coordination and support for national IVM network to conduct virus monitiring activities includingantigenic prescreening and biologic and molecular virus characterization of selected viruses*	Q4 2012 Q1-4 2013 annual
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics *- National workshop: Ongoing development of data module for national network*	Q2 2013 Q2 2013 Q4 2012 Q4 2012
	F	*- Development of user friendly tools for analysis of antigenic data*	Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing * Backstopping missions at country level to aid with EQA *- National proficiency program for priority diseases (AI)*	Q3-4 2012 Q1-2 2013 annual
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	K	Regional biosafety risk assessments ** Regional AH laboratory biosafety cabinet testing, repair, certification ** *- Integration of antigenic analysis modules into updated LIMS*	Q4 2012 Q1 2013 Q3 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	N	*- National network meeting and lab director's forum* *- Provision for national laboratory coordinator*	Q2 2013 12 months
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs *- Four-way linking to improve the linkage between AH and PH*	Q1 2013 TBD
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Lao PDR

USAID Obj		2012-13 LAOS	
DETECT	A	Mapping laboratory resources - *Onsite lab visits*	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory - *Support In-country Lab-Field linkage training*	Q4 2012 Q1 2013
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing Backstopping missions at country level to aid with EQA	Q3-4 2012 Q1-2 2013
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification - *International consultant to strengthen diagnostic capacity and quality management* - *Further development of laboratory SOPs and guidelines* - *Support implementation of updated LIMS*	Q4 2012 Q1 2013 6 months Q1 2013 Q3-4 2012
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	N	- *National veterinary laboratory conference/training*	Q2 2013
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Malaysia

USAID Obj		2012-13 MALAYSIA	
DETECT	A	Mapping laboratory resources - *Onsite lab visits*	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory - *Support In-country Lab-Field linkage training*	Q4 2012 Q2 2013
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing Backstopping missions at country level to aid with EQA	Q3-4 2012 Q1-2 2013
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material - *Biosafety training course targeting PREDICT labs*	Q4 2012 Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification	Q4 2012 Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Philippines

USAID Obj		2012-13 PHILIPPINES	
DETECT	A	Mapping laboratory resources - *Onsite lab visits*	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory - *Support In-country Lab-Field linkage training*	Q4 2012 Q2 2013
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing Backstopping missions at country level to aid with EQA	Q3-4 2012 Q1-2 2013
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification	Q4 2012 Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Thailand

USAID Obj		2012-13 THAILAND	
DETECT	A	Mapping laboratory resources *- Onsite lab visits: FMD regional lab*	Q1 2013
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
		- Support In-country Lab-Field linkage training	Q2 2013
	D	Regional workshops on diagnosis of targeted diseases	Q2 2013
		Regional workshop for Applied Veterinary Bioinformatics	Q2 2013
		e-Modules for bioinformatics	Q4 2012
	E	- Strengthening FMD and brucellosis services: TH-NIAH	Q1-4 2013
REPORT	G	Support sample referral for disease confirmation	as needed
		Advocate for adequate laboratory budget and surveillance	ongoing
QA/QC	H	Regional Proficiency testing	Q3-4 2012
		Backstopping missions at country level to aid with EQA	Q1-2 2013
		- National proficiency program for priority diseases TH (AI)	annual
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
		- Biosafety training course targeting NIAH and RRL-FMD	Q2 2013
	K	Regional biosafety risk assessments	Q4 2012
		Regional AH laboratory biosafety cabinet testing, repair, certification	Q1 2013
		- Support implementation of updated LIMS	Q1-2 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	M	*- Build capacity in leading animal health laboratories to design, implement a proficiency testing program for AI: TH-NIAH*	Q2 2013
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

Viet Nam

USAID Obj		2012-13 VIET NAM	
DETECT	A	Mapping laboratory resources - *Onsite lab visits*	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
	E	- *Strengthening swine disease diagnostics: VN-RAHO6*	Q1 2013
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing Backstopping missions at country level to aid with EQA - *National proficiency program for priority diseases VN (CSF, PRRS)*	Q3-4 2012 Q1-2 2013 annual
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification	Q4 2012 Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	M	- *Build capacity in leading animal health laboratories to design, implement a proficiency testing program for swine diseases*	Q2 2013
	N	- *Vietnamese Veterinary Conference*	Q2 2013
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs - *Four-way linking to improve the linkage between AH and PH*	Q1 2013 Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

South Asia: Bangladesh

USAID IDENTIFY Obj		2012-13 BANGLADESH	
DETECT	A	Mapping laboratory resources *- Onsite lab visits*	OCT-NOV 2012
	B	Provision of equipment and supplies/equipment maintenance activities based upon needs assessment	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
	E	*- Strengthening PPR diagnostics: BD-BLRI*	Q1 2013
	F	*- Harmonization of diagnostics for influenza*	Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing Backstopping missions at country level to aid with EQA	Q3-4 2012 Q1-2 2013
	I	Regional training program on sample shipment and referral (+IATA certification) *- National proficiency program for priority diseases VN (CSF, PRRS)*	Q2 2013 annual
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification	Q4 2012 Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	N	*- Bangladesh Laboratory Response Network meeting*	Q2 2013
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs *- Four-way linking to improve the linkage between AH and PH*	Q1 2013 TBD
	P	Support to and participation in scientific conferences, trainings or workshops	on request

South Asia: Nepal

USAID Obj		2012-13 NEPAL	
	C	Strengthening the linkage between the field and laboratory	Q4 2012
	D	Regional workshops on diagnosis of targeted diseases Regional workshop for Applied Veterinary Bioinformatics e-Modules for bioinformatics	Q2 2013 Q2 2013 Q4 2012
REPORT	G	Support sample referral for disease confirmation Advocate for adequate laboratory budget and surveillance	as needed ongoing
QA/QC	H	Regional Proficiency testing	Q3-4 2012
	I	Regional training program on sample shipment and referral (+IATA certification)	Q2 2013
	J	Regional training course for biosafety officers and development of training material	Q4 2012
	K	Regional biosafety risk assessments Regional AH laboratory biosafety cabinet testing, repair, certification	Q4 2012 Q1 2013
NETWORK	L	Regional Laboratory Directors Forum & Lab Network meeting	OCT 2012
	O	Regional meeting on AH-PH Laboratory Strengthening for EIDs	Q1 2013
	P	Support to and participation in scientific conferences, trainings or workshops	on request

3.2.4 Regional Summary for South and Southeast Asia

USAID IDENTIFY Objectives		Activity Category	Timing
1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	A	**Mapping national and regional laboratory resources for animal health**	
		1. Consultant for analysis and reporting	
		2. On site visit	OCT-NOV 2012
		3. On site visit (TH)	Q1 2013
	B	**Provide laboratory equipment and supplies in a coordinated manner**	
	C	**Strengthening the linkage between the field and laboratory**	
		1. Linking field and laboratory workshop (regional)	Q1 2013
		2. Support In-country Lab-Field linkage (TH, LA, MY, PH)	Q2/3 2013
		3. Ensuring access to supplies in the field (with DELIVER in Indonesia) assessment & series of meetings for tool development and training	Q4 2012 – Q3 2013
		4. Support advanced virus characterization of selected viruses from national network activities (ID)	annual selection
	D	**Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management**	
		1. Diagnostic workshop for targeted diseases (regional)	Q2 2013
		2. Applied Veterinary Bioinformatics Workshop (regional)	Q2 2013
		3. e-Learning Module for phylogeny (regional)	Q4 2012
		4. Testing of data module for national network (ID)	Q4 2012
	E	**Strengthening regional resources for selected animal diseases**	
		1. Strengthening FMD and brucellosis services (TH)	Q1-4 2013
		2. Strengthening swine disease diagnostics (VN)	
		3. Strengthening PPR disease diagnostics (BD)	
	F	**Targeted support for strengthening diagnostic capacity and laboratory management**	
		1. Harmonization of diagnostics for influenza (BD)	
		2. Collaboration with reference laboratory to build diagnostic capacity and deliver training on diagnostic approaches (6 months) (CA)	Q4 2012
		3. Develop user friendly tools for antigenic data analysis (ID)	Q1 2013
2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities	G	**Support timely diagnosis and reporting for priority diseases, including support of laboratory policy to ensure flow of samples and sharing of information**	
		1. Sample referral for disease confirmation (stopgap measure where urgent disease confirmation is needed)	
		2. Advocate for adequate laboratory budget and surveillance	(ad hoc)
3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System	H	**External quality assurance management (EQA) for diagnosis of targeted diseases**	
		1. Provision of reference panels for proficiency trial	Nov-12
		4. Backstopping missions at country level	NOV 12-MAR 13
		5. Support for National proficiency program for priority diseases (ID, TH, VN)	Annual
	I	**Develop and conduct trainings or workshops to promote laboratory quality management**	
		1. Training/IATA certification for sample shipment	Q2 2013
		2. TBD based upon outcomes of Laboratory Directors' Forum and Regional Laboratory Networking meeting	
	J	**Develop and conduct trainings or workshops to promote laboratory biosafety and biosecurity**	
		1. Regional training course for biosafety officers	Q2 2013
		2. Biosafety training course: PREDICT labs (MY)	Q4 2012
		3. Biosafety training course	
	K	**Targeted support for laboratory quality management systems, including biosafety**	
		1. Backstopping support following Biosafety risk assessments	OCT 12- JUN 13
		2. Biosafety cabinet testing/repair/certification at country level	AUG 12-MAR 13
		3. In-country international consultant engaged to strengthen diagnostic capacity and quality management	
		4. Further development of laboratory SOPs and guidelines	Q1 2013
		5. Integration of antigenic data modules into updated LIMS	Q3 2013
		6. Support implementation of updated Laboratory Information Management Systems (LIMS) through use of self assessment tools; development of specifications for national selection; and identification of gaps/needs for hardware and customization for provision of selected LIMS	LA: OCT-DEC 2012; TH: JAN-JUN 2013
4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	L	**Regional laboratory network support and coordination for animal health**	
		1. Animal Health (AH) Laboratory Technical Advisory Group	JUN 2013
		2. AH Laboratory Director's Forum	OCT 2012
		3. Regional AH Laboratory Networking Meeting	TBD
	M	**Enhancing the role of Regional Leading Laboratories for animal health**	
		1. Build capacity in leading animal health laboratories to design, implement a proficiency testing program for priority diseases	Q1-4 2013
	N	**Supporting National laboratory networks for animal health**	
		1. Bangladesh Laboratory Response Network Meeting	Q2 2013
		2. National veterinary laboratory conference/training (CA)	Q2 2014
		3. Provision for national laboratory coordinator (ID)	12 MONTHS
		4. National network meeting and lab director's forum (ID)	Q2 2014
		5. Vietnamese Veterinary Conference	Q2 2014
	O	**One Health initiatives: strengthening linkages between veterinary and public health**	
		1. AH-PH Laboratory Strengthening for emerging infectious diseases in Asia Pacific Region	Q1 2013
		2. Follow up to 4-way linking Workshop in Viet Nam	TBD
		3. 4-way linking assessment and Workshop for Bangladesh	TBD
		4. 4-way linking assessment and Workshop for Indonesia	TBD
	P	**Support to and participation in scientific conferences, trainings or workshops**	upon request and review

3.3 ACTIVITY SCHEDULE CONGO BASIN

NOTE: The Regional Laboratory Networks for Africa are supported by FAO, in collaboration with other international and regional organizations. Under a programmatic approach, FAO receives several funding sources to support these networks, with major contributions jointly from USAID-IDENTIFY and EU funded Veterinary Governance Project. All the ten countries participating in the Africa networks will be supported under FAO | IDENTIFY in Year 4: Cameroon, Central Africa Republic (CAR), Congo Republic, Democratic Republic of Congo (DRC), Gabon, Equatorial Guinea, Rwanda, South Sudan, Tanzania and Uganda. Although not part of the IDENTIFY beneficiary countries, Regional Support Laboratories (RSLs) – BNVL/Botswana, NAHDIC/Ethiopia, NVRI/Nigeria and LNERV/Senegal - will also receive limited support from the project.

3.3.1 IDENTIFY-SUPPORTED LABORATORIES – CONGO BASIN

Region	Country	National Veterinary laboratories	Abbrev.	Laboratory Focal point	Disease specialty and/or focus*	PREDICT lab
Western and Central Africa	**Cameroon (CM)**	Laboratoire National Vétérinaire de Garoua	LANAVET-Garoua	Dr Abdoulkadiri Souley	ASF, brucellosis, CBPP, Newcastle disease, PPR, rabies, TB	
	CAR (CF)	Laboratoire Central Vétérinaire de Bangui	LCV-Bangui	Dr Domitien Gbamangou Mokondji	ASF, brucellosis, Newcastle disease, PPR, rabies	
	Congo (CG)	Laboratoire de diagnostic vétérinaire de Brazzaville	LDV - Brazzaville	Dr Jean Ikolakoumou	CBPP, PPR	
	Congo DR (CD)	Laboratoire Vétérinaire de Kinshasa	LVK	Dr Léopold Mulumba Mfumu Kazadi	AI, ASF, brucellosis, CBPP, FMD, LSD, Monkey pox, Newcastle disease, PPR, rabies, RVF	
	Equatorial Guinea (GQ)	Laboratoire National	ECAA-KM7	n/a	n/a	
	Gabon (GA)	Laboratoire National vétérinaire de Libreville	LNVL	Dr Sylvain Patrick Enkoro	n/a	
	Nigeria (NG)**	National Veterinary Research Institute - Vom	NVRI	Dr Mohammed Sani Ahmed	Anthrax, ASF, brucellosis, CBPP, coccidiosis, FMD, HPAI, Newcastle disease, PPR, rabies, salmonellosis	
	Senegal (SN)**	Laboratoire National d'Elevage et de Recherches Vétérinaires	LNERV	Dr Yaya Thiongane	AHS, anthrax, ASF, FMD, HPAI, PPR, LSD, Newcastle disease, rabies, rinderpest, RVF, salmonellosis, TB	
Eastern Africa	**Ethiopia** (ET)**	National Animal Health Diagnostic Investigation Centre	NAHDIC	Dr Mesfin Sahle	AI, AHS, CBPP, CCPP, Newcastle disease, PPR, RVF	
	Rwanda (RW)	National Veterinary Laboratory	NVL	Dr. Isidore Gafarasi	AI, brucellosis CBPP, CCPP, PPR, RVF	Yes
	South Sudan	Central Veterinary Laboratory	CVL	n/a	n/a	

	(SSD)					
	Tanzania (TZ)	Central Veterinary Lab	CVL	Dr S. Das	AI, ASF, Bovine TB, brucellosis, CBPP, FMD, Newcastle disease, PPR, rabies, RVF	Yes
	Uganda (UG)	National Animal Disease Diagnostics and Epidemiology Centre	NADDEC	Dr Rose Ademun Okurut	ASF, CBPP, FMD, PPR, rabies. rinderpest	
Southern Africa	**Botswana** ** **(BW)**	Botswana National Veterinary Laboratory	BNVL	Dr L. Modisa	FMD	

* African Horse Sickness (AHS); African swine fever (ASF); Avian influenza (AI); Contagious Bovine Pleuropneumonia (CBPP); Contagious Caprine pleuropneumonia (CCPP); Foot and Mouth disease (FMD); Highly Pathogenic Avian Influenza (HPAI); Lumpy skin disease (LSD); Peste des petits ruminants (PPR); Rift Valley fever (RVF), Tuberculosis (TB).

** Regional Support laboratory (RSL)

3.3.2 Regional Activities for Congo Basin

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases

C1.A. Mapping national and regional laboratory resources for animal health

a. Ongoing analysis and update of laboratory assessment data from the FAO Laboratory Mapping Tool, FAO and partner laboratory expert assessments/mission/backstopping reports, as well as outcomes from regional proficiency testing programmes for integration into progress indicators
b. These activities contribute to enhancing diagnostic capacity through the identification of national and regional resources and gaps which guide ongoing capacity building, strengthen national and regional laboratory networks, and improve disease control efforts
c. FAO- ECTAD offices in Bamako, Nairobi and Gaborone provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. Building on previous work funded by IDENTIFY, progress includes an updated LMT and compilation and analysis of results to establish baseline
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Mapping national and regional laboratory resources for animal health	Regional/Q3 2012/Technical
2. Global compilation of updated regional data on laboratory capacity and networks,	Regional[22]/Q3-Q4 2012

h. Available laboratory assessment data are analyzed and integrated for monitoring and evaluation of IDENTIFY-supported laboratories; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2

[22] To be carried out by a M&E Expert

i. Regional activity available (refer to Table 3.3.1)
j. Laboratory staff and international or regional experts

C1.B. Provide laboratory equipment and supplies in a coordinated manner

a. Provision of laboratory equipment, supplies, and reference materials based on the identified needs in accordance with national priorities
b. This effort directly impacts the laboratories' ability to safely conduct diagnostic activities, and strengthen laboratory support for national and regional surveillance efforts, including EPT
c. FAO- ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support
d. IDENTIFY is one of the major funding sources for this activity correspondence and published materials will be branded appropriately using partner logos where other funding is included
e. Coordinated based upon consultation of labs for lists of lab equipment, supplies and reagents, and according to mapping exercise and other assessments - procurement support is integral to the support provided to the Regional Laboratory Network in Western and Central Africa, and Eastern Africa
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Timing*
1. Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
2. Assistance mission for installation of procured laboratory equipment	Q4 2012

h. Laboratory equipment/supplies are present and operational in recipient laboratories; FAO|IDENTIFY Indicators: 1.3-1.4
i. Prioritized for IDENTIFY-**supported national animal health laboratories**
j. To coordinate with other procuring partners such as **PREDICT, DELIVER, AU-IBAR, AU/PANVAC and IAEA**

C1.C. Strengthening the linkage between the field and laboratory

a. Trainings or workshops, jointly organized when possible, to strengthen the linkage between the field and laboratory staff. Trainings envisioned at the regional and country level
b. These activities contribute to improving the quality of information and samples received from the field and strengthening the 2-way communication between the laboratory and the field
c. FAO-ECTAD regional offices (Bamako and Nairobi) to provide technical expertise, coordination, and operational support in concordance with HQ.
d. IDENTIFY is the major funding source for these activities; correspondence and published materials will be branded appropriately using partner logos where other funding is included
e. There will be new activities included in the overall support provided to the Regional Laboratory Networks in Western and Central Africa, and Eastern Africa, which specifically build upon: *Basics of field pathology workshop (Nairobi in April 2012 and Kinshasa in September 2012)*.
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. National Field Pathology trainings	All except GQ/ Q4 2012 and Q2 2013/ Technical[23]
2. Investigation and data collection on targeted diseases	All except GQ/ Q4 2012 and Q2 2013/Technical

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2
i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.3.1) from **Item G** above: 1. and 2. For all IDENTIFY-supported laboratories.
j. From Item G above: 1) International Expert, 2) Epidemiology experts at country level

C1.D. Develop and Conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management

a. Trainings or workshops, jointly organized when possible, to address themes such as: diagnosis of priority and emerging pathogens; regional harmonization of testing; and overall laboratory management. The majority of training activities will be conducted at the regional level, with specific needs being targeted at the national level.
b. These activities contribute to enhancing diagnostic capacity through improving the technical ability of laboratory staff, and deliver management tools. Collectively, these trainings strengthen laboratory support for national and regional surveillance efforts, including EPT
c. FAO offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to Western and Central Africa, and Eastern Africa, and specifically build upon: two workshops for rabies diagnosis (Garoua and Kinshasa, May and June 2012) and two regional courses on transboundary and zoonotic animal disease: early detection, surveillance and epidemiology *(June/July 2011 and July 2012).*
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Sequencing workshop, Vienna	CM, ET, KE, CD, TZ, UG, NG, SN, BW/Nov 2012/Technical[24]
2. Conduct workshops to promote laboratory management	Regional/Oct 2012 – Sep 2013 /Technical[25]

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2
i. Prioritized for IDENTIFY-supported **National animal health laboratories** and **Regional Support Laboratories**
j. **From Item G above:** 1. with FAO/IAEA

C1.E. Strengthening regional resources for selected animal diseases

a. Strengthen capacity and resources in regional support laboratories for selected diseases
b. Improving the services provided by regional leading laboratories by enhancing their capacity for selected diseases

[23] Limited number (5) of laboratory and field veterinary staff to be trained per country

[24] Participants to this technical meeting include 1 person per laboratory (refer to I)

[25] Participants to this technical meeting include 2 persons per country (refer to I)

c. FAO-ECTAD offices in Bamako and Nairobi will provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. This is a new activity for the regional leading laboratories which will be integrated into the support provided to the Regional Laboratory Networks in Western and Central Africa, and Eastern Africa
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Timing*
1. Produce and disseminate Disease and Labs cards (case definition and recommended test repertoire for IDENTIFY listed priority diseases)	Q4 2012 – Q1 2013

h. Disease description and laboratory tests repertoire for IDENTIFY listed priority diseases - 2 to 3 pages for each disease- produced and disseminated; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2
i. Prioritized for IDENTIFY-supported **National animal health laboratories and Regional Support Laboratories**
j. International and regional experts

C1.F. Targeted support for strengthening diagnostic capacity and laboratory management

a. Laboratory experts provided for technical inputs as well as overall laboratory management to address demonstrated needs and country requests; Terms of Reference developed in coordination with country officials
b. Targeting in-country bench side skills and promoting strategic laboratory management to elevate diagnostic capacity and strengthen laboratory support for national and regional surveillance efforts, including EPT
c. FAO-ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Network in Regional Laboratory Networks in Western and Central Africa, and Eastern Africa
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Support competence development in bush meat microbiology	CF, CG, GA/5 days, Q4 2012/Technical
2. Support competence development in antimicrobial resistance for food safety, including training, supplies and sampling	UG/Q4 2012/Technical[26]
3. Strengthen advanced ASF diagnostic capacities	CM/ Q4 2012-Q1 2013/Technical[27]
4. Strengthening ASF capacities: Specific assessment/on-site training	ET, TZ, UG/5 days/Q1-2 2013/Technical
5. On site mission to develop diagnostic competence for ASF, CBPP and rabies	CF, CG, GA/5 days/ Q4 2012-Q1 2013/Technical
6. On site mission to develop diagnostic competence for rabies	SSD/5 days/Q1 2013/Technical
7. On site mission to develop diagnostic competence for CBPP	UG/5 days/ Q1 2013/Technical
8. Support trypanosomiasis/tickborne diseases diagnosis	CF, CG, GA, SSD, RW/5 days/Q1-2 2013/Technical[28]

[26] One scientist of the beneficiary laboratory to be trained in Kenya and further trained national laboratory staff and carry out analyses on food safety issues

[27] One laboratory staff to be trained in a reference laboratory center for three months

[28] Participants include 2-3 persons per beneficiary laboratory

9. Mentoring program and laboratory management CM, CD, UG/Q2-3 2013/Technical[29]
10. Propose a strategy for development of the national laboratory: Specific assessment/on-site expert mission GQ/5 days, Q1 2013/Technical and strategic

h. Expert missions conducted and report produced; laboratory feedback received; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2 where relevant.
i. Prioritized for IDENTIFY-supported **National animal health laboratories**.
j. Laboratory experts, international reference laboratories (IZSVe, CIRAD), FAO/IAEA.

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations

C2.G. Support timely diagnosis and reporting for priority animal diseases, including support of laboratory policy to ensure flow of samples and sharing of information

a. Train field personnel on autopsy, sample collection, packaging and shipment to national laboratories
b. These trainings will impact on the field personnel's ability to obtain correct samples and package them appropriately and subsequently the laboratories' ability to provide accurate diagnosis in a timely manner.
c. FAO-ECTAD regional offices (Bamako, Nairobi, Gaborone) to provide coordination and operational support
d. IDENTIFY provides the only funding for this activity
e. Contributes to accurate and early disease confirmation, particularly where emerging or unknown diseases are suspected
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. TIMING: ad hoc basis (training will be included in country specific plans)

Activity	*Timing/type of activity*
1. Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013/Technical and Strategic
2. Contribute to the Global Consultation on laboratory policy: providing information on African setting	Q4 2013/Strategic
3. Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	CM, CD, RW, TZ, UG/Q3 2012-Q2 2013//Strategic

h. Field personnel trained, correct samples shipped appropriately, prompt disease confirmation obtained.
i. Prioritized for IDENTIFY-supported **national animal health laboratories**
j. International reference laboratories, regional support laboratories and in coordination with WHO & OIE.

[29] Participants include laboratory directors for selected countries (refer to item l)

Output 1: Capacity of national animal health laboratories to detect and diagnose diseases under a quality management system enhanced

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System.

C3.H. External quality assessment (EQA) for diagnosis of targeted animal diseases

a. Coordinate, conduct, and analyze regional ring trial for proficiency testing of targeted diseases (AI/ND, ASF, CBPP, PPR, RVF)
b. Contributes to improving national laboratory staff competency, harmonization of diagnostic procedures and EQA approaches, determination of gaps, and confirmation of actual diagnostic capacity for targeted diseases in the region
c. FAO-ECTAD offices in Bamako, Nairobi and Gaborone to provide coordination and operational support; international reference laboratories to provide the panels for proficiency
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Networks in Western and Central Africa, and Eastern Africa and build upon previous proficiency trials for AI/ND, PPR, RVF conducted for the region and organized under IDENTIFY-support in Years 2-3
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Timing*
1. Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
- AI and ND: BW, CM, CF, CG, CD, ET, GA, KE, NG, RW, SN, SSD, TZ, UG	
- RVF (with FAO/IAEA and National Institute for Communicable Diseases/South Africa)	CM, CF, CG, CD, ET, SN, RW, TZ, UG/July 2013
- PPR (organized by FAO/IAEA)	CM, CF, CG, CD, ET, SN, RW, TZ, UG/June 2013
- ASF (with a reference laboratory)	CM, CF, CG, CD, ET, GA, RW, TZ, UG/Q2 2013
- CBPP (organized by CIRAD)	CF, GA, CG/Q2 2013
2. Three backstopping missions at country level to aid with EQA	3 countries TBD/Q1-3 2013/Technical

h. Ring trial for proficiency conducted, data analyzed and reported; backstopping missions to each participating laboratory (PPR and RVF) for troubleshooting; integration into LMT data; FAO|IDENTIFY Indicators: 1.1, 3.1, 3.2
i. Prioritized for IDENTIFY-supported **National animal health laboratories and Regional Support Laboratories**
j. International reference laboratories and FAO/IAEA, National Institute for Communicable Diseases/South Africa

C3.I. Develop and conduct trainings or workshops to promote laboratory quality management, *excluding biosafety/biosecurity (refer to activity group J)*

a. Trainings or workshops, jointly organized when possible, to promote laboratory quality management. The majority of training activities will be conducted at the regional level, with specific needs being targeted at the national level.
b. Contributes to enhance diagnostic capacity through improving the understanding and implementation process of quality management approaches. Collectively, these trainings

strengthen laboratory support for national and regional surveillance efforts, including EPT

c. FAO-ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These activities are integral to the support provided to the Regional Laboratory Networks in Western and Central Africa, and Eastern Africa, and specifically build upon previous workshops for Quality management system improvement.
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type/Month/Year*
1. On site regional trainings on equipment maintenance and calibration.	Regional/5 days/Q1-2 2013/Technical
2. Two Regional Quality Assurance trainings	Regional/ Q1-2 2013/Technical[30]

h. Training or workshop prepared and conducted; participant evaluations completed; and report produced; FAO|IDENTIFY Indicators: 1.1, 1.2, 3.1, 3.2
i. Prioritized for IDENTIFY-supported **National animal health laboratories** and 2 RSLs (Senegal and Botswana)
j. Laboratory experts and AU-PANVAC

C3.K. Targeted support for laboratory quality management systems, including biosafety (at country level)

a. Targeting in-country laboratory management through provision of laboratory experts to improve implementation of quality management systems, including biosafety/biosecurity programs
b. Contributes to greater capacity for biosafety/biosecurity, as well as sample tracking, analysis of results, and reporting under a quality management system, and strengthens laboratory support for national and regional surveillance efforts
c. FAO- ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. These activities are integral to the support provided to the Regional Laboratory Networks in West and Central Africa, and East Africa
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Support to national Biosecurity/biosafety implementation, (minor renovations in the laboratories).	All except GQ/Q4 2012-Q2 2013/Technical
2. Regional training to support equipment maintenance and calibration services	Regional/ Q4 2012-Q2 2013/Technical[31]
3. Support implementation of Laboratory Information System (LIMS).	BW, TZ/ Q4 2012-Q2 2013/Technical

h. **From Item G**: 1, 2) Expert mission conducted and report produced; laboratory feedback received; 3) ; Equipment maintenance provided;
i. Prioritized for IDENTIFY-supported **National animal health laboratories and Regional Support Laboratories**

[30] Participants include 2 persons per beneficiary laboratory (refer to I)

[31] Participants include 2 persons per beneficiary laboratory

j. 1-2) Laboratory biosafety and quality management experts, AU-PANVAC, 3) IZSVe-(Italy).

Output 2: Linkages and communication pathways across national, regional and global laboratory and epidemiology networks for the management of emerging zoonotic pathogens strengthened

USAID | IDENTIFY OBJECTIVE(S) ADDRESSED:

4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities.

C4.L. Regional laboratory network support and coordination for animal health

a. Meetings and other activities conducted to maintain and strengthen the regional laboratory network

b. Laboratory networks are strengthened at the regional level to build trust, harmonize diagnostic approaches, and improve information sharing. These activities enhance the rapid identification of emerging and zoonotic diseases.

c. FAO- ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.

d. IDENTIFY is a major funding source for these activities[1]; correspondence and published materials will be branded appropriately using partner logos

e. These activities are integral to the support provided to the Regional Laboratory Networks in Western and Central Africa and in Eastern Africa, and specifically build upon the annual meetings initially launched in support of the network for HPAI in 2006 and expanded per regional agreement to include broader issues of laboratory capacity building and transboundary animal diseases in 2010.

f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi

g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Support ASF regional networking and strategic	Regional/ Q4 2012-Q2 2013/Technical
2. Two Regional Support Laboratory meetings	SN, BW, ET, NG/Q4 2012 and Q3 2013/Strategic[32]
3. Two CVO meetings	Regional/ Q1 2013/Strategic[33]
4. Annual Regional Laboratory Network Meetings (RESOLAB/EARLN)	Regional/Dec 2012, July 2013/Technical and strategic[34]

h. Laboratory networks active and operational, scientific and institutional outputs of the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3

i. Prioritized for IDENTIFY-supported **national animal health laboratories** (summary below, refer to Table 3.3.1); and **Regional Support Laboratories** (From Item G above: 1, 2, 4); other supported laboratories to be considered upon request and in line with regional priorities

j. **From Item G above:** 1. FAO/IAEA, AU-IBAR, international reference laboratories; 2. AU-PANVAC; 3. OIE; international reference laboratories, AU-IBAR.

[32] Participants include 2 persons (Directors of RSLs and CVOs of concerned countries)

[33] Participants include CVOs of IDENTIFY beneficiary countries

[34] Participants include 1-2 laboratory staff per laboratory in item J

C4.M. Enhancing the role and status of Regional Support Laboratories

a. Strengthen the role and status of Regional Support Laboratories in their respective regions
b. Improving the services provided by Regional Support Laboratories such as provision of reference reagents, implementation of ring trials for proficiency testing, capacity building in quality assurance, laboratory management and disease diagnostics
c. FAO- ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding for this activity
e. These are ongoing and new activities for the Regional Support Laboratories which will be integrated into the support provided to the Regional Laboratory Networks in Western and Central Africa and in Eastern Africa and specifically build upon the meeting to define the roles and responsibilities of Regional Support Laboratories (Addis Ababa, July 2012)
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Conclusive meeting for validation/endorsement by beneficiary laboratories, CVOs, and commitment by key partners (RECs)	Regional/Nov 2012/Strategic[35]

h. Following on the activities under **C1.E** - Regional Support Laboratory i) demonstrates the ability to diagnose major diseases under a quality management system (per expert review, data from LMT and results of proficiency tests), ii) contributes to regional efforts to build its own capacities and capacities of national laboratories in the region; FAO|IDENTIFY Indicators: 1.1, 3.1, and 3.2 where relevant
i. Prioritized for all **IDENTIFY laboratories** and **Regional Support Laboratories** (summary below, refer to Table 3.3.1)
j. RECs, AU/IBAR, OIE, AU-PANVAC, international reference laboratories, and other laboratory experts

C4.N. Supporting national laboratory networks for animal health

a. Meetings and other activities conducted to develop and/or maintain a national laboratory network
b. Laboratory networks are strengthened at the national level to improve communication, functionality of some provincial laboratories, harmonize diagnostic approaches, and improve delivery of samples and information. These activities enhance the rapid disease identification and communication of results for improved disease control at the national level.
c. FAO- ECTAD offices in Bamako and Nairobi to provide technical expertise, coordination, and operational support, in concordance with HQ.
d. IDENTIFY is the major funding source for these activities[1]; correspondence and published materials will be branded appropriately using partner logos
e. These are new activities to develop and/or support national laboratory networks which contribute to the outcomes of the Regional Laboratory Networks in Western, Central and Eastern Africa, and to national laboratory capacities.
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. Support to national laboratory network meetings and related activities	CM, CD, TZ, UG/Q4 2012-Q2 2013/Strategic
2. Review of the status of the National laboratory network by a National consultant	CM, CD, RW, TZ, UG/ Q1 2013/Strategic

[35] Participants include 1-2 IDENTIFY beneficiary laboratories staff + RSLs + other partners in item J

3. Strengthen animal health laboratory in Goma (DR Congo) to carry out basic serology analysis and good practices on sampling and shipment (PPR, FMD)
   CD/Q4 2012-Q2 2013/Technical
4. Support to national laboratory network in partnership with DELIVER
   UG/Q1-3 2013/Technical

h. Laboratory networks maintained and operational, scientific outputs from the networks made available; FAO|IDENTIFY Indicators: 4.1, 4.3
i. Prioritized for IDENTIFY-supported **national animal health laboratories**
j. From Item G above: 2) National Consultants; 4) International or regional laboratory expert; to coordinate with DELIVER

C4.O. One Health initiatives: strengthening linkages between veterinary and public health

a. Meetings and other activities conducted to develop and/or maintain cross-sectoral communication and linkages at country and regional levels
b. Strengthening cross-sectoral communication and linkages to enhance/improve networking for detection and control of emerging and zoonotic diseases
c. FAO HQ coordination and technical expertise with technical and operational support from regional and country level offices
d. IDENTIFY is one of the major funding sources for these activities[1]; correspondence and published materials will be branded appropriately using partner logos;
e. These activities represent both ongoing and new efforts that develop and/or support One Health initiatives. These activities are continuation from Year 3: One Health meeting in all IDENTIFY countries; One Health seminar on rabies (CAR, Gabon, Congo)
f. Boubacar M. Seck, Bouna Diop; FAO-ECTAD Bamako and Nairobi
g. **TIMING**:

Activity	*Location/Timing/Activity type*
1. One Health seminar on Rabies	CF, GA, CG/ Q4 2012/Technical
2. Disseminate rabies training kits	Q1 2013/Technical
3. Support national One Health meetings	All except GQ/Q4 2012/Technical

h. Missions and workshops conducted and reports produced; FAO|IDENTIFY Indicators: 4.2, 4.3, 4.4
i. Prioritized for IDENTIFY-supported **national animal health laboratories** and **Regional Support Laboratories** (item G above: 2 only)
j. OIE, WHO, international reference laboratories, laboratory and epidemiology experts from animal and public health, PREDICT, RESPOND

3.3.3 Country Supplements for Congo Basin

In concordance with USAID, the country level work plans are summarized in table format with activities listed in the context of the four USAID IDENTIFY objectives as in Table 2.1; country-specific activities are *italicized*. Each of the USAID IDENTIFY objectives (1-4) are indicated using a descriptive "tag" in the following tables. Full description of each objective is included in summary Table 3.3.4 on page 65.

CAMEROON

USAID Obj		2012-13 CAMEROON	Timeline
DETECT	A	Mapping national and regional laboratory resources for animal health	Q3 2012
	B	Provision of equipment/supplies/manuals/equipment maintenance services	Q2 2013
		- Assistance mission for installation of procured equipment	Q4 2012
	C	*- National Field Pathology trainings* *- Investigation and data collection on targeted diseases*	Q4 2012 and Q2 2013
	D	Sequencing workshop, Vienna	Q3 2012
	E	Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
		- Strengthening ASF diagnostic capacities in Cameroon	Q4 2012-Q1 2013
		- Mentoring program and laboratory management	Q2 2013
REPORT	G	Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
		Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
		- Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	Q3 2012
QA/QC	H	Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
		- Backstopping missions at country level to aid with EQA	
	I	*- On site trainings on equipment maintenance and calibration* Regional QA training	Q1-2 2013
	K	*- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
		Regional training to support equipment maintenance and calibration	
NETWORKING	L	ASF regional networking	Q4 2012-Q2 2013
		CVO and laboratory directors meeting	Q1 2013
		Networking meeting (RESOLAB)	Q4 2012
	M	Enhancing the role and status of Regional Support Laboratories	Q4 2012
	N	*- National laboratory network meeting and related activities*	Q4 2012-Q2 2013
		- Review of the status of the National laboratory network	Q1 2013
	O	Disseminate rabies training kits	Q1 2013
		- Support national One Health meetings	Q4 2012

DEMOCRATIC REPUBLIC OF CONGO

USAID Obj		2012-13 DEMOCRATIC REPUBLIC OF CONGO	Timeline
DETECT	A	Mapping national and regional laboratory resources for animal health	Q3 2012
	B	Provision of equipment/supplies/manuals/equipment maintenance services	Q2 2013
		- Assistance mission for installation of procured equipment	Q4 2012
	C	*- National Field Pathology trainings*	Q4 2012 and Q2 2013
		- Investigation and data collection on targeted diseases	
	D	Sequencing workshop, Vienna	NOV 2012
	E	Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F	*- Mentoring program and laboratory management*	Q2 2013
REPORT	G	Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
		Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
		- Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	Q3 2012
QA/QC	H	Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
		- Backstopping missions at country level to aid with EQA	
	K	*- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
		Regional training to support equipment maintenance and calibration	
NETWORKING	L	ASF regional networking CVO and laboratory directors meetings	Q4 2012-Q2 2013
		Networking meetings (RESOLAB, EARLN)	Q4 2012 and Q2 2013
	M	Enhancing the role and status of Regional Support Laboratories	Q4 2012
	N	National laboratory network meetings and related activities	Q4 2012-Q2 2013
		Review of the status of the National laboratory network by a National consultant	Q1 2013
		Support animal health laboratory in Goma in carrying out basic serology analysis and good practices on sampling and shipment (PPR, FMD)	Q4 2012 - Q2 2013
	O	Disseminate rabies training kits	Q1 2013
		- Support national One Health meetings	Q4 2012

CENTRAL AFRICAN REPUBLIC

USAID Obj	2012-13 AFRICAN REPUBLIC	Timeline
DETECT	**A** Mapping national and regional laboratory resources for animal health	Q3 2012
	B Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
	- Assistance mission for installation of procured equipment	Q4 2012
	C *- National Field Pathology trainings*	
	- Investigation and data collection on targeted diseases	Q4 2012
	E Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F Support competence development in bush meat microbiology	Q4 2012
	Develop diagnostic competence for emerging and re emerging diseases (ASF, rabies, CBPP)	Q1 2013
	Training on trypanosomiasis/tick-borne diseases) diagnosis	Q2 2013
REPORT	**G** Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
	Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
QA/QC	**H** Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
	- Backstopping missions at country level to aid with EQA	
	I *- On site trainings on equipment maintenance and calibration*	Q1-2 2013
	Regional QA training	
	K *- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
	Regional training to support equipment maintenance and calibration	
NETWORKING	**L** ASF regional networking	Q4 2012-Q2 2013
	CVO and laboratory directors meeting	Q1 2013
	Networking meeting (RESOLAB)	Q4 2012
	M Enhancing the role and status of Regional Support Laboratories	Q4 2012
	O *- On site assistance for rabies diagnosis and One Health seminar on Rabies*	Q4 2012
	Disseminate rabies training kits	Q1 2013
	- Support national One Health meetings	Q4 2012

CONGO

USAID Obj		2012-13 CONGO	Timeline
DETECT	A	Mapping national and regional laboratory resources for animal health	Q3 2012
	B	Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
		- Assistance mission for installation of procured equipment	Q4 2012
	C	*- National Field Pathology trainings*	
		- Investigation and data collection on targeted diseases	Q4 2012
	E	Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F	Support competence development in bush meat microbiology	Q4 2012
		Develop diagnostic competence for emerging and re emerging diseases (ASF, rabies, CBPP)	Q1 2013
		Training on trypanosomiasis/tick-borne diseases) diagnosis	Q2 2013
REPORT	G	Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
		Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
QA/QC	H	Regional proficiency testing (AI and ND, RVF, PPR, ASF, CBPP)	Q1-3 2013
		- Backstopping missions at country level to aid with EQA	
	K	*- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
		Regional training to support equipment maintenance and calibration	
NETWORKING	L	ASF regional networking	Q4 2012-Q2 2013
		CVO and laboratory directors meetings	Q1 2013
		Networking meeting (RESOLAB)	Q4 2012
	M	Enhancing the role and status of Regional Support Laboratories	Q4 2012
	O	On site assistance on rabies diagnosis and One Health seminar on Rabies	Q4 2012
		Disseminate rabies training kits	Q1 2013
		- Support national One Health meetings	Q4 2012

GABON

USAID Obj		2012-13 GABON	Timeline
DETECT	A	Mapping national and regional laboratory resources for animal health	Q3 2012
	B	Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
		- Assistance mission for installation of procured equipment	Q4 2012
	C	*- National Field Pathology trainings* *- Investigation and data collection on targeted diseases*	Q4 2012
	E	Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F	Support competence development in bush meat microbiology	Q1 2013
		Develop diagnostic competence for emerging and re emerging diseases (ASF, rabies, CBPP)	Q4 2012
		Training on trypanosomiasis/tick-borne diseases) diagnosis	Q2 2013
REPORT	G	Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
		Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
QA/QC	H	Regional proficiency testing (AI and ND, ASF, CBPP) *- Backstopping missions at country level to aid with EQA*	Q1-3 2013
	I	*- On site trainings on equipment maintenance and calibration* Regional QA training	Q1-2 2013
	K	*- Support to national Biosecurity/biosafety implementation* Regional training to support equipment maintenance and calibration	Q4 2012-Q2 2013
NETWORKING	L	ASF regional networking	Q4 2012-Q2 2013
		CVO and laboratory directors meetings	Q1 2013
		Networking meeting (RESOLAB)	Q4 2012
	M	Enhancing the role and status of Regional Support Laboratories	Q4 2012
	O	On site assistance on rabies diagnosis and One Health seminar on Rabies	Q4 2012
		Disseminate rabies training kits	Q1 2013
		- Support national One Health meetings	Q4 2012

EQUATORIAL GUINEA

USAID Obj	2012-13 EQUATORIAL GUINEA	Timeline
DETECT	**A** Mapping national and regional laboratory resources for animal health	Q3 2012
	B Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
	- Assistance mission for installation of procured equipment	Q4 2012
	E Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F Propose a strategy for development of the national laboratory	Q1 2013
REPORT	**G** Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
	Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
QA/QC	**I** *- On site trainings on equipment maintenance and calibration*	Q1-2 2013
	Regional QA training	
	K Regional training to support equipment maintenance and calibration	Q4 2012-Q2 2013
NETWORKING	**L** ASF regional networking	Q4 2012-Q2 2013
	CVO and laboratory directors meeting	Q1 2013
	Networking meeting (RESOLAB)	Q4 2012
	M Enhancing the role and status of Regional Support Laboratories	Q4 2012
	O Disseminate rabies training kits	Q1 2013
	- Support national One Health meetings	Q4 2012

RWANDA

USAID Obj	2012-13 RWANDA	Timeline
DETECT	**A** Mapping national and regional laboratory resources for animal health	Q3 2012
	B Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
	- Assistance mission for installation of procured equipment	Q4 2012
	C *- National Field Pathology trainings* *- Investigation and data collection on targeted diseases*	Q4 2012 and Q2 2013
	E Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F Training on trypanosomiasis/tick-borne diseases) diagnosis	Q2 2013
REPORT	**G** Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
	Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
	- Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	Q3 2012
QA/QC	**H** Regional proficiency testing (AI and ND, RVF, PPR, ASF) *- Backstopping missions at country level to aid with EQA*	Q1-3 2013
	K *- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
	Regional training to support equipment maintenance and calibration	
NETWORKING	**L** ASF regional networking CVO and laboratory directors meetings Networking meetings (EARLN)	Q4 2012-Q2 2013 Q1 2013 Q4 2012
	M Enhancing the role and status of Regional Support Laboratories	Q4 2012
	N *- Review of the status of the National laboratory network by a National consultant*	Q4 2012-Q2 2013
	O Disseminate rabies training kits *- Support national One Health meetings*	Q1 2013 Q4 2012

SOUTH SUDAN

USAID Obj	2012-13 SOUTH SUDAN	Timeline
DETECT	**A** Mapping national and regional laboratory resources for animal health	Q3 2012
	B Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
	- Assistance mission for installation of procured equipment	Q4 2012
	C *- National Field Pathology trainings*	
	- Investigation and data collection on targeted diseases	Q4 2012
	E Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F Develop diagnostic competence for rabies diagnosis	Q1 2013
	Training on trypanosomiasis/tick-borne diseases diagnosis	Q2 2013
REPORT	**G** Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
	Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
QA/QC	**H** PT and ring trials for AI and ND	
	- Backstopping missions at country level to aid with EQA	Q1-3 2013
	I *- On site trainings on equipment maintenance and calibration*	Q1-2 2013
	Regional QA training	
	K *- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
	Regional training to support equipment maintenance and calibration	
NETWORKING	**L** ASF regional networking	Q4 2012-Q2 2013
	CVO and laboratory directors meetings	Q1 2013
	Networking meetings (EARLN)	Q4 2012
	M Enhancing the role and status of Regional Support Laboratories	Q4 2012
	O Disseminate rabies training kits	Q1 2013
	- Support national One Health meetings	Q4 2012

TANZANIA

USAID Obj	2012-13 TANZANIA	Timeline
DETECT	**A** Mapping national and regional laboratory resources for animal health	Q3 2012
	B Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
	- Assistance mission for installation of procured equipment	Q4 2012
	C *- National Field Pathology trainings*	
	- Investigation and data collection on targeted diseases	Q4 2012 and Q2 2013
	D Sequencing workshop, Vienna	NOV 2012
	E Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F Strengthening ASF capacities: Specific assessment/on site training	Q2 2013
REPORT	**G** Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
	Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
	- Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	Q3 2012
QA/QC	**H** Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
	- Backstopping missions at country level to aid with EQA	
	I *- On site trainings on equipment maintenance and calibration*	Q1-2 2013
	Regional QA training	
	K *- Support to national Biosecurity/biosafety implementation*	
	Regional training to support equipment maintenance and calibration	Q4 2012-Q2 2013
	- Support implementation of updated laboratory information system (LIMS)	
	- On-site missions to support to national QA awareness and implementation	Q3 2013
NETWORKING	**L** ASF regional networking	Q4 2012-Q2 2013
	CVO and laboratory directors meeting	Q1 2013
	Networking meeting (EARLN)	Q4 2012
	M Enhancing the role and status of Regional Support Laboratories	Q4 2012
	N *- National laboratory network meeting and related activities*	Q4 2012-Q2 2013
	- Review of the status of the National laboratory network	Q1 2013
	O Disseminate rabies training kits	Q1 2013
	- Support national One Health meetings	Q4 2012

UGANDA

USAID Obj		2012-13 UGANDA	Timeline
DETECT	A	Mapping national and regional laboratory resources for animal health	Q3 2012
	B	Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
		- Assistance mission for installation of procured equipment	Q4 2012
	C	*- National Field Pathology trainings*	
		- Investigation and data collection on targeted diseases	Q4 2012 and Q2 2013
	D	Sequencing workshop, Vienna,	NOV 2012
	E	Disseminate Disease Cards and Lab Cards, links with activity G1.E4	Q4 2012
	F	Competence development in food safety and antimicrobioresistance, including training, supplies and sampling	Q4 2012-Q1 2013
		Strengthening ASF capacities: Specific assessment/on site training	Q1 2013
		- On site mission to develop diagnosis competence for emerging and re emerging diseases (CBPP)	Q1 2013
		- Mentoring program and laboratory management	Q3 2013
REPORT	G	Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	Q1 2013
		Contribute to the Global Consultation on laboratory policy: providing information from African setting	Q4 2012
		- Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	Q3 2012
QA/QC	H	Regional proficiency testing (AI and ND, RVF, PPR, ASF)	Q1-3 2013
		- Backstopping missions at country level to aid with EQA	
	K	*- Support to national Biosecurity/biosafety implementation*	Q4 2012-Q2 2013
		Regional training to support equipment maintenance and calibration	
		- On-site missions to support to national QA awareness and implementation	Q3 2013
NETWORKING	L	ASF regional networking	Q4 2012-Q2 2013
		CVO and laboratory directors meetings	Q1 2013
		Networking meeting (EARLN)	Q4 2012
	M	Enhancing the role and status of Regional Support Laboratories	Q4 2012
	N	*- National laboratory network meeting and related activities*	Q4 2012-Q2 2013
		- Review of the status of the National laboratory network	Q1 2013
		- Support national network with DELIVER	Q1-3 2013
	O	Disseminate rabies training kits	Q1 2013
		- Support national One Health meetings	Q4 2012

3.3.4 Regional Summary for Congo Basin

USAID IDENTIFY Objectives		Activity Category	Timing
1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases	A	**Mapping national and regional laboratory resources for animal health**	
		1. Laboratory self assessment	*Q3 2012*
		2. Global compilation of updated regional data on laboratory capacity and networks	
	B	**Provide laboratory equipment and supplies in a coordinated manner**	
		1. Provision of equipment/supplies/manuals/ equipment maintenance services	Q2 2013
		2. Assistance mission for installation of procured of procured laboratory equipment	Q4 2012
	C	**Strengthening the linkage between the field and laboratory**	
		1. National Field Pathology trainings	Q4 2012 and Q2 2013
		2. Investigation and data collection on targeted diseases	
	D	**Develop and conduct trainings or workshops to build diagnostic laboratory capacity and support laboratory management**	
		1. Sequencing workshop, Vienna	*Nov-12*
		2. Conduct workshops to promote laboratory management	
	E	**Strengthening regional resources for selected animal diseases**	
		1. Produce and disseminate information resources (case definition and recommended tests repertoire for IDENTIFY targeted priority diseases)	*Q4 2012*
	F	**Targeted support for strengthening diagnostic capacity and laboratory management**	
		1. Support competence development in bush meat microbiology	*Q4 2012 - Q1 2013*
		2. Support competence development in antimicrobial resistance for food safety, including training, supplies and sampling	*Q4 2012-Q1 2013*
		3. Strengthen advanced ASF diagnostic capacities	*Q1 2013*
		4. Strengthening ASF capacities: Specific assessment/on-site training	*Q1-2 2013*
		5. On site mission to develop diagnostic competence for ASF, CBPP and rabies	*Q4 2012 - Q1 2013*
		6. On site mission to develop diagnostic competence for rabies	*Q1 2013*
		7. On site mission to develop diagnostic competence for CBPP	*Q1 2013*
		8. Support trypanosomiasis/tickborne diseases diagnosis	*Q2 2013*
		9. Mentoring program and laboratory management	*Q2-3 2013*
		10. Propose a strategy for development of the national laboratory: Specific assessment/on-site expert mission	*Q1 2013*
2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities	G	**Support timely diagnosis and reporting for priority diseases, including support of laboratory policy to ensure flow of samples and sharing of information**	
		1. Support sample referral from National laboratories to RSLs and international reference laboratories for disease confirmation	*Q1 2013*
		2. Contribute to the Global Consultation on laboratory policy: providing information on African setting	*Q4 2012*
		3. Public-private partnership and sustainability of veterinary laboratories in sub-Saharan Africa	*Q3 2012*
3. Laboratories have adopted or improved Quality Assurance (QA) practices, inclusive of biosafety and biosecurity measures, and a comprehensive Quality Management System	H	**External quality assessment (EQA) for diagnosis of targeted animal diseases**	
		1. PT and ring trials AI & ND (with IZSVe)	
		2. PT and ring trials for RVF (with FAO/IAEA and National Institute for Communicable Diseases/South Africa)	
		3. PT and ring trials for PPR (organized by FAO/IAEA)	*Q1-3 2013*
		4. PT and ring trials for ASF (with a reference laboratory)	
		5. PT and ring trials for CBPP (organized by CIRAD)	
		6. Three backstopping missions at country level to aid with EQA	
	I	**Develop and conduct trainings or workshops to promote laboratory quality management,** *excluding biosafety/biosecurity*	
		1. On site regional trainings on equipment maintenance and calibration	*Q1-2 2013*
		2. Two Regional Quality Assurance trainings	
	K	**Targeted support for laboratory quality management systems, including biosafety**	
		1. Support to national Biosecurity/biosafety implementation, (minor renovations in the laboratories.	*Q4 2012-Q2 2013*
		2. Regional training to support equipment maintenance and calibration services	
		3. Support implementation of Laboratory Information System (LIMS)	
4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities, disease priorities, and responsibilities	L	**Regional laboratory network support and coordination for animal health**	
		1. Support ASF regional networking	*Q4 2012-Q2 2013*
		2. Two regional support laboratory meetings	*Q4 2012 and Q3 2013*
		3. Two CVO meetings	*Q1 2013*
		4. Annual Regional Laboratory Network Meetings (RESOLAB/EARLN)	*Q4 2012 and Q4 2013*
	M	**Enhancing the role of Regional Leading Laboratories for animal health**	
		1. Conclusive meeting for validation/endorsement by beneficiary laboratories, CVOs, and commitment by key partners (RECs)	*Q4 2012*
	N	**Supporting National laboratory networks for animal health**	
		1. Support to national laboratory network meetings and related activities	
		2. Review of the status of the National laboratory network by a National consultant	*Q4 2012-Q2 2013*
		3. Strengthen animal health laboratory in Goma (DR Congo) to carry out basic serology analysis and good practices on sampling and shipment (PPR, FMD)	
	O	**One Health initiatives: strengthening linkages between veterinary and public health**	
		1. One Health seminar on Rabies	*Q4 2012*
		2. Disseminate rabies training kits	*Q1 2013*
		3. Support national One Health meetings	*Q4 2012*

4. ANNEXES

4.1 PERFORMANCE MONITORING PLAN (PROVISIONAL)

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
1. Enhance Laboratories' ability to detect - to the appropriate level of characterization for the laboratory's capability - IDENTIFY targeted diseases[36]	- Ability of each lab to diagnose noted priority diseases* - Number of staff trained by topic, professional category and type of training/meeting/conference - Value of equipments/supplies provided to supported laboratories - Percentage of lab requested equipment/supplies provided by FAO/IDENTIFY	- Application of the FAO Lab mapping tool (LMT) - Proficiency tests - Excel based participant sheets - Purchase and supply records, along with laboratory inventory and stock records	- Annual - Routine - Routine	- Application by external evaluator, or self assessment; Analysis by IDENTIFY M&E - Regional M&E focal persons, consolidation and final analysis at FAO HQ
2. Enhance/Support Laboratories' timely reporting of IDENTIFY targeted diseases to national authorities, in support of their official notification to the appropriate regional and international organizations	- Reporting of proxy disease (e.g. AI in endemic countries) to relevant national authority	- Empres-i database	- Bi annual	- FAO HQ
3. Laboratories have adopted or improved Quality Assurance (QA) practices	- Ability of each laboratory to implement critical elements of a laboratory quality management system by NPD * - Ability of each lab to safely handle X of XX NPDs in a biosecure environment*	- Application of the FAO Lab mapping tool (LMT)	- Annual	- Application of LMT by external evaluator, or self assessment; Analysis by IDENTIFY M&E
4. Laboratories are participating in relevant regional and international laboratory networks according to their respective abilities	- Level of laboratory engagement in regional and international networks (low, medium, high)* - Number of meetings & conferences held on laboratory themes - Number of participants to meetings & conferences held on laboratory themes - Level of information sharing (low, medium, high) * - Level of communication with other laboratories (low, medium, high) *	- Application of the FAO Lab mapping tool (LMT) - Excel based participant sheets	- Annual - Annual	- Application of LMT by external evaluator, or self assessment; Analysis by IDENTIFY M&E - Regional M&E focal persons, consolidation at HQ

[36] "IDENTIFY targeted disease" indicates those diseases selected at the regional level for support under IDENTIFY. Some IDENTIFY laboratories have no mandate/interest to detect all IDENTIFY targeted diseases and data will not be reported for diseases in those cases.

* This indicator is a composite indicator using the information from the laboratory performance monitoring questionnaire

4.2 COUNTRY AND REGIONAL PROJECT MANAGEMENT

4.2.1 CONGO REGION

Organizational relationship between headquarters and the regional/country-level offices

FAO

FAO HQ with Regional, Subregional, and ECTAD Offices of Sub-Saharan Africa are engaged in oversight of activities implemented in the region, including IDENTIFY. Under this umbrella, three part-time regional officers in Africa contribute to project management for IDENTIFY: Nairobi, Kenya and Gaborone, Botswana with primary coordination from the Bamako, Mali ECTAD office. The FAO HQ-based Project Coordinator will provide direct supervision, with technical supervision of the Africa Liaison Officer and support from Operations Officers. In addition, short term experts will be hired when and where required.

Partnerships at the regional/country level

Partnerships at regional level will include (but are not limited to): FAO HQ with Regional, Subregional, and ECTAD Offices of Sub-Saharan Africa; World Organisation for Animal Health HQ and OIE Gaborone; World Health Organization HQ and WHO HQ and AFRO Brazzaville; Regional Economic Communities covering the Congo basin region; other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC); regional technical agencies (e.g. AU-IBAR, CEBEVIRHA, CTTBD, ILRI; international and regional reference laboratories situated in Africa; private sector laboratories, universities, and non-governmental organizations.

Reporting

Reporting will follow the reporting requirements and deadlines as required by USAID. FAO Headquarter will submit reporting documents (bi-annual reports and annual planning documents), to which the contributions of all regional focal points are added. Regional focal points will use the same templates for ease of integration into the global FAO report.

4.2.2 SOUTH EAST ASIA REGION

FAO HQ with the Regional and ECTAD Offices of the Asia-Pacific in Bangkok are engaged in oversight of activities implemented in the region. The IDENTIFY regional team will work under the supervision of the FAO-RAP Regional Manager and focal point for EPT, with support from the HQ-based Operation Officers and Project Coordinator, and under the technical supervision of the SE Asia Liaison Officer. In addition, short term experts will be hired when and where required.

Partnerships at the regional/country level

Partnerships at regional level will include (but are not limited to): FAO HQ with the Regional and ECTAD Offices of the Asia-Pacific in Bangkok; World Organisation for Animal Health HQ and OIE Bangkok; World Health Organization HQ, WHO SEARO New Delhi and WPRO Manila; Regional Economic Communities covering the region (ASEAN); other EPT projects and partners (e.g. PREDICT, RESPOND & US CDC); regional networks (e.g. OFFLU, EDPLN, GFN, etc.); international and regional reference laboratories situated in SE Asia; private sector laboratories, universities, and non-governmental organizations.

Reporting

Reporting will follow the reporting requirements and deadlines as required by USAID. FAO Headquarter will submit reporting documents (bi annual reports and annual planning documents), to which the contributions of all regional focal points are added. Regional focal points will use the same templates for ease of integration into the global FAO report.

In addition, the OIE is obligated by the Letter of Agreement signed 19 May 2010 between FAO and OIE (the funding mechanism chosen by USAID, using an existing cooperative agreement with FAO, to fund OIE's participation in the IDENTIFY project) to report to FAO on a biannual basis.

4.3 BUDGET

The total budget for the FAO|IDENTIFY component for October 1, 2012 through September 30, 2013, is estimated at USD 4,725,000 as indicated in the HQ, regional and country breakdown below.

Country	Estimated budget
Uganda	140,725
DRC	117,525
Congo (Republic of)	103,559
Cameroon	135,625
Gabon	104,059
Rwanda	94,259
South Sudan	99,459
Tanzania	143,959
Equatorial Guinea	87,659
Central African Republic	104,559
Congo Basin regional	*542,764*
Congo Basin subtotal	***1,674,151***
Cambodia	104,450
China	36,700
Indonesia	311,200
Laos	192,450
Malaysia	66,450
Philippines	54,450
Thailand	132,450
Vietnam	132,450
Southeast Asia regional	*422,436*
Southeast Asia subtotal	***1,453,036***
Bangladesh	115,950
Nepal	21,450
South Asia regional	*0*
South Asia subtotal	*137,400*
Bolivia	0
Brazil	0
Americas subtotal	*0*
Global	962,440
FAO HQ TSS[37] & PSC	497,973
Total	**4,725,000**

[37] Technical Support Services (TSS) and PSC (Project Support Cost)



USAID
FROM THE AMERICAN PEOPLE



World Health Organization
REGIONAL OFFICE FOR Africa

Emerging Pandemic Threats Program
WHO African Regional Level Implementation Plan

1 October 2012 – 30 September 2013

Submitted to:
United States Agency for International Development
under Cooperative Agreement #

Submitted by:

Disease Prevention and Control (DPC) Cluster
WHO African Region

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Abbreviations

AFENET	African Field Epidemiology Network
AFRO	WHO African Regional Office
AU-IBAR	African Union Inter-African Bureau for Animal Resources
CDC	Centers for Disease Control
DPC	Disease Prevention and Control Cluster
DRC	Democratic Republic of Congo
ECDC	European Centre for Disease Prevention and Control
EPT	Emerging Pandemic Threats Program
FAO	U.N. Food and Agriculture Organization
GOARN	Global Outbreak Alert and Response Network
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IST	Inter country Support Team
LMIS	Logistics Management Information System
MSF	Médecins Sans Frontières
MoA	Ministry of Agriculture
MoH	Ministry of Health
NICD	National Institute of Communicable Diseases (South Africa)
NPO	National Professional Officer
OHCEA	One Health for Central and East Africa alliance
OIE	World Organization for Animal Health
RC	Regional Committee
RRT	Rapid Response Team
rSiS	Real-time Strategic Information System
SIMS	Stock and Inventory Management System
USAID	United States Agency for International Development
WCO	WHO Country Office
WHO	World Health Organization

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I. BACKGROUND

The emergence and rapid spread of pandemic-prone infectious diseases present significant threat to humanity and global public health security. Particularly relevant is the fact that over 70% of all newly emerging and re-emerging diseases affecting humans at the beginning of the twenty-first century have originated from animals. Some of these zoonotic diseases have demonstrated ability to rapidly spread across the increasingly interconnected world; posing enormous threats to the global public health security, economic and development concerns. The pandemic threats underscore the need for comprehensive and proactive approaches for prediction, timely detection and response. These require investing in measures that enable better understanding of interfaces between animals and humans, and the ecosystems in which they live. In this context, the Emerging Pandemic Threats (EPT) program contributes to the worldwide efforts to better understand and respond to these threats with specific focus on pandemic-prone diseases.

In the African region, emerging and re-emerging infectious diseases are major contributors to Emerging Public Health Threats. Analysis of the last ten year's data provided by the countries indicates that 24-30% of all major acute disease epidemics are of zoonotic origin; some of these have pandemic potential. Among others, the currently known pandemic threats in the Region include viral haemorrhagic fevers (Ebola, Marburg, Lassa, Lujo, etc.), influenza, plague, anthrax and other emerging diseases yet to be identified. Often there is a significant time lapse between the first alert and establishing the aetiology of the emerging disease. For instance, the epidemic potential and the cause of the Nodding Syndrome which has affected over 3500 children with 170 deaths in northern Uganda has not been established after more than a decade since the disease was reported in the neighbouring districts of South Sudan. The disease which has spread to cover new areas in Uganda and South Sudan is under investigation.

The EPT program has continued to provide technical and financial resources to contribute to better understanding and response to these emerging threats in the Congo Basin and the surrounding "hotspot" countries. The implementation of the program contributes to the *sixtieth* Regional Committee recommendation which requested countries and stakeholders to strengthen capacities and partnerships to address public health challenges brought about by the interactions between animals, humans and the environment in line with One Health approach. Subsequently, the program contributes to the implementation of the International Health Regulations (2005) adopted during the *fifty-eighth* session of the World Health Assembly. IHR (2005) in part provides mechanisms to respond to Emerging Public Health Threats and focuses on building core capacities for the detection, laboratory confirmation, risk assessment and notification of all events that may constitute public health risk/emergency of international concern. The different EPT projects i.e. PREDICT, IDENTIFY, RESPOND and PREVENT in collaboration with DELIVER, all contribute to the implementation of country plans in order to attain the IHR core capacities in the African region.

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Some of the achievements of EPT implementation by AFRO from 2010-2012

The three critical roles WHO has continued to play include advocacy for promotion of One Health approach; providing support to all the EPT implementing countries and projects within WHO's mandate; and implementing IDENTIFY project in collaboration with FAO and OIE. To better respond to the needs of the countries and partners implementing the EPT program in the African region, WHO/AFRO utilized the EPT resources to strengthen its capacity at both regional and country levels. In addition, USAID through the RESPOND and DELIVER projects seconded two technical officers based in Brazzaville to improve on the human resource capacity in the WHO regional office in 2011 (at the request of AFRO management). The seconded staff are supporting development of regional strategies to guide countries on emergency preparedness planning and outbreak logistics, among others.

Specifically, EPT funds provided to AFRO have been used to support the project focal points' salaries in AFRO (Brazzaville), Inter-country Support Team (Gabon) and 5 WHO country offices. Five National Professional Officers (NPOs) were assigned / recruited as EPT national focal points to support program implementation in Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea and Uganda. In other countries with no EPT national focal points but implementing EPT program, a staff from the respective Inter-country Support Team (IST) is assigned to provide the required support. Such countries include Gabon, Rwanda and Tanzania.

Funds were also allocated to support investigation and response to outbreaks. Examples of outbreak responses supported with EPT funds include Ebola, yellow fever and Nodding Syndrome in Uganda; undiagnosed neurological syndrome in Angola; monkey pox in DRC; investigation of viral haemorrhagic fever threat in Congo; etc. Additionally, the five 4x4 pick-up vehicles purchased with EPT funds in the first year of implementation have facilitated field activities in each of the 5 countries with WHO EPT national focal points. The vehicles are being used by the multidisciplinary field teams during outbreak investigations and response. They are also used for transportation of samples and essential supplies during outbreaks.

To maximize benefits from implementing the EPT Program in the African Region, one strategic principle supported by AFRO is to utilize the existing mechanisms within the Region to further strengthen partnerships. In this regard, AFRO in collaboration with partners and the appropriate sectors convened regional coordination meetings in Brazzaville, Entebbe and Libreville to introduce EPT and advocate for support during implementation. The meetings provided opportunities for strengthening common understanding through advocacy, information sharing and joint planning. Similar meetings were held periodically at country levels and enhanced country coordination for better implementation of EPT projects. Specifically, effective platforms for coordination of country EPT activities have been established in Cameroon and Uganda during which all the implementing partners periodically share information and conduct joint planning. Pre-existing coordination mechanisms such as the national multidisciplinary task force

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for avian influenza and IDSR working group in Cameroon and Uganda respectively provided crucial framework for EPT program coordination. In 2013, similar coordination mechanisms will be identified in the other remaining countries to strengthen multisectoral coordination.

To facilitate collaborative work at regional level, a One Health steering committee was established in 2012. The multidisciplinary/multisector membership of the committee is drawn from the USAID, CDC, AU-IBAR, FAO, OIE, OHCEA and WHO. The committee among others will support preparation of the One Health meeting planned for high-level government policy makers involving 10 original EPT countries. It is proposed that the steering committee will also support finalization of the current draft of the Regional Zoonosis strategy to guide the countries and partners in the region.

It has been realized that despite implementation of IDSR in the region, significant gaps exist in the national capacities to prepare for and respond to outbreaks. A particular challenge is the long duration for confirmation of a reported alert of a potential public health event. For instance in 2010, it took more than 45 days to confirm yellow fever outbreak in Uganda. In line with this, WHO/AFRO in collaboration with the RESPOND project is in the process of developing a framework document that will guide the national authorities and partners to more effectively and timely investigate an unknown public health event. A technical working group consisting of GOARN partners with membership from CDC, MSF, NICD and WHO, has been established to facilitate the process of developing the outbreak preparedness and response framework. It is envisaged that the generic framework will be finalized by April 2013 after field-testing the drafts in Uganda and DRC in the first three months of 2013. In addition, AFRO will finalise the development of the Regional Outbreak Logistics Strategy to support timely deployment of the required resources for public health emergencies.

A separate line of EPT funding was used to implement a number of activities to strength laboratory capacity in the region under the IDENTIFY project. Among others, collaboration between the animal and human laboratory networks was strengthened through joint mapping of laboratory capacity. The funding also supported country adaptation of the Integrated Disease Surveillance and Response (IDSR) technical guidelines in order to improve on surveillance for the normative priority diseases. More detailed achievements on IDENTIFY project implementation are provided in a separate proposal.

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NARRATIVE DESCRIPTION OF 2013 ACTIVITIES

AFRO areas of focus for year 2013 EPT implementation (EPT program in general)

WHO/AFRO helps to ensure that coherent and collaborative responses to health problems are shared among countries of the region. It fosters regional cooperation to address the many health problems that readily cross borders within the region. To address these problems, WHO/AFRO facilitates dialogue, exchange of experience, and establishment of region-wide mechanisms, such as those for disease surveillance or specialized laboratory network. WHO/AFRO brings a regional perspective to the global health agenda. In line with this, the major roles WHO/AFRO will continue to play in EPT implementation in 2013 include:

1) Development of Outbreak Preparedness and Response Framework;
2) Implementation of Regional Outbreak Logistics strategy;
3) Advocacy and sensitization on One Health approach;
4) Technical assistance for Outbreak Investigation and Response;

The WHO Regional and Country offices will continue to provide support to all the EPT projects to strengthen coordination efforts. To improve on buy-in and participation by the governments and the respective line ministries, the existing WHO structures and mechanisms will be used to liaise with the ministries of health, agriculture, environment and other related ministries. The WHO staff assigned to strengthen EPT implementation at regional, IST and national levels will strengthen liaison with USAID counterparts to facilitate effective program implementation.

WHO will provide support to convene multi-agency/multi-sector/multi-disciplinary forums at regional and country levels for discussing strategic EPT implementation issues including advocacy for better understanding of the One Health approach. An advocacy meeting planned for 2011 that was not held due to other competing priorities will be convened for key policy makers from EPT countries during which all EPT projects will collectively advocate for multisector approach to public health issues. High level forums such as the Regional Committee meetings, multi-national cross-border conferences and other ministerial summits will also continue to be used to scale up awareness for One Health approach.

WHO will advocate for establishment of strong linkages between EPT activities and proven successful public health strategies and tools being applied in the African Region. Specifically to ensure that EPT contributes to the implementation of IHR in the region, IDSR will continue to be promoted to improve surveillance for standardized monitoring of priority diseases established in the countries' IDSR technical guidelines. Countries in the region are currently adapting the revised generic technical guidelines and the corresponding training materials to their local contexts.

Additional data/information obtained during EPT program implementation will complement the IDSR data. Linkages between IDSR and similar surveillance systems

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for animal and environmental health will be explored. Improved collaboration through EPT implementation presents opportunities for sharing surveillance information across sectors during the scheduled national coordination meetings.

WHO will support activities related to coordinated multisectoral involvement during field investigation and response to disease outbreaks. Technical expertise, catalytic financial support, other relevant available resources such as vehicles, medical supplies and communication equipment will be availed to facilitate outbreak response. The roster of experts in the AFRO Regional Rapid Response Team (RRT) database and the WHO Global Outbreak Alert and Response Network (GOARN) will provide technical back up to EPT partners and ministries when surge capacity is required.

WHO/AFRO will be guided by USAID on the need for increased WHO support to scale-up of EPT activities in additional countries in the region. It is believed that WHO EPT national focal point positions are crucial for supporting EPT implementation in the region and the focal points will continue to collaborate with USAID EPT focal points in the implementing countries.

Description of Specific Activities

1: Development of Outbreak Preparedness and Response Framework

Activity 1.1: Develop a generic draft of Outbreak Preparedness and Response Framework for country adaptation

- Sub-activity 1.1.1: ***Coordinate the Technical Working Group (TWG) inputs to develop the draft framework document***

AFRO will lead a process of consolidating technical inputs from members of the TWG which was constituted by the GOARN partners to develop the draft generic Outbreak Preparedness and Response framework. Key documents shared by the TWG members will be reviewed and incorporated into the framework. A SharePoint will be developed to expedite sharing of the appropriate documents among all the members. AFRO will organize a series of virtual meetings in addition to two or three face-to-face consultations in order to facilitate discussions among the TWG members.

  - Partners: CDC, MSF, NICD, RESPOND.
  - Expected result(s)
    - A draft Outbreak Preparedness and Response framework
    - Guidelines for field testing the draft framework document.

- Sub-activity 1.1.2: ***Field test the draft Outbreak Preparedness and Response Framework in Uganda and DRC***

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This activity will be jointly supported by AFRO and RESPOND project. The WHO national EPT focal points and USAID EPT coordinators will mobilize the multisector national authorities to conduct practical exercises to test the draft framework document. Technical experts from RESPOND, WHO and other partners will conduct pre-visit to Uganda and DRC to facilitate involvement of the government officials in preparation for the beta testing and to finalise the tools to be used. Scenarios will be created to simulate different types of outbreaks/emergencies. The gaps identified in preparedness and response will be discussed with the national authorities and lessons learnt during the exercise will be incorporated as part of the framework document. A core team consisting of the TWG and selected experienced national authorities will meet for 3-5 days to finalise the framework document taking into account the inputs from the field testing exercise.

- Partners: AFENET, RESPOND, CDC, MSF, NICD
- Expected result(s):
  - Advanced draft of the Outbreak Preparedness and Response framework for countries to adapt or adopt.

- Sub-activity 1.1.3: ***Organize a consensus meeting of the TWG to finalise the draft after incorporating inputs from field testing exercise***

A core team of about 20 members consisting of the TWG and experienced staff in outbreak response from selected EPT countries will meet for 2 days to finalise the framework document. They will take into account the appropriate inputs from the field testing exercise conducted in Uganda and DRC. Experienced consultant(s) will be involved in this process.

- Partners: RESPOND, CDC, MSF, NICD
- Expected result(s):
  - Final generic Outbreak Preparedness and Response framework.

- Sub-activity 1.1.4: ***Support countries to adapt/adopt the generic Outbreak Preparedness and Response framework***

Beginning with the countries implementing EPT the generic Outbreak Preparedness and Response framework will be translated into French and Portuguese and disseminated to all the countries in the region for adoption or adaptation. In-country resources from the countries and implementing partners (including EPT partners) will be identified to support the country implementation of the framework in line with overall implementation of IDSR. However, in 2013, Cameroon, DRC and Uganda will be provided with catalytic resources by AFRO in collaboration with RESPOND project to test the effectiveness of the framework in a real outbreak situation. These countries do experience frequent epidemics annually.

- Partners: AFENET, RESPOND and all EPT partners

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- Expected result(s):
  - National Outbreak Preparedness and Response frameworks in at least three countries.

2: Advocacy and Sensitization

This is an ongoing activity. Advocacy and sensitization will be continued throughout the implementation period. Some of the sub-activities have been carried forward from the year three implementation plan.

Activity 2.1: Advocate for government support to implement EPT and promote effective joint multisector approaches to public health issues

- Sub-activity 2.1.1: ***Convene an advocacy meeting for high level policy makers in governments on One Health approach in 2012 for 10 EPT countries***

This activity was planned for year three but could not be implemented due to other competing priorities. It is noted that policy gaps related to mechanisms to foster comprehensive multisector approaches to address public health problems have been identified as critical gaps in implementation of One Health approach. It is therefore planned that permanent secretaries and other policy makers from the key line ministries should be briefed on the One Health approach in a 3 days' meeting to be convened in Libreville (Gabon) in the first quarter. For preparation of the meeting, the One Health Steering Committee will guide the EPT projects/countries and key stakeholders such as OHCEA and AU IBAR to prepare the required documents to be shared before and during the meeting.

- Partners: All EPT projects in collaboration with their respective line ministries (Ministries of Veterinary Services, Health, Agriculture, Environment etc.); other partners will include AU-IBAR, OHCEA etc.
- Expected result(s)
  - Common understanding of One Health visions and EPT activities by high level policy makers
  - Enhanced willingness for multisector collaboration by the relevant ministries.

- Sub-activity 2.1.2: ***Develop information package e.g. posters and leaflets for wider circulation on One Health in collaboration with other EPT projects and key partners***

This activity follows the Brazzaville One Health partnership meeting in May 2011. It was agreed that a stepwise process of "outreach" led by WHO, FAO and AU-IBAR be designed to build a technical and policy level understanding of value and importance of adopting One Health approach to addressing zoonotic diseases across the human and animal health, and environment sectors. To facilitate this process, a package of

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advocacy materials will be prepared in collaboration with the EPT partners. The materials will be used to engage the technical leaders in the ministries as well as the political leaders. The EPT focal points in WHO country offices will directly facilitate the process of outreach to the various ministries using the existing in-country collaborative mechanisms between Ministries of Health and other ministries.

- Partners: RESPOND, OHCEA, AU-IBAR, AFENET
- Expected result(s):
  - Advocacy materials on One Health disseminated

- Sub-activity 2.1.3: O***rganize fora at national and sub-national levels for EPT partners to meet their line ministries (WHO to liaise with the ministries to convene such meetings)***

WHO in collaboration with FAO and AU-IBAR will convene a series of in-country meetings to increase awareness of technical leaders in the ministries of health, agriculture and environment on the One Health approach. This will facilitate understanding between the relevant ministries and the EPT partners. The recommendations of the Libreville One Health meeting will guide this process.

- Partners: All EPT partners
- Expected result(s):
  - EPT implementation mainstreamed and supported by the ministries.

- Sub-activity 2.1.4: Support countries to develop national road maps for implementation of One Health approach as recommended in the Libreville One Health meeting

As a follow up of the Libreville high level policy meeting, WHO at country level, in collaboration with other EPT partners and OHCEA, will convene a series of in-country meetings to develop national roadmaps for implementation of the One Health approach. The WHO national EPT focal points will work closely with OHCEA and the line ministries to implement this activity. Development of the national roadmap is envisaged to enhance awareness of technical leaders in the ministries of health, agriculture and environment on the One Health approach. This will facilitate understanding between the relevant ministries and the EPT partners.

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3: Implementation of Regional Outbreak Logistics Strategy (in collaboration with other initiatives e.g. DELIVER)

Activity 3.1: Regional Outbreak Logistics Strategy Working Group

- Sub-activity 3.1.1: ***Review and make recommendations for the implementation of the Regional Outbreak Logistics Strategy and Stock and Inventory Management System (SIMS)***

AFRO will lead a process to develop a Logistics Working Group from AFRO, WHO HQ and partner senior logisticians to define Regional Outbreak Logistics Strategy implementation projects and activities. The working group will also support the introduction and regional implementation of the SIMS system. AFRO will facilitate the agenda of the Logistics Working Group by the provision of tele/video conferences and meeting organization/support when necessary.

  - Partners: DELIVER
  - Expected result(s)
    - Regional Outbreak Logistics Strategy Implementation

- Sub-activity 3.1.2: ***Stock and Inventory Management System (SIMS)***

The three IST and five priority country Logistics Officers/Assistants will be invited to AFRO HQ for three days training on SIMS which will be provided by WHO HQ Staff.

  - Partners: DELIVER, MSF
  - Expected result(s):
    - IST and priority country use of SIMS for equipment management providing connectivity to rSIS and transparency on emergency response supplies status.

- Sub-activity 3.1.3: ***Organize 3 IST sub-regional Logistics Strategy Orientations for logisticians/logistic assistants including two days training on Stock and Inventory Management System (SIMS)***

Logistics Officers/assistants from each of the IST areas of responsibility will be brought to the three IST locations for a four day orientation. Two days of orientation on the regional logistics strategy, its goals, objectives and the deliverables they will be expected to work toward at each country office with regards to logistics preparedness for emergencies. Two days of training on SIMS, with emphasis on the data reporting/sync requirements and processes associated with providing updates to the Regional real-time Strategic Information System (rSIS). SIMS will provide emergency response equipment data to the rSIS platform.

  - Partners: DELIVER, MSF
  - Expected result(s):

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- Implementation of the core elements of the regional logistics strategy and regional adoption of SIMS for the management of emergency preparedness equipment inventories.

- Sub-activity 3.1.4: ***Regional Outbreak Logistics strategy: Key Performance Indicators to support preparedness and response to disease outbreaks.***

  On full implementation of the Regional Logistics Strategy activities and SIMS, performance measurement will be undertaken to assess the progress towards full transparency on the status and preparedness of regional emergency response equipment resources, the logistics response to outbreaks and the post event logistics recovery timeframe.

  - Partners: EPT partners, national emergency response teams
  - Expected result(s):
    - Emergency response equipment and supplies inventory maintained and available.
    - Continuous improvement to logistics response performance during emergencies.

4: Technical Assistance for Outbreak Investigation and Response

Activity 4.1: Perform field investigations and response to reported disease outbreaks in collaboration with other EPT projects

- Sub-activity 4.1.1 ***Support investigation and response to disease outbreaks and other field investigations jointly with RESPOND, PREDICT and PREVENT projects.***

Detection and response to disease outbreaks is one of the core roles of WHO in providing technical support to Members States and partners. EPT provides a great opportunity for strengthening multisector approaches for outbreak preparedness and response. All the national EPT focal points are epidemiologists and public health specialists with experience in outbreak investigation and response, and will work closely with the EPT projects during response to disease outbreaks. In addition, the vehicles purchased with year two funds and medical supplies prepositioned in collaboration with the DELIVER project will be availed to facilitate outbreak investigation and response.

- Partners: EPT partners, respective line ministries and other partners
- Expected result(s)
  - Threats of disease outbreaks timely investigated and responded to
  - Coordinated multisector response to public health events demonstrated

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- Sub-activity 4.1.2: ***Conduct review meetings to evaluate response to major outbreaks***

Post outbreak review meetings allow all actors to share experiences, identify gaps and learn lessons for better response to future outbreaks. For instance, lessons learnt through the review meeting for Uganda anthrax and yellow fever outbreaks in 2011 led to improved response to Ebola outbreak that occurred a few months later. In partnership with all the EPT projects and line ministries, WHO will promote review meetings and documentation of the major outbreaks as recommended in the IDSR. Lessons learnt from such meetings will be widely shared using appropriate means (workshops, publications, reports, etc.).

- Partners: EPT partners, Ministries of Health, in collaboration with FAO, OIE, other line ministries
- Expected result(s)
  - Review meetings conducted and lessons learnt from response activities applied for better response to future outbreaks
  - Documentation of disease outbreaks strengthened

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IMPLEMENTATION PLAN AND BUDGET BREAKDOWN

	ACTIVITIES by Area of work	Responsible	Other stakeholders	EXPECTED RESULTS (Oct 2012–30 Sept 2013)	FY12Q1 (Oct-Dec)	FY13Q1 (Jan-Mar)	FY13Q2 (Apr-Jun)	FY13Q3 (Jul-Sep)	Budget (USD)
1	**Development of Outbreak Preparedness and Response Framework**								(b)(4)
1.1	Coordinate the Technical Working Group (TWG) inputs to develop a generic draft of Outbreak Preparedness and Response Framework Document	WHO HQ and AFRO	CDC, MSF, NICD, RESPOND	National Outbreak Preparedness and Response frameworks being implemented in at least three countries	X				
1.2	Beta test the draft Outbreak Preparedness and Response Framework in Uganda and DRC (in collaboration with the RESPOND project)	WHO national EPT Focal Points in Uganda and DRC, WHO AFRO, RESPOND	MoH, MoA, other appropriate ministries AFENET, AU-IBAR, RESPOND, CDC, MSF, NICD, EPT partners, other stakeholders			X	X		
1.3	Organize a consensus meeting of the TWG to finalise the draft after incorporating inputs from field testing exercise (A consultant will be involved in this process)	WHO national EPT Focal Points, WHO AFRO				X	X		
1.4	Support 3 countries to adapt/adopt the generic Outbreak Preparedness and Response framework	WHO national EPT Focal Points WHO AFRO, RESPOND	MoH, MoA, other appropriate ministries AFENET, AU-IBAR, RESPOND, CDC, MSF, NICD, EPT partners, other stakeholders				X	X	
2	**Advocacy and Sensitization**								
2.1	Convene an advocacy meeting for high level policy makers in governments on One Health in 2012 for 10 EPT countries. (Note:	WHO AFRO	Policy makers from MoH, MoA, Environment, EPT partners, AU-IBAR	National road maps for implementation of One	X				

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	funds for the meeting are carried over from Year 3 budget)		and other partners	Health Approach finalised in at least 4 countries					
2.2	Develop information package e.g. posters and leaflets for wider circulation on one health in collaboration with other EPT projects and key partners	WHO AFRO, RESPOND	Other EPT projects, AU-IBAR, OHCEA		X	X			(b)(4)
2.3	Organize forums at national and sub-national levels for EPT partners to meet their line ministries (WHO to liaise with the ministries to convene such meetings)	WHO national EPT Focal Points	EPT partners, AU-IBAR, MoH, MoA, Environment and other stakeholders		X	X	X	X	
2.4	Support countries to develop national roadmaps for implementation of One Health approach as recommended in the Libreville One Health meeting	WHO national EPT Focal Points	EPT partners, AU-IBAR, MoH, MoA, Environment and other stakeholders			X	X	X	
2.5	Support 1 EPT focal point position in WHO AFRO to closely monitor and participate in the regional activities	WHO AFRO			X	X	X	X	
4	**Technical Assistance for Outbreak Investigation and Response**								
4.1	Support investigation and response to disease outbreaks in collaboration with other EPT projects	WHO national EPT Focal Points, WHO AFRO	MoH, other ministries and EPT partners and other stakeholders, GOARN	Coordinated timely multisectoral response to disease outbreaks	X	X	X	X	
4.2	Conduct review meetings to evaluate response to disease epidemics after every major outbreak	WHO national EPT Focal Points with WHO AFRO support			X	X	X	X	

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4.3	Strengthen WHO capacity by supporting 2 EPT focal positions in Cameroon and Congo to closely monitor and participate in all the activities (i.e. 60% annual salary)	WHO Country Representatives in Cameroon and Congo			X	X	X	X	(b)(4)
5	**Implementation of the Regional Outbreak Logistics strategy**								
5.1	Develop a Regional Outbreak Logistics strategy for WHO AFRO	WHO AFRO	DELIVER, WHO HQ ARO logistics	Regional Logistics Strategy available and operational	X	X	X	X	
5.2	Establish the WHO African Logistics working group for the implementation of the Regional Logistics Strategy	WHO AFRO	HQ, Regional and Partner Logistics Officers			X			
5.3	Conduct Stock Inventory Management System training for IST and five priority country logistics officers.	WHO AFRO	HQ, Regional and Partner Logistics Officers	SIMS operational in IST's and priority countries and used to monitor implementation of the Regional Logistics Strategy in the Region.		X			
5.4	Organize 3 IST training sessions for logisticians/logistic assistants on the strategy objectives and training on SIMS	WHO AFRO	HQ, Regional and Partner Logistics Officers			X	X	X	
5.5	Monitor use of Regional Outbreak Logistics strategy to support preparedness and response to disease outbreaks	WHO AFRO and Country Representatives	EPT partners, National emergency response teams			X	X	X	
5.6	Support 1 Data Management position in WHO AFRO to closely monitor and evaluate EPT implementation in the region i.e. 60% of P4 annual salary. (The officer will facilitate the operationalization of SIMS and the rSiS, among others)	WHO AFRO			X	X	X	X	
SUB-TOTAL									
Programme Support Costs ((b)(4) of sub-total)									
GRAND-TOTAL (sub-total plus Project Support Costs)									

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PERFORMANCE MONITORING PLAN (PROVISIONAL):

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
One Health approach attained in all countries implementing EPT	Number of established functional multisectoral country coordination structures	Documentation of established structures for country coordination	Annually	EPT national focal points WHO AFRO
Coordinated multisector involvement in addressing public health issues	Number of regional coordination meetings	Meeting reports	Quarterly	WHO AFRO and EPT Regional coordinators
	Number of advocacy meetings	Reports indicating number of meetings held by country coordination committees	Annually	WHO AFRO and EPT Regional coordinators
			Quarterly	EPT national focal points
Improved multisectoral approach in response to disease outbreaks	Number of major disease outbreaks where all relevant sectors responded	Outbreak reports	Quarterly	EPT national focal points WHO AFRO
	Number of multisector post outbreak review meetings	Meeting reports	Quarterly	EPT national focal points WHO AFRO
Reduced time-lag to confirm diagnosis for reported outbreaks (at least less than 7 days for known diseases)	Proportion of reported outbreaks for which cause is confirmed within 7 days	Outbreak reports	Quarterly	EPT national focal points WHO AFRO

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VI. COUNTRY AND REGIONAL PROJECT MANAGEMENT

The organizational relationship between headquarters and the regional/country-level offices

WHO at all levels (headquarters, regional and country) facilitates and supports the implementation of the EPT Program. In the African region, WHO has committed to use its mechanisms and strengths to provide support across all the 4 EPT projects (PREDICT, PREVENT, RESPOND and IDENTIFY). In this regard, WHO will continue to widely disseminate information about the EPT program specifics, hold consultations, promote effective coordination and advocate at regional and country levels for better implementation of the program.

To better perform the above functions, WHO has strengthened its capacity both at Regional and Country levels. At the Regional level, the program is fully incorporated into the WHO strategic plans. The overall program management is supervised by the Director of the Disease Prevention and Control Cluster. Additionally, 2 technical officers in AFRO are designated to monitor EPT program and IDENTIFY project respectively. Currently a WHO NPO is assigned in each of the 5 countries (Cameroon, Congo, DRC, Equatorial Guinea and Uganda) to facilitate liaison between EPT implementing partners and the relevant ministries. The designated NPOs who are supervised by the WHO Country Representatives ensure that the representatives are fully briefed on EPT activities in order for them to advocate for coordinated multisector implementation. In EPT countries with no designated NPOs, the respective IST has assigned a staff member to perform the required functions.

Partnerships at the regional/country level

WHO collaborates directly with FAO and OIE to implement the IDENTIFY project. At the country level, the Ministries of Health and Animal Resources, partners and other related ministries participate in joint implementation of the components of the EPT program. WHO will facilitate communication among the stakeholders by identifying and making use of the existing coordination mechanisms within the countries. WHO will also continue to strengthen and encourage synergies within all the EPT implementers and promote participation of other collaborating technical partners such as AU-IBAR and OHCEA. WHO/AFRO and the RESPOND project will jointly provide resources for development of outbreak preparedness and response strategy. The USAID staff seconded to AFRO through the DELIVER and RESPOND projects will continue to enhance the WHO Regional human resource capacity for outbreak preparedness and response in the region.

Reporting

The implementation of the EPT program is closely monitored by the EPT focal points at regional office under the coordination of the DPC Cluster. Technical and financial reports will be prepared and submitted to USAID according to the agreed formats and timelines.

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I. BUDGET

The total budget for the AFRO EPT Program (excluding IDENTIFY project) for October 1, 2012 through September 30, 2013, is estimated at (b)(4)

Attachment 1

WHO/AFRO EPT Program
Dates October 1, 2012 - September 30, 2013

Budget Summary	Total (USD)
Personnel Activities including cost associated with meetings, travels, emergency deployments, etc.	(b)(4)
Grand Total	

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Attachment 2

BUDGET NOTES

PERSONNEL

The EPT focal point in the WHO Regional office, 2 NPOs (Cameroon and Congo), a data manager in charge of the DPC cluster data management are included in the budget proposal. The salaries for these 4 positions have been funded in FY2012 through the EPT program. Financial support is required to partly contribute to sustain these positions in the FY13.

OVERHEAD

The overhead costs will be covered by other sources of funds.

TRAVEL

Due to need to convene both planned and ad hoc meetings, and emergency travels, the travel costs are not budgeted separately. The costs are rather included in the cost of activities that will require travelling.

Attachment 3

Estimated Allocation of Funds by Regional/Country from October 1, 2012 to September 30, 2013

Country	Personnel	Activity	Total USD	Comments
Angola	(b)(4)			All the countries will benefit from regional activities and funds allocated for outbreak response
Cameroon				
Central African Republic				
Democratic Republic of Congo				
Uganda				
Gabon				
Republic of Congo				
Rwanda				
Tanzania				
Equatorial Guinea				
IST Central Gabon				
IST East and South Harare				
WHO Congo Regional Office				
Total				

DRAFT AFRO EPT PROPOSAL JULY 2012

World Health Organization
REGIONAL OFFICE FOR Africa

USAID'S EMERGING PANDEMIC THREATS PROGRAM IN THE AFRICAN REGION

FUNDING PROPOSAL TO USAID FOR PLANNED ACTIVITIES

1. BACKGROUND

Emerging Public Health Threats can arise from natural or man-made disasters. These can further be linked to infectious pathogens, chemicals, poisons or radiation. Emergencies, outbreaks of disease, and chemical incidents have the potential to cause disruption for communities on a large-scale. Disease outbreaks and chemical incidents can develop very rapidly - so preparation and emergency planning are essential components in minimizing the public health impact.

In the African region, emerging and re-emerging infectious diseases are major contributors to Emerging Public Health Threats. Chemical poisoning and radiation have been reported sporadically and may also pose a potential risk in the region. Included in the category of Emerging Public Health Threats due to infectious diseases are: zoonotic infections, iatrogenic/hospital acquired infections, anti-microbial resistant pathogens such as XDR and MDR tuberculosis and Food borne diseases such as salmonellosis and cholera.

The International Health Regulations (2005) adopted during the fifty-eighth World Health Assembly in part responds to Emerging Public Health Threats and focuses on building national core capacities for the detection, laboratory confirmation, risk assessment and notification of all events that may constitute public health risk/emergency of international concern.

The recently introduced USAID's Emerging Pandemic Threats (EPT) programs aims to contribute to the worldwide efforts to better understand and respond to these threats with specific focus on pandemic prone diseases. The Program has been structured into 6 different projects namely IDENTIFY, PREDICT, PREPARE, PREVENT, RESPOND and DELIVER. Each of these projects focuses on specific areas of the EPT program.

WHO/AFRO, USAID, FAO and OIE are seeking to set up a collaboration that will work to implement the EPT program in the African Region. During a recent consultative meeting held in Brazzaville the partners agreed on the key areas of collaboration and the exact role that WHO/AFRO was expected to play in this program. USAID has set aside USD1.5 million to be used by WHO/AFRO in supporting key activities necessary to accomplish WHO's role in the 1st year of the EPT Programme.

This proposal highlights the key activities that WHO/AFRO in collaboration with other partners will undertake during the 1st year of the EPT Programme. The contribution of WHO AFRO activities contained in this proposal focus primarily on the core capacities of WHO/AFRO and are in line with the WHO Medium Term Strategic Plan 2008-2013 as well as the strategic directions for WHO action in the region for the period of 2010-2015.

2. KEY ORIENTATIONS

As an outcome of the Joint Consultative meeting held in February 2010, the key orientations that will guide WHO/AFRO's involvement in the EPT project are outlined :

a) The EPT Program is expected to focus on Countries in and around the Greater Congo Basin namely Democratic Republic of Congo, Congo, Angola (Northern), Tanzania, Rwanda, Burundi, Uganda, Ethiopia, Cameroun, Gabon, Central African Republic, Equatorial Guinea, Kenya, Zambia, Sudan (Southern). This decision is based on the premise that new pandemic and public health threats are likely to emerge from this area.

b) WHO/AFRO is expected to facilitate and support the coordination process of the program through wide dissemination of information about the program specifics, consultations, and advocacy with Member States, Partners, Regional Economic Blocs, other stakeholders', WHO IST and country offices. To achieve this, WHO/AFRO is expected to strengthen its technical capacity at Regional and Country levels.

c) WHO/AFRO, USAID, FAO and OIE will work together to promote the 'One World, One Health' concept in the African Region.

3. WHO's ROLE

WHO/AFRO's role in the EPT project is expected to cover the following:

- At the regional level and in collaboration with animal health partners, strategic guidance will be provided to Countries implementing the EPT Programme ensuring that the objectives of the programme are in line with WHO's overall medium term strategic plan and core functions. The Regional Office will also be involved in regular monitoring and evaluation exercises on programme implementation in the respective countries. Additionally stronger collaboration and coordination mechanisms will be developed with the key partners, USAID, FAO and OIE. AFRO will also be responsible for convening meetings related to the EPT.

- At the Intercountry Support Team (IST level) and in collaboration with animal health partners, there will be operational support for implementation of the EPT Program in designated countries.

- At Country Level, WHO will help to establish Country Coordination Mechanisms for the programme. To achieve this, the WHO Country Offices will appoint a designated focal point for the programme who will work under the guidance of the WR and in close collaboration with USAID and other partners and will be fully involved in the project implementation including monitoring of field activities.

4. EXPECTED RESULTS

Expected results from WHO/AFRO's involvement in the implementation of the EPT project after the 1st year are as follows:

i) Member States, Partners, Stakeholders and WHO offices involved fully understand the program specifics and are sensitized to fully support the program's implementation in their respective countries.

ii) With WHO/AFRO's support and in collaboration with animal health partners and USAID, formal Coordination mechanisms are set up in at least 5 of the implementing Countries.

iii) With WHO/AFRO's support, program components are introduced in at least 5 of the implementing countries.

iv) A successful meeting/conference promoting the 'One World, One Health' concept involving Member States, Donors, partners and other stakeholders will be conducted**.**

v) Technical support provided for development of guidelines and mechanisms in countries for improved inter-sectoral collaboration at district level in target countries, especially between MOH and Agriculture ministry**.**

vi) Data on Emerging Public Health Threats in the selected target countries will be routinely generated as part of existing WHO AFRO surveillance system, IDSR, analyzed and disseminated to all sectors in target countries**.**

5. PLANNED ACTIVITIES

To ensure delivery of the expected results, the following activities will be undertaken by WHO/AFRO and Country Offices during the 1st year of the Program:

Sensitization, Advocacy and Coordination

i. Dissemination of information on EPT Program including the specific objectives and WHO AFRO's expected role to relevant programmes of WHO Regional office and from Regional to WHO Sub-Regional and Country Offices

ii. Support organization of Regional and Country level sensitization, advocacy, and planning/coordination meetings for the EPT program, targeting WHO, country MOH, Agriculture and wildlife sector staff.

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iii. Support the organization of a Meeting on 'One World, One Health' Concept.

Monitoring and evaluation

i. In collaboration with USAID, FAO, OIE and other Stakeholders, conduct regular monitoring and evaluation exercises for the Project implementation under the EPT program. Monitoring and evaluation indicators will be developed and tracked in close collaboration with USAID and other implementing partners.

Strengthen capacity of WHO Regional and Country Offices

i. Recruit Focal Person for EPT Program (Medical Officer with strong background in epidemiology of infectious diseases, including zoonotic diseases) at P4 Level (See annex for terms of reference)

ii. Recruit a Data Manager who will be based at the RO and who will ensure that all data on emerging and re-merging diseases, including those of animal origin captured in the countries are received at RO, analyzed and disseminated in a timely manner. The data manager will be responsible for providing direct output including data on monitoring and evaluation to USAID and partners through established mechanisms.

iii. Train and orient the WHO staff involved in surveillance and response in the target countries focusing on emerging threats including the zoonotic diseases of the EPT project.

iv. Develop or adopt existing tools for the management of outbreaks.

v. Recruit WHO EPT Country Focal Persons [National Programme Officers]. The WHO EPT country focal persons will play a crucial role to coordinate activities and timely provide relevant information to all implementing partners whenever required. To optimize utilization of resources and minimize duplication of efforts, they will routinely map out and share updated information on partners' activities i.e. *Who* is doing *What, Where* and *When* (the "4W matrix"). They will also support the ministries and partners in organizing field activities including support supervision visits. Therefore, during the course of the Programme, an NPO will be recruited for each of the EPT implementing country to act as focal person. However in the 1st year, due to limited funding available, only 5 NPO positions will be created with 3 being funded through this proposal. The remaining 2 NPO positions will be supported through the IDENTIFY project. See annex for terms of reference.

vi. Procure project vehicles, equipment and supplies for WHO EPT Country Focal Persons for 3 Countries (Congo, Cameroon and Equatorial Guinea).

The vehicles will be used to investigate outbreaks in collaboration with MOH and animal health experts and to monitor implementation of the mechanisms for collaboration between MOH and Agriculture sectors at district level as part of the EPT. Additionally the vehicles will be used to facilitate the travel of USAID and other partners in the designated countries. As the EPT focal persons in countries will be expected to be fully involved in field activities for the programme, there is a critical need to provide the necessary logistics support to facilitate their movement and work in remote locations. Field vehicles, communications equipment and other necessary tools will be required to support the work of the EPT focal persons.

6. BUDGET

BUDGET CATEGORY	AMOUNT (USD)
Sensitization and Advocacy activities	
Sensitization and advocacy meetings at Regional and support activities at country levels	(b)(4)
Organize sensitization meeting for Ministers of Health and Agriculture of Central African Economic Community States as a subset of the Congo Basin Area and a 'One World, One Health' concept meeting	
Coordination, monitoring and evaluation activities	
Strengthen capacity of WHO Regional and Country Offices	
EPT Focal Person AFRO P04 salary for one year	
Data Manager AFRO P03 salary for one year	
Country EPT Focal Persons (NPOs) NOC for 1 Year:	
Congo	
Cameroon	
Equatorial Guinea	
Procure project vehicles, equipment and supplies for WHO EPT Country Focal Persons for 3 Countries	
Programme Support Costs @ 13%	
TOTAL	

ANNEX 1 (TOR FOR TECHNICAL OFFICER - ZOONOSIS)

Under the supervision of the Programme Manager, EPR, the Technical Officer will provide back-up support required to develop policies, strategies, guidelines, protocols and standards on zoonotic diseases with epidemic potential to comprehensively cover issues of surveillance, outbreak investigations, prevention, containment and control activities. He/she will coordinate and improve prevention and control of zoonotic diseases by informing key public health professionals and stakeholders of internationally relevant outbreaks related to zoonoses, including Public Health Emergencies of International Concern (PHEICs, IHR 2005) with zoonotic origin. He/she will participate in publishing periodic reports on zoonotic health events of public health concern.

Specific Terms of reference will include:

- Liaise with appropriate sectors (agriculture, veterinary) and organizations (FAO, OIE and partners) for coordinated joint programming and implementation of activities concerning animal and human health interface. As WHO focal point will give technical inputs during joint/ integrated activities including the USAID's Emerging Pandemic Threats Programme.
- Provide leadership in the development of policies, strategies, guidelines, protocols and standards on zoonotic diseases with epidemic potential to comprehensively cover issues of surveillance, outbreak investigations, prevention, containment and control activities.
- Provide expert advice and direction in the management of zoonotic disease outbreaks/epidemics.
- Lead in the development of systems for monitoring and evaluation of zoonotic disease surveillance, outbreak investigations, and prevention and control programs. He/she will participate in setting up the regional multidisciplinary virtual rapid response teams.
- Provide technical advice and support to Member States in the development of integrated national preparedness and response plans for major zoonotic diseases.
- Collect and verify information including rumours on epizootics with implications on human health. He/she will ensure that updated database on zoonotic disease surveillance and outbreak investigations and containment/control is maintained.
- Participate in the monitoring and risk assessment of epidemics/acute public health events in Member States associated with zoonoses.
- Compile and distribute information related to zoonotic-associated epidemics to public health officials and Member States as appropriate.
- Assist in the identification of zoonotic outbreaks/events that should be communicated to all WHO Member States via the IHR Event Information Site, and collaborate with Headquarters in preparing the required text for clearance.
- Providing support to WHO/GOARN field teams and participate in field investigations, and outbreak response operations, as required.

ANNEX 2 (TECHNICAL OFFICER - DATA MANAGEMENT)

Working under the overall supervision of the Director for Communicable Diseases Prevention and Control, the incumbent will be responsible for collecting, analyzing and disseminating data on epidemic and pandemic prone diseases, emerging public health threats and other public health threats of international concern, including zoonoses.

1) Provide support for the collection of data related to epidemic and pandemic prone diseases; emerging public health threats and other public health issues of international concern;

2) Check on the quality and coherence of the information received and update databases accordingly;

3) Assist in building and maintaining electronic data archiving systems and databases;

4) Analyze collected data and keep records on the speed of data collection;

5) Provide summaries of diseases' data to all stakeholders and partners;

ANNEX 3 – TERMS OF REFERENCE FOR NATIONAL PROGRAM OFFICERS

Under the supervision of the WHO County Representative, the incumbent will be responsible for providing technical support to Member State for epidemic preparedness and response with main focus on emerging public health threats in the areas of assessments, planning, budgeting, coordinating, training, supervising, monitoring and supervision of EPR activities including playing the focal person and coordinating role within WHO for the Emerging Pandemic Threats Programme (EPT) of USAID.

Specifically, the incumbent will be responsible for:

- Support to the Member State, USAID and partners in the implementation of the EPT Programme
- Support Member State in the development and implementation of EPR National and District Level Preparedness and Response Plans
- Support risk assessments and management of severe emerging public health threats in accordance with IHR requirements and in line with National EPR policy and guidelines
- Facilitate the establishment of cross border surveillance networks for emerging pandemic threats
- Support the Ministry of Health in developing a common platform and framework for the coordination and conduct of research related to emerging pandemic threats
- Ensure timely and adequate dissemination of updated emerging pandemic threats information
- Advice the WR, National authorities and partners and undertake relevant actions as guided by epidemiological surveillance data aimed at improving quality of EPR activities.

USAID
FROM THE AMERICAN PEOPLE

World Health Organization
REGIONAL OFFICE FOR Africa

Emerging Pandemic Threats Program
WHO African Region and Global Level Implementation Plan

1 October 2011 – 30 September 2012

Submitted to:
United States Agency for International Development
under Cooperative Agreement #

Submitted by:

Disease Prevention and Control (DPC) Cluster
WHO African Region

DRAFT AFRO EST PROPOSAL AUGUST 2011

Abbreviations

AFENET	African Field Epidemiology Network
AFRO	WHO African Regional Office
AU-IBAR	African Union Inter-African Bureau for Animal Resources
DPC	Disease Prevention and Control Cluster
EPT	Emerging Pandemic Threats Program
FAO	U.N. Food and Agriculture Organization
GOARN	Global Outbreak Alert and Response Network
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
IST	Inter country Support Team
MoA	Ministry of Agriculture
MoH	Ministry of Health
NPO	National Professional Officer
OHCEA	One Health for Central and East Africa alliance
OIE	World Organization for Animal Health
RC	Regional Committee
RRT	Rapid Response Team
USAID	United States Agency for International Development
WCO	WHO Country Office
WHO	World Health Organization

DRAFT AFRO EPT PROPOSAL AUGUST 2011

I. BACKGROUND

The emergence and rapid spread of pandemic-prone infectious diseases present significant threat to humanity and global public health security. Particularly relevant is the fact that the majority of all newly emerging and re-emerging diseases affecting humans at the beginning of the twenty-first century have originated from animals. Some of these zoonotic diseases have demonstrated ability to rapidly spread across the increasingly interconnected world; posing enormous global public health, economic and development concerns. The pandemic threats underscore the need for comprehensive and proactive approaches for prediction, timely detection and response. These require investing in measures that enable better understanding of interfaces between animals and humans, and the ecosystems in which they live. The Emerging Pandemic Threats (EPT) program aims to contribute to the worldwide efforts to better understand and respond to these threats with specific focus on pandemic prone diseases.

In the African region, emerging and re-emerging infectious diseases are major contributors to Emerging Public Health Threats. Among others, the current known pandemic threats in the Region include viral haemorrhagic fevers (Ebola, Marburg, Lassa, Lujo etc.), influenza, plague, anthrax and other emerging diseases yet to be identified. The program contributes to better understanding and response to these threats in the Congo Basin and the surrounding hotspot countries. The EPT Program also contributes to the implementation of the International Health Regulations (2005) adopted during the fifty-eighth session of the World Health Assembly. IHR (2005) in part provides mechanism to respond to Emerging Public Health Threats and focuses on building core capacities for the detection, laboratory confirmation, risk assessment and notification of all events that may constitute public health risk/emergency of international concern.

Recognizing the public health importance of zoonosis, the *sixtieth* Regional Committee for Africa recommended that countries strengthen partnerships among the various sectors to address problems associated with the human-animal interface and to invest in the environment. The committee also recommended strengthening partnerships among WHO, Food and Agriculture Organization, and International Office of Epizootics and other partners (Document AFR/RC60/9 on *Recurring epidemics in the WHO African Region: Situation analysis, preparedness and response*). The implementation of the EPT program contributes to the RC recommendation as it focuses on strengthening capacities and partnerships to address public health challenges brought about by the interactions between animals, humans and the environment in line with comprehensive One Health approach.

DRAFT AFRO EPT REGIONAL AUGUST 2011

Some of the achievements in year 1 of EPT implementation by AFRO

To better respond to the needs of the countries and partners implementing the EPT program in the African region, WHO/AFRO utilized the EPT funding to strengthen its capacity at both regional and country levels. The three critical roles WHO has continued to play include advocacy for promotion of One Health approach, providing support to all

the EPT projects within WHO's mandate whenever needed, and implementing IDENTIFY project in collaboration with FAO and OIE.

Specifically, funds provided for the first year of implementation were used to support EPT staff salaries in AFRO (Brazzaville), Inter-country Support Team (Gabon) and 5 WHO country offices. Five National Professional Officers (NPOs) were assigned / recruited as EPT national focal points to support program implementation in Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea and Uganda. In other countries with no national EPT focal points where implementations of EPT program were started, a staff from the respective Inter-country Support Teams (IST) was assigned to provide the required support. Such countries included Gabon, Rwanda and Tanzania.

Funds were also allocated to support investigation and response to outbreaks. Five 4x4 pick-up vehicles were purchased to facilitate field activities in each of the 5 countries. The vehicles are being used by the multidisciplinary field teams during outbreak investigations and response. They are also used for transportation of samples and essential supplies during outbreaks.

To maximize benefits from implementing the EPT Program in the African Region, one strategic principle supported by AFRO is to utilize the existing mechanisms within the Region to further strengthen partnerships. In this regard, AFRO in collaboration with partners and the appropriate sectors convened regional coordination meetings in Brazzaville, Entebbe and Libreville to introduce EPT and advocate for support during implementation. The meetings provided opportunities for strengthening common understanding through advocacy, information sharing and joint planning. Similar meetings were held periodically at country levels and enhanced country coordination for better implementation of EPT projects. Specifically in the first year, effective platforms for coordination of country EPT activities were established in Cameroon and Uganda during which all the implementing partners periodically shared information and conducted joint planning. Pre-existing coordination mechanisms such as the national multidisciplinary task force for avian influenza and IDSR working group in Cameroon and Uganda respectively provided crucial framework for EPT program coordination. Similar coordination mechanisms are being identified in Congo, Equatorial Guinea and DRC to strengthen multisectoral coordination.

A separate line of funding was used to implement a number of activities to strength laboratory capacity in the region under the IDENTIFY project. Among others, collaboration between the animal and human laboratory networks was strengthened through joint mapping of laboratory capacity. The funding also supported country adaptation of the Integrated Disease Surveillance and Response (IDSR) technical guidelines in order to improve on surveillance for the normative priority diseases. More detailed achievements on IDENTIFY project implementation are provided in a separate proposal.

DRAFT FOR CONCEPT PROPOSAL AUGUST 2014

II. NARRATIVE DESCRIPTION OF 2012 ACTIVITIES

AFRO areas of focus for year 12 EPT implementation (EPT program in general)

WHO/AFRO helps to ensure that coherent and collaborative responses to health problems are shared among countries of the region. It fosters regional cooperation to address the many health problems that readily cross borders within the region. To address these problems, WHO/AFRO facilitates dialogue, exchange of experience, and establishment of region-wide mechanisms, such as those for disease surveillance or specialized laboratory network. WHO/AFRO brings a regional perspective to the global health agenda. In line with this, the major roles WHO/AFRO will continue to play in EPT implementation in the African region include:

1) advocacy and sensitization on One Health approach;
2) support to all EPT projects for coordination and establishing linkages with their respective line ministries; and
3) implementation of IDENTIFY project in collaboration with FAO and OIE.

The WHO Regional and Country offices will continue to provide support to all the EPT projects to strengthen coordination efforts. To improve on buy-in and participation by the governments and the respective line ministries, the existing WHO structures and mechanisms will be used to liaise with the ministries of health, agriculture, environment and other related ministries. The WHO staff assigned to strengthen EPT implementation at regional, IST and national levels will liaise with USAID counterparts to facilitate effective program implementation.

WHO will provide support to convene multi-agency/multi-sector/multi-disciplinary forums at regional and country levels for discussing strategic EPT implementation issues including advocacy for better understanding of the One Health approach. An advocacy meeting will be convened for key policy makers (permanent secretaries) from EPT countries during which all EPT projects will collectively advocate for multisector approach to public health issues. High level forums such as the Regional Committee meetings, multi-national cross-border conferences and other ministerial summits will also be used to scale up the sensitization.

WHO will advocate for establishment of strong linkages between EPT activities and proven successful public health strategies and tools being applied in the African Region. Specifically to ensure that EPT contributes to the implementation of IHR in the region, IDSR will be promoted to improve surveillance for standardized monitoring of priority diseases established in the countries' IDSR technical guidelines. Countries in the region are currently being supported to adapt the revised generic technical guidelines and use of the corresponding training materials to internalize the IDSR guidelines.

Additional data/information obtained during EPT program implementation will complement the IDSR data. Linkages between IDSR and similar surveillance systems for animal and environmental health will be explored. Improved collaboration through

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EPT implementation presents opportunities for sharing surveillance information across sectors during the scheduled national coordination meetings.

WHO will support activities related to coordinated multisectoral involvement during field investigation and response to disease outbreaks. Technical expertise, catalytic financial support, other relevant available resources such as vehicles, medical supplies and communication equipment will be availed to facilitate outbreak response. The roster of experts in the AFRO Regional Rapid Response Team (RRT) database and the WHO Global Outbreak Alert and Response Network (GOARN) will provide technical back up to EPT partners and ministries when surge capacity is required.

WHO/AFRO will be guided by USAID on the need for increased WHO support to respond to scale-up of EPT activities in additional countries in the region. It is anticipated that WHO EPT national focal point positions will be crucial for supporting EPT implementation in Angola, Tanzania and Rwanda.

Description of Specific Activities

1: Advocacy and Sensitization

Activity 1.1: Advocate for government support to implementation of EPT and promote effective joint multisector approaches to public health issues

- Sub-activity 1.1.1: ***Convene an advocacy meeting for high level policy makers in governments on One Health in 2011 for 10 EPT countries***

The advocacy meeting was initially planned for the ministers of health, agriculture and environment to be held in year 11 of EPT implementation. However, policy gaps have been identified especially related to mechanisms to foster comprehensive multisector approaches to address public health problems. It is therefore planned that permanent secretaries and other policy makers from the key line ministries should be briefed on the one health approach in a 3 days meeting to be convened in February 2012 in Nairobi. All EPT projects and key stakeholders such as AU IBAR will prepare information to be shared during the meeting.

- Partners: All EPT projects in collaboration with their respective line ministries (Ministries of Veterinary Services, Health, Agriculture, Environment etc.); other partners will include AU-IBAR, OHCEA etc.
- Expected result(s)
  - Common understanding of one health visions and EPT activities by high level policy makers
  - Enhanced willingness for multisector collaboration by the relevant ministries

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- Sub-activity 1.1.2: ***Develop information package e.g. posters and leaflets for wider circulation on one health in collaboration with other EPT projects and key partners***

This activity follows the Brazzaville One Health partnership meeting in May 2011. It was agreed that a stepwise process of "outreach" led by WHO, FAO and AU-IBAR be designed to build a technical and policy level understanding of value and importance of adopting One Health approach to addressing zoonotic diseases across the human and animal health, and environment sectors. To facilitate this process, a package of advocacy materials will be prepared in collaboration with the other EPT partners. The materials will be used to engage the technical leaders in the ministries as well as the political leaders.

  - Partners: RESPOND, OHCEA, AU-IBAR, AFENET
  - Expected result(s):
    - Advocacy materials on one health disseminated

- Sub-activity 1.1.3: O***rganize forums at national and sub-national levels for EPT partners to meet their line ministries (WHO to liaise with the ministries to convene such meetings)***

WHO in collaboration with FAO and AU-IBAR, will convene a series of in-country meetings to increase awareness of technical leaders in the ministries of health, agriculture and environment on the One Health approach. This will facilitate understanding between the relevant ministries and the EPT partners.

  - Partners: All EPT partners
  - Expected result(s):
    - EPT implementation mainstreamed and supported by the ministries

2: Coordination and Support to all EPT Projects

Activity 2.1 Organize coordination meetings at Regional and support activities at country levels

- Sub-activity 2.1.1: ***Regular Joint meetings of EPT partners***

WHO will continue to convene regular meetings at regional and national levels to share information and discuss strategies for better implementation of the EPT program. The country-level coordination mechanisms established in Cameroon and Uganda that has resulted into monthly meetings will be sustained while similar platforms will be identified in the other EPT countries in order for the implementing partners to share information on routine basis. Specifically the EPT focal points in Congo, DRC and Equatorial Guinea will identify the existing coordination mechanisms in the respective countries on which EPT coordination can be built.

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Partners: EPT projects and partners

- Expected result(s)
  - Implementation of the project coordinated

- Sub-activity 2.1.2: ***Conduct project review meetings***

At regional level and national levels, expected results will be routinely monitored and regular reports shared with USAID and other partners according to the schedules. At country level, the monthly or bimonthly coordination meetings will provide opportunities for the EPT projects to review and monitor their activities.

- Partners: EPT partners and line ministries
- Expected result(s)
  - Progress on the project activities monitored

Activity 2.2 Strengthen Capacity of WHO Regional and Country Offices for better coordination by providing support to all EPT projects and partners

In 2010, WHO/AFRO incorporated the relevant EPT activities in its program of work and biannual work plan. At the highest level, the WHO Regional Director sensitized the Ministers of Health from the Great Congo Basin on the EPT perspectives and will continue to facilitate the collaboration between the national authorities with the EPT partners. The WHO country representatives were briefed by the Director of Disease Prevention and Control Cluster (DPC) on EPT activities and their crucial roles in ensuring coordination at country levels. Specific staff members were assigned in the regional office, ISTs and country offices (5 NPOs) as EPT focal points to facilitate coordination and provide technical support for better implementation of EPT program in the region. USAID funding to support salaries of the EPT focal points played a very crucial role in ensuring that the designated staff performed the assigned duties. In 2011, it is proposed that the salaries of the staff be maintained and support for additional NPO positions be considered in case of significant scale up of EPT activities in Angola, Rwanda and Tanzania.

- Sub-activity 2.2.1: ***Maintain the salaries of WHO EPT Focal points at regional, IST and country levels***

- Partners
- Expected result(s)
  - Strategic guidance to Countries implementing the EPT Programme provided
  - Effective Coordination platforms for EPT program implementation identified and strengthened
  - EPT staff salary secured for one year:
    - EPT Focal person AFRO P04
    - Data Manager AFRO P04
    - EPT Focal Persons (NPOs) for 3 countries

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3: Technical Assistance for Outbreak Investigation and Response

Activity 3.1 Perform field investigations and response to reported disease outbreaks in collaboration with other EPT projects

- Sub-activity 3.1.1 ***Support investigation and response to disease outbreaks and other field investigations jointly with RESPOND, PREDICT and PREVENT projects.***

Detection and response to disease outbreaks is one of the core roles of WHO in providing technical support to Members States and partners. EPT provides a great opportunity for strengthening multisector approaches for outbreak preparedness and response. All the national EPT focal points are epidemiologists and public health specialists with experience in outbreak investigation and response, and will work closely with the EPT projects during response to disease outbreaks. In addition, the vehicles purchased with year 11 funds and medical supplies prepositioned in collaboration with the DELIVER project will be availed to facilitate outbreak investigation and response.

- Partners: EPT partners, respective line ministries and other partners
- Expected result(s)
  - Threats of disease outbreaks timely investigated and responded to
  - Coordinated multisector response to public health events demonstrated

- Sub-activity 3.1.2: ***Conduct review meetings to evaluate response to disease epidemics after every major outbreak***

Post outbreak review meetings allow all actors to share experiences, identify gaps and learn lessons for better response to future outbreaks. For instance, lessons learnt through the review meeting for Uganda anthrax outbreak in 2011 led to improved response to Ebola outbreak that occurred a few months later. In partnership with all the EPT projects and line ministries, WHO will promote review meetings and documentation of the major outbreaks. Lessons learnt from such meetings will be widely shared using appropriate means (workshops, publications, reports, etc.).

- Partners: EPT partners, Ministries of Health, in collaboration with FAO, OIE, other line ministries dealing
- Expected result(s)
  - Review meetings conducted and lessons learnt from response activities applied for better response to future outbreaks
  - Documentation of disease outbreaks strengthened

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III. IMPLEMENTATION PLAN

	ACTIVITIES by Area of work	Responsible	Other stakeholders	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12Q4 OCT-DEC 11	FY12 Q1 JAN-MAR 12	FY12 Q2 APR-JUN 12	FY12Q3 JUL-SEP 12	Budget (USD)	Available (included carryover funds and transfer from HQ)	Gap
1	**Advocacy and Sensitization**										
1.1	Advocate for government support to implementation of EPT and promote effective joint multisector approaches to public health issues										
1.1.1	Convene an advocacy meeting for high level policy makers in governments on One Health in 2011 for 10 EPT countries	WHO AFRO	Permanent secretaries from MoH, MoA, Environment, EPT partners, AU-IBAR and other partners	Common understanding of one health visions and EPT activities by high level policy makers	X				(b)(4)		
1.1.2	Develop information package e.g. posters and leaflets for wider circulation on one health in collaboration with other EPT projects and key partners	WHO AFRO, RESPOND	Other EPT projects, AU-IBAR, OHCEA	Improved multisector collaboration by the relevant ministries	X	X					
1.1.3	Organize forums at national and sub-national levels for EPT partners to meet their line ministries (WHO to liaise with the ministries to convene such meetings)	WCO	EPT partners, MoH, MoA, Environment and other stakeholders		X	X	X	X			
2	**Coordination and support to all EPT projects**										
2.1	Organize coordination meetings at Regional and support activities at country levels										
2.1.1	Regular Joint meetings of EPT partners	WHO	EPT partners and other stakeholders EPT partners, line ministries and other partners	EPT Program implementation well-coordinated	X	X	X	X	(b)(4)		
2.1.2	Conduct project review meetings	WHO			X	X	x	x			
2.2	Strengthen Capacity of WHO Regional and Country Offices for better coordination (12 months' salary support for EPT focal points)										
2.2.1	Regional EPT Focal Point, Medical officer P4 (AFRO)	WHO		Strategic guidance on EPT							

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	ACTIVITIES by Area of work	Responsible	Other stakeholders	EXPECTED RESULTS 1 Oct 2011 – 30 September 2012	FY12Q4 OCT-DEC 11	FY12 Q1 JAN-MAR 12	FY12 Q2 APR-JUN 12	FY12Q3 JUL-SEP 12	Budget (USD)	Available (included carryover funds and transfer from HQ)	Gap
2.2.3	Biostatistician/Database manager, DPC Cluster (AFRO)	WHO		programme provided to relevant ministries Coordination platforms for EPT established Relevant support provided to all EPT partners across projects					(b)(4)		
2.2.4	National EPT Focal Point, NPO NO-C (Cameroon)	WHO									
2.2.5	National EPT Focal Point, NPO NO-C (Congo)	WHO									
2.2.6	National EPT Focal Point, NPO NO-C (Uganda)	WHO									
3	**Technical assistance for outbreak investigation and response**										
3.1	Perform investigation and response to disease outbreaks in collaboration with other EPT projects										
3.1.1	Support investigation and response to disease outbreaks in collaboration with other EPT projects	WHO	MoH, other ministries and EPT partners and other stakeholders	Coordinated timely multisectoral response to disease outbreaks	X	X	X	X	(b)(4)		
3.1.2	Conduct review meetings to evaluate response to disease epidemics after every major outbreak	WHO			X	X	X	X			
TOTAL											

Summary of Year 2012 Budget	USD
Carry-over of funds from EPT Year 2	(b)(4)
Allocation to AFRO through WHO HQ (September 2011)	
Funds to be provided from other sources to cover for the budget shortfall	
Total funds available for EPT Year 3	
Total Year 3 AFRO EPT Budget	

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PERFORMANCE MONITORING PLAN (PROVISIONAL):

PROJECT OBJECTIVE	INDICATOR	DATA SOURCE/ COLLECTION METHOD	FREQUENCY OF DATA COLLECTION	RESPONSIBLE PARTY
Advocacy for One Health approach attained in all countries implementing EPT	Number of advocacy meetings	Meeting reports	Quarterly	WHO AFRO
Coordinated multisector involvement in addressing public health issues	Number of regional coordination meetings	Meeting reports	Quarterly	WHO AFRO and EPT Regional coordinators
	Number of established functional multisectoral country coordination structures	Documentation of established structures for country coordination	Annually	WHO AFRO and EPT Regional coordinators
		Reports indicating number of meetings held by country coordination committees	Quarterly	EPT national focal points
Improved multisectoral approach in response to disease outbreaks	Number of major disease outbreaks where all relevant sectors responded	Outbreak reports	Quarterly	EPT national focal points WHO AFRO
	Number of multisector post outbreak review meetings	Meeting reports	Quarterly	EPT national focal points WHO AFRO

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VI. COUNTRY AND REGIONAL PROJECT MANAGEMENT

The organizational relationship between headquarters and the regional/country-level offices

WHO at all levels (headquarters, regional and country) facilitates and supports the implementation of the EPT Program. In the African region, WHO intends to use its mechanisms and strengths to provide support across all the 4 EPT projects (PREDICT, PREVENT, RESPOND and IDENTIFY). In this regard, WHO will continue to widely disseminate information about the EPT program specifics, hold consultations, promote effective coordination and advocate at regional and country levels for better implementation of the program.

To better perform the above functions, WHO has strengthened its capacity both at Regional and Country levels. At the Regional level, the program is fully incorporated into the WHO strategic plans and the overall program management is supervised by the Director of the Disease Prevention and Control Cluster. Additionally, 2 technical officers in AFRO are designated to monitor EPT program and IDENTIFY project respectively. Currently a WHO NPO is assigned in each of the 5 countries (Cameroon, Congo, DRC, Equatorial Guinea and Uganda) to facilitate liaison between EPT implementing partners and the relevant ministries. The designated NPOs who are supervised by the WHO Country representatives ensure that the representatives are fully briefed on EPT activities in order for them to advocate for coordinated multisector implementation. In EPT countries with no designated NPOs, the respective IST has assigned a staff member to perform the required functions.

Partnerships at the regional/country level

WHO collaborates directly with FAO and OIE to implement the IDENTIFY project. At the country level, the Ministries of Health and Animal Resources, partners and other related ministries participate in joint implementation of the components of the EPT program. WHO will facilitate communication among the stakeholders by identifying and making use of the existing coordination mechanisms within the countries. WHO will also continue to strengthen and encourage synergies within all the EPT implementers and promote participation of other collaborating technical partners such as AU-IBAR and OHCEA.

Reporting

The implementation of the EPT program is closely monitored by the EPT focal points at regional office under the coordination of the DPC Cluster. Technical and financial reports will be prepared and submitted to USAID according to the agreed formats and timelines.

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I. BUDGET

The total budget for the AFRO EPT Program (excluding IDENTIFY project) for October 1, 2011 through September 30, 2012, is estimated at $1,218,000. Of the total budget, $1,159,000 is available (i.e. $409,000 carry-over from FY2011 and $750,000 being the recent USAID authorized release from WHO Headquarters to fund FY2012 EPT activities). The additional budget required $59,000 and will be obtained from other sources.

Attachment 1

WHO/AFRO EPT Program
Dates October 1, 2010 - September 30, 2012

Budget Summary	Total (USD)
Personnel Activities including cost associated with meetings, travels, emergency deployments, etc.	(b)(4)
Grand Total	

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Attachment 2

BUDGET NOTES

PERSONNEL

The EPT focal point in the WHO Regional office, 3 NPOs (Cameroon, Congo and Uganda) and a database manager in charge of the DPC cluster data management are included in the budget proposal. The salaries for these 5 positions have been funded in FY11 through the EPT program. Financial support is required to sustain these positions in the FY12.

OVERHEAD

The overhead costs will be covered by other sources of funds.

TRAVEL

Due to need to convene both planned and ad hoc meetings, and emergency travels, the travel costs are not budgeted separately. The costs are rather included in the cost of activities that will require travelling.

Attachment 3

Estimated Allocation of Funds by Regional/Country from October 1, 2011 to September 30, 2012

Country	Personnel	Activity	TOTAL USD	Comments
Angola	(b)(4)			All the countries will benefit from regional activities and funds allocated for outbreak response
Cameroon				
Central African Republic				
Democratic Republic of Congo				
Uganda				
Gabon				
Republic of Congo				
Rwanda				
Tanzania				
Equatorial Guinea				
IST Central Gabon				
IST East and South Harare				
WHO Congo Regional Office				
Total				

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