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Note from the Editor

On 9 September 1991 will open, in Geneva, the Third Review Conference of the Biological Weapons Convention. This issue of the *UNIDIR Newsletter* was prepared in view of that Conference, so that it may contribute to information and knowledge about the issues which will be discussed there. The *Opinion Column*, signed by the President of that conference, Ambassador **Roberto García Moritán**, and which contains an analysis of the prospects and proposals, notably in the field of verification and confidence-building, will hence retain all our attention.

The question of verification is also dealt with in the article by **Bas ter Haar**. He points to the conceptual difficulty of the verification of the Biological Weapons Convention, *i.e.* the difficulty of verifying intentions, and examines how one has tackled with this issue in the context of the chemical weapon negotiations. **Pushpa Bhargava**, bio-chemist of the Centre for Cellular and Molecular Biology in Hyderabad, India, provides a vivid description of the different types of agents covered by the BW Convention. Finally **Matthew Meselson** briefly reviews allegations of non-compliance with the Convention and certain confidence building measures which could be considered to strengthen it.

This issue also contains descriptions of research projects in the field of biological weapons and disarmament undertaken by research institutes with whom UNIDIR has regular contacts and a list of their publications in this field. It is to be noted that the majority of the projects and publications listed approach the subject from a political science perspective. A brief section with forthcoming conferences and briefings on the subject, as well as an account of the meeting of the Preparatory Committee and a list of States parties concludes our focus on biological weapons.

Our regular features: News of Institutes and the calendar of forthcoming conferences may be found on pages 36 to 39. As of our September issue we envisage including a new feature in the *Newsletter*, which would report on certain selected conferences, as well as on publications of conference proceedings.

Chantal de Jonge Oudraat

Note du Rédacteur en chef

Le 9 septembre 1991, s'ouvrira à Genève la troisième Conférence d'examen de la Convention sur les armes biologiques. Cette livraison de la *Lettre de l'UNIDIR* a été préparée en vue de cette Conférence afin de contribuer à l'information et à la connaissance des questions qui y seront abordées. La *Libre Opinion*, signée par le Président de cette Conférence, l'ambassadeur **Roberto García Moritán**, et qui comporte un examen des propositions et perspectives, notamment dans le domaine de la vérification et des mesures de confiance, retiendra donc tout particulièrement notre attention.

Les questions de vérification sont également abordées dans l'article de **Bas ter Haar**. Il met l'accent sur la difficulté conceptuelle de la vérification de la Convention sur les armes biologiques, c'est-à-dire la difficulté de vérifier des intentions, et examine de quelle façon ce problème a été envisagé dans le cadre des négociations sur les armes chimiques. **Pushpa Bhargava**, biochimiste au Centre de biologie cellulaire et moléculaire à Hyderabad en Inde, donne une description vivante des différents types d'agents couverts par la Convention. Enfin, **Matthew Meselson** passe en revue les allégations de violation de la Convention et propose certaines mesures de confiance qui pourraient être considérées en vue de la renforcer.

Ce numéro contient également des descriptions des projets de recherche dans le domaine des armes biologiques et du désarmement, entrepris par les instituts de recherche avec lesquels l'UNIDIR entretient des contacts réguliers, ainsi qu'une liste de leurs publications dans ce domaine. Il est à noter que la majorité des projets et publications approche le sujet sous l'angle de la science politique. Des annonces de conférences et autres réunions ayant pour thème les armes biologiques ainsi qu'un bref compte rendu de la réunion du Comité préparatoire et la liste des Etats parties complètent notre dossier sur les armes biologiques.

Nos rubriques régulières: Nouvelles des Instituts et Calendrier des futures conférences figurent aux pages 36 à 39. A partir de notre numéro de septembre, nous envisageons d'inclure une nouvelle rubrique dans la *Lettre*. Elle donnera des compte-rendus de certaines conférences choisies, ainsi que des informations sur la publication des actes.

Chantal de Jonge Oudraat

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*N.B. Opinions expressed in the UNIDIR Newsletter are those of their authors and do not necessarily reflect those of UNIDIR
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Implementing the Biological Weapons Convention of 1972

by

Matthew Meselson*

Pour le texte français voir pp. 31 - 35.

Introduction

This paper addresses three topics relevant to implementation of the Biological Weapons Convention (BWC) and the strengthening of constraints against biological and toxin weapons: (i) Allegations of non-compliance and possible means for their resolution; (ii) Openness as a means for confidence-building and verification and for deterrence of non-compliance; and (iii) Measures for consideration at the Third Biological Weapons Review Conference

Allegation of Non-Compliance

The United States and the Soviet Union played leading constructive roles in achieving the agreements reached at the Second BWC Review Conference and are expected to do so again at the Third Review Conference in September 1991. Nevertheless, they have conspicuously failed to resolve allegations of non-compliance that go to the heart of

the Convention. Their continued failure to resolve these issues cannot help but weaken confidence in the strength of their commitment to the BWC and in the effectiveness of the Convention itself.

Two major allegations of non-compliance with the BWC have been made by the United States against the Soviet Union. Both allegations continue to be made at the highest political level, most recently in a February 1991 report to Congress by President George Bush.¹

Sverdlovsk. An epidemic of human anthrax occurred in the Soviet city of Sverdlovsk in 1979, continuing for several weeks in April and May and according to Soviet physicians in charge, causing 64 deaths. The Soviet Union has long maintained that the outbreak resulted from handling and consumption of illegally marketed meat from farm animals that had contracted anthrax from contaminated feed. Three Soviet physicians who were sent from Moscow to

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¹ Soviet Non-compliance with Arms Control Agreements, February 6, 1991. Report submitted to Congress by President George Bush, Washington, DC. The section entitled "Chemical, Biological, and Toxin Weapons" states as follows:

"The United States has determined that the Soviet Union has maintained an active offensive program since the 1930's and continues to be in violation of the 1972 Biological and Toxin Weapons Convention (BWC) ...

As a result of the 1986 BWC Review Conference, States Parties to the Convention agreed to exchange information on facilities that are used for high containment biological experimentation and facilities that are engaged in other activities relating to the BWC. While the Soviet Union's submissions of data have been welcomed by the United States, the United States believes illegal activities continue at facilities previously assessed as being involved in the Soviet offensive program. However, not all of these facilities were contained in the Soviet declaration.

The United States remains dissatisfied with Soviet explanation regarding the 1979 Anthrax outbreak in Sverdlovsk. The United States has raised this issue with the Soviet Union regularly since March 1980. The Soviet Union has given a variety (continued on next page)

Sverdlovsk in 1979 to deal with the outbreak visited the United States in 1988 and provided additional information in support of this explanation.² In contrast, the 1979 anthrax outbreak is claimed by the United States to have been caused by an accidental release of anthrax spores into the air from an illegal biological weapons factory in Sverdlovsk.³ The facility in question is the Sverdlovsk military epidemiology center described by the Soviet Union in its declarations pursuant to the agreement reached at the Second BWC Review Conference. The United States further maintains that activities prohibited by the BWC continue at a number of other facilities, not all of which are cited in the Soviet declarations.

These grave allegations concerning facilities at Sverdlovsk and elsewhere have been repeated year after year right up to the present time. Nevertheless, there appears to be little current activity aimed at achieving a resolution of the allegations.

In particular, although the Soviet Union initiated the process by which Soviet physicians have provided additional information regarding the Sverdlovsk epidemic, requests by outsiders to visit Sverdlovsk to examine what remains of the relevant evidence regarding the epidemic and to meet surviving patients and local medical, public health and veterinary personnel have not been granted. Neither does there appear to be any movement toward inviting US or other foreign visitors to examine any of the facilities in Sverdlovsk or elsewhere that have been the subject of the US allegations.

Yellow Rain. The second compliance issue that continues to undermine confidence in the BWC concerns the allegation by the United States that the Soviet Union was involved in the production, transfer, and use of trichothecene mycotoxins for hostile purposes in Southeast Asia and Afghanistan, in violation of the BWC and the Geneva Protocol.⁴

The evidence presented by the United States to support its allegation of toxin warfare has been discredited, in large part by unpublished studies conducted by the US government itself.⁵ Careful chemical analyses of samples from

alleged chemical-biological attacks in Southeast Asia, conducted by the US Army, the UK Ministry of Defense, the Swedish Ministry of Defense and others have failed to confirm the initial reports of trichothecene mycotoxins. All of the many samples of yellow material collected by alleged witnesses and properly examined under the microscope have been found to contain a high proportion of pollen grains and none has proven to be anything other than bee feces, as sometimes occur in showers from mass flights of honey bees in Southeast Asia. And careful investigations by a US Defense-State team based in Thailand in 1983-85 have cast grave doubt on the reliability of alleged eye-witness claims of lethal chemical warfare. The United States government has made no serious attempt to take account of any of this information. It is therefore essential for the United States to conduct its own objective review if the Yellow Rain dispute is to be resolved.

The common interest of the United States and the Soviet Union and of all other nations in eliminating biological and toxin weapons requires resolution of both of the two disputes described above. On each side, there needs to be a high-level political decision to conduct a full and objective review of its earlier statements and conclusions and, if indicated, to admit error or previous non-compliance.

The Third BWC Review Conference could make an important contribution by including in its Final Report a commitment by States Parties, as a matter of urgency, to make every reasonable effort to resolve all outstanding compliance issues.

The role of openness

The prohibition of the development, production, possession and transfer of biological and toxin weapons embodied in the Biological Weapons Convention effectively precludes the possibility that a State Party would engage in such activities openly. From this simple but fundamental proposition, it follows that confidence in compliance with the Convention can be established by demonstrating openness in biological programs.

The demonstration and verification of openness can in certain respects be a simpler, more credible and more

(Footnote 1 continued.) of explanations, each of which focus on the consumption of contaminated meat. The United States Government still believes that the outbreak occurred as the result of an accidental release of anthrax spores from an illegal BW facility.

The issue of whether the Soviet Union has violated the 1925 Geneva Protocol and related rules of customary international law and the 1972 Biological Weapons Convention by its involvement in the production, transfer, and use of lethal and incapacitating chemical and biological agents, including trichothecene mycotoxins, for hostile purposes has been addressed in previous Reports, most recently in December 1987. In that report the United States found no basis for amending the previous conclusion that the Soviet Union has been involved in the production, transfer, and use of trichothecene mycotoxins for hostile purpose in Laos, Cambodia, and Afghanistan in violation of its legal obligations under international law as codified in the Geneva Protocol of 1925 and the Biological Weapons Convention of 1972.

² Matthew S. Meselson, *The Biological Weapons Convention and the Sverdlovsk Anthrax Outbreak of 1979*, Federation of American Scientists Public Interest Report, Vol. 41, No. 7, Washington, September 1988.

³ Soviet Military Power, 6th edition, Department of Defense, Washington, March 1988.

⁴ Alexander M. Haig, Jr., *Chemical Warfare in Southeast Asia and Afghanistan*, Special Report No. 98, US Department of State, Washington, March 22, 1982. George P. Shultz, *Chemical Warfare in Southeast Asia and Afghanistan: An Update*, US Department of State Special Report, No. 104, Washington, November 11, 1982.

⁵ Julian Robinson, Jeanne Guillemin, and Matthew Meselson, *Yellow Rain: The Story Collapses*, Foreign Policy, No. 68, Fall 1987, pp. 100-117. Reprinted with additions in *Preventing a Biological Arms Race*, Susan Wright, ed., Massachusetts Institute of Technology Press, Cambridge, 1990.

acceptable means for demonstrating compliance and for discouraging non-compliance than detailed measures of technical reporting and verification. For example, the presence of exchange scientists or biosafety officers from other States Parties at a biological defence facility can provide strong assurance of compliance with the Convention, when more structured and detailed inspections might actually be less effective.

Coupled with regular declarations of the organization and facilities of the biological defense programs of a State Party, such openness can: (i) provide reassurance where suspicions might otherwise arise; (ii) provide a base-line against which any evidence of suspicious departure can be utilized to formulate relevant inquiries and possible on-site investigation; and (iii) create an environment discouraging to any impulse in the direction of non-compliance. The principle of openness is embodied in the outline of suggested measures given below. Further study of practical ways in which openness, considered as an entity in itself, could be demonstrated and verified may lead to additional measures of value for enhancing confidence in the Convention.

The specific scope to be encompassed in acceptance of openness deserves careful consideration. An operational definition of openness is needed. At a minimum, it would involve visitors being able to enter any part of a declared facility and being able to obtain answers to questions about safety precautions and the general nature of work being done. Exceptions may be required in a few specific areas, possibly including detailed contingency plans for protection against hostile use of infectious agents or toxins and details of national means for verification of the BWC. At facilities where there is sensitivity regarding proprietary information, safeguards may be drawn, in consultation with industrial representatives, from current practice in national and international inspection for product integrity and worker and environmental protection.

Measures for Consideration at the Third Biological Weapons Review Conference

Criteria for measures to be adopted. Each proposed measure should be critically evaluated against agreed criteria. In particular, does the proposed measure:

1. Substantially reduce or eliminate unfounded existing suspicions or possible future suspicions of non-compliance?
2. Significantly deter non-compliance?
3. Acceptably safeguard legitimately sensitive and proprietary information?
4. Fulfil the above criteria with minimal cost and complexity, taking account of the wide diversity of resources and capabilities among the various States Parties?
5. Meet appropriate standards of clarity of definitions and procedures?
6. Have political acceptability to a broad range of States Parties to the Biological Weapons Convention?

Declaration of biological defense programs.

1. Each State Party shall declare whether it has or does not have a program for experimentation, development, testing, or production for purposes of prophylaxis or protection against the possible hostile use of microbial and/or other biological agents or toxins. If a State Party has such a program ("biological defense program"), it shall further declare:

2. The names and addresses of the specific government organizations and principal officials responsible for activities under the program.

3. The principal projects on which work is being carried out under the program and the approximate funding level of each such project during the previous year.

Declaration of facilities. Each State Party shall declare each research center, laboratory, or other installation ("facility") on its territory or within its jurisdiction or control that meets any one or more of the following criteria:

1. Conducts experimentation, development, testing, or production with microbial and/or other biological agents or toxins under the direction of or with funding from the biological defense program of the declaring State Party, if it has such a program; or

2. Has maximum containment unit(s) meeting the criteria for a "maximum containment laboratory" as specified in the 1983 WHO Laboratory Biosafety Manual, such as those designated as Biosafety Level 4 (BL4), or P4 or essentially equivalent or higher standard; or

3. Has containment unit(s) meeting the criteria for Biosafety Level 3 (BL3), or P3 or equivalent or higher standard and conducts work supported by any military or defense organization.

Information regarding declared facilities. Except for information pertaining only to administrative subunits of the declared facility that meet none of the criteria set forth in the above section, the following information shall be provided for each declared facility:

1. Name of facility.
2. Responsible organization(s).
3. Exact location (degrees, minutes, seconds), postal address and area map to scale, showing boundaries of the facility.
4. Source(s) of financing.
5. Number, containment level, and size of each containment unit at or above P3 or BL3, or equivalent.
6. If no containment unit at or above P3 or BL3, highest level of protection.
7. General description of activities, including the principal projects underway and also including a list of all microbial and/or biological agents or toxins with which work was done under P3 or BL3 or higher containment conditions during the previous calendar year.
8. Description of any open-air aerosol releases of microbial and/or other biological agents or toxins conducted within the previous year at the facility, or under its direction, or with the participation of any of its staff. Such description shall include the location and purpose of each such release and the nature and approximate quantity of the substance released.

9. Titles and references to all articles published in the open literature during the previous year authored or co-authored by any staff member.

10. Description of any collaborative, educational, or training opportunities for visiting personnel from foreign countries, including description of any such activities and exchanges during the previous year.

No facilities to declare. States Parties having no facilities to declare shall nevertheless submit annual declarations to that effect.

Procedural modalities for declarations. Declarations shall be provided in one of the authentic languages of the Convention and be sent to the UN Department for Disarmament Affairs and be promptly forwarded, in the form received, to all States Parties. Annual declarations covering the previous calendar year shall be provided not later than 15 April of the following year.

Visits to declared facilities. Each State Party undertakes to give favourable consideration to requests from other States Parties for confidence-building visits to declared facilities.

1. The purpose of a visit is to enhance confidence that the general nature of the facility is consistent with the declared description of its activities and gain experience in the conduct of such visits for use in the design of possible future confidence-building and verification measures in support of the Biological Weapons Convention.

2. The modalities, procedures, safeguards, and timing of visits are left to the determination of the States Parties involved.

3. Upon agreement of the States Parties involved, experts or observers from other States Parties or from international organizations may be included in a visit.

4. Subject to agreed modalities and procedures, the State Party hosting a visit will give favourable consideration to allowing members of the visiting group access to any part of the declared facility they may designate.

5. Subject to agreed modalities and procedures, the State Party hosting a visit will give favourable consideration to allowing members of the visiting group to engage in discussion with any member of the staff of the declared facility.

6. Subject to agreement by the States Parties involved in a visit, a joint summary report of the visit will be prepared and a copy provided to the UN Department of Disarmament Affairs which shall then promptly be forwarded, in the form received, to each State Party.

Visits or inspections of non-declared facilities on request. At the first BWC Review Conference held after the Chemical Weapons Convention (CWC) shall have entered into force, consideration will be given to implications of the CWC for implementation of the Biological Weapons Convention, including, inter alia, modalities and procedures for (i) possible visits or inspections of non-declared facilities on request and (ii) possible visits or inspections of facilities of

a State Party initiated at its own request for purposes of reassurance of other States Parties.

International collaboration. States Parties with declared facilities shall encourage mutually beneficial collaboration and joint research with other States Parties, particularly when this contributes to openness, as for example in the provision of research fellowships at declared facilities for experts from other States Parties.

Implementation Committee. The Bureau of the Third Review Conference shall function in the interim before the Fourth Review Conference: (i) to oversee the proper collection and distribution of declarations; (ii) to receive and appropriately circulate other communications regarding the operation of the Convention and the measures agreed upon at its Review Conferences; and (iii) to perform any other functions in support of the Convention as may be agreed upon by the Third Review Conference.

Universal adherence. Each State Party agrees to:

1. Use its good offices, where appropriate, in its judgement, to encourage States not party to the Biological Weapons Convention to become parties;

2. Refrain from collaborating or contracting with States not party to the Biological Weapons Convention or with citizens or commercial organizations of such States in any experimentation, development, or testing for purposes of prophylaxis or protection against the possible hostile use of microbial and/or other biological agents or toxins.

3. Refrain from providing non-parties with materials or equipment which in its judgement have a serious potential for use in contravention of the BWC. Possible examples for consideration include samples of pathogenic microbiological strains, large-scale high-containment fermentation or cell-culture equipment and large-scale aerosol generating equipment.

Assistance and protection against biological and toxin weapons. The UN Department of Disarmament Affairs shall establish and maintain for the use of any State Party, a data bank containing freely available information as well as such information as may be provided by States Parties concerning prophylaxis and protection against biological and toxin weapons.

National implementation. Each State Party that has not already done so shall, in accord with Article IV of the Convention, incorporate into its domestic law provisions making it unlawful for any citizen or person under its jurisdiction knowingly to participate in the development, testing, production, maintenance, or transfer of any microbial and/or other biological agent or toxin or delivery system for such agents or toxins for hostile purposes or knowingly to assist a foreign State or any organization to do so. Each State Party shall include in its annual declaration the text of any such legal prohibition in force or reference to such text in a previous annual declaration.