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EXCISE B1 B3

Annual Review of United States Chemical Warfare and Biological Research Programs as of 1 November 1970

Submitted by the
Interdepartmental Political-Military Group

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Introduction

In response to NSDMs 35, 44 and 78, this report by the Interdepartmental Political-Military Group (IPMG) reviews the objectives, policies and programs for U.S. chemical warfare and biological and toxin research over the past year, those planned for the coming year, and issues and recommendations related to US policy and programs.

Reviews of riot control agents (RCAs) and chemical herbicides are included as separate items in this report.

The pertinent legislation and measures pending in Congress listed below are summarized in Appendix A.

1. Section 409 of P.L. 91-121 (Military Procurement Act for FY 70, approved November 19, 1969) as amended by Section 506 of P.L. 91-441 (Military Procurement Act for FY 71, approved October 7, 1970) places restrictions on the transportation, open air testing, procurement and disposal of lethal chemical agents and any biological warfare agents. In addition, Section 506 of P.L. 91-441 contains additional restrictions and requires a comprehensive study by the National Academy of Sciences on herbicides.

2. The National Environmental Policy Act of 1969 (P.L. 91-190) among other things establishes the Council on Environmental Quality, and sets forth its relationship to other Federal agencies.

3. The Gravel Amendment to the Foreign Military Sales bill (H.R. 15628) as passed by the Senate in June, 1970, provides that no funds may be used to transport chemical munitions from Okinawa to the US.

4. The Geneva Protocol. Hearings on the Geneva Protocol by the Senate Foreign Relations Committee are expected to begin early next session.

The Review

A. The Chemical Warfare Program

1. Objectives and Policy (set forth in NSDM 35)

-- The objective of the US chemical warfare program is to deter the use of chemical weapons by other nations and to provide a retaliatory capability if deterrence fails.

-- The renunciation of the first use of lethal chemical weapons was reaffirmed and extended to incapacitating chemical weapons. Riot control agents and chemical herbicides do not fall under this "no first use" renunciation.

-- The Geneva Protocol of 1925 will be submitted to the Senate for its advice and consent to ratification. (NOTE: Submitted on August 19, 1970.)

-- Existing overseas stockpiles of chemical weapons can be maintained except in Okinawa. (NOTE: It is anticipated that the Okinawan stocks will be moved to Johnston Island in 1971.)

-- The Secretary of Defense in cooperation with the Director of the Office of Science and Technology, shall continue to develop and improve controls and safety measures in all chemical warfare programs.

-- The Director of Central Intelligence shall continue to maintain surveillance of the chemical warfare capabilities of other states.

Table I

Current US Stockpile*
(Figures in parenthesis indicate % of total stocks)

Filled Munitions Stockpile (in agent tons)

AGENT	CONUS	OKINAWA	GERMANY	TOTAL
HD/HT (mustard)	3428	228	0	3656(11%)
GB	4243	987	314	5544(17%)
VX	2453	214	174	2841(9%)
TOTAL	10124(31%)	1429(4%)	488(2%)	12041(37%)

Bulk Agent Stockpile (in agent tons)

AGENT	CONUS	OKINAWA	GERMANY	TOTAL
HD/HT (mustard)	12743	59	0	12802(39%)
GB	6311	47	0	6358(19%)
VX	1753	50	0	1803(5%)
TOTAL	20807(63%)	156(1/2%)	0(0%)	20963(63%)

* Notes:

1) Figures used in this table are tentative at this time pending results of a world-wide inventory now being conducted.

2) Excludes those stocks which are scheduled for demilitarization (para A3b 2) which follows).

3) In addition, there are 49 tons of incapacitating agent BZ on hand.

a) No lethal or incapacitating chemical agents have been or are planned to be produced during the period covered by this report.

b) Facilities for the manufacture of the nerve agents GB and VX will be kept in lay-away status, with 9 months leadtime required to bring the VX plant back into production and about a year for the GB facilities.

2) Destruction or Disposal

a) Current policy is "in place" destruction of chemical and biological material when possible.

b) Certain agents and obsolete munitions will be demilitarized on site at Rocky Mountain Arsenal in Colorado. This action involves 2,055 tons of nerve agent GB (16% of total GB stocks) and 3,071 tons of bulk mustard (19% of total HD/HT stocks). Demilitarization of the mustard will begin early in 1971 and will require about 8 months to complete. Destruction of the GB is scheduled to begin later in 1971.

c) Certain GB filled 155mm artillery projectiles produced by Central Foundry of Ohio (CFO) have been determined to be defective. An investigation is currently being conducted to ascertain the severity of the defect and its extent throughout the entire stockpile within and outside the US. Upon completion of this investigation appropriate disposition will be made of the defective projectiles.

d) Plans are in progress for destruction at Rocky Mountain Arsenal of about 1,000 tons of phosgene (100% of phosgene stocks). This agent is obsolete since the military utility of phosgene is now considered low by the US.

e) To preclude the necessity of moving chemical materials, a transportable demilitarization unit is being developed to accomplish destruction at the site of storage. The system is being designed to meet the requirements of the National Environmental Policy Act of 1969 as well as local and State requirements. The delivery and test of the first unit is anticipated by the end of FY 72. In compliance with present public laws, plans for demilitarization will be coordinated with HEW and the Council on Environmental Quality.

f) Efforts are being made to clarify the emission standards to be used in the destruction of chemical agents. Realistic and safe standards are required if the demilitarization presently scheduled is to be accomplished.

3) Transportation

a) The transportation requirements of Section 409, Public Law 91-121 have been implemented by Army Regulation 55-56.

b) At this time, only one major movement of chemical warfare agents/munitions is planned or foreseen during the coming year. The movement of 1,585 agent tons of air/ground munitions and bulk agent from Okinawa to Johnston

Island is planned during 1971. Delay in initiating movement of these stocks has been influenced by the following:

1. The pending Gravel Amendment to the Foreign Military Sales Bill is still in House-Senate conference where it in all probability will die.

2. Arrangements for acquiring the proposed storage site on Johnston Island from current tenant agencies of the US Government have not been completed.

3. Negotiations between the Department of Army and the Department of Health, Education and Welfare have not as yet been completed.

4) Export

No export or other transfer of lethal or incapacitating chemical agents, or of associated delivery systems has occurred or is planned for the period covered by this report except in connection with RDT&E of defensive equipment as outlined in paragraph F, below.

5) Testing and Evaluation

a) All lethal chemical agent open-air testing was suspended by the Department of the Army in November 1969 pending compliance with provisions of Section 409, Public Law 91-121. It is expected that critical tests of binary chemical agent/munitions and chemical defense systems will resume during the next twelve months, as compliance with that

law and the requirements of the National Environmental Policy Act is accomplished. The developmental tests listed below are being considered for submission to HEW in compliance with Public Law 91-121 prior to scheduling:

1. Binary GB 155mm Projectile. To verify effectiveness of mixing two non-lethal components, efficiency of production of the lethal agent in the projectile while in-flight to the target, and effectiveness of dissemination of the agent on the target.

2. Air Force "All Purpose" Decontaminant. To evaluate effectiveness of the decontaminant against agent VX on equipment and various surfaces.

3. Chemical Technology Tests. To investigate the reduced toxic hazard and fate of agents GB and VX in vegetation growing in the western desert test area. Tests are in response to the recommendations of an Ad Hoc Committee chaired by the Surgeon General of the US Public Health Service.

b) Requests and data for FY 72 tests are being screened and consolidated by Department of the Army at the present time.

c) In August of 1970, a program was initiated to study the feasibility of replacing open air testing with tests in large chambers which would provide for the total containment of toxic agents during testing.

6) Procurement

a) Offensive Capability. Because of budget constraints and policy restrictions, there is no planned procurement of offensive delivery systems or agents for the period covered by this report.

b) Defensive Capability

1. Overall, the chemical defensive posture of the Armed Forces is marginal at best. The primary deficiencies are:

-- A lack of automatic detection and warning systems.

-- Inadequate stocks of individual protective clothing.

-- Limited equipment available for decontamination of vehicles, weapons equipment, and critical installations.

-- Limited capability for suitable positive pressure protection to those communications, logistic, command and control, and medical installations which normally are housed in mobile vans and shelters.

-- Lack of protection for first line military aircraft against contamination.

-- Inability of US naval combat vessels to operate effectively in a toxic chemical environment. The Shipboard Toxicological Operations Protective System (STOPS), designed in 1965, has not been completely evaluated because of a paucity of funds.

2. The masks, protective clothing, alarms and shelters being developed or procured, if available in sufficient quantity throughout the Armed Forces, would markedly enhance the survivability of US troops in a toxic environment. The Joint Chiefs of Staff have proposed (JSOP 72-79) a program to cost $1.137 billion over a period of eight years ($142.1 million per year) aimed at remedying CBW defensive deficiencies with respect to our military forces. However, the present Five Year Defense Program (FYDP 72-76) does not provide for overcoming these weaknesses. (e.g. Military Services propose $14.6 million for defensive equipment in FY 72.)

4. Research and Development

a. General. Current R&D efforts are directed towards the development of binary munitions, an advanced incapacitating chemical agent, and improved defensive systems.

b. Binary Munitions.

1) A limited program is in progress to develop binary artillery munitions which will permit separate storage and transportation of two non-toxic components, forward area

assembly of these components and formation of the toxic agent in the projectile while in-flight to the target. The development and deployment of binary weapons would go far to ameliorate the problems associated with deployment, transportation, storage and disposal; however, binary chemical weapons are not expected to enter the inventory until the FY 75-80 time frame

2) Research and development of other than binary artillery munitions have been terminated. No development of aerial delivered binary munitions is currently programed.

3) The Secretary of Defense has taken the position that no lethal chemical agents be produced until binary munitions are fully developed.

4) It is the view of the IPMG, that the move toward binary munitions is the correct course to take; however, they note that during FY 71 we are not moving in this direction as fast as we have in the past.

5. Costs of Chemical Programs

The comparative funding for chemical warfare programs for FY 70, FY 71 and FY 72 is shown below:

	($ in millions)		
Procurement	**FY 70**	**FY 71**	**FY 72(est)**
Lethal Chemicals	0	0	0
Incapacitating Chemicals	0	0	0
Defensive Equipment and Misc.	15.9	4.9	14.6
Sub Total	15.9	4.9	14.6
RDT&E			
General Investigations	7.6	7.8	7.9
Offensive R&D	4.7	4.4	4.4
Defensive R&D	15.7	16.9	22.0
Test and Evaluation	3.6	3.6	3.5
Sub Total	31.6	32.7	36.8
Operational			
Maintenance of Depots, Transportation	15	15	15
Military Construction	4	0	0
Sub-Total	19	15	15
TOTAL	66.5	52.6	66.4

6. NATO

NATO strategy, while relying principally on convention and nuclear capabilities for deterrence, requires a capabilit to employ CW agents in retaliation on a limited basis as well as passive defense measures against CW agents. The 488 agent-tons of nerve agent artillery munitions stored in Euro are intended to provide NATO with a limited retaliatory capa

7. Defense of the Civilian Population

a. Under Executive Order 11490, the Department of Health, Education and Welfare is responsible for the develop ment and coordination of programs for the defense of the civilian population against chemical and biological warfare agents.

b. Large scale strategic attack on U.S. civilian centers by means of chemical weapons does not seem credibl because of the large quantities of agent required, the lar number of delivery systems needed and the vast areas to be covered. However, a small scale attack could have an adve effect psychologically.

c. A civilian protective mask has been developed b not produced in quantity. Shelters have not been fitted air filtering devices. Aside from normal Public Health activity, our present defense against chemical attack wo appear to be dependent upon interdiction of the delivery systems.

B. The Biological and Toxin Research Program

1. Objectives and Policy (set forth in NSDMs 35 and 44)

a. The US renounced the use of all methods of biological and toxin warfare.

b. The US biological and toxin program will be confined to research and development for defensive purposes only. This does not preclude research into those offensive aspects of biological agents or toxins necessary to determine what defensive measures are required.

c. All stocks of biological agents, toxins and assoc weapons systems will be destroyed.

d. The US has associated itself with the principles objectives of the Draft Convention Prohibiting the Use of Biological Methods of Warfare presented by the United Kinc at the Conference of the Committee on Disarmament (CCD) i Geneva.

e. The Secretary of Defense, in conjunction with t Director of the Office of Science and Technology, shall tinue to develop controls and safety measures in all bio and toxin programs.

f. The Director of Central Intelligence shall cor to maintain surveillance of the biological and toxin wa capabilities of other states.

2. Foreign Capabilities and Threat

a. Soviet Union

1) Intelligence concerning the BW and toxin capabilities of the USSR, the other Warsaw Pact States and Communist China is more difficult to obtain and interpret than for CW activities.

2) Soviet interest in various potential biological warfare agents has been documented and the intelligence community agrees that the Soviets have all the necessary means for developing an offensive capability in this field. Useful intelligence on actual production, weaponization, and stockpiling remains nonexistent, and information on the Soviet biological warfare program remains incomplete in almost all important details. In view of the US renunciation of biological and toxin warfare, the need for greater attention and priority to collection of intelligence in this area is particularly important.

b. Other Countries

We have little or no useful intelligence on the activities of foreign countries in this field. Important aspects of biological warfare technology are widely known and easily obtainable through open sources. Some existing chemical and pharmaceutical facilities can be adapted for the development and production of biological and toxin

agents. Delivery can be accomplished by several kinds of relatively unsophisticated weapons or by covert means. Hence, the acquisition of a limited offensive capability in biological and toxin warfare need not be expensive. These attributes of biological and toxin weapons make their preparation easily susceptible to concealment.

3. Status of US Programs

a. US Biological and Toxin Inventories

1) As a result of the President's announcements on November 25 and February 14 concerning biological and toxin agents and weapons, plans were prepared for the destruction of existing stocks. These plans, covering on-site destructi of bulk agent and filled munitions by sterilization and/or incineration, have been approved by the Department of the Army and the Secretary of Defense, and reviewed by HEW and by the Department of Agriculture. White House approval of the plans is pending completion of interagency coordinatio including Defense's submission of an environmental impact statement to the Council on Environmental Quality and the Council's report to the President. It is anticipated that destruction of existing stocks will begin in late 1970 or early 1971.

2) Anti-personnel stocks to be destroyed at Pin Bluff Arsenal are:

Bulk dry lethal agent	1,024 lbs.
Bulk dry incapacitating agent	334 lbs.
Bulk liquid incapacitating agent	10,089 gal. (approx. 12,750 lbs.)
Lethal Agent (filled munitions)	737.5 lbs.

3) Anti-crop material to be destroyed:

Ft. Detrick, Maryland	1,856 lbs.
Rocky Mountain Arsenal	153,463 lbs.
Beal Air Force Base, Calif.	5,191 lbs.

4) The destruction program is expected to require approximately 12 months at Pine Bluff, 6 months at Ft. Detri 12 months at Rocky Mountain Arsenal and 3 months at Beale Ai Force Base. The cost of the entire biological destruction p gram is currently estimated at $11.5 million dollars.

5) Laboratory quantities of biological and toxin agents which are not part of the stockpile are being retai to support research and development.

b. Disposition of Facilities

The Department of Defense has declared that the logical production facility (Directorate of Biological Op at Pine Bluff Arsenal, Arkansas, and the US Army Biologi Laboratories at Ft. Detrick, Maryland are no longer nece for the defensive biological and toxin program. Plans t transfer these facilities to HEW or other agencies are under consideration.

c. Production and Procurement

Production and procurement of all biological toxin warfare agents and associated weapons systems ha

d. Transportation

No shipment of biological or toxin agents has been conducted or is planned for the period covered by this report. In the future, movement of biological agents and toxins will be limited to that small quantity required to support the defensive biological and toxin research program. An Army regulation which implements the transportation requirements of present public laws for these agents is in preparation.

e. Export

No export or other transfers of biological warfare agents or toxins, or of associated delivery systems have occurred or are planned during the period covered by this report.

f. Testing and Evaluation

No open-air tests have been conducted or are planned during the period covered by this report.

4. Research and Development

a. Programs

1) All work on the offensive aspects of biological and toxin warfare has been terminated.

2) Medical aspects of biological and toxin research will continue to be carried out through the US Army Medical R&D Command at the US Army Medical Research Institute of Infectious Disease, Fort Detrick.

3) Detection and warning R&D may be carried out at Edgewood Arsenal. Work continues on the development of a detection system at a rate of about $2 million per year.

4) Sites for other programs have not been selected.

b. Classification of the Biological and Toxin Program

1) After examining the current biological and toxin Research, Development, Test and Evaluation (RDT&E) program, the Working Group identified only one area which might require classification in the interest of national security. It involves the characteristics of warning systems, including the performance of detector equipment and alarms. Information on available detection capabilities might enable the enemy to circumvent US defensive measures and add to the effectiveness of his use of biological or toxin warfare agents.

2) In addition to the biological and toxin RDT&E program, the US defense program includes procurement of defensive items for troop and field use, training of US personnel in defense against biological attack, and the acquisition and evaluation of intelligence information of enemy activities in this field. Some of the information in these areas must be classified in the interest of national security. Threat assessment (the evaluation of enemy research, development, and capabilities)

and vulnerability analysis (an estimate of the US susceptibility to enemy biolcgical or toxin attack) require classification since release might compromise sensitive intelligence sources.

3) The U.S. biological and toxin program should be as open as possible consistent with security requirements in order to achieve the greatest political advantage. Nevertheless, it is the judgement of the Working Group that previous biological and toxin programs should not be declassified in toto because by sc doing any country that wished to initiate their own offensive biological program would have information available to do so.

5. Cost of Biological and Toxin Program

The comparative funding for the biological and toxin RDT&E program for FY 70, FY 71 and the FY 72 program proposed by Department of the Army are shown below:

	($ in millions) FY 70	FY 71	FY 72 (est)
E			
Bio. Offense	3.5	0	0
Gen. Bio. Investigations*	6.1	6.0	6.0
Def. Against Bio. Agents	6.2	6.6	6.6
Bio. Defense Material Concepts	2.5	2.9	2.0
Bio. Defense Material Development	0	0	0.1
Testing	2.1	2.0	1.8
Sub Total	20.4	17.5	16.5

	($ in millions)** FY 70	FY 71	FY 72 (est)
Replenishing Existing Stockpiles	1.5	0	0
Operation and Maintenance of Existing Production Facility	3.0	0	0
Total	24.9	17.5	16.5

*-Includes: enemy biological agent production potential; enemy biological dissemination techniques; aero-biological investigations; enemy biological systems potential; and, biological agent threat investigation.

**These figures do not include the $11.5 million for the destruction of the biological and toxin stockpile which is budgeted in another account. This amount is available whenever destruction is undertaken.

6. NATO

NATO strategy relies principally on conventional and nuclear capabilities for deterrence against biological attack and calls for passive defense measures against biological agents.

7. Defense of Civilian Population

a. In addition to the responsibilities of HEW mentioned previously for civilian population defense programs, Executive Order 11490 requires the Secretary of Agriculture to develop plans and provide technical guidance to control or eradicate diseases, pests, biological and chemical warfare agents introduced against animals, crops or products thereof.

b. If procured and distributed, the same masks which protect against chemical agents could provide respiratory protection against biological agents and toxins.

C. Riot Control Agents

1. Objectives and Policy (set forth in NSDM 78)

a. The use of RCAs in war by US forces shall require Presidential approval except in cases of riot control and installation security on US bases and posts.

b. US forces in Vietnam retain current authority to employ riot control agents.

c. Currently only CS and CN are considered as RCAs by the US for military purposes. However, any other agents which are accepted and used domestically for riot control and law enforcement purposes can be considered in this category in the implementation of this policy.

2. Cost of RCA Program

The comparative funding for the RCA program for FY 70, FY 71 and FY 72 is shown below:

($ in millions)

	FY 70	FY 71	FY 72 (est)
Procurement	25.5	5.8	9.2
RDT&E			
Riot Control	3.9	2.8	2.7
Test & Evaluation	1.1	0.9	0.8
TOTAL	30.5	9.5	12.7

3. Use in South Vietnam

The quantity of RCAs issued in South Vietnam is portrayed in Table II.

4. Export

Based on available information, no export or other transfers of RCA munitions have occurred during the period covered by this report with the exception of those issued in South Vietnam shown in Table II. During the past year, bulk CS_1 and CS grenades have been provided in various quantities as grant aid or sold to Australia, Bolivia, Brazil, Columbia, Chile, Canada, Korea, Norway and the Philippines. In addition, 10,000 pounds of bulk CS_1 has been licensed to Israel.

5. Vietnamization of RCA's

The Secretary of Defense has directed OSD to conduct a study addressing Vietnamization of Riot Control Agents. Completion of this study is anticipated by the end of 1970. The Vietnamization of RCA's is discussed in Annex B - Issues.

Table II

RCA Agent/Munitions Issued to
US/Free World/GVN Forces in South Vietnam

TYPE	AGENT/MUNITIONS ISSUED CY 1968	CY 1969	Jan-Sep'70
40mm CS (rounds)	3,300	186,000	281,900
E-8 Launcher CS	15,702	8,541	4,627
105mm CS (rounds)*	0	6,600*	6,400*
4.2 inch CS (rounds)	0	38,100	7,800
Canister Cluster CS	8,059	12,795	8,714
Gren Hand Riot CS	398,800	253,600	137,500
Bulk Chemical Agent CS_1 (lbs.)	1,492,600	1,160,300	71,700
Bulk Chemical Agent CS_2 (lbs.)	300	931,500	896,700
Air Munitions (BLU-52)	545	666	497
Air Munitions (CBU-19)	1,247	1,039	94
Air Munitions (CBU-30)	0	259	506

*Estimated because of limited production of this munition for evaluation.

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D. Chemical Herbicides

1. Objectives and Policy (set forth in NSDM 78)

a. The use of chemical herbicides in war by US forces, either for defoliation or for anti-crop purposes, shall require Presidential approval.

b. The joint authority of COMUSMACV and the US Ambassador Saigon to authorize support for Government of the Republic of Vietnam requests for herbicides operations remains in effect.

c. Chemical herbicides are those types of chemical compounds which are used domestically within the United States in agriculture for weed control and similar purposes.

2. Use in South Vietnam

a. Chemical herbicides which have been used in South Vietnam are:

Orange: a mixture of 2, 4, D and 2, 4, 5, T

White: a mixture of 2, 4, D and Picloram

Blue: an aqueous solution of cacodylic acid

b. Comparison of defoliation and anti-crop operations in South Vietnam by UC-123 aircraft, 1962 through September 27, 1970 is shown below:

[redacted]

Year	Defoliation* (acres)	Crop* (acres)	Percent crop vs. defoliation
1962	4,900	700	14
1963	24,700	300	1
1964	83,400	10,400	12
1965	155,600	66,000	42
1966	741,200	104,000	14
1967	1,486,400	221,300	15
1968	1,267,100	63,700	5
1969	1,221,200	65,600	5
1970 (Jan-27 Sept)	207,400	24,900	**

* Note 1:

a. The defoliation column pertains to security and anti-infiltration operations. The crop column pertains to enemy food resources denied.

b. Acreage is not actual land measurement. Areas were estimated from the number of sorties flown, calibrated spray rates and average width of spray swath covered.

c. Acreage shown includes respraying. No estimate is available on the extent of respraying. Area figures are therefore not additive and total area treated is less than shown here.

** Note 2:

Percentage is not applicable since defoliation is only for period through 9 May when UC-123 aircraft defoliation missions were terminated.

c. Comparison of defoliation and anti-crop operations in South Vietnam by helicopter from mid-August 1968 through September 30, 1970 is shown below:

Year	Defoliation (acres)	Crop (acres)	Percent crop vs. defoliation
1968 (15 Aug-31 Dec.)	24,400	500	2
1969	131,700	4,600	3
1970 (Jan-30 Sept)	31,900	11,200	*

d. Herbicide use in 1969 attained an average of 400 UC-123 sortie per month. The current rate is approximately 1/10th that with 40-50 sorties being programmed monthly. Arrival of White defoliant in Vietnam would permit an increase in sorties but the inactivation of the USAF squadron of UC-123 aircraft used for defoliant missions has decreased the capability within 7th Air Force. The best estimate for the 1970-1971 period is 100 UC-123 sorties per month programmed and 50-80 actually flown. However, reliability this estimate is low. Political changes and GVN attitude could radically affect this estimate either way.

* Percentage not applicable since helicopter defoliation operations drastically curtailed since May 1970 due to shortage of defoliant.

3. Actions Taken or Planned

a. Headquarters US MACV directive 525-1, August 1969 prescribes policies, responsibilities and procedures governi operational employment of herbicides in South Vietnam.

b. The use of Orange (2,4-D and 2,4,5-T) for defoliat by US and Vietnamese forces in Vietnam was ordered suspended in April 1970. DOD is currently investigating the limited unauthorized use of this agent in Vietnam subsequent to April 1970.

c. At present, there are 1.4 million gallons of Oran on hand in Vietnam and 0.8 million gallons in the US. If t suspension is not lifted, disposal of these stocks will be required. DOD is currently studying techniques for dispos if this becomes necessary. It should be noted that under current practice, herbicides become the property of the GV upon arrival in South Vietnam. The status of present stoc of Orange is discussed in Appendix B - Issues.

d. In Public Law 91-441, Congress directed the Sec of Defense to request the National Academy of Sciences to conduct a study of the ecological and physiological effec of the herbicide program in Vietnam. Formal arrangements are in process. Informally the National Academy of Scier has agreed to undertake this study expeditiously.

4. Cost of Herbicide Program

a. The comparative funding for the chemical herbicides program for FY 70, FY 71 and FY 72 is shown below:

($ in millions)

	FY 70	FY 71	FY 72(est)
Procurement	2.4	6.9	6.8
RDT&E	1.2	0.5	0.5
TOTAL	3.6	7.4	7.3

b. Funding is shown to increase during FY 71, although actual gallons of herbicides applied will decline. This is due t the Secretary of Defense's temporary suspension of the use of Orange which became effective in April 1970 and required a shift to the use of White. This agent was stocked in only small quantities. Therefore, the increase in funding is associated primarily with need to procure additional stocks of White.

5. Export

Chemical herbicides of Orange, White, and Blue are not exported in the form presently used in Vietnam. However, the components of some of these agents are exported in large quantities, commercially.

6. Vietnamization of Herbicides

a. As Vietnamization progresses the requirement for a US chemical herbicide stock is expected to decline. As US

forces withdraw, there may be a request to continue to supply the Republic of Vietnam with a capability for defoliation and crop destruction operations. However, no plans to provide such support have as yet been made.

b. The Secretary of Defense has directed OSD to conduct a study addressing Vietnamization of chemical herbicides. Completion of this study is anticipated by the end of 1970.

c. The Vietnamization of herbicides is discussed further in Appendix B - Issues.

E. Public Affairs Aspects

1. Public Information Policy

a. Present public information guidelines provide that all information programs and associated activity will be conducted in as open a manner as possible consistent with the requirements for national security. However, there are no specific guidelines for chemical warfare, biological and toxin research programs, riot control agents and herbicides.

b. The public information aspects of U.S. chemical warfare and biological research programs are highly sensitive politically. Recently, this sensitivity has grown resulting in many congressional constraints being imposed on these programs. This suggests that specific detailed guidelines may be required.

2. Domestic Attitudes

a. Domestic public affairs activity during the past year has centered on two major actions: the proposed move-

ment of chemical munitions from Okinawa and the sea dump of munitions in the Atlantic (Operation CHASE).

b. Opposition to the movement of the Okinawan munitions to Umatilla, Oregon, was generated in the states of Washington and Oregon. There appeared to be concern that the rail movement could not be completed safely, despite the most carefully prepared and reviewed plans and repeated attempts to reassure state and local officials and the news media. Apprehension was based on the possibility that dissident groups would deliberately create trouble or the belief that human or mechanical error would create a situation that would endanger people along the route.

c. The CHASE Operation was different in several respects from the Umatilla situation.

1) Attitudes displayed by the press and the population in the section of the country affected were different.

2) The added possibility of ocean pollution was introduced. Opposition to this movement did not gain the momentum to block this operation as was the case with the proposed shipment from Okinawa.

d. A specific public affairs problem that may become acute in the near future involves the demilitarization of biological materials. Continuing delay of the start of this opera-

tion may be interpreted as bureaucratic inefficiency, deliberate "foot dragging", or a US intent to covertly retain biological and toxin agents. Public information policy on all chemical and biological matters must be forthright in light of continuing public concern of accidental release or pollution from chemical and biological programs. Policy should provide for making as much information available as is consistent with security. As the public becomes better informed, domestic public affairs problems should tend to subside.

3. Overseas Attitudes

a. The broad outlines of foreign attitudes on biological and chemical weapons have been relatively stable over the past year. Comparatively few people have detailed knowledge of the issues; public awareness and concern are sporadic and in many countries limited. Where attitudes are manifest, however, they remain generally hostile. Underlying feelings toward chemical and biological weapons, like similar feelings about nuclear weapons, make them a volatile issue which can arise unpredictably. Events during the year have increased overall interest and awareness. Concern with environmental problems has given public opinion on chemical and biological weapons new dimensions and is creating new and more active foes.

b. Sharply defined public attitudes are generally found only in advanced countries. In the underdeveloped world, there tends to be little obvious awareness. But there is strong latent potential concern, which can be quickly aroused whenever dramatic events bring it to the fore.

c. Projecting trends of 1970, it appears likely that informed opinion overseas on chemical and biological weapons may be influenced, inter alia, by the following factors:

-- The timing and manner of the US follow through on its renunciation of biological weapons (e.g., destroying stockpiles and turning laboratories over to peaceful uses).

-- Whether the Soviet Union and/or others start vigorous propaganda for the Soviet draft treaty to ban both chemical and biological weapons, and if so how persuasively the US/UK can argue for the UK draft convention banning biological weapons only (see paragraph G below).

-- The course of the Senate hearings and debate on the Geneva Protocol, especially if the proceedings receive significant attention in the press.

F. International Information and Exchange

1. The United States participates with other members of the North Atlantic Treaty Organization (NATO) in a continuing effort to standardize all nuclear, chemical and biological operational procedures, techniques and related matters for use by all NATO armed forces. This standardization enables the armed forces of NATO nations to operate together in the most effective manner and to make the most efficient and economical use of research, development, test and production resources.

2. The United States has a cooperative research agreement with Great Britain, Canada and Australia for the exchange of chemical and biological information.

3. In the early 1960s, bilateral agreements were signed with a number of other countries (France, Germany, the Netherlands, Belgium, Italy and Norway) to exchange research data on specific subjects related almost solely to defense against chemical agents and munitions. In addition, the agreement with France includes information on chemical agent and munition production and testing. As examples, during the past year information was exchanged with France on laser detection of chemical agents; samples of US protective clothing material were provided to France and Italy for their evaluation; and, a sample of atropine spray (antidote for nerve agent poisoning) was received from West Germany for testing. Under the agreement with Germany, the US has provided small, sample quantities of agents for use in RDT&E of defensive equipment prior to the passage of Public Law 91-121.

4. It is anticipated that those aforementioned programs which are not prohibited by Public Laws 91-121 and 91-441, or present policy will continue.

G. International Arms Control Developments

1. Besides the major policy decisions announced by President Nixon on November 25, 1969, February 14, 1970, and August 19, 1970, major developments which set the stage for subsequent multilateral consideration of possible arms control agreements in the chemical and biological fields were as follows:

a. In September 1969, the Soviet Union, along with eight other communist delegations, submitted to the 24th United Nations General Assembly (UNGA) a draft convention banning production, development and stockpiling of chemical and biological weapons, and called for the destruction of such weapons. The Soviet draft enjoyed some support at the UNGA principally because of its sweeping prohibitions on both Chemical and Biological weapons. The Soviets introduced a UNGA resolution which in effect would have asked the CCD to negotiate a treaty as proposed by the Soviets. Although the Soviet resolution would have received a substantial vote, it was doubtful that it would have carried by the necessary two-thirds majority. At the end of the session the Soviets decided not to press their resolution to a vote and ended by supporting a compromise Canadian resolution which remanded both the Soviet and UK drafts to the CCD for further study.

b. A Swedish resolution which declared that the Geneva Protocol covers all chemical and biological agents (intended to include RCA's and herbicides) was adopted at the 24th UNGA over strong US opposition by a vote of 80 for, 3 against and 36 abstaining. Although only Australia and Portugal joined the US in voting against the resolution, the abstentions included most US allies and the principal non-Communist parties to the Protocol. Many of the abstaining delegations, rather than disagreeing on substance, believed

that the UNGA lacked the authority to interpret international law. (It is appropriate to note that the First Committee of the 25th UNGA has referred the question of CBW back to the CCD in a resolution which, at US urging omitted mention of the "Swedish resolution", above. This Yugoslav resolution, which was adopted 94 (US) - 0 - 3 on November 19, 1970 was worded in a manner so as to receive general support. It specifically recalled UN resolution 2603 B (XXIV) -- the general endorsement of the Geneva Protocol.)

c. In February 1970, the United Kingdom representative announced that the UK had decided that Riot Control Agent CS was outside the scope of the Protocol. The Canadian representative stated that the prohibition of the use of RCAs in war presents practical problems since the same agents are used for law enforcement purposes. Moreover, Japan, during the Diet's discussion of ratification of the Protocol, made clear that it considers RCAs exempt from the Protocol's prohibition.

2. During the spring and summer CCD sessions of 1970, the US delegation, faced with majority desire for a comprehensive CBW prohibition, sought to increase support for early negotiation of a BW ban along the lines of the British proposal. The US representative reaffirmed the US commitment to achieve effective controls on chemical weapons. He pointed out that progress in eliminating chemical weapons

depended upon finding reliable and negotiable verification arrangements. Following President Nixon's decision to adopt the same policy with respect to toxins as to biological weapons, the UK draft convention was expanded to include toxins. The revised draft convention was formally introduced in Geneva on August 18, 1970.

3. Throughout the 1970 CCD sessions, the NATO delegations generally supported the US/UK approach to CBW. The Japanese, however, while stopping short of endorsing a single comprehensive convention, continued to voice a preference for joint treatment of chemical and biological weapons. Privately the Japanese told US officials that removal of nerve gas munitions from Okinawa might enable them to move toward the US/UK approach.

4. In general, the non-aligned delegations entered the summer 1970 CCD sessions favoring a comprehensive CBW ban. Although by the end of the session none of the non-aligned was prepared to come out in support of the UK convention, the group clearly gained a better appreciation of the difficulties of effectively verifying a CW ban.

5. Despite a general preference for a comprehensive approach, there were some moves to search for a middle ground (e.g., the Morrocan proposal which envisages a ban on chemical and biological weapons in a single instrument while deferring implementation of the chemical warfare provisions for a

specified period until a separate document could be worked out on chemical warfare verification). Some non-aligned (specifically Argentina and Brazil in refuting the Bulgarian allegation that the non-aligned memorandum supported the Soviet position) publicly stated: "the non-aligned memorandum had been carefully worded to avoid favoring contending UK or Soviet drafts."

6. Thus far at the 25th UNGA the socialist delegations have circulated a slightly revised version of their 1969 draft CBW convention. We have received no indication that the Soviets intend to modify their basic position on CBW in the near future. The general consensus of delegations at the last CCD session was that the Soviet Union and its allies would continue to support a comprehensive CBW convention through the UNGA, but that next year a shift toward the US position was conceivable, provided the US has ratified the Geneva Protocol.

7. International attention regarding the issue during the coming year will focus in large part on the US Senate hearings and debate regarding US ratification of the Geneva Protocol. Hearings are expected to begin early next session. There will also undoubtedly be further efforts to shape a clear international consensus on whether use of RCAs and herbicides in war is prohibited by the Protocol.

H. Training of Foreign Military Students

1. After careful review of requests from friendly foreign governments by the Departments of State and Defense, qualified foreign military students are routinely included in many US military training courses through the Command and General Staff College level. They receive the same unclassified training in the defensive aspects of chemical and biological warfare as do US military students.

2. Offensive biological training in all US military schools was terminated in conformity with the President's announcement of November 25, 1969 in which he renounced biological warfare. There are no US classified courses in chemical or biological warfare available to foreign military students.

I. Studies Required

A number of issues raise questions which require resolution. To clarify the position to be taken on these unresolved issues, studies are required:

1. To determine what constitutes an adequate and effective deterrent and retaliatory capability against CB attack. This study should include the composition, size and positioning of the US stockpile and associated logistic and political problems. Since an intelligence assessment of enemy capabilities will be required as a part of this study, the significance of any differences in interpretation of available intelligence by the intelligence community should also be evaluated.

2. To develop appropriate guidelines for the public information program on US chemical warfare and biological and toxin research programs. It is felt that many current problems associated with these programs can thus be avoided.

J. Recommendations

1. That the studies set forth in paragraph I, above be accomplished on a priority basis.

2. That Administration witnesses testifying on the Geneva Protocol before the Senate be prepared on questioning to make known that an annual review of US chemical warfare and biological research programs is required by the President and includes RCA's and herbicides.

3. That every effort be made to obtain a formal agreement by the National Academy of Sciences that it will undertake the herbicide study requested by Public Law 91-441 and that a public announcement be made before commencement of hearings on the Geneva Protocol.

4. That greater attention and priority be given to collection and analysis of intelligence on the CBW capabilities of other countries.

5. That the disposition of BW and toxin facilities and the required destruction of BW and toxin stockpiles be expedited.

6. That the US continue efforts to have the UK draft convention adopted by the CCD.

7. That the US continue to cooperate in efforts to achieve effective control of CW through international agreement.

8. That the existing military deficiencies in US defensive capabilities, noted on page 13, be remedied as rapidly as feasible. (This does not imply either support for or disagreement with the specific program outlined in Annex F of JSOP 72-79 inasmuch as this plan has not been reviewed by the Working Group.)

9. That an Ad Hoc committee be formed to define more precisely the biological and toxin program and to determine which areas require classification.

K. POLICY ISSUES

1. Should the US provide the Republic of Vietnam Armed Forces (RVNAF) with capabilities to use RCA's in other than normal riot control activities?

Background

a. RCA's have been used in South Vietnam: against occupied positions, tunnels, bunkers and caves; in lieu of reconnaissance by fire along tree lines, canal banks and the like; in perimeter defense of friendly installations to break up enemy attacks; from convoys in early reaction to ambush; in the rescue of airmen downed in enemy-controlled territory; and, against mixed populations where civilians may be intermixed with VC/NVA. The possible uses for RCA's in South Vietnam will probably not change with the withdrawal of US forces. On the other hand, the use of RCA's in Vietnam will continue to raise political problems for the US since many countries see no legal distinction between use of RCA's in war and CW agents.

b. As the RVNAF take over complete responsibility for the war, the various elements of combat power will have the same military utility as they have had while US forces were fully engaged.

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Pros

a. Not to do so would be interpreted by some as a renunciation of the policy the US has followed for the last several years. The US has taken the position that the use of RCA's is not prohibited by the Geneva Protocol nor contrary to international law and they are useful in saving lives in the type of war found in Vietnam.

b. The capabilities of RCA's (e.g., reduced casualties and economy in the application of force) are likely to prove useful to the South Vietnamese Government (GVN) both during the transition in which we reduce our armed forces and subsequent to GVN assumption of all combat responsibility.

c. The decision to use or not to use RCA's within their own country should ultimately be made by the GVN as a sovereign state. An attempt to deny these agents and munitions to the GVN might be both ineffective and politically damaging since these could be procured in some measure from other countries.

d. It would be difficult to justify supporting the RVNAF as they take over complete responsibility for the war with any fewer elements of combat power than the US required while it was fully engaged.*

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* It is worthy of note that VC/NVA use RCA's and that special mention of this use in press briefings was discontinued by MACV several years ago. The VC/NVA have been known to use captured US/GVN stocks and there is no clear evidence that RCA's either have or have not been supplied to the VC/NVA.

Cons

a. Provision of these capabilities to the RVN could establish a precedent for other countries to purchase RCA munitions and generally encourage a more widespread use of these agents in war. Before such a trend is further encouraged, the US should examine the question of whether proliferation of RCA use is to our long term military advantage.

b. Those countries which consider RCA's to fall within the Geneva Protocol would see provision of these agents by the US to RVNAF as encouraging violation of the Protocol and a proliferation of CW. This would make achievement of arms control agreements in the CBW area more difficult.

c. The fact that some forms of RCA's are available on the open market from others is by no means persuasive that we should put ourselves in the position of being the supplier of these or more sophisticated forms of RCA's.

d. Although the GVN can decide unilaterally to use or not use RCA's in war, their use could be regarded as an outgrowth of US policy, regardless of assertions to the contrary. Moreover, the GVN could not produce or purchase significant quantities of the more sophisticated riot control agents or munitions without direct US assistance.

2. Should the US provide the Republic of Vietnam Armed Forces (RVNAF) with capabilities to utilize chemical herbicides militarily on a large scale?

Background

a. Herbicides have been used in South Vietnam to increas vertical visibility and enhance aerial observation in jungle areas, and to destroy crops in remote areas long occupied by the VC/NVA. Defoliants have been used principally against VC/NVA base areas where thick natural cover conceals heavily fortified training and regroupment centers; against known routes which the VC/NVA have used to channel men and supplies into South Vietnam; and, against ambush sites along roads, railroads and canals.

b. All crop destruction operations since 1968 have been limited to remote areas of low population which are under VC/NVA control. In all cases, consideration is given to the alternative of securing and recovering the crops for GVN use prior to approval of an anti-crop mission. All requests for crop destruction and fixed-wing* defoliation missions are processed through GVN/RVNAF channels and must be approved by the RVNAF Joint General Staff, COMUSMACV and the AmEmbassy.

c. Defoliation requirements will continue after the redeployment of US forces, as the GVN focuses on achieving adequate territorial surveillance and security.

d. The ecological and physiological effects of herbicides have not been sufficiently assessed raising questions on their continued use on a large scale.

* Note: Rotary wing defoliation missions may be approved at the US Field Force/RVNAF Military Region level.

Pros

a. Not to do so would be interpreted by some as a renunciation of the policy the US has followed for the last several years. The US has taken the position that the use of chemical herbicides is not prohibited by the Geneva Protocol or contrary to international law.

b. Defoliation has greatly increased the ability to detect infiltration into the RVN, to detect bases and training areas used by the VC/NVA, and to obtain intelligence of enemy preparation for offensive action, thus saving lives of friendly forces. The redeployment of US forces from RVN focuses greater attention on the need to continue these capabilities to provide adequate territorial surveillance and security.

c. Following a cease-fire or other cessation of hostilities, defoliation of strips through the heavy jungle near the Cambodian and Laotian borders would improve surveillance in these areas, might deter violations, and would assist in detecting violations should they occur.

d. The decision to use or not use chemical herbicides within their own country should be made by the GVN since these agents are not expensive, are widely available commercially, and methods of distribution can be easily fabricated.

e. The US may gain very little politically by denying chemical herbicides to the GVN. On the other hand, there may be much to lose psychologically by refusing to supply our allies with an element of combat power that we insisted on using while the lives of US soldiers were at stake.

Cons

a. Provision of these capabilities to the RVN could establish a precedent for other countries to purchase chemical herbicides and generally encourage a more widespread use of these agents in war. Before such a trend is further encouraged the US should examine the questions of whether the proliferation of herbicide use is to our long term military advantage and what the ecological effects of their massive use are.

b. Those countries which consider herbicides to fall within the Geneva Protocol would see provision of these agents by the US to RVNAF as aiding in the violation of the Protocol and a proliferation of CW.

c. The fact that herbicides are available on the open market from others is by no means persuasive that we should put ourselves in the position of being the supplier.

d. Although the GVN can decide unilaterally to use or not use herbicides in war, their use could be regarded as an outgrowth of US policy, regardless of assertions to the contrary.

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3. Should a broad reassessment of the use of RCA's and herbicides in the Vietnam conflict be initiated at this time so that necessary data can be obtained for a later examination of the implications and consequencies for US policy of their future use in war?

Background

The RCA and herbicide policy has been examined resulting in the recent Presidential decision set forth in NSDM 78. Congressional or public knowledge of reassessment now could under-cut not only the Administration's position on the Protocol but also the announced national policy on RCA's and herbicides. On the other hand since our policy decision on RCA's and herbicides was announced against the background of their use in Vietnam, some demonstration of flexibility as to future US policy in this area could ease the way for Senate advice and consent of the Geneva Protocol as submitted by the President. In addition, data required for any future examination of policy would probably have to be obtained now while it is available and before it is obscured by time.

Pros

a. Under present policy, the President must approve the future use of RCA's and herbicides in war. Therefore, it is important that a broad assessment of their current use be available as a basis for these decisions.

b. Defense of the Administration's position on the Geneva Protocol might be facilitated by taking a more flexible position indicating that our RCA and herbicide policy is not fixed forever but of course will be reviewed in light of a broad assessment of our overall experience in Vietnam. (We are committed, however, to informing the UK in advance if we are seriously considering a change in policy on RCAs.)

c. Data for future examination of policy should be obtained now while available. It is recognized that completion of the study may hinge on a low level of military activity in South Vietnam.

Cons

a. We have an annual review of our CW and BR programs which includes RCA's and herbicides. This provides the flexibility needed to meet future contingencies. Any indication that the Administration is undecided in this respect might weaken its position on RCA's and herbicide vis-a-vis the Geneva Protocol.

b. As a result of the NSSM 59 review, there are adequate restraints on any future use of RCA's and herbicides in war (i.e., NSDM 78 stipulates that except for Vietnam these agents

cannot be used in war without Presidential approval). No reassessment of this issue is necessary.

c. If such a reassessment became known to the Senate during its consideration of the Geneva Protocol the Administration's position on the Protocol might be challenged.

d. The National Academy of Science has informally agreed to conduct a study of the ecological and physiological effects of herbicide use in Vietnam and no further study of these aspects may be required.

4. Should the temporary ban by the US on the use of herbicide Orange in the Republic of Vietnam be lifted?

Background

a. Herbicide use in Vietnam is an RVNAF program supported by US assets. Substantially, all of the herbicide operations have been carried out by US forces using US assets on jointly approved missions. Herbicides delivered to Vietnam become the property of the GVN and are furnished by it to US forces in amounts sufficient for these operations.

b. Use of Orange was ordered temporarily suspended for use by US forces in April 1970 by DOD in conjunction with a selective ban on its use in the US. The GVN has honored this suspension.

c. The total quantity of Orange on hand is: in Vietnam, 1.4 million gallons representing approximately $10 million; and in the US, o.8 million gallons representing approximately $7 million.

d. There has been a recent case of unauthorized use of Orange by US troops which received adverse publicity. Resolution of this issue would preclude further infractions as well as ameliorate other problems associated with long term storage.

e. Although a recent evaluation revealed no evidence of deterioration to the point of widespread leakage, the best estimate of future serviceability for drums undamaged by moving or handling is 15-18 months. Repackaging into new 55-gallon drums might present a temporary solution but would require a major logistic effort and might present hazards from spill that would be equivalent to those existing from leakage. Consolidation into large storage containers would be extremely expensive and would present a lucrative target for guerrilla attack. Therefore, this issue should be resolved now rather than postponement until the next annual review.

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f. Agent Orange contains 2,4,5,T which is known to cause fetal damage in certain experimental animals. These effects are enhanced by an impurity known as dioxin. Use of 2,4,5,T in the US is restricted to stocks containing no more than one part per million (ppm) of this dioxin. Use is generally restricted in the US to areas where 2,4,5,T would not directly enter the potable water supply or come in contact with the food supply. Some of the stocks of Orange sent to Vietnam in 1968 are known to have contained dioxin in concentrations from less than one ppm up to 15 ppm. The concentration of this impurity in present stocks is unknown and would require testing for a determination.

g. If the suspension of agent Orange is made permanent, negotiations with the GVN should be initiated regarding disposition. Although studies seeking simpler disposal techniques are underway, disposal of this herbicide will probably require extensive, time-consuming methods.

h. If the suspension is lifted there are at least two options for use of Orange in Vietnam as follows:

1) Use in accordance with restrictions in effect at the time the suspension was ordered (i.e., in areas of low population density and away from watershed areas).

2) Use in accordance with restrictions for 2,4,5,T

i. Should the suspension on Orange be continued, the substitute use of agent White (2,4,D and picloram) will also prompt criticism by opponents of the herbicide program.

Pros

a. Military utility of herbicide operations has been demonstrated.

b. Physiological effects of Orange on humans is disputed. However, the components of Orange have been used extensively in the US and in Vietnam without any physiological effects on humans in evidence. Moreover, components of Orange have been extensively used in the mid-western US and very extensively used on military test grids with no increase in fetal defects demonstrated.

c. Lifting the suspension on Orange would permit usage under strict controls in remote areas of Vietnam. This would be the most cost effective method of disposition.

Cons

a. Although Orange has been used extensively without any evidence of physiological effects on humans, laboratory tests show Orange has caused fetal abnormalities in certain experimental animals. This raises a highly sensitive political issue since extrapolations suggest that ingestion in adequate quantities by pregnant women could cause human fetal abnormali-

b. Lifting the suspension on an agent alleged to have adverse physiological effects without further and more definitive studies (such as those to be conducted by the National Academy of Sciences) would subject the US to adverse criticism with attendant domestic and international political repercussions.

c. Lifting the suspension on the use or Orange wihtout establishing the same strict standards which are applied in the US would lead to criticism that the US is using herbicides under less stringent and protective controls than apply within the US.

5. Should the US terminate the use of herbicides for crop destruction in South Vietnam?

Background

a. Crop destruction operations, conducted since 1962 in MR I and II of Vietnam, are a part of the overall food resource denial program. The program includes use of chemical herbicides, mechanical destruction, pre-emptive harvest, flame, contamination with fuel oil/gasoline, and cache discovery, destruction or redistribution operations.

b. The overall effectiveness of this resource denial program has been demonstrated by innumerable theater

intelligence studies, PW interrogations, and captured enemy documents. The precise contribution of the chemical herbicide portion cannot be determined. It is pertinent to note, however, that herbicides can be used without the presence of friendly troops on the ground while most other methods require physical control of the crop area.

c. All crop destruction operations since 1968 have been limited to remote areas of low population which are under VC/NVA control. In all cases, consideration is given to the alternative of securing and recovering the crops for GVN use prior to approval of an anti-crop mission. All requests for crop destruction and fixed-wing defoliation missions are processed through GVN/RVNAF channels and must be approved by the RVNAF Joint General Staff, COMUSMACV and the AmEmbassy.

d. Total crop reduction in South Vietnam due to herbicide operations has been estimated to be less than one percent of the total annual food production. (See Issue 2, page 3, and the annual review, pages 30-32, for a discussion of the overall herbicide program in South Vietnam.)

e. The crop destruction operations of the overall herbicide program are controversial because of an inherent

aversion to the destruction of food and because their military utility cannot be substantiated. These operations can be counter-productive in an insurgency environment among the non-hostile population in enemy held or contested areas.

f. There are indications that this element of the population suffered the main impact of crop destruction operations until 1968. In 1968, however, stricter US/GVN regulations were put into effect to keep crop destruction missions away from population areas. Nevertheless, opponents of this program argue that the effects still fall mainly upon civilians.

g. The crop destruction program may be a difficult issue in the Senate's consideration of the Geneva Protocol because of polarization on this issue. (In August 1970, the Senate defeated a proposal to ban all herbicide operations by a vote of 62 to 22, whereas a proposal to ban crop destruction was only defeated by a vote of 48 to 33.)

Pros

a. Programs for food denial may affect civilians more adversely than the VC/NVA who can commandeer food for themselves.

b. Although herbicides are in widespread use in the US and elsewhere for weed control, their use for crop destruction has no parallel.

c. Continued use of crop destruction could lead to proliferation of this method of warfare.

d. Within some quarters, elimination of crop destruction operations may ease domestic and international criticism of US operations in Vietnam and to a lesser extent of the military in this country. Conversely, cessation of the most vulnerable aspect of the herbicide program would facilitate the defense of the overall herbicide program.

Cons

a. This program is not a major issue at this time. Benefits to be gained by eliminating chemical crop destruction may be minimal and would not make the war more popular domestically or internationally.

b. Selective crop destruction complicates the enemy logistic problem and requires diversion of enemy combat troops for food production and acquisition instead of combat operations.

c. Field intelligence reports indicate that food shortages, for which crop destruction efforts were partly

responsible, have at times created logistical problems for the enemy and diversion of enemy troops for food production and acquisition.

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APPENDIX A

PERTINENT LEGISLATION AND MEASURES
PENDING IN CONGRESS

A summary of pertinent legislation and of measures pending in Congress follows:

1. Section 409 of P.L. 91-121 (Military Procurement Act for FY 70, approved November 19, 1969) as amended by Section 506 of P.L. 91-441 (Military Procurement Act for FY 71, approved October 7, 1970) provides that:

a. No funds authorized to be appropriated by any Act may be used for transportation, open air testing, or disposal of lethal chemical or any biological warfare agents in the United States including US territories and possessions until the following procedures have been implemented:

(1) The Secretary of Defense has determined that proposed transportation or testing is necessary in the interests of national security;

(2) The Secretary has apprised the Secretary of HEW of the particulars of proposed transportation, testing or disposal. The Secretary of HEW may direct the Surgeon General of the US Public Health Service (USPHS) or others to review the proposal with respect to any possible hazards to public health and safety and to recommend necessary precautionary measures;

(3) The Secretary of Defense has implemented any precautionary measures recommended in accordance with paragraph 2. above, (including detoxification where possible if disposal is involved) unless the Secretary finds that the recommendation would have the effect of preventing the proposed transportation, testing, or disposal, in which case the President may determine that such transportation, testing, or disposal is required by overriding considerations of national security. In this event the operations shall be carried out in the safest practical manner and a report made to Congress;

(4) Except where such Presidential determination is made, appropriate advance notification has been given to the Congress (at least 10 days before transportation and at least 30 days before testing will commence) and to the Governor of any State through which agents are transported.

b. No funds may be used for future deployment, storage or disposal outside the continental US of any lethal chemical or any biological warfare agent or any delivery system specifically designed to disseminate such agents unless prior notice is given to the country exercising jurisdiction over such place. In the case of territory outside the continental US which is under the jurisdiction or control of the USG, the Congress shall be notified.

c. No funds shall be used for future testing, development, transportation, storage, or disposal of any lethal chemical or biological warfare agent outside the United States, its territories or possessions, or for the disposal of any munitions in international waters, if the Secretary of State determines that such action will violate international law.

d. The President may suspend the operation of this Section during any war declared by Congress or national emergency declared by Congress or the President.

e. No funds authorized to be appropriated by the Act (P.L. 91-121 - FY 70 Military Procurement Act) may be used for the procurement of delivery systems (or parts or components thereof) specifically designed to disseminate lethal chemical or any biological warfare agents, unless the President certifies to the Congress that such procurement is essential to the safety and security of the United States.

f. Nothing in this Section shall be deemed to restrict transportation or disposal of research quantities of any lethal chemical or any biological warfare agent or to delay or prevent in emergency situations either within or outside the US the immediate disposal together with any necessary associated transportation of any such agents when compliance with the procedures and requirements of this Section would clearly endanger the health or safety of any person.

2. In addition, Section 506 of P.L. 91-441 contains the following independent provisions:

a. None of the funds authorized to be appropriated by the Act (P.L. 91-441 - FY 71 Military Procurement Act) shall be used for the procurement of delivery systems (or parts or components thereof) specifically designed to disseminate lethal chemical or any biological warfare agents unless the President certifies to Congress that such procurement is essential to the safety and security of the US.

b. The Secretary of Defense shall enter into arrangements with the National Academy of Sciences to conduct a comprehensive study and investigation (to be completed by January 31, 1972, and transmitted to the President and Congress by March 1, 1972) to determine:

(1) the ecological and physiological dangers inherent in the use of herbicides; and

(2) the ecological and physiological effects of the defoliation program carried out by DOD in South Vietnam.

c. No chemical or biological warfare agent shall be disposed of within or outside the US unless such agent has been detoxified or made harmless to man and his environment, except where immediate disposal is clearly necessary in an emergency to safeguard human life. In the latter case an immediate report shall be made to Congress.

3. The National Environmental Policy Act of 1969 (P.L. 91-190) contains the following provisions:

a. Title I, which sets forth a national policy on environmental protection, declares it to be the responsibility of the Federal Government "to improve and coordinate Federal plans, functions, programs and resources" in order that the Nation may achieve specified environmental objectives. The Act directs all Federal agencies to adopt procedures intended to bring into the policy-making process relevant considerations of the environmental impact of proposed actions or programs. This act establishes a requirement that there be included in every recommendation or report on proposals for legislation or other major Federal actions, significantly affecting the quality of the environment, a detailed statement on the environmental impact of the proposed action.

b. Title II, which establishes the Council on Environmental Quality, states that it shall be the duty and responsibility of the Council, among other things, to review and appraise the various programs of the Federal Government in light of the policy set forth in Title I for the purpose of determining the extent to which such programs and activities are contributing to the achievement of such policy and to make recommendations to the President with respect thereto.

4. The Gravel Amendment to the Foreign Military Sales bill (H.R. 15628) as passed by the Senate in June, 1970, provides that no funds may be used to transport chemical munitions from Okinawa to the U.S. (The legislative history indicates it is the intent of the Senate that the term "United States" be read as including territories or possessions, e.g. Guam and Johnston Island.) It also authorizes the appropriation of funds for detoxification or destruction of these munitions only outside the U.S. This bill is still in House-Senate Conference.

5. The Geneva Protocol. Hearings on the Geneva Protocol by the Senate Foreign Relations Committee are expected to begin early next session. On October 6, Senator Nelson (not a member of the Foreign Relations Committee) submitted an understanding which he intends to propose as an attachment to the resolution containing the Senate's advice and consent to ratification of the Geneva Protocol. It would state that "the terms of the Protocol prohibit the use in war of chemical herbicides." A majority vote of the Senate would be necessary to adopt such an amendment. A two-thirds vote is necessary to adopt a resolution favoring ratification. It should be noted that two related amendments to the FY 71 Military Procurement Bill, submitted by Senator Nelson, were defeated in August by the following votes:

a. to prohibit use of appropriated funds for engaging in military application of anti-plant chemicals, or the provision thereof to other countries for military purposes (it also called for dismantling our anti-plant chemical weapons arsenal): Defeated 22 (including 2 members of Foreign Relations Committee) to 62 (including 10 members of that Committee), with 16 Senators (including 3 members of that Committee) not voting.

b. to prohibit use of appropriated funds for engaging in military application of anti-plant chemicals for crop destruction or for transferring such chemicals to other countries for that purpose. Defeated 33 (including 6 members of the Foreign Relations Committee) to 48 (including 5 members of that Committee), with 19 Senators (including 4 members of that Committee) not voting.

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