

THIS FILE IS MADE AVAILABLE THROUGH THE DECLASSIFICATION EFFORTS AND RESEARCH OF:

# THE BLACK VAULT

THE BLACK VAULT IS THE LARGEST ONLINE FREEDOM OF INFORMATION ACT / GOVERNMENT RECORD CLEARING HOUSE IN THE WORLD. THE RESEARCH EFFORTS HERE ARE RESPONSIBLE FOR THE DECLASSIFICATION OF THOUSANDS OF DOCUMENTS THROUGHOUT THE U.S. GOVERNMENT, AND ALL CAN BE DOWNLOADED BY VISITING:

[HTTP://WWW.BLACKVAULT.COM](http://www.blackvault.com)

YOU ARE ENCOURAGED TO FORWARD THIS DOCUMENT TO YOUR FRIENDS, BUT PLEASE KEEP THIS IDENTIFYING IMAGE AT THE TOP OF THE .PDF SO OTHERS CAN DOWNLOAD MORE!



# governmentattic.org

*"Rummaging in the government's attic"*

Description of document: Defense Intelligence Agency report, **Biological Warfare Capabilities - Middle East Countries**, July 1973

Requested date: 23-October-2008

Released date: 10-June-2013

Posted date: 13-August-2013

Source of document: Commander  
US Army Intelligence & Security Command Freedom of Information/Privacy Office  
ATTN: IAMG-C-FOI  
4552 Pike Road  
Fort George G. Meade, MD 20755-5995  
Fax: (301) 677-2956  
Email: [FOIA/Privacy Office](#)  
[Online FOIA Request Form](#)

Note: This report is one of 16 reports released under Mandatory Declassification Review by the US Army Intelligence & Security Command. All of these reports may be accessed here: <http://www/governmentattic.org/inscomBWCW.html>

The governmentattic.org web site ("the site") is noncommercial and free to the public. The site and materials made available on the site, such as this file, are for reference only. The governmentattic.org web site and its principals have made every effort to make this information as complete and as accurate as possible, however, there may be mistakes and omissions, both typographical and in content. The governmentattic.org web site and its principals shall have neither liability nor responsibility to any person or entity with respect to any loss or damage caused, or alleged to have been caused, directly or indirectly, by the information provided on the governmentattic.org web site or in this file. The public records published on the site were obtained from government agencies using proper legal channels. Each document is identified as to the source. Any concerns about the contents of the site should be directed to the agency originating the document in question. GovernmentAttic.org is not responsible for the contents of documents published on the website.



**DEPARTMENT OF THE ARMY**  
**UNITED STATES ARMY INTELLIGENCE AND SECURITY COMMAND**  
**FREEDOM OF INFORMATION/PRIVACY OFFICE**  
**FORT GEORGE G. MEADE, MARYLAND 20755-5995**

REPLY TO  
ATTENTION OF:

Freedom of Information/  
Privacy Office

10 JUN 2013

This is in further response to your Freedom of Information Act (FOIA) request of October 23, 2008, and supplements our electronic message of May 12, 2010.

Coordination has been completed with another element of our command and other government agencies and records returned to this office for our review and direct response to you. We have reviewed the records and determined the records are partially releaseable to you. A copy of the records are enclosed for your use.

We have completed a mandatory declassification review in accordance with Executive Order (EO) 13526. As a result of our review information has been sanitized and 4 pages have been withheld in their entirety as the information is currently and properly classified TOP SECRET, SECRET and CONFIDENTIAL according to Sections 1.2(a)(1), 1.2(a)(2), 1.2(a)(3) and 1.4(c) of EO 13526. This information is exempt from the public disclosure provisions of the FOIA pursuant to Title 5 U.S. Code 552 (b)(1). It is not possible to reasonably segregate meaningful portions of the withheld pages for release. The records are enclosed for your use. A brief explanation of the applicable sections follows:

Section 1.2(a)(1) of EO 13526, provides that information shall be classified TOP SECRET if its unauthorized disclosure reasonably could be expected to cause exceptionally grave damage to the national security.

Section 1.2(a)(2) of EO 13526, provides that information shall be classified SECRET if its unauthorized disclosure reasonably could be expected to cause serious damage to the national security.

Section 1.2(a)(3) of EO 13526, provides that information shall be classified CONFIDENTIAL if its unauthorized disclosure reasonably could be expected to cause serious damage to the national security.

Section 1.4(c) of EO 13526, provides that information pertaining to intelligence activities, intelligence sources or methods, and cryptologic information shall be considered for classification protection.

In addition, information has been sanitized from the records and 4 pages have been withheld in their entirety as the release of the information would reveal sensitive intelligence methods. This information is exempt from public disclosure pursuant to Title 5 U.S. Code 552 (b)(7)(E) of the FOIA. The significant and legitimate governmental purpose to be served by withholding is that a viable and effective intelligence investigative capability is dependent upon protection of sensitive investigative methodologies. It is not possible to reasonably segregate meaningful portions of the withheld pages for release.

The withholding of the information described above is a partial denial of your request. This denial is made on behalf of Major General Stephen G. Fogarty, the Commanding General, U.S. Army Intelligence and Security Command, who is the Initial Denial Authority for Army intelligence investigative and security records under the FOIA. You have the right to appeal this decision to the Secretary of the Army. Your appeal must be postmarked no later than 60 calendar days from the date of this letter. After the 60-day period, the case may be considered closed; however, such closure does not preclude you from filing litigation in the courts. You should state the basis of your disagreement with the response and provide justification for a reconsideration of the denial. An appeal may not serve as a request for additional or new information. An appeal may only address information denied in this response. Your appeal is to be made to this office, for forwarding, as appropriate to the Secretary of the Army, Office of the General Counsel.

Coordination has been completed and we have been informed by the Central Intelligence Agency (CIA) that information is exempt from public disclosure pursuant to Title 5 U.S. Code 552 (b)(1) and (b)(3) of the FOIA.

The withholding of the information by the CIA constitutes a denial of your request and you have the right to appeal this decision to the Agency Release Panel within 45 days from the date of this letter. If you decide to file an appeal, it should be forwarded to this office and we will coordinate with the CIA on your behalf. Please cite CIA #F-2010-01292/Army #57F-09 assigned to your request so that it may be easily identified.

Coordination has been completed and we have been informed by the Defense Intelligence Agency (DIA) that their information is exempt from public disclosure pursuant to Title 5 U.S. Code § 552 (b)(1), (b)(2) (b)(3) and (b)(4) of the Freedom of Information Act and Executive Order (EO) 13,526 § 1.4 (c) (d) and (h). The statute invoked under Title 5 U.S. Code 552 (b)(3) is 10 U.S.C. §424, which allows for the protection of organizational and personnel information for DIA.

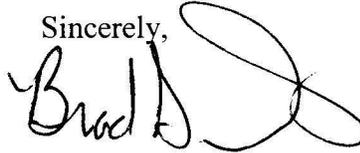
The withholding of the information by the DIA constitutes a partial denial of your request and you have the right to appeal this decision directly to the DIA. If you decide to file an appeal, it should be forwarded to the Director, Defense Intelligence Agency, ATTN: DAN-1A-FOIA, Washington, DC 20340-5100. Please cite MDR #0155-2010 assigned to your request so that it may be easily identified.

You have received all Army intelligence investigative records pertaining to this request.

There are no assessable FOIA fees.

If you have any questions regarding this action, feel free to contact this office at 1-866-548-5651, or email the INSCOM FOIA office at: [INSCOM\\_FOIA\\_ServiceCenter@mi.army.mil](mailto:INSCOM_FOIA_ServiceCenter@mi.army.mil) and refer to case #57F-09.

Sincerely,

A handwritten signature in black ink, appearing to read "Brad S. Dorris". The signature is stylized with a large, looping flourish at the end.

Brad S. Dorris  
Director  
Freedom of Information/Privacy Office  
Investigative Records Repository

Enclosure

JUL 26 1973

SI CS 03-32-74

CIRC

~~SECRET~~



DEFENSE INTELLIGENCE AGENCY

SI CS 03-32-74  
~~SECRET~~

BIOLOGICAL WARFARE CAPABILITIES  
MIDDLE EAST COUNTRIES (M)

162

~~SECRET~~

July 1973

Publication No.  
ST-CS-03-32-74

ST-CS-03-32-74  
US ARMY MATERIEL COMMAND  
FOREIGN SCIENCE AND TECHNOLOGY CENTER  
Federal Office Building, Charlottesville, Va. 22901

**BIOLOGICAL WARFARE CAPABILITIES—MIDDLE EAST COUNTRIES (U)**

Publication No. ST-CS-03-32-73, September 1972, is superseded by the inclosed document, ST-CS-03-32-74.

1. Remove front cover, back cover, and all pages of ST-CS-03-32-73 from the looseleaf binder originally supplied. Destroy the old pages in accordance with applicable security regulations.

2. Insert the inclosed front and back covers and all pages in the original looseleaf binder.

3. This page may be destroyed, if desired.

**NATIONAL SECURITY INFORMATION**  
Unauthorized disclosure subject to  
criminal sanctions

**NO FOREIGN DISSEM**

~~SECRET~~

(This page is UNCLASSIFIED)

783

**SECRET**

ST-CS-03-32-74  
Original

(This page intentionally left blank)

NO FOREIGN DISSEM

2

**SECRET**  
(This page is UNCLASSIFIED)

784

~~SECRET~~

**BIOLOGICAL WARFARE CAPABILITIES-  
MIDDLE EAST COUNTRIES (U)**

(b)(6)

**ST-CS-03-32-74**

**DIA Task No. T74-03-10**

**July 1973**

**Information Cutoff Date: 15 June 1973**

This study supersedes "Biological Warfare Capabilities--Middle East Countries (U)" ST-CS-03-32-73, dated September 1972.

**NATIONAL SECURITY INFORMATION**  
Unauthorized disclosure subject to  
criminal sanctions

This is a Department of Defense Intelligence Document prepared by the Foreign Science and Technology Center of the US Army Materiel Command, with contributions from the Naval Intelligence Support Center and the Defense Intelligence Agency and approved by the Directorate for Scientific and Technical Intelligence of the Defense Intelligence Agency.

~~NO FOREIGN DISSEM~~

Classified by DIR/CIA/DIA  
Exempt from GDS of EO 11652  
Exemption Category: 2  
Declassify on: IMPDET

12/10/73 10:10:00 AM

~~SECRET~~

(This page is UNCLASSIFIED)

785

**SECRET**

ST-CS-03-32-74  
Original

(This page intentionally left blank)

NO FOREIGN DISSEM

ii

**SECRET**  
(This page is UNCLASSIFIED)

786

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

**PREFACE**

(U) This product is a revision of a report (ST-CS-03-32-73) with a similar title that was published in September 1972. The study addresses the biological warfare capabilities of Israel, Egypt, Iran, Iraq, Jordan, Lebanon, Saudi Arabia, and Syria. Trends and forecasts are included.

(U) A bibliography has been prepared separately and can be made available on written request to the Defense Intelligence Agency, ATTN: DT-1A, Washington, D. C. 20301.

(U) Although the cutoff date for information in this document is 15 June 1973, major updatings have been made up to the date of final approval for printing.

(U) Constructive criticisms, comments, or suggested changes are encouraged, and should be forwarded to the Defense Intelligence Agency, ATTN: DT-1A, Washington, D. C. 20301. Critical evaluations from readers will provide guidance for updating, enabling this study to be most responsive to the varied needs of the users.

iii

(Reverse Blank)

**UNCLASSIFIED**

787

UNCLASSIFIED

ST-CS-03-32-74  
Original

TABLE OF CONTENTS

|  | Page |
|--|------|
| Preface .....  | iii  |
| Summary .....  | ix   |
| Map of Middle East .....   | xi   |
| <b>SECTION I. ISRAEL</b>   |      |
| <b>A. INTRODUCTION</b>   |      |
| 1. Historical Background and Competence in<br>Microbiology and Public Health ..... | 1    |
| 2. Geographical and Political Factors .....  | 1    |
| <b>B. ASSESSMENT</b>   |      |
| 3. Order of Battle .....   | 2    |
| 4. BW Materiel .....   | 3    |
| 5. Production Facilities and Capabilities .....                                    | 4    |
| 6. Stockpiles and Storage Facilities .....   | 4    |
| 7. Doctrine and Procedures .....   | 4    |
| 8. Research, Development, and Testing .....  | 4    |
| 9. Conclusions .....   | 18   |
| 10. Trends and Forecasts .....   | 18   |
| <b>SECTION II. EGYPT (ARAB REPUBLIC OF EGYPT)</b>                                  |      |
| <b>A. INTRODUCTION</b>   |      |
| 1. Historical Background .....   | 21   |
| 2. Competence in Microbiology and Public Health .....                              | 21   |
| <b>B. ASSESSMENT</b>   |      |
| 3. Order of Battle .....   | 22   |
| 4. BW Materiel .....   | 25   |
| 5. Production Facilities and Capabilities .....                                    | 26   |

v

UNCLASSIFIED

788

UNCLASSIFIED

SY-CS-03-32-74  
Original

TABLE OF CONTENTS (Continued)

|   | Page |
|---|------|
| 6. Stockpiles and Storage Facilities .....            | 27   |
| 7. Doctrine and Procedures .....                      | 28   |
| 8. Research, Development, and Testing .....           | 28   |
| 9. Conclusions .....                                  | 30   |
| 10. Trends and Forecasts .....                        | 30   |
| <br>SECTION III. IRAN                                 |      |
| A. INTRODUCTION                                       |      |
| 1. Historical Background .....                        | 33   |
| 2. Competence in Microbiology and Public Health ..... | 33   |
| <br>B. ASSESSMENT                                     |      |
| 3. Order of Battle .....                              | 34   |
| 4. BW Materiel .....                                  | 34   |
| 5. Production Facilities and Capabilities .....       | 35   |
| 6. Stockpiles and Storage Facilities .....            | 35   |
| 7. Doctrine and Procedures .....                      | 35   |
| 8. Research, Development, and Testing .....           | 35   |
| 9. Conclusions .....                                  | 36   |
| 10. Trends and Forecasts .....                        | 36   |
| <br>SECTION IV. IRAQ                                  |      |
| A. INTRODUCTION                                       |      |
| 1. Historical Background .....                        | 39   |
| 2. Competence in Microbiology and Public Health ..... | 39   |
| <br>B. ASSESSMENT                                     |      |
| 3. Order of Battle .....                              | 40   |
| 4. BW Materiel .....                                  | 43   |
| 5. Production Facilities and Capabilities .....       | 43   |

UNCLASSIFIED

ST-CS-03-32-74  
Original

TABLE OF CONTENTS (Continued)

|   | Page |
|---|------|
| 6. Stockpiles and Storage Facilities . . . . .            | 44   |
| 7. Doctrine and Procedures . . . . .                      | 44   |
| 8. Research, Development, and Testing . . . . .           | 44   |
| 9. Conclusions . . . . .                                  | 44   |
| 10. Trends and Forecasts . . . . .                        | 44   |
| <br>SECTION V. JORDAN                                     |      |
| 1. Introduction . . . . .                                 | 47   |
| 2. Order of Battle . . . . .                              | 47   |
| 3. BW Materiel . . . . .                                  | 47   |
| 4. Production Facilities and Capabilities . . . . .       | 48   |
| 5. Stockpiles and Storage Facilities . . . . .            | 48   |
| 6. Doctrine and Procedures . . . . .                      | 48   |
| 7. Research, Development, and Testing . . . . .           | 48   |
| 8. Conclusions . . . . .                                  | 48   |
| 9. Trends and Forecasts . . . . .                         | 49   |
| <br>SECTION VI. LEBANON                                   |      |
| A. INTRODUCTION   |      |
| 1. Historical Background . . . . .                        | 51   |
| 2. Competence in Microbiology and Public Health . . . . . | 51   |
| <br>B. ASSESSMENT   |      |
| 3. Order of Battle . . . . .                              | 51   |
| 4. BW Materiel . . . . .                                  | 52   |
| 5. Production Facilities and Capabilities . . . . .       | 52   |
| 6. Stockpiles and Storage Facilities . . . . .            | 52   |
| 7. Doctrine and Procedures . . . . .                      | 52   |
| 8. Research, Development, and Testing . . . . .           | 52   |
| 9. Conclusions . . . . .                                  | 53   |
| 10. Trends and Forecasts . . . . .                        | 53   |

# UNCLASSIFIED

ST-CS-03-32-74  
Original

## TABLE OF CONTENTS (Continued)

|                               | Page |
|-------------------------------|------|
| SECTION VII. SAUDI ARABIA     |      |
| 1. Saudi Arabia .....         | 55   |
| 2. Trends and Forecasts ..... | 55   |
| SECTION VIII. SYRIA           |      |
| 1. Syria .....                | 57   |
| 2. Trends and Forecasts ..... | 57   |
| Bibliography .....            | 59   |
| DD Form 1473 .....            | 61   |
| Distribution List .....       | 63   |

## LIST OF ILLUSTRATIONS

| Figures                                    |    |
|--|----|
| 1. Israeli BW research organization .....  | 5  |
| 2. Egyptian CBR warfare organization ..... | 23 |
| 3. Iraqi CBR organization .....            | 41 |

## LIST OF TABLES

| Tables                                       |    |
|--|----|
| I. Location of Egyptian Chemical Units ..... | 24 |
| II. Location of Iraqi Chemical Units .....   | 40 |

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

**SUMMARY**

(U) The biological warfare capabilities of the Middle East countries belong almost entirely to Israel, Egypt (Arab Republic of Egypt), and possibly Iran. The other countries considered in this study, Iraq, Jordan, Lebanon, Saudi Arabia, and Syria, possess no offensive materiel and little or no defensive materiel. All countries with the exception of Israel would be dependent on outside sources for offensive and defensive biological warfare materiel. Israel, while having the most advanced technology in the Middle East, has chosen to purchase some of its defensive materiel from outside sources.

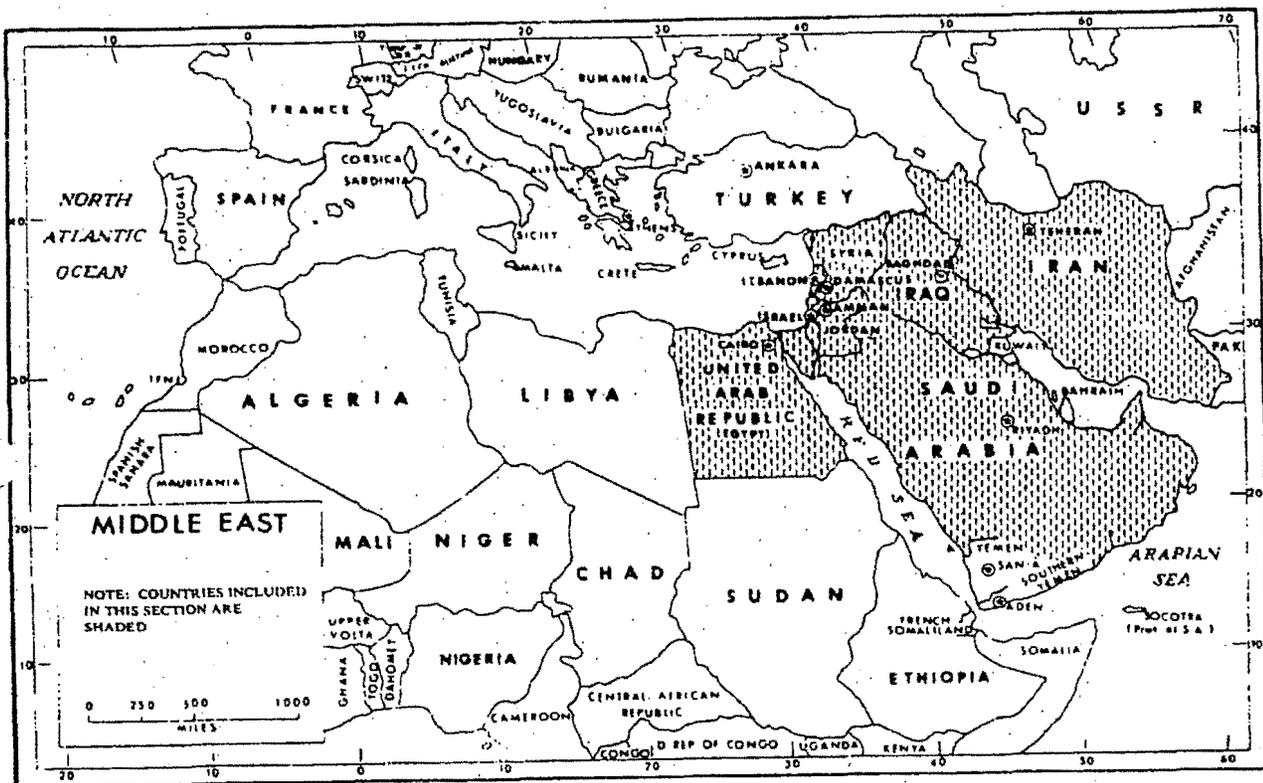
(U) The use of biological agents would offer military advantages to Middle East countries, but at the same time defensive weaknesses would make any victory gained a very tenuous one. This statement should not be interpreted as denying the potential effectiveness of the covert use of biological agents to promote military or economic gains. The BW Convention of 1972 was signed by Egypt, Iran, Iraq, Lebanon, Syria, and Saudi Arabia. As of 24 April 1973, only Saudi Arabia has ratified the BW Convention.

ix

(Reverse Blank)

**UNCLASSIFIED**

792



(UNCLASSIFIED)

Map of Middle East (U).

793

UNCLASSIFIED

SI-CS-03-32-74  
Original

~~CONFIDENTIAL~~

~~SECRET~~

ST-CS-03-32-74  
Original

Section I.

ISRAEL

A. INTRODUCTION

1. (U) Historical Background and Competence in Microbiology and Public Health

a. This section will present an evaluation of intelligence data and open source information which concerns the capability of Israel to conduct biological warfare (BW). Available information does not demonstrate that Israel is engaged in an active BW program. The scientific and technical capabilities of personnel, research institutes, and educational institutes, however, would more than provide the expertise which is necessary to initiate or conduct such a program.

b. The evaluated information primarily concerns microbiological research and development conducted by Israel's scientific organizations. Most research programs appear to have been designed to generate new industry or to improve public health and agricultural standards of the nation.

c. No specific institute or organization per se is considered to be participating in biological warfare activities. Specific areas of research and equipment which might be employed for development and production of BW weapons within Israeli institutes and organizations will be discussed in later sections.

2. ~~(S/NFO)~~ Geographical and Political Factors

(b)(1)

NO FOREIGN DISSEM

1

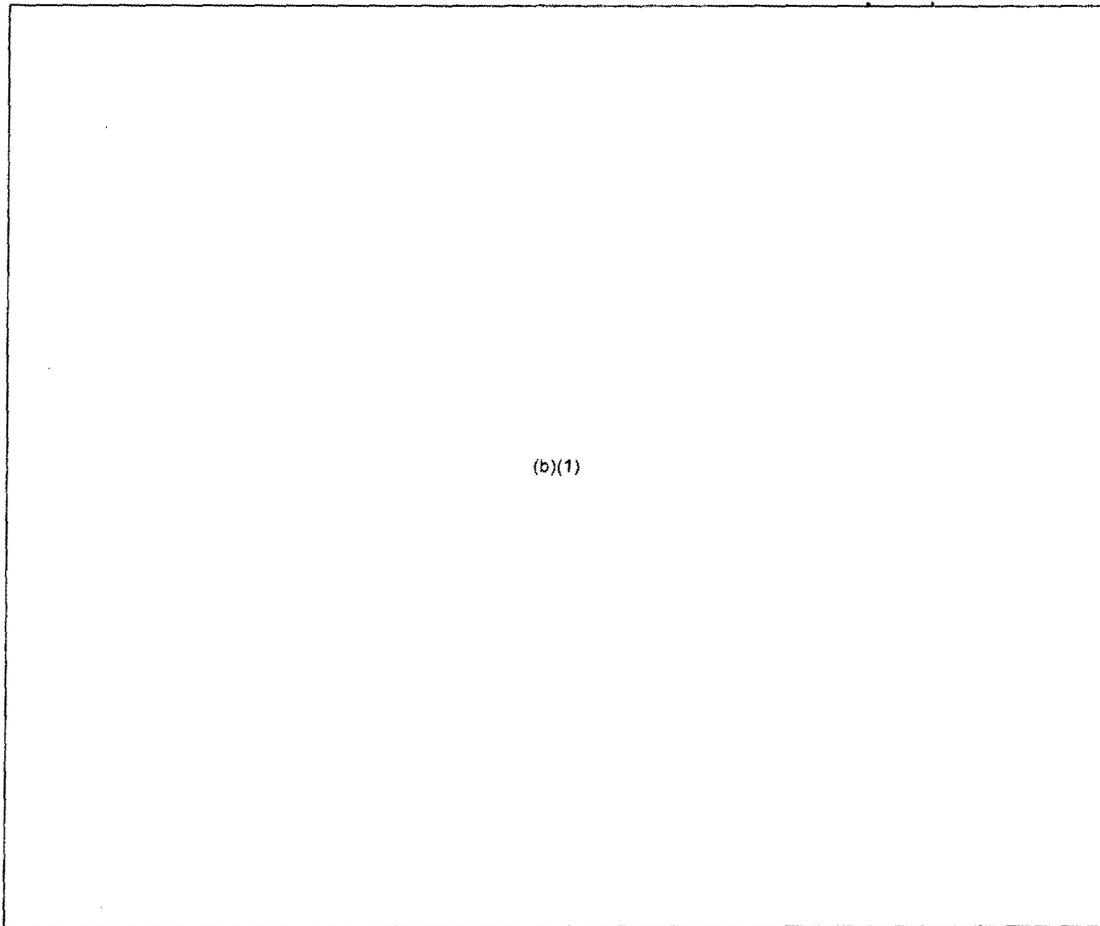
~~SECRET~~

(This page is ~~CONFIDENTIAL~~)

794

~~SECRET~~

ST-CS-03-32-74  
Original

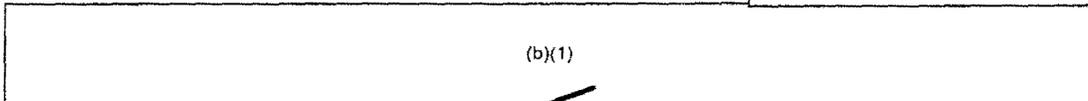


(b)(1)

**B. ASSESSMENT**

3. ~~(CONF)~~ Order of Battle

(b)(1)



(b)(1)

~~NO FOREIGN DISSEM~~

~~SECRET~~

~~SECRET~~

ST-CS-03-32-74  
Original

*4.*

(b)(1)

4. ~~(S)~~ BW Material

(b)(1)

~~NO FOREIGN DISSEM~~

3

~~SECRET~~

796

~~SECRET~~

ST-CS-03-32-74  
Original

5. ~~(S)~~ Production Facilities and Capabilities

(b)(1)

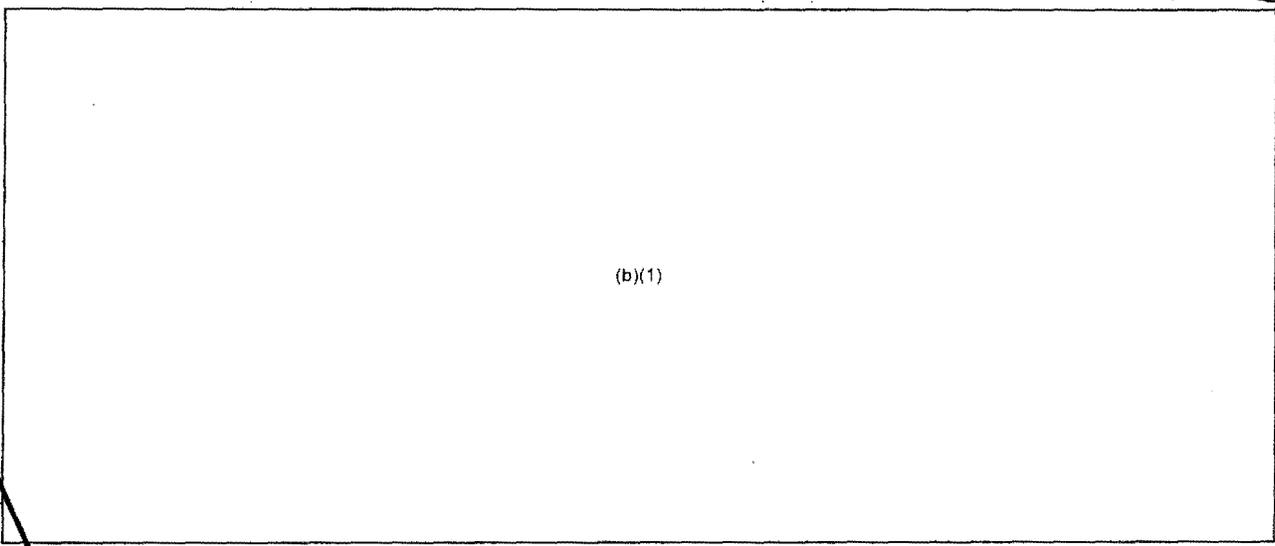
7. ~~(S-NFD)~~ Doctrine and Procedures

(b)(1)

~~NO FOREIGN DISSEM~~

~~SECRET~~

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32



~~NO FOREIGN DISSEM~~

~~SECRET~~

----- LEGEND FUNCTION

(CONFIDENTIAL - NFD)

Figure 1. Israeli BW research organization (U).

SI-CS-03-3274  
Original

~~SECRET~~

ST-OS-03-32-74  
Original

(1) ~~(S)~~ Israel Institute for Biological Research P.O.B. 19, Ness-Ziona.

(b)(1)

(b)(1)

(c) (U) Personnel at the IIBR also work on a contract basis for the Ministry of Defense on specific problems of civil defense and for the Israel Defense Forces Medical Corps on projects for the prevention of communicable diseases. Numerous research projects are sponsored by foreign institutions such as the National Institutes of Health of the US, the National Communicable Disease Center of the US, the US Department of Agriculture, the US Army Medical R&D Command, the Ford Foundation and the World Health Organization. The Department of Epidemiology includes the WHO/FAO & National Leptospirosis Reference Laboratory. The multidisciplinary setup of the Institute enables it to create research teams in accordance with the needs or proposals of local authorities or foreign agencies. Most of the activities are project-oriented and are directed accordingly.

(d) (U) Since its affiliation in 1967 to the Tel Aviv University (Medical School and Faculty of Science), the majority of its senior scientific staff hold academic appointments and belong to the teaching staff of this university, in addition to those lecturing at the Hebrew University of Jerusalem and the Bar-Ilan and the Negev Universities. Since its foundation the Institute has been accepting, by special agreement with the Hebrew University of Jerusalem, graduate students in microbiology and associated fields of biochemistry and chemistry. Recently a similar agreement was reached with the Tel Aviv University and the Weizmann Institute of Science. Fifteen M. Sc. students are being accepted annually and 15 students are currently working toward their Ph.D degrees.

~~NO FOREIGN DISSEM~~

6

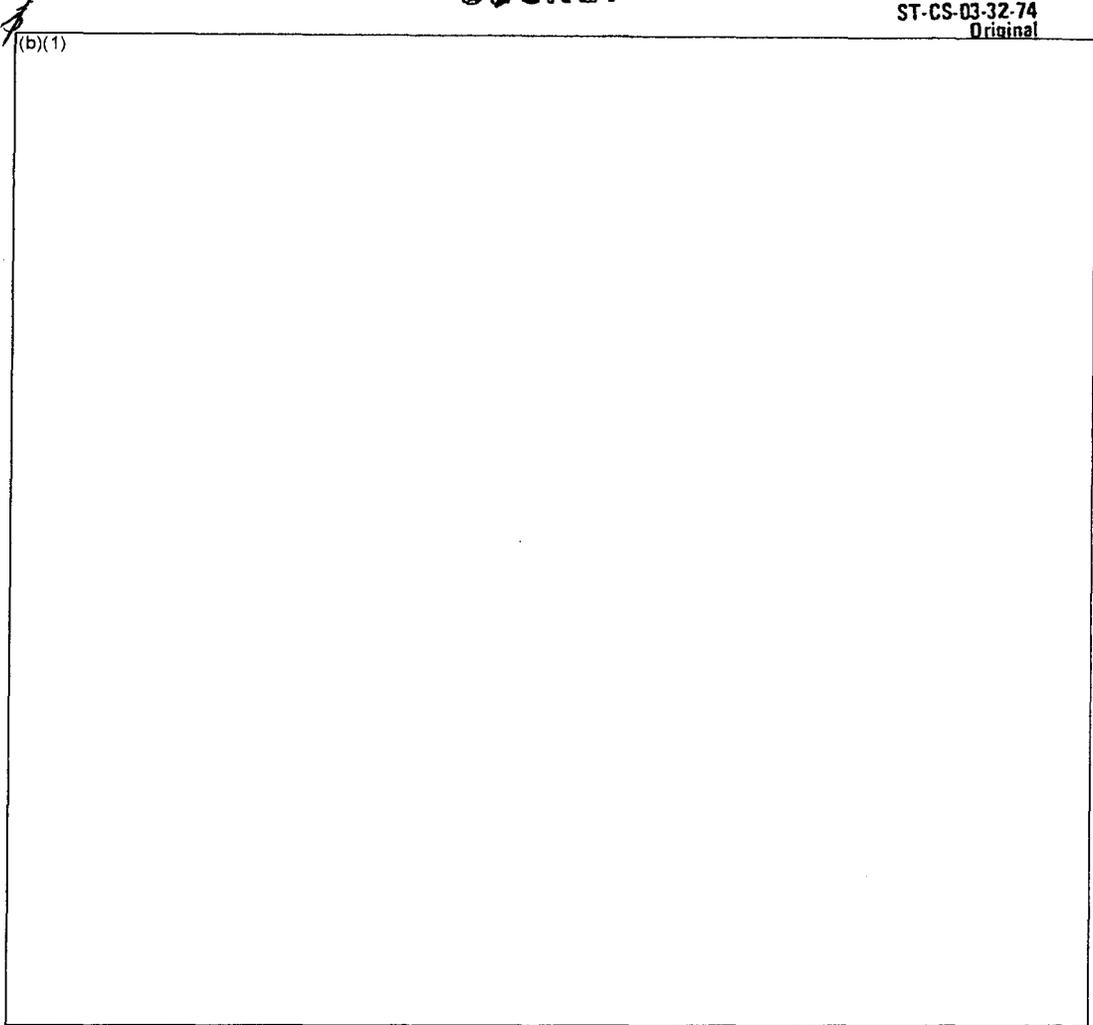
~~SECRET~~

799

~~SECRET~~

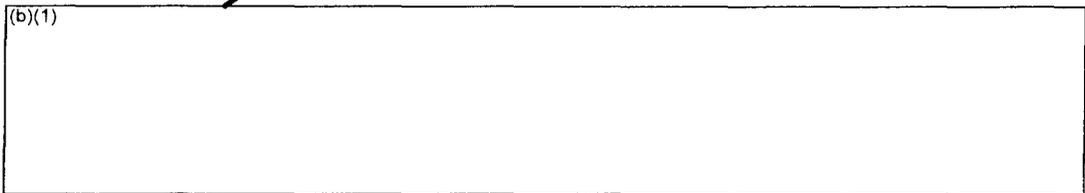
ST-CS-03-32-74  
Original

~~1~~  
(b)(1)



(2) ~~(S)~~ The Weizmann Institute of Science, Rehoveth

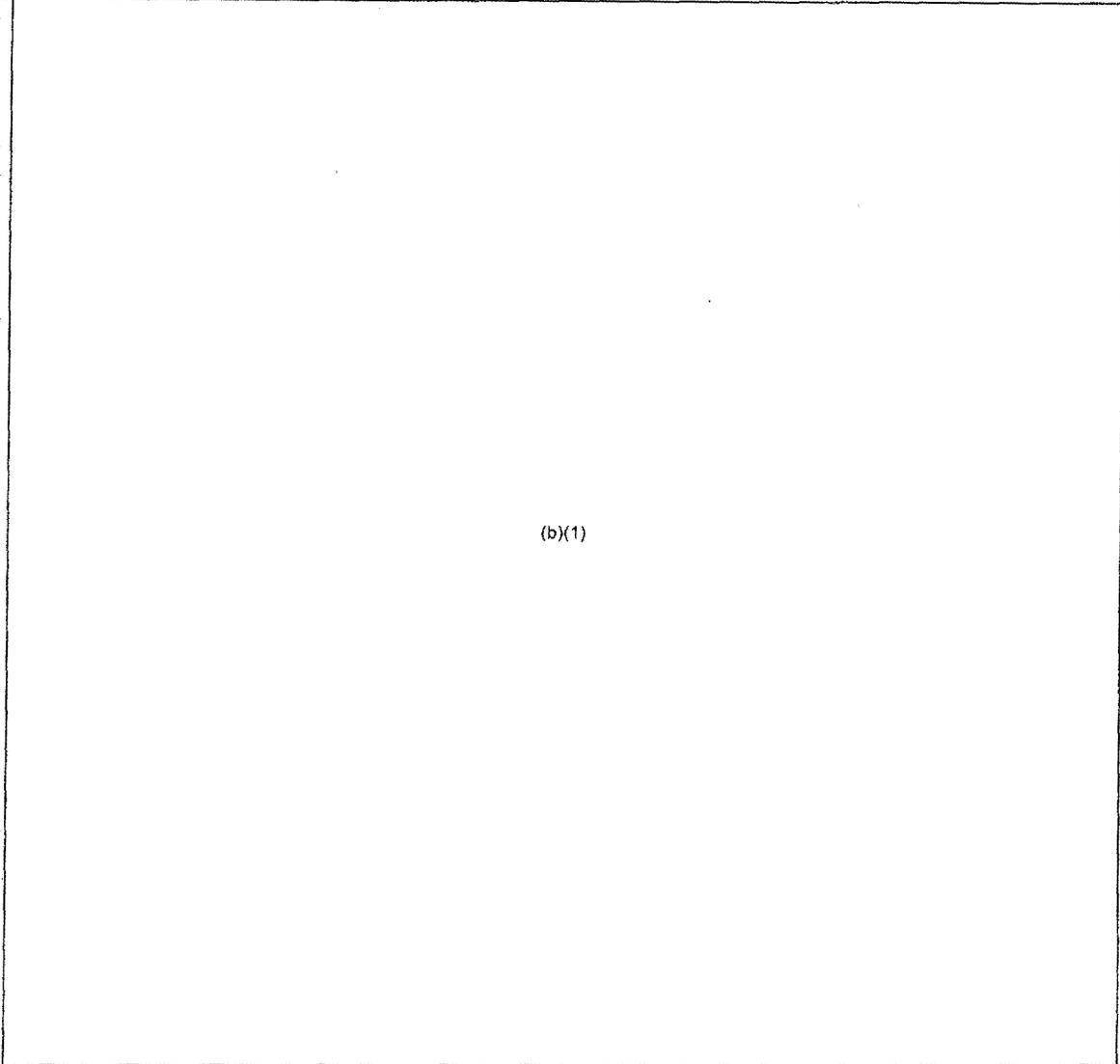
(b)(1)



~~SECRET~~

~~SECRET~~

ST-CS-03-32-74  
Original



(b)(1)

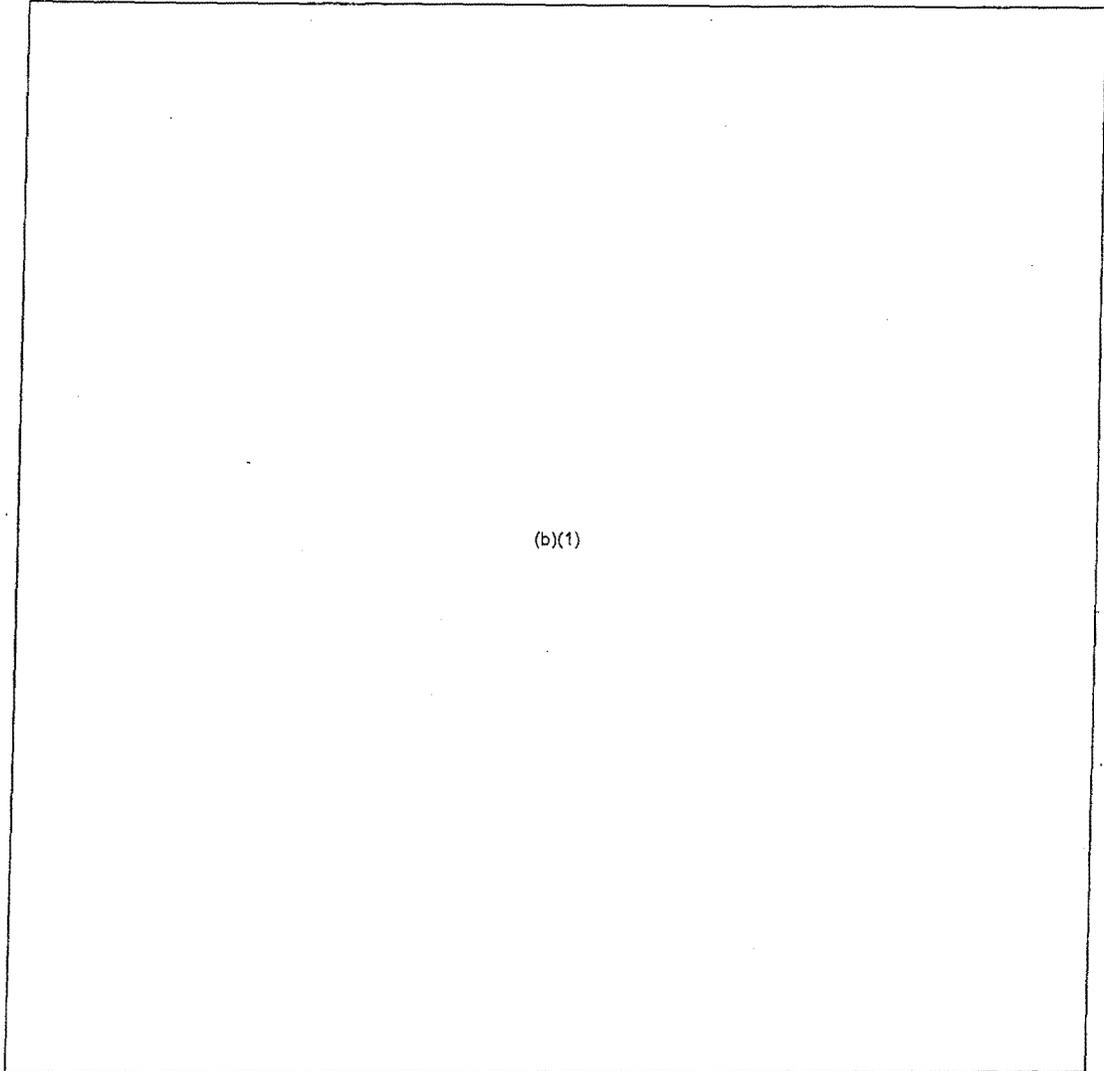
~~SECRET~~

801

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(d) (U) More recent developments at the Weizmann Institute are summarized below.



(b)(1)

~~CONFIDENTIAL~~

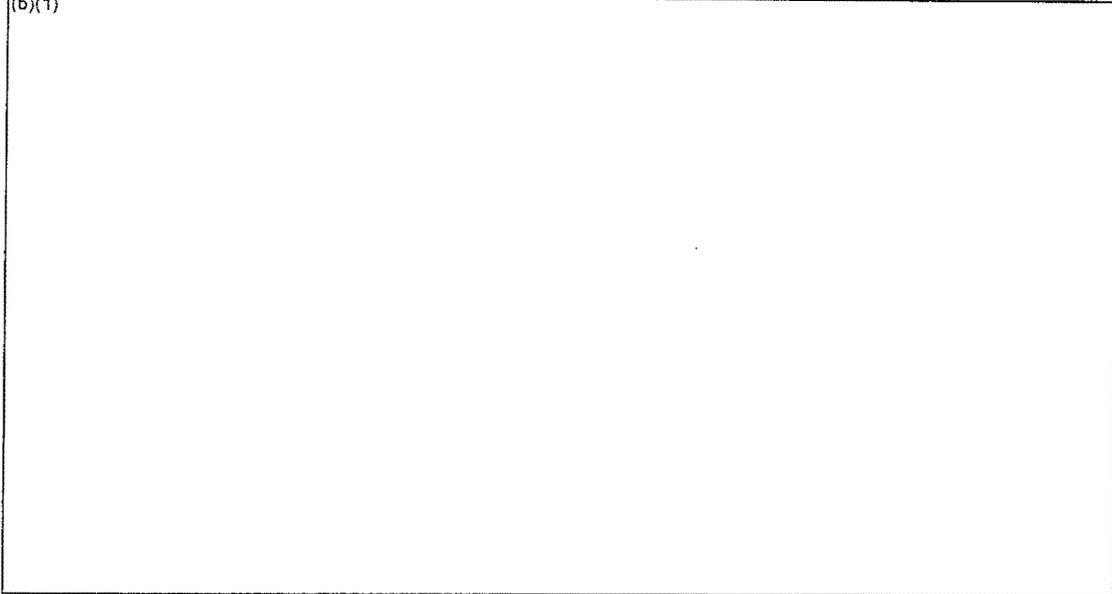
(This page is UNCLASSIFIED)

802

~~CONFIDENTIAL~~

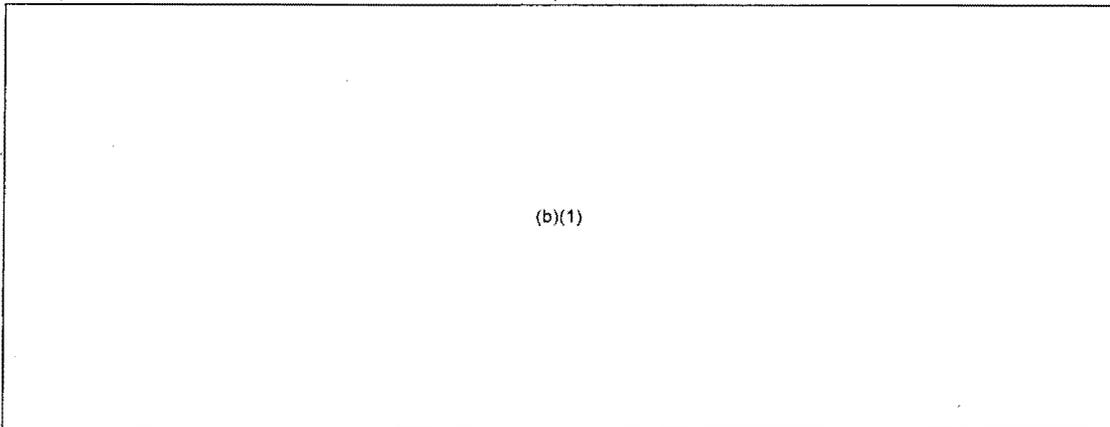
ST-CS-03-32-74  
Original

(b)(1)



(3) ~~(c)~~ The Hebrew University of Jerusalem, Jerusalem.

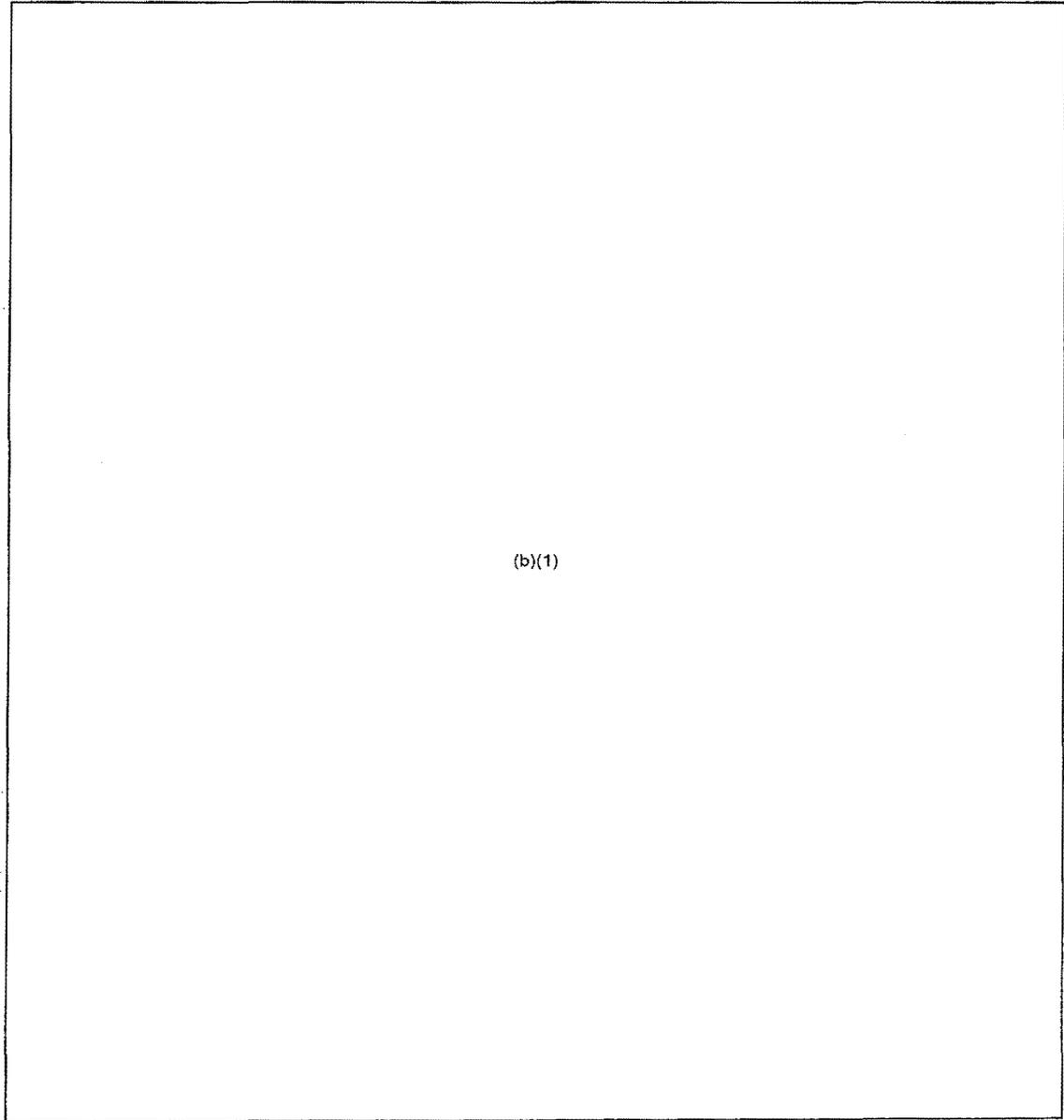
(b)(1)



~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original



(b)(1)

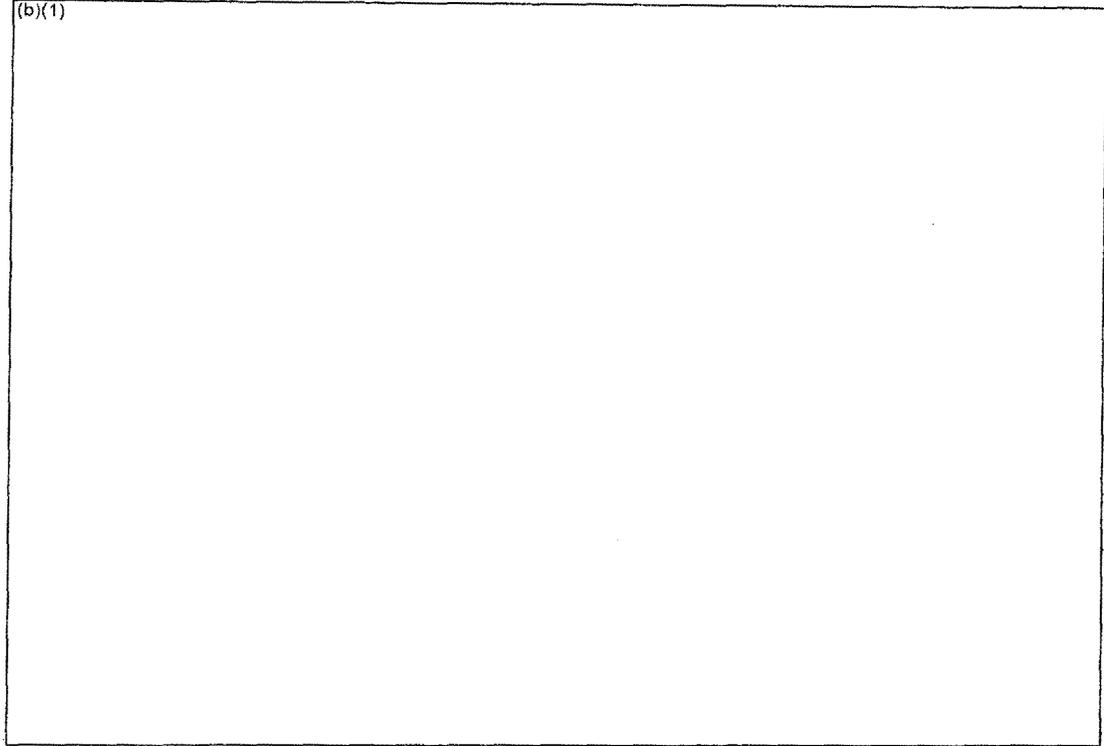
~~CONFIDENTIAL~~

804

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

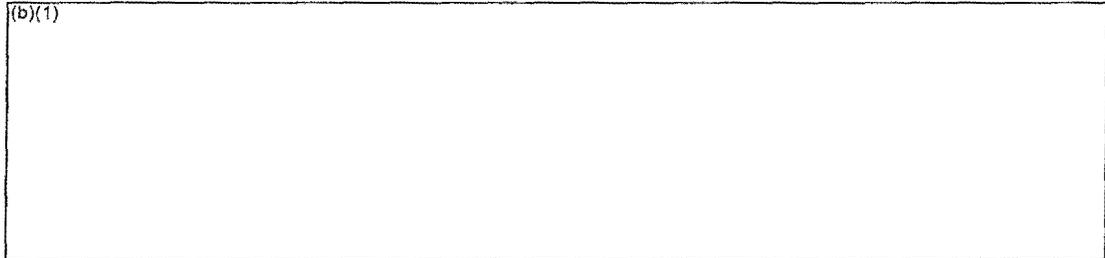
(b)(1)



(4) ~~(C)~~ Technion, Israel Institute of Technology, Haifa.

(a) (U) Technion is an academic institute which offers courses in engineering and the exact sciences and provides curricula leading to the degree of Doctor of Science.<sup>3</sup> Research facilities are comparable to those found in Western universities.

(b)(1)



~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(5) ~~(C)~~<sup>(U)</sup> Veterinary Institute, Rishon le Zion-Beit Dagon.

(a) (U) During the past decade, the Veterinary Institute was reported to be the source of all vaccines for animal use in Israel.<sup>2</sup> A competent staff of veterinarians and microbiologists was reported to be engaged in research on vaccines, cell culture techniques, propagation of disease agents, bionomics of vectors and disease agents, and physiological and metabolic problems.

(b)(1)

(6) (U) Department of Microbiology, University of Tel Aviv.<sup>8</sup>

(a) (U) This Department occupies a modern isolated building in the new University area on the northern edge of Tel Aviv known as Ramat Aviv. The Department head, Prof. Issac Witz, has organized his work so that he can advise medical students and direct the research activities of the Department. The teaching responsibilities include 80 medical students plus a number of fourth year science students.

(b) (U) The research program has received new impetus since Witz was installed as head of the Department. The interest of Dr. Eylan, former head of the department, was in the antiviral effects of various biological materials. At the International Microbiological Congress in Mexico, he reported on some work with antiviral proteins from *Staphylococcus aureus*. Dr. Eylan found that an acidic extract of the bacteria reacted with the lipid envelope of certain viruses, such as herpes virus and vesicular stomatitis virus, and inactivated them. He is also examining extracts of other bacteria and of plants for inhibition of herpes virus. Other studies are concerned with the interaction of two viruses in the same host tissue, and it was found that Sendai virus enhanced the growth and virulence of West Nile Virus. Virus yields have been increased 1000-fold. The growth and plaque formation of toxoplasma are being studied in cell cultures; by using a special strain, which is not toxic for mice, Eylan is able to examine the effects of various viruses in increasing the virulence of the protozoa. Finally, a program for study of birth defects, such as mongolism caused by a subclinical infection of rubella during pregnancy, has been started. Sera are collected from pregnant women at 3-month intervals and stored until needed to investigate a fetal abnormality. Antibody levels in the serum specimens are determined against suspect viruses in order to discover any relationship with the progress of the pregnancy.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

ST-GS-03-32-74  
Original

(7) (U) Government Central Laboratories, Jerusalem.

(a) (U) Located within the city of Jerusalem, this laboratory is well equipped and is staffed by capable, energetic scientists. Under the direction of Dr. Ch. B. Gerichter, National Centers for Cholera, Streptococci, Salmonella, Enterobacteriaceae, and Immunohematology and Blood Groups, together with the District Diagnostic Laboratory and the Serum and Vaccine Institute have been established at these laboratories.

(b) (U) The work of the national centers includes receipt and identification of strains of microorganisms from hospitals and public health officers of the entire country. In addition, diagnostic sera and other reagents are prepared for use by the center, and research on development of new diagnostic methods is carried out. Last year 500 strains of *Vibrio cholerae* were received for identification, and 4000 strains of Salmonella were examined for all O and H antigens. Recently when *Salmonella blockley* was found to occur in sporadic outbreaks of gastroenteritis in humans, as well as in poultry and cattle, a phage-typing scheme was devised to identify individual strains of this species. By the use of a phage sensitivity test for each of three symbiotic phages and a lysogenicity test using three indicator strains, it was possible to obtain a framework of 64 theoretically possible phage types. With this scheme, 1256 *S. blockley* strains were grouped into 14 types. During seven food-poisoning outbreaks, in which this scheme was used, all strains in each single outbreak were found to belong to the same phage type.

(c) (U) In the Streptococcus Laboratory, Dr. Bergner-Rabinowitz has guided the work of her group in developing methods for identifying hemolytic streptococci. As a simple first step in classifying strains, they are inoculated on blood agar containing 5 units of bacitracin per ml. On this medium all Group A strains of streptococci are inhibited but other groups will grow. The Group A strains are then typed by agglutination with specific sera. Although this is more tedious than precipitin tests, it is possible to type practically all strains in this way. With the M substance only 15-20% of strains are typed by precipitin tests. Work was undertaken to determine the amount of protective (M) antibody in human sera. A simplified method for detecting type-specific antibodies for Group A streptococci in human sera was developed by using an *in vitro* phagocytosis system with mouse peritoneal leukocytes. This technique compares favorably with the bactericidal method, is simpler, and provides an answer in a short time. In a recent study of 100 patients with glomerulonephritis caused by Group A streptococcus type 55 (a new type in Israel), specific antibodies against type 55 were found in the sera of a significant number of patients as compared with control individuals. Antibodies were detected 2 to 3 months after the initial infection and gradually disappeared 6 to 7 months later. This study demonstrated the practical usefulness of the type-specific antibody test in nephritic patients.

14

~~CONFIDENTIAL~~

(This page is UNCLASSIFIED)

807

REGRADED UNCLASSIFIED  
ON 4 JAN 2011  
BY USAINSCOM FOI/PA  
Auth Para 4-102 DOD 5200.1R

UNCLASSIFIED

ST-CS-03-32-74  
Original

(d) (U) The staff of the Vaccine and Serum Institute prepare five vaccines: those against cholera, plague, rabies, smallpox, and typhoid fever, for use in the entire country. The cholera, plague, and typhoid fever vaccines are killed bacterial suspensions prepared with the standard strains of bacteria. Rabies vaccine is made by the Semple method from infected rabbit brain suspensions which have virus titers of about  $10^{6.5}$  LD<sub>50</sub> for mice. Smallpox vaccine is prepared in chick embryos. It is bacteriologically sterile and is distributed as a glycerinated suspension. Gerichter would like desperately to prepare a dried vaccine, but lacks a lyophilizer. In order to maintain the vaccine in a vigorous state to develop immunity in man, the seed is prepared in large amounts so that the vaccine is not more than three egg passages removed from a thoroughly evaluated seed preparation.

(c) (U) Rubella vaccine is needed in Israel. The Ministry of Health made a decision to immunize all sixth grade girls in Israel against rubella or German measles.<sup>10</sup> At present the importation of the vaccine is under consideration. A decision on the source of vaccine must be made among the following: vaccine prepared in duck embryos by Merck, or in human diploid cell line W138 by Burroughs Wellcome or Merieux.

(8) (U) Tel Hashomer Hospital, Tel Aviv.

(a) (U) The Bacteriology Department of the laboratory of this 1000-bed hospital is directed by Dr. G. Altmann. The hospital occupying a number of single-story buildings which were constructed during WW II is located about 10 miles east of the center of Tel Aviv. These buildings had served as a general hospital and rehabilitation center for the US Army during the Mediterranean campaign. Since that time, there have been some modifications to the buildings, but in general, the problems of communication between the numerous hospital wards and clinics in separate buildings impose many difficulties on the laboratory staff. Altmann and his coworker, Dr. Bianke Bogokowski, have maintained an active program of surveillance of bacterial diseases in this hospital. They work closely with other international laboratories such as the WHO Neisseria Reference Center at Marseilles and the National Communicable Disease Center in Atlanta when special problems have arisen.

(b) (U) In discussing the question of meningitis, Dr. Altmann stated that it is not a serious problem in Israel since they have about only 50 cases per year. From these cases the meningococci isolated were mainly Group C although some Group B strains were detected. He described some work done several years ago in which two groups of young women were studied as carriers of meningococci. One group was composed of 50 women who were admitted to a nurses training school. The other group was composed of the same

UNCLASSIFIED

## UNCLASSIFIED

ST. CS-03-32-74  
Original

number of women who entered army training. Both groups represented women of the same ages and the same types of backgrounds. In following these individuals by nasopharyngeal cultures for meningococci, it was found that the nurses who lived two in a room had a very low carrier rate, and the army women who lived as a group in a single large room in the barracks had a carrier rate over 60%. There was no meningitis in either group. This study confirmed other work which showed that crowding of individuals resulted in a high carrier rate for meningococcus. It also showed that some other factor is responsible for the disease, because a high carrier *per se* does not always mean that the disease appears. With emergency mobilization of manpower and overcrowding of military transportation and housing, meningitis might be a BW factor.

(c) (U) Because meningitis is a relatively rare disease in Israel and there is no national reference center for meningococci, Altmann would like to keep in touch with microbiologists in other countries to compare data on the diagnosis of meningitis. He has prepared grouping sera for this work, and would like to receive some sera from other laboratories. The commercial sera which he has obtained have not given good results in his hands. When strains of meningococci are isolated, he has sent them to Atlanta and to Marseilles for confirmation of their antigenic type. This has worked out satisfactorily in some cases.

(d) (U) Another phase of the work has been the treatment of typhoid carriers. The use of antibiotics has not been successful in eliminating the carrier state in many people. Therefore, a study is made of each patient in order to determine the nature of the excretion of the bacilli by each individual. When urinary excretion is found, a careful examination of the kidneys is made by X-ray to determine any pathology which is present. Often stones or abscesses are seen. In these cases, surgery is indicated. At the same time, a massive antibiotic therapy with ampicillin or other suitable drug is instituted 2 days before surgery. Antibiotic treatment is continued up to the time of surgery in order to provide a high drug level to prevent spread of the infection when the tissue or abscess is cut. This avoids establishments of new foci of infection. Antibiotic treatment is continued until cultures are negative.

(e) (U) When fecal excretion of the bacilli is found, a similar study is made of the liver and gall bladder. When gall stones, or liver abscesses are seen, surgery is indicated and the antibiotic therapy as outlined for kidney infection is instituted. With this approach, there have been very good results in eliminating typhoid carriers which has permitted these people to function as normal members of society.

(f) (U) There are plans for the construction of a new modern hospital at Tel Hashomer. However, with the many requirements of this growing nation, it may be difficult to make arrangements for the replacement of the numerous small buildings which are

UNCLASSIFIED

~~SECRET~~

ST-CS-03-32-74  
Original

meeting a need today. This means that Altmann and his staff will continue to operate the laboratory of the hospital in the best way they can. For most of the backup for their work in bacteriology or parasitology, they look to the Government Central Laboratory and for virology to the Hebrew University Medical School in Jerusalem, which provide the services for identifying streptococci, staphylococci, salmonella, and other bacteria and viruses isolated in this hospital.

(b)(1)

17

~~SECRET~~

810

~~CONFIDENTIAL~~

~~SECRET~~

ST-CS-03-32-74  
Original

(4) (U) Vaccines are also manufactured at the Veterinary Institute in Beit Dagon and the Central Health Laboratories in Jerusalem. The latter facility also prepares sera.

9. ~~(S)~~ Conclusion:

a. (U) Israel possesses the most advanced scientific and technical capability found in the Middle East. Research facilities, educational institutions, and the pharmaceutical industries are modern and of high quality. Available technical expertise establishes Israel among those nations in the world most advanced scientifically and technologically.<sup>1</sup>

(b)(1)

10. (U) Trends and Forecast

a. Trends.

(1) In accord with national characteristics and firmly based upon traditions of academic excellence, Israeli scientists will continue to develop technological resources which could be applied to programs having military purposes. If necessary, drawing upon the resources of international Jewry, departments and divisions of microbiology and related sciences in Israel will become pre-eminent facilities of their kind. Although the goals established may be ones of academic excellence, problems of immediate and specific interest to the state of Israel will be addressed with priority. Research programs already undertaken indicate a diversity of interests, and trends toward specialization are not evident. Israeli microbiologists, chemists, physicists, and engineers will continue to work easily at the frontiers of their respective technologies. As the most scientifically sophisticated of the nations in the Middle East, should area politics permit, Israel will become a major force for solving historical problems affecting the health of the region.

(2) Biological agents may be produced and packaged for military purposes whenever Israeli policy deems it to their advantage to do so. It is conjecture, but weapon systems may not be sophisticated in their design. Covert applications of biological warfare may be preferred, and given the low standards of public health prevailing in the Arab states, the effectiveness of biological operations, especially in crowded urban centers, cannot be questioned.

(3) Medical defense research and development (R&D) efforts will enable the Israelis to achieve a high level of BW defense preparedness. They will continue to make determined efforts to improve their BW defensive capability to protect both the military and civilian population against a BW attack from any direction.

~~SECRET~~

(This page is CONFIDENTIAL)

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

b. Forecasts

(1) Short-range (5-year projection). Vaccines will be developed for those diseases which would be likely candidates for use in biological warfare—and particularly for those diseases which may be indigenous to countries in the Middle East. Renewed efforts will be made, with some success, to deal with its crisis-level pollution problems. For example, in Jerusalem, which has a population of 300,000, there is no sewage treatment plant. Technological breakthroughs will permit therapeutic treatment for some viral diseases; parasitic diseases will be brought under control, but not eradicated. Based upon free exchange of scientific and technological information, Israeli scientists will be able to produce a selected array of biological warfare materiel in quantities sufficient for military application. Although relatively insensitive to world opinion, there may be advantages favoring weaponization for covert use.

(2) Midrange (10-year projection). If international tensions relax, greater attention will be paid to resolving ecological pollution problems which in this time frame will become acute. The Sea of Galilee, which supplies one-third of Israel's fresh water, is already becoming dangerously polluted by nitrates. If freed from threat of hostile action, Israel will "export" her scientific expertise to neighboring countries. Indigenous diseases will be eradicated amongst stable populations, although small foci of infection will remain among nomadic inhabitants. Insight will be gained which will permit guarded treatment of cancer. By 1982, resolutions of problems in the Middle East will have been initiated and biological weapons no longer considered for development. If tensions remain, economical warfare may be practiced and biological agents may be tailored to create ecological imbalances among neighboring countries.

(3) Long-range (15-year projection). Israeli institutes and universities will become world centers of learning. Ecological and economical problems will be under control. Biomedical science will have conquered most forms of cancer known today (i.e. effective therapeutic treatment will be available), and major international resources will have been committed to attack afflictions caused by auto-immune disfunctions. The Israelis will remain technologically stronger in the biomedical sciences than their Arab neighbors for the next 15 to 20 years. International solutions to Israeli-Arab problems will be found which will no longer necessitate maintenance of forces-in-being. Consistent with worldwide movements, weapons of mass destruction will be demilitarized and military forces will be reduced to small cadres responsible for maintaining border vigilance, performing police functions, and responding to ceremonial needs.

**UNCLASSIFIED**

~~CONFIDENTIAL~~

~~SECRET~~

ST-CS-03-32-74  
Original

Section II.

EGYPT (ARAB REPUBLIC OF EGYPT)

A. INTRODUCTION

1. ~~(S)~~ (FOUO) Historical Background

(b)(1)

2. ~~(S)~~ Competence in Microbiology and Public Health

(b)(1)

NO FOREIGN DISSEM

21

~~SECRET~~

(This page is ~~CONFIDENTIAL~~)

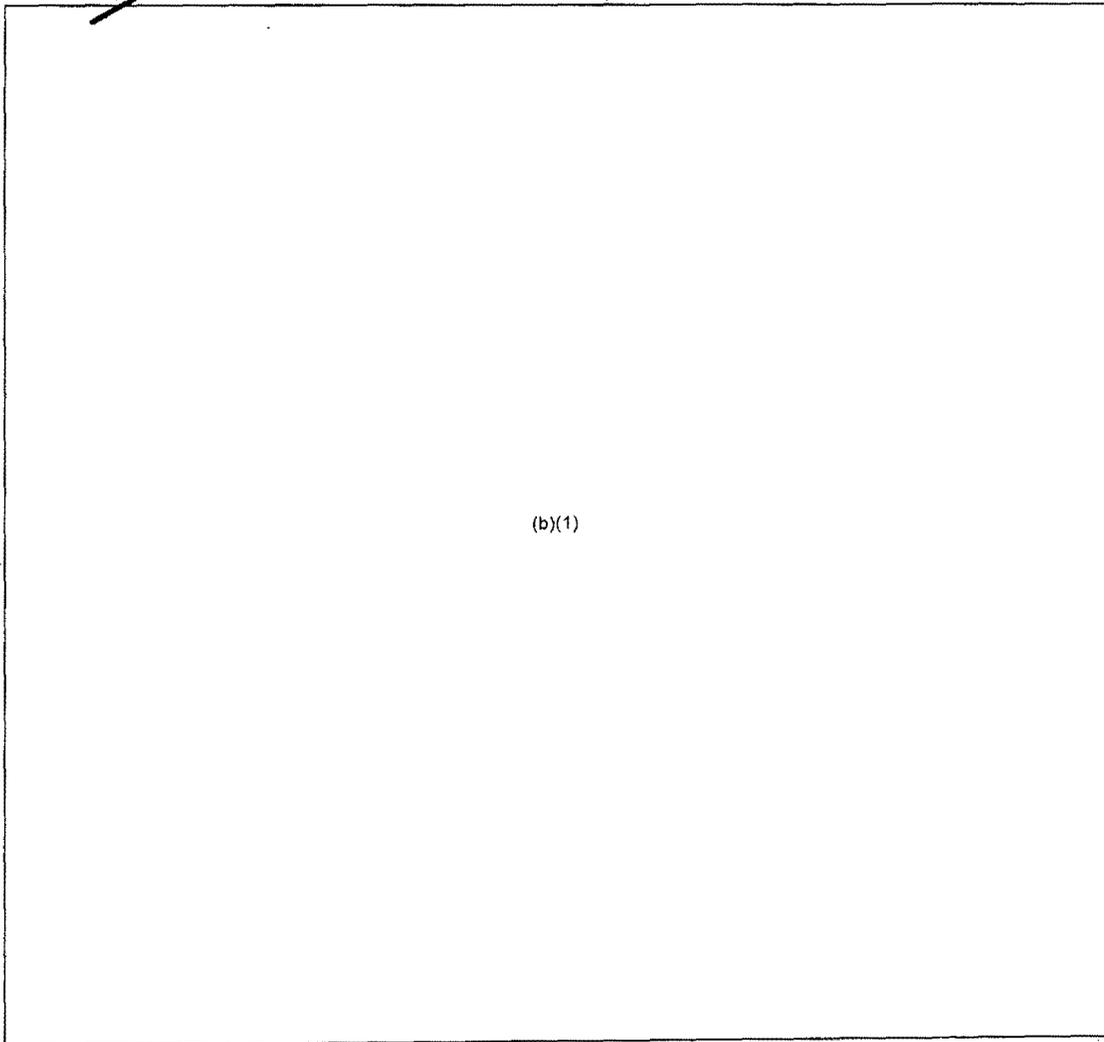
813

~~SECRET~~

ST-CS-03-32-74  
Original

B. ASSESSMENT

3. ~~(S-NFD)~~ Order of Battle



(b)(1)

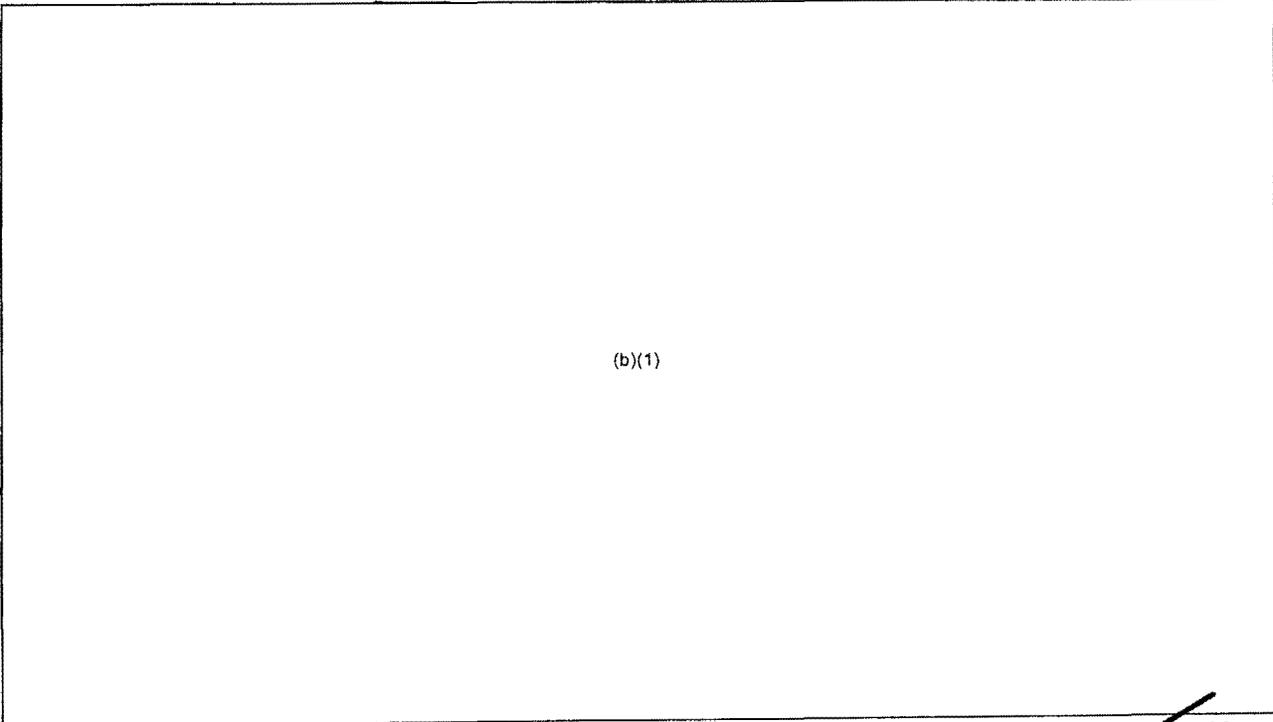
~~NO FOREIGN DISSEM~~

22

~~SECRET~~

814

~~SECRET~~



(b)(1)

~~NO FOREIGN DISSEM~~

~~(SECRET-NFD)~~

Figure 2. Egyptian CBR warfare organization (U).

ST-CS-03-32-74  
Original

815

~~SECRET~~

ST-CS-03-32-74  
Original

Table I. Location of Egyptian Chemical Units (U)

(b)(1)

~~(SECRET-NFD)~~

~~NO FOREIGN DISSEM~~

~~SECRET~~

~~SECRET~~

ST-CS-03-32-74  
Original

5

(b)(1)

4. ~~(C) Rel to UKCan~~ BW Materiel

(b)(1)

~~NO FOREIGN DISSEM~~

25

~~SECRET~~

817

~~SECRET~~

ST-CS-03-32-74  
Original

(b)(1)

5. ~~(S-NFD)~~ Production Facilities and Capabilities

(U) No BW production facilities are known with certainty to exist in Egypt although laboratories do exist which could potentially be used for agent production. There are 12 significant biological plants existing in the country; most are located in Cairo.

(b)(1)

~~NO FOREIGN DISSEM~~

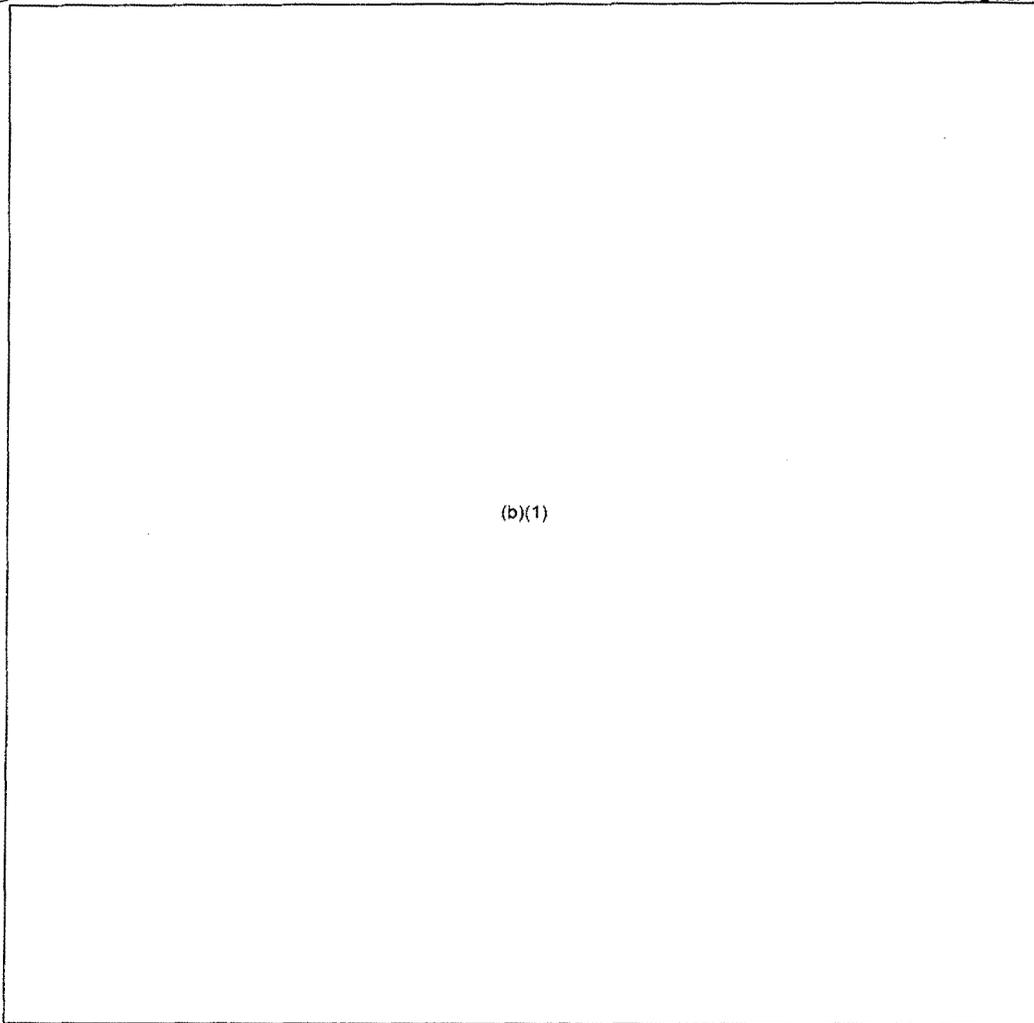
26

~~SECRET~~

818

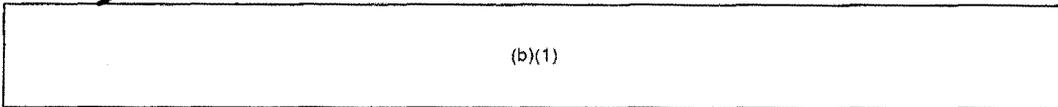
~~SECRET~~

ST-CS-03-32-74  
Original



(b)(1)

6. ~~(S-NFD)~~ Stockpiles and Storage Facilities



(b)(1)

~~NO FOREIGN DISSEM~~

27

~~SECRET~~

819

~~SECRET~~

ST-OS-03-32-74  
Original

7. (U) Doctrine and Procedures

There is no information on offensive doctrine or procedures. As mentioned previously, BW defensive operations are subordinate to the Chemical Warfare Units. Statements of President Sadat indicate that biological weapons, if they exist in the arsenals of the Egyptians, would be used in retaliation if the Israelis initiated such warfare. The Soviets would most likely be concerned with policy decisions concerning Egyptian use of biological weapons.

8. ~~(S-NFD)~~ Research, Development, and Testing

(b)(1)

~~NO FOREIGN DISSEM~~

28

~~SECRET~~

820

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(b)(1)

e. (U) University Laboratories.

(1) (U) The university research, except for that conducted by the American University of Cairo, is of poor quality by Western standards. The Ain Shams University, Cairo, and the Cairo University also have limited research facilities and work on national priority items.

(2) (U) A protocol signed late in 1971 leaves the American University in Cairo under the control of its all-American trustee board and confirms its administrative autonomy while at the same time recognizing its place within the Egyptian national education system. The protocol was signed December 20 but has been given little publicity

~~NO FOREIGN DISSEM~~

29

~~CONFIDENTIAL~~

821

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

by either side. It is the result of lengthy negotiations following an exchange of notes between the two governments last summer, bringing the university under the US-Egyptian cultural agreement. Egypt agreed to the protocol, it is thought, because the university serves as a useful channel for Egyptians wishing to carry out advanced studies in the United States. The protocol stipulates that at least 75 percent of the students should be Egyptian while the teaching staff is to be divided into 45 percent American citizens, 45 percent Egyptian citizens and 10 percent from third countries. This, in effect, merely confirms the status quo since now just over 80 percent of the students are Egyptian. The American University is incorporated in the District of Columbia and registered in New York State and its degrees are recognized in the United States.<sup>10</sup>

(b)(1)

9. ~~(C-NED)~~ Conclusions

(b)(1)

c. (U) Egypt lacks extensive research and development facilities to support a sophisticated BW program. If deemed necessary, they could divert the activities of their pharmaceutical and vaccine laboratories to the production of BW agents.

(b)(1)

10. (U) Trends and Forecasts

a. Trends

(1). The quality of biomedical education in Egypt is good, and is likely to remain so. There are, unfortunately, limited opportunities for professionally trained employees to work in-country. This condition is not likely to improve in the near future. An increasing

~~NO FOREIGN DISSEM~~

30

~~CONFIDENTIAL~~

822

**UNCLASSIFIED**

ST-CS-03-32-74

Original

amount of antibiotics is being produced in Egypt under various licensing agreements. While the quality of biologicals produced is quite good by standards prevailing in the Middle East, the products are inferior to those manufactured in West Europe. This condition also is not likely to change since to correct contributory causes would require massive infusions of capital. Although further growth is expected in Egypt's biological production industry, the country will most likely lag behind Israel in its production capability. Low standards of public health exist throughout Egypt, and, if Arab-Israeli tensions do relax, some effort might be directed toward improving the quality of life for the average Egyptian. Even with foreign help on a fairly large scale, this task will be a difficult one. The greatest public health problem in Egypt today is the incidence of schistosomiasis; the problem worsens daily, and programs of national priority will be required to even cope with this parasitic disease.

(2) The Egyptians could produce sufficient materiel for biological operations, but it seems likely that external assistance would be required. Fear of retaliation from Israel might also deter even those covert attacks threatened by Sadat. Limited sophistication shown by Egyptian military forces would seem to minimize their ability to employ biological warfare on an effective scale. The greater predictability—and presumably the greater availability—of chemical materiel might suggest its greater usefulness in tactical or strategic operations if weapons of mass destruction were required.

b. Forecasts

(1) Short-range (5-year projection). More foreign aid will be sought to improve the quality of public health in Egypt. Programs enjoying national emphasis will be initiated to eradicate shistosomiasis but they will only serve to identify the depth of the problems to be solved. Indebtedness to the USSR and limited economic expansion will preclude any real growth in the sciences and technologies. Limited quantities of selected biological agents could be made available, but use concepts would probably limit their effectiveness to a harassment.

(2) Midrange (10-year projection). Should Arab-Israeli tensions ease, foreign aid would probably become available to help raise standards of public health in Egypt. Short of a political detente in the Middle East, the quality of science and engineering in Egypt is unlikely to improve. If Egyptian technicians and scientists leave their country for greater opportunities elsewhere, a regression of current capabilities could occur. A deficit in balance of payments and a low Gross National Product would curtail Egyptian efforts to develop modern production facilities. In the mid-range time frame, biological warfare may become even less of an option for Egyptian planners because of such a deterioration and because of the increased technological superiority of Israel.

**UNCLASSIFIED**

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

(3) Long-range (15-year projection). International pressures will force a solution for Arab-Israeli problems, and Egyptian resources can slowly be brought to bear on Egyptian problems. Diseases historically indigenous to Egypt will be brought under control, and Egypt will begin to play a leading role in bringing the emerging nations of Africa into the modern world. Egypt will continue to show improvement in the quality of its microbiological research during the next 15 years and will probably attempt to close present research and development gaps which exist between the Middle East powers. Consistent with world developments, weapons of mass destruction will be destroyed, and international exchanges of scientists and engineers will most likely preclude lesser nations from secretly developing such weapons.

**UNCLASSIFIED**

824

~~SECRET~~

ST-CS-03-32-74  
Original

Section III.

IRAN

A. INTRODUCTION

1. ~~(S)~~ Historical Background

(b)(1)

2. ~~(S)~~ Competence in Microbiology and Public Health

a. (U) The public health facilities in Iran are inadequate to provide modern service to all the people. Living conditions are poor, there is a high illiteracy rate, and public sanitation measures are inferior. Medical care has been limited and rather primitive because of geographic inaccessibility. By drafting physicians into the national service, improved medical care is being brought to remote villages. These villages provide opportunity for field investigations in areas of public health, nutrition, and epidemiology.

(b)(1)

~~NO FOREIGN DISSEM~~

~~SECRET~~

~~SECRET~~

ST-CS-03-32-74  
Original

(b)(1)

**B. ASSESSMENT**

3. ~~(S-NFD)~~ Order of Battle

(b)(1)

(b)(1)

4. (U) BW Materiel

There is no information that any BW materiel is in Iran's possession. However, elements of the Iranian Armed Forces have requested information on M8/66 protective masks. When the "Battle" class destroyer ARTEMIS arrived from England 20 July 1970, it was not equipped with special CBW protective equipment. The SAAM, another "Battle" class destroyer, is

~~NO FOREIGN DISSEM~~

34

~~SECRET~~

626

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

fitted with citadel compartments, filtered air systems, water washdown fixtures, a cleansing station, and an NBC headquarters. The SAAM was not complete at the time of inspection, and it must be noted that it was being prepared as a private venture, the personal investment of the Shah of Iran. The newly commissioned Iranian destroyers, ZAAL and FARAMARZ, are equipped for CBR defense. All the vessels mentioned were constructed in England. While no visible evidence of BW programs exists, the latter vessels could be modified for use in covert, off coast, operations.

5. (U) Production Facilities and Capabilities

Iran has the technical capability and facilities for the limited production of BW materiel.

6. (U) Stockpiles and Storage Facilities

There are no known stockpiles of BW materiel in Iran.

7. (U) Doctrine and Procedures

Iran has not developed a defined BW doctrine or policy.

8. ~~(C/NFD)~~ Research, Development, and Testing

(b)(1)

~~NO FOREIGN DISSEM~~

35

~~CONFIDENTIAL~~

827

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(b)(1)

9. ~~(S)~~ Conclusions

(b)(1)

10. (U) Trends and Forecasts

a. Trends. Scientific and technological improvements are coming slowly to Iran. In the biomedical fields, emphasis has been placed on public health and education. Foreign scientific exchanges are taking place. Improved facilities for diagnosis, hospitalization, and medical care are becoming available to the average citizen of the small village. With the national management of the oil fields,<sup>11</sup> the open overtures to Russia and China, the importation of a Japanese engineering company to construct desalination water plants, and the employment of East German firms to construct diesel-powered electric generating plants, Iran is beginning to realize its role as a force in the Persian Gulf.

~~NO FOREIGN DISSEM~~

36

~~CONFIDENTIAL~~

828

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

b. Forecasts.

(1) Short-range (5-year projection). Changes are occurring to enhance the scientific and technological base of Iran. Diseases of antiquity have become specific assignments of university study. National control of sale of crude petroleum to international oil companies should improve the financial status of the state. An increase in defensive training against biological and chemical warfare is being given to Iranian troops. Offensive biological materiel will not be acquired or developed overtly.

(2) Midrange (10-year projection). With the established rate of enrollment and successful completion of educational course in medicine and public health, historical foci of infection should be well under control. The spillover of medically educated scholars should benefit the entire world community. Fossil fuel shortages should bring a greater world demand for natural fuel reserves with a greater national income without dependence on foreign aid. Electrification and water reclamation begun in the early 1970's should begin to show effects in the nation. Having acquired status as a leader in the Persian Gulf, Iran is likely to withdraw from a loose Arab confederation if Arab-Israeli hostilities flare. Technical competence acquired by investment in an educated population could be diverted to weaponry for biological warfare.

(3) Long-range (15-year projection). With decreases in supplies of fossil fuels, the oil reserves of the nation should provide a continued ample bargaining power both in international politics and economics. Results of university studies of indigenous diseases should begin to spill over to the international community. Open communication with world science in all fields should further improve the lot of the Iranian nation and that of the people of the Middle East. If deemed necessary, biological weaponry will not be beyond the ability of the Iranian people.

**UNCLASSIFIED**

~~SECRET~~

ST-CS-03-32-74  
Original

Section IV.

IRAQ

A. INTRODUCTION

1. (U) Historical Background

a. The Republic of Iraq has been plagued by many internal tensions and international disputes over the past 2 or 3 decades. Many difficulties involving foreign countries have arisen over the development of Iraq's oil industry. General living in Iraq is often difficult because of the extremes of physical conditions—mountains, heat, cold, and floods, and large areas of uncultivated land. On 1 June 1971, Iraq nationalized the assets of Western owned oil companies. The increase in revenue from sale of oil appears to be diverted to industrial, public health, and agricultural improvements. With Soviet aid, the Iraqis have built the Baghdad-Al Basrah railroad, the antibiotic plant in Samarra, the agricultural machinery plant in Al-Iskandariyah, the cotton combine in Al-Kut, the electrical engineering and mechanical plants near Baghdad, and the Iraq Petroleum Company complex in northern Ar-Rumeyhah.

b. In 1956 Iraq joined the Baghdad Pact to counter communist aggression. When hostilities broke out between Israel and the Arab states of Egypt, Jordan and Syria, Iraq severed diplomatic relations with the United States and Great Britain, charging that these had aided Israel in the war. Relations with the West, including France, the United Kingdom, and the United States have gradually improved. However, Iraq will probably rely more on the Soviets for military advisors and equipment. Ninety percent of the military equipment is of Soviet origin, and the East is still the dominant influence.

2. (U) Competence in Microbiology and Public Health

Iraq's general public health status is believed to be similar to that of neighboring Middle East nations. Iraq has been plagued almost perennially by epidemics of cholera and other diseases, which have required the country to seek aid from the USSR, various Eastern countries, and the World Health Organization. Iraq also suffers from a lack of technically trained people. An abundance of clinical material is available in Iraq. Some research is conducted at the Medical Research Center in Baghdad, the Military Hospital in Al Rashid, the Ninerva Horticultural Station in Northern Iraq, and the University of Baghdad.

~~NO FOREIGN DISSEM~~

39

~~SECRET~~

(This page is UNCLASSIFIED)

830

~~SECRET~~

ST-CS-03-32-74  
Original

B. ASSESSMENT

3. ~~(S, NFD)~~ Order of Battle

(b)(1)

Table II. Location of Iraqi CBR Units (U)

(b)(1)

(b)(1)

~~(SECRET)~~

~~NO FOREIGN DISSEM~~

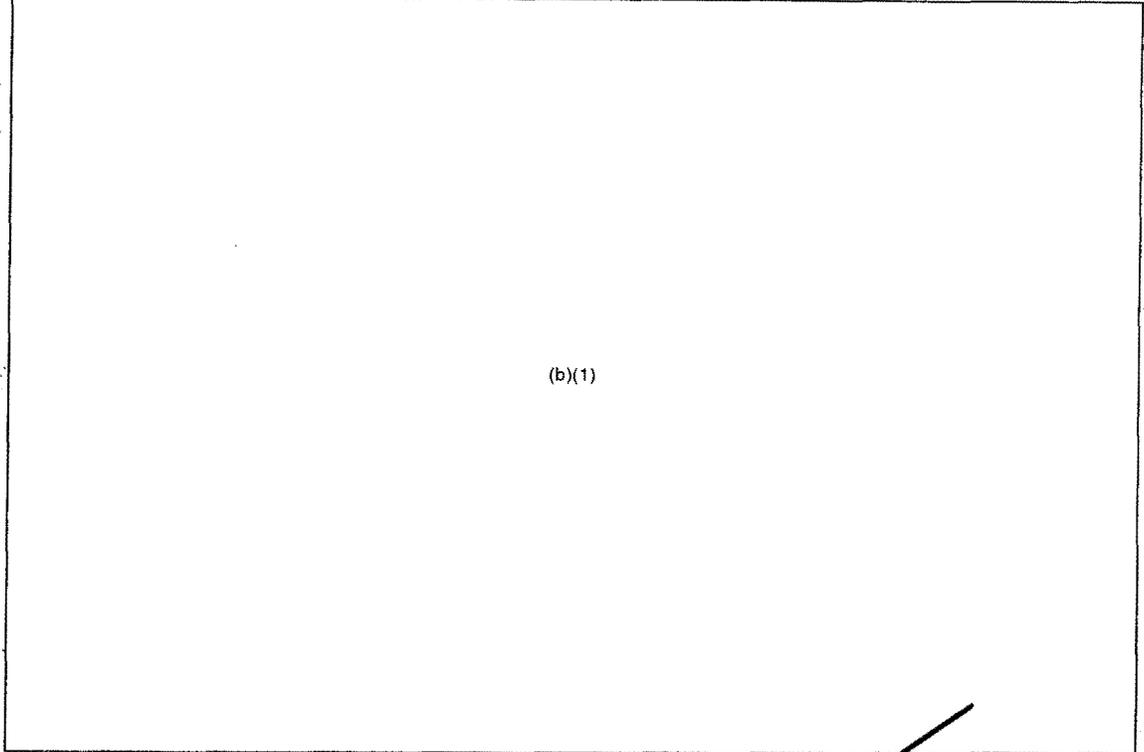
40

~~SECRET~~

831

~~SECRET~~

ST-CS-03-32-74  
Original



~~(SECRET-NFD)~~

Figure 3. Iraqi CBR organization (U).

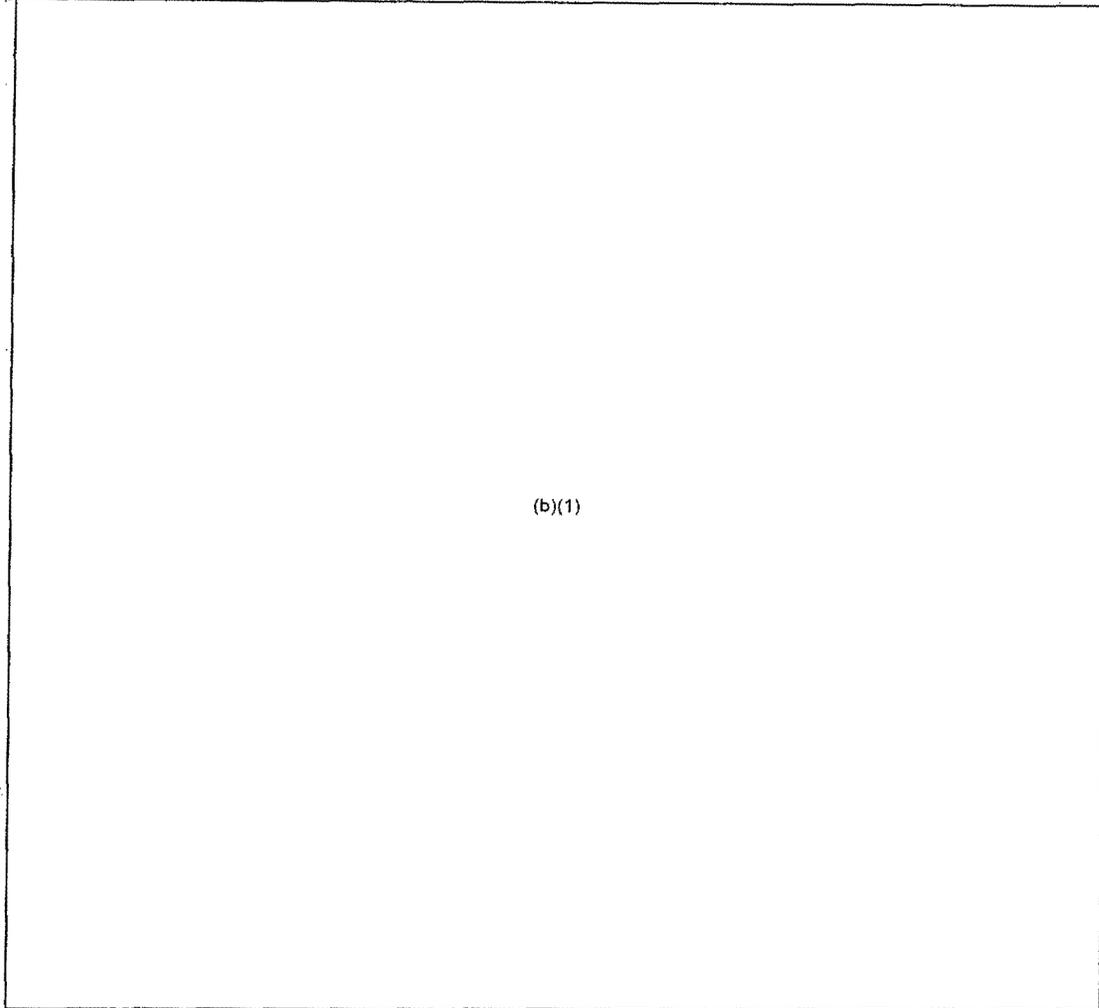
~~NO FOREIGN DISSEM~~

~~SECRET~~

~~SECRET~~

ST-CS-03-32-74  
Original

8



(b)(1)

~~NO FOREIGN DISSEM~~

42

~~SECRET~~

833

~~SECRET~~

ST-CS-03-32-74  
Original

4. ~~(S/NFD)~~ BW Materiel

- a. (U) Iraq has no offensive BW materiel.

(b)(1)

5. (U) Production Facilities and Capabilities

Iraq lacks the industrial base and technical knowledge to support the production of BW materiel. However, in 1963, the Economic Planning Board authorized the Ministry of Industry to spend ID 445,000 to build a factory in Samarra capable of producing annually 5½ tons of penicillin, 5½ tons of streptomycin, 2 tons of dihydrostreptomycin, and 6½ tons of tetracyclines. The pharmaceutical factory of Samarra (34°12'N 43°52'E) has been operational since February 1971. An increasing Iraqi reliance is anticipated for drugs and medicines produced in East Europe, even though such items are regarded to be inferior. A current need exists for US pharmaceuticals, but for political reasons no direct purchases are possible. Indeed, all US drugs must be bought through third countries without any indication or invoices showing US origin.

~~NO FOREIGN DISSEM~~

43

~~SECRET~~

~~CONFIDENTIAL~~

~~SECRET~~

ST-CS-03-32-74  
Original

6. (U) Stockpiles and Storage Facilities

There are no known stockpiles of BW materiel in Iraq.

7. (U) Doctrine and Procedures

There is no available information on Iraqi BW doctrine or procedures.

8. (U) Research, Development, and Testing

The Iraqi Army Medical Service is aware of problems to be solved in the event of biological operations and has received documents concerning BW from France, the Soviet Union, the United States, and from Egypt and other countries in the United Arab Command. Iraq's military personnel will continue to maintain awareness, but they will only have a moderate capability to engage in medical defense R&D.

9. ~~(S)~~ Conclusions

(b)(1)

10. (U) Trends and Forecasts

a. Trends.

(1) Iraq, as noted, lacks the industrial base and technical knowledge to produce materiel for biological warfare. If trained scientists do increase in number, basic problems of public health and sanitation will require all their talents and attention. There seems little reason to believe that Iraq will be able to initiate programs to develop and weaponize biological agents.

(2) The Iraqi military may improve their physical defense posture to some slight degree so that some maneuverability in a toxic environment might be maintained. Any such increase would likely be of marginal value in the event of hostilities.

~~NO FOREIGN DISSEM~~

44

~~SECRET~~

(This page is ~~CONFIDENTIAL~~)

835

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

b. Forecasts.

(1) Short-range (5-year projection). If tensions remain high between the Arabs and Israelis, some attention might be given to improving marginally the capabilities of Iraqi soldiers to operate in a toxic environment. Biological weapons for operational use will not be acquired. Minimal improvements in standards of public health may be achieved. Should tensions ease, international assistance could increase the rate at which the lot of the average Iraqi could be improved.

(2) Midrange (10-year projection). With international support, indigenous diseases and problems of public health will be attacked. The World Health Organization will become increasingly effective in controlling epidemics, although eradication of historical plagues will not be achieved. If military hostilities have not occurred during this time frame, chances are good that a successful resolution to Middle East problems can be achieved.

(3) Long-range (15-year projection). With decreased tensions in the Middle East, Iraq will profit from an international effort to upgrade standards of health and education in lesser developed nations. The country will become more self-sufficient in controlling outbreaks of epidemic diseases; however, residual foci are likely to remain. Never able to develop or procure materiel for biological operations, Iraqi defensive CBR capabilities will gradually erode.

**UNCLASSIFIED**

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

Section V.

JORDAN

1. (U) Introduction

Jordan is governed by the hereditary monarchy of the Hashemite family, limited by the Constitution and assisted by a cabinet theoretically responsible to a bicameral Parliament. Real power is held by the king. Following the Arab-Israeli war, the government's stability was strengthened, but the shortcomings of the government and military forces highlighted by defeat caused eventually some unrest. Further deterioration was evidenced by the nation's inability to control Palestinian guerrilla forces whose challenge to the government's authority created a critical situation for the regime. As a result of the September 1970 civil war and subsequent operations which ended in July 1971, Jordan's army killed, captured, or scattered, virtually all of the guerrillas who had been able to run "a state within a state" inside Jordan. Jordan's navy is too small and inadequately equipped to conduct patrols or defensive actions. The air force demonstrated a fair and unsuspected capability during the civil war.

2. ~~(S)~~ Order of Battle:

(b)(1)

3. ~~(S)~~ BW Materiel

(b)(1)

(b)(1)

~~CONFIDENTIAL~~

637

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

4. (U) Production Facilities and Capabilities

No BW production facilities have been reported in Jordan.

5. (U) Stockpiles and Storage Facilities

There are no stockpiles of BW agents in Jordan.

6. ~~(S)~~ Doctrine and Procedures

(b)(1)

7. ~~(S)~~ Research, Development, and Testing

a. (U) There is strong doubt whether Jordan possesses the scientific and technical capabilities to either study, produce, or test biological weapon systems.

(b)(1)

8. ~~(S)~~ Conclusions

(b)(1)

~~CONFIDENTIAL~~

**UNCLASSIFIED**

ST-CS-03-32-74  
Original

9. (U) Trends and Forecasts

a. Trends. With international support, biomedical facilities might be developed in Jordan; but such institutions would most likely be concerned with civilian problems of public health. The scientific/technological base in Jordan is inadequate to support a research and development program to weaponize biological material.

b. Forecasts.

(1) Short-range (5-year projection). Biological weapons will neither be acquired nor developed. Any biomedical research undertaken will be to improve diagnostic care and epidemiological surveillance.

(2) Midrange (10-year projection). Jordan military forces may be maintained to permit independence of action vis-a-vis national policies of Syria and Iraq. Jordan forces will be armed with conventional weapons only. With economic improvements, standards of medical competence in the area will be raised. Cooperative exchanges with Israeli scientists and engineers may be initiated only after an Arab/Israeli settlement.

(3) Long-range (15-year projection). The political detente throughout the Middle East will accelerate economic improvements in Jordan. A medical school and a technological institute will be created. Foci of infectious diseases may persist, but will be closely supervised.

**UNCLASSIFIED**

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

Section VI.

LEBANON

A. INTRODUCTION

1. (U) Historical Background

The Republic of Lebanon was formally proclaimed a sovereign independent state by the French in November 1941. It was not until 1946, however, that Lebanon was able to bring about the withdrawal of French troops and transfer all important public services to the Lebanese government. Lebanon has been involved in various kinds of economic and political collaboration with the Arab, the Western, and the Soviet Worlds. Like other Arab States, Lebanon was at war with the new State of Israel from May 1948, but negotiated an armistice in March 1949. In recent years American influence has increased in the Middle East, and Lebanon receives considerable revenues from the oil companies whose pipelines bring the oil of Iraq and Saudi Arabia through Lebanese territory.

2. ~~(S)~~ Competence in Microbiology and Public Health

(b)(1)

B. ASSESSMENT

3. ~~(S)~~ Order of Battle

(b)(1)

51

~~CONFIDENTIAL~~

840

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(b)(1)

4. (U) BW Materiel

No materiel items for offensive or defensive BW use had ever been acquired by Lebanon prior to 1970. In May of that year, the Lebanese Army purchased five US protective masks (M25A1 Models), and in March 1971 they procured ten other masks (M17A1) for test and evaluation purposes. The Ministry of Health budget in 1972 amounted to 2.5 million dinars. Unexpected service costs of 310,000 dinars caused a request for an additional 20% budget increase. The Ministry of Health buys drugs for the departments of Health, Defense, and Interior. To August 1972, 397,000 dinars were paid for drugs.

5. (U) Production Facilities and Capabilities

Lebanon lacks the industrial base needed to produce either BW agents or related pharmaceuticals.

6. (U) Stockpiles and Storage Facilities

No stockpiles are thought to exist in Lebanon.

7. (U) Doctrine and Procedures

The Lebanese army has not developed any BW procedures or doctrine.

8. ~~(S)~~ Research, Development, and Testing

(b)(1)

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

<sup>c</sup>  
[Redacted]  
(b)(1)

9. ~~(C)~~ Conclusions

[Redacted]  
(b)(1)

10. (U) Trends and Forecasts

a. Trends. Lebanon will preserve her independent identity and continue to serve as a bridge to the West.

b. Forecasts.

(1) Short-range (5-year projection) Limited funds and shortages of medical supplies and facilities preclude any attempt to weaponize biological materiel.

(2) Midrange (10-year projection). Lebanon will become increasingly independent of other Arab states and will initiate accords with Israel. Cooperative programs will be initiated and exchanges of technical personnel will occur. The University of Beirut will continue to graduate medical doctors who will slowly bring under control diseases indigenous to the country. Epidemic foci will persist. The army will remain an ineffective force and will be used primarily for civil police purposes.

(3) Long-range (15-year projection). Standards of public health and sanitation will improve. Academic/technological facilities will remain abreast of the times, but foreign aid will continue to be required to assure adequate and progressive programs.

~~CONFIDENTIAL~~

**CONFIDENTIAL**

ST-CS-03-32-74  
Original

(This page intentionally left blank)

54

**CONFIDENTIAL**

(This page is UNCLASSIFIED)

843

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

Section VII.

SAUDI ARABIA

---

1. ~~(C)~~ Saudi Arabia

(b)(1)

2. (U) Trends and Forecasts

a. Trends. There is no reason to believe that Saudi Arabia will acquire biological weapons. The country lacks a technological base to produce them. Military forces are not prepared to use such sophisticated weaponry in an effective manner. These conditions are unlikely to change.

55

~~CONFIDENTIAL~~

844

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

b. Forecasts.

(1) Short-range (5-year projection). Saudi Arabia has procured limited stocks of protective masks in the near past. These have not been issued to troops, training has not been accomplished, and maintenance appears to be unsatisfactory. These indicators suggest a lack of aggressive intent on the part of the Saudi Arabian Army to handle sophisticated equipment. Conditions are unlikely to change in the next 5 years.

(2) Midrange (10-year projection). The use of weapons of mass destruction by either the Arabs or the Israelis will no longer pose a realistic threat. Limited cooperation may be initiated to improve standards of health and education throughout the Middle East. Exchanges of scientists and engineers may accelerate such programs.

(3) Long-range (15-year projection). In the absence of hostilities—which are probably more likely to occur in the near future, if at all—tensions will continue to disappear. International aid and actions taken by Middle East nations themselves will enhance significantly the low standards of life in this part of the world. Hostilities which are centuries old cannot be eradicated, but political settlements will be found which will prevent either party from seeking a military solution.

~~CONFIDENTIAL~~

(This page is UNCLASSIFIED)

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

Section VIII.

SYRIA

1. ~~(S)~~ Syria

(b)(1)

c. (U) A Veterinary Laboratory and Research Division, attached to the Ministry of Agriculture, does exist in Syria. The Division produces all vaccines required for endemic and parasitic animal diseases, and has undertaken some diagnostic activities. The most important vaccines produced locally are those for sheep and goat pox, anthrax, fowl plague, and fowl diphtheria.

2. (U) Trends and Forecasts

a. (U) Trends. Syria's policy is to work for Arab unity. Some military assistance has been provided to Syria by the USSR, but there is no reason to expect that Syrian forces

~~NO FOREIGN DISSEM~~

57

~~CONFIDENTIAL~~

846

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

would or could engage in biological warfare. Syria lacks the technical and industrial base to produce biological material for military purposes. Syria is not likely to develop such weapons.

b. (U) Forecasts.

(1) (U) Short-range (5-year projection). Syria will continue to work toward Arab unity. Some military assistance has been and will be continued to be supplied to Syria by the USSR. The production of biological material for military purposes is beyond the technical or industrial base of Syria.

(2) (U) Midrange (10-year projection). With the aid of the USSR, Syria will implement plans for the development of industry and the manufacture of basic goods. Supplying the technical skills demanded by an industrial and agricultural expansion should raise educational standards. Rises in education standards should in turn bring about a public awareness of the need for higher public health standards.

(3) (U) Long-range (15-year projection). The effects of the damming of the Euphrates should be felt. An increase in cultivation of acreage of arid lands by irrigation and the use of available hydroelectric power to energize industry should make Syria a self-sufficient nation. Income from the sale of fossil fuels diverted to health and education of its citizenry could help to heal Middle East tensions. Suspicions among the lead Arab nations, eased by education, should decrease the need for war and weapons of mass destruction to settle ancient and newly occurring disputes.

~~NO FOREIGN DISSEM~~

58

~~CONFIDENTIAL~~

(This page is UNCLASSIFIED)

847

~~SECRET~~  
~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

BIBLIOGRAPHY

1. [redacted] (b)(1) (S-NFD).
2. Prywes, M., ed 1960 (U).
3. FSTC 381 T65 441, October 1965 (U).
4. [redacted] (b)(1) (S-NFD).
5. ONR Technical Report 64-68, 21 August 1968 (U).
6. *European Scientific Notes*, 24-7. Published by the Office of Naval Research, London, 1970 (U).
7. Dullforce, William. "Cairo US College Gets New Status." *The Washington Post*, 29 February 1972 (U).
8. *Jerusalem Post*, 14 June 1971 (U).
9. *Science*, Vol 177, 4050, 25 August 1972 (U).
10. *Jerusalem Post*, 2 August 1972 (U).
11. *Le Monde*, 6 January 1973 (U)
12. [redacted] (b)(1) (S-NFD).
13. [redacted] (b)(1) (S-NFD).
14. [redacted] (b)(1) (S-NFD).
15. [redacted] (b)(1) (S-NFD).

Regraded ~~SECRET~~ on  
4 JAN 2011  
by USAINSCOM FOIPA  
Auth para 4-102, DOD 5200-1R

~~SECRET~~  
~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

ST-CS-03-32-74  
Original

(This page intentionally left blank)

60

~~CONFIDENTIAL~~  
(This page is UNCLASSIFIED)

849

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

|   |   |  |
|---|---|--|
| 1. ORIGINATING ACTIVITY (Corporate author)<br>Foreign Science and Technology Center<br>US Army Materiel Command<br>Department of the Army   |   | 2a. REPORT SECURITY CLASSIFICATION<br><b>SECRET, NFD</b> |
|   |   | 2b. GROUP<br>XGDS-1                                      |
| 3. REPORT TITLE<br>Biological Warfare Capabilities--Middle East Countries (U)   |   |  |
| 4. DESCRIPTIVE NOTES (Type of report and inclusive dates)<br>Planned revision: Annual. Study  |   |  |
| 5. AUTHOR(S) (First name, middle initial, last name)<br>(b)(6)  |   |  |
| 6. REPORT DATE<br>July 1973   | 7a. TOTAL NO. OF PAGES<br>69  | 7b. NO. OF REFS  |
| 8a. CONTRACT OR GRANT NO.   | 9a. ORIGINATOR'S REPORT NUMBER(S)<br>ST-CS-03-32-74   |  |
| L. PROJECT NO.<br>c. FSTC Task No. T74031041<br>d. DIA Task No. T74-03-10   | 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)<br>ST-S-3-2840                                      |  |
| 10. DISTRIBUTION STATEMENT<br>In addition to security requirements which apply to this document and must be met, each transmittal outside the Department of Defense must have prior approval of the Defense Intelligence Agency.  |   |  |
| 11. SUPPLEMENTARY NOTES<br>This study supersedes ST-CS-03-32-73, same subject, dated September 1972   | 12. SPONSORING MILITARY ACTIVITY<br>Foreign Science and Technology Center<br>US Army Materiel Command<br>Department of the Army |  |
| 13. ABSTRACT<br><p>This report evaluates the biological warfare capabilities of the Middle East countries. Each country is evaluated in terms of its materiel, facilities, or organizations which would support such an effort. In addition, civilian and military research and development programs applicable to the preparation of biological materiel for military use are characterized. Trends and forecasts are included.</p> <p>The biological warfare capabilities of the Middle East countries belong almost entirely to Israel, Egypt (the Arab Republic of Egypt), and possibly Iran. The other countries treated in this study, Iraq, Jordan, Lebanon, Saudi Arabia, and Syria, possess no offensive materiel and little or no defensive materiel. All countries with the exception of Israel, and the possible exception of Egypt and Iran, would be dependent on outside sources for offensive and defensive biological warfare materiel. Israel, with the most advanced technology in the Middle East, has nevertheless chosen to purchase some of its defensive materiel from outside sources.</p> |   |  |

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 66, WHICH IS OBSOLETE FOR ARMY USE.

UNCLASSIFIED  
Security Classification

850

UNCLASSIFIED

Security Classification

| 14. KEY WORDS  | LINK A |    | LINK B |    | LINK C |    |
|--|--------|----|--------|----|--------|----|
|  | ROLE   | WT | ROLE   | WT | ROLE   | WT |
| Biological warfare<br>Middle East<br>Order of battle<br>BW materiel<br>BW research |        |    |        |    |        |    |

UNCLASSIFIED

Security Classification