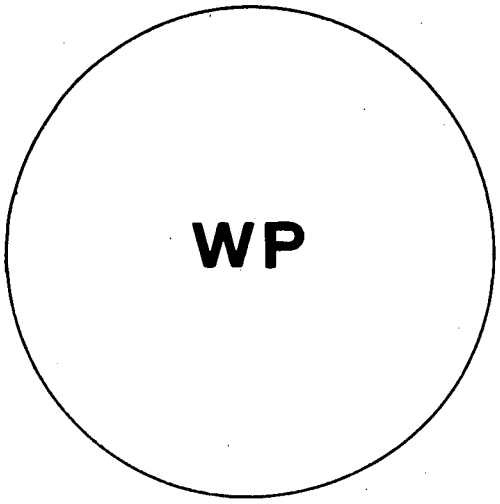
COMMITTEE ON DISARMAMENT

CHEMICAL WEAPONS — WORKING PAPERS (WP)

1982 SESSION



COMPILED BY:

ARMS CONTROL AND DISARMAMENT DIVISION OF
THE DEPARTMENT OF EXTERNAL AFFAIRS

OTTAWA, CANADA

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PREFACE

COMMITTEE ON DISARMAMENT - 1982 SESSION

CHEMICAL WEAPONS

This book is the result of a survey of the working papers submitted to the Committee on Disarmament (CD) in 1982. It has been compiled to facilitate research on the issue of chemical weapons (CW) and is a compendium of the more significant material made available to the CD.

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COMMITTEE ON DISARMAMENT

CD/244
CD/CW/WP.26
18 February 1982
Original: ENGLISH

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Working Paper on Verification and the Monitoring of Compliance in a Chemical Weapons Convention

1. The United Kingdom considers that much useful work was carried out last year in the Ad Hoc Working Group on Chemical Weapons towards elaborating the elements of a Chemical Weapons Convention. We hope that the momentum of the work of this Group will be maintained by a deeper examination of all the issues under consideration last year, especially the important issues of verification and monitoring of compliance.

INTRODUCTION

2. The United Kingdom believes that, as is the case in many arms control agreements, it is necessary for all States party to a Convention to have reasonable confidence in the compliance of all other States parties, and that the provisions of a CW Convention would therefore need to include adequate measures for its verification. The United Kingdom considers that verification measures would be necessary for each stage of implementation - that is for declaration and destruction of stockpiles and production facilities - and thereafter to monitor the continued compliance of States to the provisions of the Convention dealing with non-production of chemical weapons, including the monitoring of permitted uses of chemical warfare agents and dual-purpose agents. It is also essential that the Convention has an effective complaints procedure for the handling of any doubts which might arise about the implementation of the Convention.

3. The verification of implementation must be under international control. Thereafter verification of compliance could be by a mixture of bilateral and multilateral contacts between States parties, with an international body - a Consultative Committee - playing a decisive role.

MONITORING COMPLIANCE

(a) Voluntary Bilateral Contacts

4. Although the United Kingdom believes that implementatin should be strictly monitored by an international body (the Consultative Committee), this period will provide many opportunities for confidence building. In this respect voluntary

bilateral contacts could play an important part. A State could invite another State party (or a group of other States) to visit various research facilities, civilian chemical production facilities, CW production facilities and CW stockpiles so that other States could see for themselves the progress of implementation. They could also invite observers to any CW protection training exercises, thus helping to allay doubts about whether such training was intended for offensive rather than defensive purposes.

5. Voluntary bilateral contacts would play an even more important role in maintaining confidence in the Convention after the implementation period. States could invite other States to visit civilian chemical facilities to ensure that no chemical warfare agents were being produced. Similarly such contacts could be used to exchange information on research programmes, information on protective measures against chemical warfare agents and information on the use of permitted amounts of super toxins.

(b) National Verification Measures

6. The United Kingdom also believes it is important that the Convention provides for States to use national means of verification, provided that these means fall within the generally recognized principles of international law. Such national means of verification could, for example, include the surveying by satellite of areas of the earth's surface for traces of chemicals of known military significance. Stations could also be set up outside the national boundaries in order to detect the presence of CW in air masses which had previously passed over areas suspected of containing CW production or testing facilities. Details of such methods were contained in papers prepared by the United Kingdom and presented to the CCD (CCD 502 and CCD 371), and more recently in the series of Blue Books presented to the CD by the Government of Finland.

7. If a reliable indication of a possible infringement were obtained by some such surveillance technique, the case for on-site inspection would be greatly strengthened. National means of verification could not in themselves provide sufficient evidence to clarify whether an infringement of the Convention was taking place, and would not therefore in any way be a substitute for international measures of verification. Nor should it be a requirement of the Convention that a State should have to produce evidence from national verification techniques before it could request an on-site inspection. Very few developing States have the technology to develop adequate national verification measures and so a verification system based solely on national measures would not be available to the majority of States. Moreover, the cost of satellite or remote surveillance is extremely high and only a few States would be able to afford this means of verifying compliance.

Furthermore, such means of surveillance are not yet sufficiently developed to allow States to have confidence that national verification measures alone could adequately monitor compliance. We therefore firmly believe that national verification measures should be in addition to, not instead of, international verification measures.

(c) Role of Consultative Committee

8. As has been noted above, the United Kingdom considers that the verification of implementation and of continued compliance should be under the control of an international body - a Consultative Committee - which would be established once the Convention came into force. This central organization would need to be supplemented by various means of support.

9. The United Kingdom considers that the Consultative Committee should consist of a representative from each State party assisted by one or more advisers, and that it should be chaired by the Depositary nominated in the Convention. The technical advisers should draw up standard methods and routines for verification (including standardized methods of chemical analysis) preferably before the Convention enters into force, and should have access to sufficient equipment and know-how to carry out these verification procedures.

10. The Consultative Committee should have over-all responsibility to monitor compliance with the provisions of the Convention both during and after the implementation period, and should investigate complaints about the non-compliance of any State party.

Activities to be monitored by the Consultative Committee

11. Verification during the period of implementation will be of particular importance. Unless all parties can be confident that all existing stockpiles of chemical weapons and all existing production facilities have been destroyed, there will be no basis for confidence in continued compliance after the implementation period. We therefore consider it necessary that the following activities should be monitored by the Consultative Committee.

(i) The declaration of existing stockpiles of chemical warfare agents and munitions, chemical munition filling facilities and chemical warfare agent production facilities

Although the Consultative Committee would not be in a position to verify that all stockpiles, etc. had been declared, it should carry out on-site inspections to ensure that the declarations which are made are accurate and comprehensive. Thus Consultative Committee experts would have to be allowed to analyse the agents, the concentration of the agents and the quantity of the agents kept in the stockpiles declare

to assess the number of munitions declared; and then assess the capacity of the chemical munition filling facilities and the chemical warfare agent production facilities declared. The Consultative Committee should then compare the data collected from these on-site inspections with both the declarations of the State concerned and if appropriate with the estimates of that State's capability provided by other States parties.

(ii) The non-production of chemical weapons during the implementation period

The destruction of CW agent production facilities may not be completed until up to 10 years after the Convention enters into force. It will thus be necessary to ensure that none of these facilities are used in this period. To this end we consider it necessary that the Consultative Committee should seal up such facilities with tamper-proof locks within six months after the Convention enters into force. The Consultative Committee should therefore undertake regular on-site inspections at these facilities until they are dismantled or converted to check that the seals have not been broken.

(iii) The destruction, dismantling or conversion of stocks and production facilities

The United Kingdom considers it necessary that Consultative Committee experts should have on-site access during the destruction of chemical warfare agent stocks so that they can analyse the nature of the agent, its concentration, and the volume destroyed. Similarly, experts should be able to determine the quantity of munitions destroyed, and that the munitions are indeed those which the State said it was going to destroy. Finally, experts should have on-site access during the conversion and/or dismantling of production facilities to check that these facilities are properly converted so that they can no longer be used in the production of chemical weapons. The Consultative Committee would then monitor, during the period set for implementation, the estimated stocks and production facilities of each State party with the estimated stocks and production facilities destroyed, dismantled or converted.

12. Following the implementation period, the United Kingdom believes that the Consultative Committee should again play an important role, while the scope for confidence-building measures outside the Consultative Committee will also increase. The Committee should be responsible for the verification of the non-production of chemical weapons. This would require regular on-site inspections to converted chemical production plants to ensure that they had not been reconverted to their original use. It would also require on-site inspections to those facilities

producing the lethal and toxic chemical agents permitted for research into defence and protection to ensure that only permissible amounts were being produced and that these amounts were being used for the stated purposes.

13. While it has been argued that to be certain of non-production, verification measures would have to be highly intrusive, we consider that it should be possible to establish a verification procedure capable of detecting any large-scale production which would be acceptable to all States parties. This could be by a combination of near-site and on-site inspections; monitoring of consumption of raw material against declared chemical production; and national verification measures to detect stockpiles and production facilities. By monitoring the consumption of raw materials and the production of final products at selected chemical factories, the Consultative Committee might be able to spot any large-scale syphoning of potential chemical warfare agents into military stockpiles. Similarly, national verification measures should be able to spot large-scale military stockpiles. Regular near-site inspections in the vicinity of selected chemical factories producing dual-purpose agents for peaceful purposes would allow the Consultative Committee to analyse the air, water and soil around the factory, without intruding into the factory premises, and thereby gain an idea of what the factory is producing. However, none of these measures could adequately replace on-site inspections - i.e. Consultative Committee officials being allowed inside the factory to observe for themselves that no forbidden chemical warfare agent production was taking place. These could be undertaken on challenge, or, preferably, regularly on the basis of a random selection by the Consultative Committee of a certain number of factories to be visited each year. In the latter case the option to ask for an on-site inspection on challenge would also be retained as part of the complaints procedure.

14. Confidence in compliance will of course be greatly enhanced if States are prompt in responding to requests for information or visits, and if States can arrange additional verification measures on a bilateral or regional basis. As confidence in the effectiveness of a Convention grows, so States will be more willing to take part in confidence-building measures.

Complaints procedure

15. The United Kingdom believes that all States party should undertake to consult each other and to co-operate in solving any problems that may arise in relation to the implementation of the provisions of the Convention. This should be a firm commitment. We believe that States should be obliged to provide evidence if their compliance is challenged by another State party. However, we should hope

that the need to remind States of that obligation, or even the need to question any State's compliance, will never arise. Our hope is that any problem that does arise should be settled amicably at a bilateral level and we consider that the compliance procedure should allow for this.

16. If, however, a problem cannot be solved at the bilateral level, any State party should be able to call a meeting of the Consultative Committee to consider the problem, and to ascertain the facts. The complainant should support his complaint with evidence concerning the alleged breach or misunderstanding. As already stated the challenged State should be obliged to provide evidence in its defence. However, we believe that the complaints procedure should protect States party against unfounded allegations. Therefore, although States with nothing to hide should have no worries about on-site inspections, we believe that, if the Consultative Committee overwhelmingly decide that the complaint is completely unfounded, the challenged State should not be obliged to allow an on-site inspection. On the other hand, if the Consultative Committee is dissatisfied with the explanations proferred by the challenged State, and the latter is not prepared to allow on-site inspections, even after a further request, it would be appropriate for the complainants or the Consultative Committee to present their case to the United Nations Security Council for its consideration.

Conclusions

17. To summarize, the United Kingdom believes that any CW convention must be adequately verifiable. This will require the establishment of a Consultative Committee whose role will be to ensure the full and proper implementation of the Convention, and thereafter to monitor continued compliance. The Committee would also be responsible for establishing an effective complaints procedure. The elaboration of such a system will require more detailed examination once agreement in principle has been reached.

18. In order to aid the Ad Hoc Working Group on Chemical Weapons in their consideration of these proposals, we set out below United Kingdom views on verification and monitoring compliance in the form of a set of draft elements for a convention.

DRAFT ELEMENTS OF VERIFICATION AND MONITORING OF COMPLIANCE FOR A CONVENTION ON CHEMICAL WEAPONS

I

Destruction, diversion, dismantling and conversion

Each State Party to this Convention undertakes to:

(a) destroy or divert for permitted purposes its stocks of chemical weapons;

(b) destroy or dismantle its means of production of chemical weapons.

Means of production of chemical weapons may be converted temporarily, before final destruction or dismantling, for the purpose of destroying stocks of such weapons.

The destruction, diversion and dismantling stipulated in this element shall be completed within ten years after the Convention has entered into force or a State Party, which has to fulfil these provisions, has adhered to it.

Matters concerning procedures, including notifications, in connection with what is stipulated in this element are set forth in Annex I.

II

Verification

1. Each State Party to this Convention may use national means of verification at its disposal, including national technical means, for the purpose of monitoring the implementation of and continued compliance with the provisions of this Convention, in as far as it would be consistent with generally recognized principles of international law.

2. A Consultative Committee of Experts, as provided for in Element V, shall be responsible for monitoring the implementation of and continued compliance with the provisions of this Convention on behalf of the international community, and shall be authorized to conduct inspections, including on-site inspections, in order to fulfil its responsibilities.

3. Each State Party to this Convention undertakes not to impede, including through the use of deliberate concealment measures, either the national technical means of verification of other States Parties, operating in accordance with paragraph 1 of this element, or the work of the Consultative Committee of Experts.

III

Consultation and Co-operation

The States Parties to this Convention undertake to consult one another and to co-operate in solving any problems which may arise in relation to the objectives of, or in the application of the provisions of, the Convention. Consultation and co-operation pursuant to this article may also be undertaken through appropriate

international procedures within the framework of the United Nations and in accordance with its Charter. These international procedures include the services of appropriate international organizations, as well as a Consultative Committee of Experts, as provided for in Element V.

IV

Complaints Procedure

1. Any State Party to this Convention which believes that any other State Party is acting in breach of the obligations deriving from the provisions of the Convention, and is not satisfied with the results of the consultations provided for under Element III, may lodge a complaint with the Consultative Committee of Experts, as provided for in Element V. Such a complaint should where possible include any supporting evidence as well as a request for its consideration by the Committee. Such a request may include a request for an on-site inspection, as set out in Annex II sub-paragraph 4.

2. Each State Party to this Convention undertakes to co-operate in carrying out any investigation which the Consultative Committee may initiate, in accordance with its procedures as set out in Annex II on the basis of the complaint received by the Committee. The Committee should inform States Parties to the Convention of the results of the Investigation.

3. If a State Party receiving a request for on-site inspection from the Committee states that it is not prepared to allow an on-site inspection, it shall substantiate its decision. If the Committee still considers that an on-site inspection is warranted it may request additional information or a reconsideration of the decision in the light of additional relevant information that either party has provided. If the Requesting Party or the Committee remains unsatisfied with the substantiation for the decision it may bring the matter to the Security Council of the United Nations.

V

Consultative Committee

1. For the purpose of providing a permanent body to ensure the availability of international data and expert advice for assessing the implementation of and continued compliance with the provisions of this Convention a Consultative Committee of Experts shall be established at the entry into force of this Convention.

2. Each State Party to this Convention undertakes to co-operate with the Committee in carrying out its tasks.

3. The work of the Committee shall be organized in such a way as to permit it to perform the functions set forth in Annex II in an effective, fair and impartial manner.

4. The functions, organization and procedures of the Committee are set forth in Annex II.

Annex I

Destruction, dismantling or diversion for permitted purposes of declared stocks of Chemical Weapons and their means of production

1. Preparation for the destruction or diversion for permitted purposes of stocks of chemical weapons shall start immediately after the entry into force of the Convention. So-called mothballing of means of production of chemical weapons shall be undertaken immediately upon entering into force of the Convention and remain until their destruction or dismantling or diversion for permitted purposes begins.

2. The provisions given in Element I shall be performed in a manner allowing their verification through national and international means of verification.

3. The progress of destruction or diversion of stocks of chemical weapons and of destruction, dismantling or conversion of their means of production shall be notified on a yearly basis to the Depositary until the State Party declares the final abolition of its stocks and means of production. The Depositary shall distribute such notification to the other States Parties to the Convention within one week after having received it.

Annex II

Consultative Committee of Experts

1. The Consultative Committee of Experts shall be composed of the Depositary or his personal representative, who shall serve as President of the Committee, and representatives of the States Parties. Each State Party to this Convention may appoint one representative to the Committee who may be assisted by one or more advisers.

2. The Consultative Committee of Experts shall be competent to:

(a) check the content of declarations made by States Parties [in compliance with Element on "Declarations" to be agreed]

(b) oversee the destruction and diversion for permitted purposes of stocks of chemical weapons, as well as the destruction, dismantling and temporary conversion of means of production of chemical weapons [as stipulated in Element I]

(c) inquire into facts concerning alleged ambiguities in or violations of the compliance with the Convention;

(d) check periodically permitted production of chemicals with respect to amounts produced and their use;

(e) facilitate compliance with the Convention, e.g. by developing international standardization of methods and routines to be applied by national and international verification organs;

(f) make appropriate findings of fact and provide expert views relevant to other problems raised pursuant to the provisions of the Convention by a State Party.

3. Each representative shall have the right, through the Chairman, to request from States Parties, and from international organizations, such information and assistance as the representative considers desirable for the accomplishment of the Committee's work.

4. The Committee shall be allowed to undertake on-site inspections:

(a) in order to confirm received information concerning planned, on-going or effected measures according to subparagraphs 2 (a) and (b) of this Annex;

(b) in order to inquire into facts concerning alleged ambiguities or violations according to subparagraph 2 (c) of this Annex;

(c) in order to carry out checks according to subparagraph 2 (d) of this Annex.

5. The Committee shall decide procedural questions relative to the organization of its work, where possible by consensus, but otherwise by a majority of those present, and voting. There shall be no voting on matters of substance. If the Committee is unable to provide for a unanimous report on these findings of fact or in giving expert views, it shall present the different views of the experts involved.

6. The full Committee shall convene at least once a year, or otherwise immediately upon receipt of a request from any State Party to this Convention. The Committee shall present an annual report of its activities to the States Parties to the Convention. The Committee shall further, whenever it has been requested by a State Party to carry out fact-finding or provide expert views concerning a specific question, transmit to the Depositary a summary of its findings or expert views, incorporating all views and information presented to the Committee during its proceedings. The Depositary shall distribute the summary to all States Parties.

7. The Committee may, for specific tasks, set up sub-committees and verification teams which may continue their work between meetings of the full Committee. The Committee, and all bodies established by it, shall be provided with, or have access to special facilities, such as secretariat technical experts, chemical and toxicological laboratories and remote sensing equipment. The expenses of the Committee will be borne by the United Nations and the States Parties in such manner as will be decided by the General Assembly in consultation with the States Parties.

COMMITTEE ON DISARMAMENT

CD/253
25 February 1982

ENGLISH
Original: RUSSIAN

LETTER DATED 23 FEBRUARY 1982 FROM THE REPRESENTATIVE OF THE UNION OF SOVIET SOCIALIST REPUBLICS ADDRESSED TO THE CHAIRMAN OF THE COMMITTEE ON DISARMAMENT TRANSMITTING A TASS STATEMENT OF 19 FEBRUARY 1982

I am sending you herewith a TASS statement of 19 February 1982.

I would ask you kindly to have it circulated as an official document of the Committee on Disarmament under item 4 of the agenda.

(Signed) V.L. ISSRAELYAN
Representative of the USSR
in the Committee on Disarmament

GE.82-60773

TASS STATEMENT

The Government of the United States is going still further along the dangerous path of building up arsenals of weapons of mass destruction of diverse kinds.

In August last year there was the announcement in Washington of the initiation of large-scale production of neutron warheads - a particularly inhuman variety of nuclear weapon, the very thought of the possible use of which provokes feelings of indignation among all peace-loving people.

Thereafter, in October 1981, the Government of the United States announced a comprehensive plan, unprecedented in scope, for the development of the strategic nuclear arms of the United States, including the production and deployment of a new generation of land- and sea-based intercontinental ballistic missiles, heavy bombers and long-range cruise missiles.

And now, just recently, President Reagan proclaimed a multi-billion-dollar programme for the "chemical rearmament" of the United States. The American Government, it seems, now finds that the huge reserves of poisonous chemical agents - another monstrous means for the mass extermination of people - which the United States already has at its disposal are not enough. It is now planned to equip the American armed forces with several millions of warheads filled with a new and even more lethal nerve-paralysing mixture (the so-called binary charges).

The decision to embark on the stepped-up production of chemical warfare agents clearly reveals why the United States has for many years so adamantly resisted the conclusion of an international convention which would prohibit chemical weapons.

It is now clear to everyone that Washington refused to continue the negotiations with the Soviet Union which were being held earlier on this subject because it was afraid that the prospect which had arisen in the course of the negotiations of the attainment of agreement on that score might hinder the execution of the plan for the "chemical rearmament" of the United States, which was evidently conceived a long time ago.

Nor, certainly, was it fortuitous - but in fact very significant - that the United States was the only one of the 157 States Members of the United Nations which voted against the adoption by the General Assembly of the resolution calling upon all States to refrain from the production and deployment of new types of chemical weapons and from stationing them on the territories of States where there are no such weapons at present.

It is patent that it was in an attempt to prepare world public opinion for the announcement of its decision to embark on the large-scale production of new chemical weapons, and in an endeavour somehow to justify that decision, that Washington had earlier resorted to its favourite trick of making slanderous assertions - in this case that the Soviet Union was using or was preparing to use chemical warfare agents, either in Afghanistan or in the jungles of South-East Asia.

This is a flagrant lie, hardly capable of casting a slur upon the straightforward and consistent policy of the Soviet Union which, unlike the United States, was one of the first States to adhere to the Geneva Protocol of 1925 prohibiting the use of chemical weapons. The Soviet Union has been and is in favour of the total outlawing of this criminal means of waging war and the destruction of all stocks of such weapons. And it has never and in no place used chemical warfare agents.

As far as the United States is concerned, the world has not forgotten that during the years of the American aggression in Indo-China, tens of thousands of tons of chemical agents were rained upon Viet Nam, Laos and Kampuchea, killing vast numbers of people and causing irreparable damage to the natural environment in that region. Nor is it a secret where the chemical agents being used against the peaceful population of Afghanistan by gangs of bandits came from - these agents were manufactured in the United States of America.

On a par with the barbarousness of these weapons, which Washington is now engaged in modernizing and accumulating, is the perfidy of the plans being nurtured there for their use.

The United States does not conceal the fact that in its scheme of things chemical warfare would be conducted in the densely populated areas of Europe and other continents. The same criminal purpose lies behind the plans under discussion in the United States to put the new chemical charges in cruise missiles, bombs and artillery shells, a large number of which it is intended to deploy in European countries as part of the United States' forward-based weapons.

Speaking in the United States Congress on 15 September 1981, the representative of the Pentagon openly admitted that the equipment of the American army with the new chemical warfare agents was intended to make it possible to wage a large-scale chemical war in Europe - just one more demonstration of the "Atlantic solidarity" of Washington with regard to its allies!

The plans now being hatched with cold-blooded cynicism for turning entire continents into gas chambers also show once again the real value of Washington's hypocritical babblings about "human rights".

It is the clear duty of all peoples, of all honest persons on the face of the earth, not to permit the accomplishment of this monstrous crime that is being plotted against peace and humanity.

An aggressor, whatever weapons he may use to unleash a war - nuclear, neutron, chemical or any other - will not escape retribution.

The reckless piling up of armaments, including chemical weapons, will bring no dividends to its initiators and will strengthen no one's security. International security can only be secured through negotiations, through a search for solutions aimed at the achievement of real measures of disarmament, including the prohibition of chemical weapons.

The Soviet Union decisively favours this course.

COMMITTEE ON DISARMAMENT

CD/258
CD/CW/WP.28
9 March 1982

ENGLISH
Original: RUSSIAN

Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Mongolia, Poland and Union of Soviet Socialist Republics

Working paper

Binary weapons and the problem of effective prohibition of chemical weapons

The delegations of the socialist countries to the Committee on Disarmament deem it necessary to draw attention to a number of circumstances that are seriously hindering the elaboration and approval of a draft convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction.

What is involved here are well-known decisions concerning the production, commissioning and, ultimately, stationing on the territories of other countries of a new generation of chemical weapons -- binary weapons. Whatever reasons and justifications may be adduced, it is an indisputable fact that the incorporation in arsenals of such weapons with binary charges inevitably leads to a further dangerous spiral in the chemical arms race.

As is well known, the basic difficulty in solving the problem of prohibiting chemical weapons stems from their particular nature: it is the difficulty of separating commercial chemicals from those which can be used for chemical weapons. The emergence of binary weapons will considerably complicate this already difficult problem.

Without claiming to give an exhaustive analysis of the negative consequences of embarking on the production of binary chemical weapons, the authors of this working paper would like to mention a number of important points of direct relevance to the negotiations in progress in the Committee with a view to the elaboration of a multilateral convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction. Existing information concerning binary weapons leads to the conclusion that the following consequences, in particular, are inevitable:

1. In the long term, the range of chemicals capable of being used as components in these weapons will expand considerably, with a corresponding expansion of the range of binary mixtures of varying effect (not merely paralysis of the nervous system). While, for example, the diversity of conventional

chemical munitions is limited by such factors as the stability of chemical agents during storage or the extent to which they attack the materials of which, in particular, the munition casing or other storage structures and facilities are composed, it does not seem that those factors will be of such fundamental importance in the case of binary weapons. This will allow the creation of mixtures with the widest imaginable range of effects.

2. It will become possible for many States, and not only States but also individual groups of persons, to produce, acquire and stockpile chemicals for new types of binary weapon. This means that there would be a significant increase in the danger of the proliferation of chemical weapons.

3. The positive results of negotiations on the prohibition of chemical weapons, both in the Committee on Disarmament and between the USSR and the United States of America will lose much of their value, in particular:

(a) Agreement was reached during the Soviet-United States negotiations on a provision concerning the scope of prohibition, reproduced in the joint Soviet-United States report to the Committee on Disarmament (CD/112 of 7 July 1980). This provision envisages the prohibition of all types of toxic lethal chemicals, including, of course, binary ones. The report speaks of the obligation "... never to develop, produce, otherwise acquire, stockpile or retain super-toxic lethal, other lethal or other harmful chemicals, or precursors of such chemicals", and the obligation "never to develop, produce, otherwise acquire, stockpile or retain munitions or devices specifically designed to cause death or other harm through the toxic properties of chemicals released as a result of the employment of these munitions or devices, or equipment specifically designed for use directly in connection with the employment of such munitions or devices". These wordings thus include corresponding prohibitions in respect of binary weapons. The programme of production of binary weapons now envisaged in the United States may cancel out these positive results.

(b) The significance and effectiveness of the toxicity criteria of lethal chemicals agreed upon between the USSR and the United States (CD/112 of 7 July 1980) will be reduced.

4. The further progress of negotiations will face serious difficulties, in particular for the following reasons:

(a) It will be more difficult to ensure the implementation by States parties of obligations not to transfer the chemical weapons and other obligations related thereto, because separating chemicals for commercial purposes from those designed for weapons will become especially difficult, almost impossible;

(b) The question of the declaration by States of their stocks of chemical weapons and means of production of such weapons will become more complex because a definition will have to be provided of chemicals intended for commercial purposes which may be produced for binary weapons;

(c) Problems of monitoring the implementation of the convention will acquire a qualitatively new nature if binary weapons are produced;

Control itself, both national and especially international, will in many cases become extremely difficult, if not impossible; conditions may emerge for covert stockpiling and storage of chemicals for binary weapons purposes and for developing chemical weapons under the guise of commercial production.

The United Nations General Assembly, taking into consideration the full danger of the development, commissioning and, especially, proliferation of binary chemical weapons, called upon all States in resolution 36/96 B "to refrain from any action which could impede negotiations on prohibition of chemical weapons and specifically to refrain from production and deployment of binary and other new types of chemical weapons ... in those States where there are no such weapons at present".

In the present situation the delegations of the socialist countries consider the implementation of this appeal by the General Assembly to be a matter of prime importance.

COMMITTEE ON DISARMAMENT

CD/258/Corr.1
CD/CW/WP.28/Corr.1
11 March 1982

ENGLISH AND RUSSIAN ONLY

Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Mongolia, Poland and Union of Soviet Socialist Republics

Working paper

Binary weapons and the problem of effective prohibition of chemical weapons

CORRIGENDUM

On page 3, replace the penultimate paragraph by the following:

"The United Nations General Assembly, taking into consideration the full danger of the development, commissioning and, especially, proliferation of binary chemical weapons, called upon all States in resolution 36/96 B 'to refrain from any action which could impede negotiations on the prohibition of chemical weapons and specifically to refrain from production and deployment of binary and other new types of chemical weapons, as well as from stationing chemical weapons in those States where there are no such weapons at present'."

COMMITTEE ON DISARMAMENT

CD/263
22 March 1982
Original: ENGLISH

FINLAND

Working Paper on the Relation of Verification to the Scope of a Ban on Chemical Warfare Agents

The negotiations in the CCD and the CD for banning chemical weapons will soon have gone on for a decade and a half resulting in no agreement. The many consultations, working papers, and expert meetings have, however, shed light on the innumerable problems involved and consensus has been reached in several areas.

Over the last years the subject has also been dealt with in the bilateral consultations between the United States of America and the USSR, and special expectations have been placed in these negotiations. Here, too, the optimism has proved unfounded and the Joint reports promise no convention in the near future. The reports, latest (CD/112) in the summer of 1980, do augur some common understanding on many important points - mostly on the basis of earlier findings in the CCD or CD - which will give technical preparedness for a treaty as soon as the political understanding has been reached.

Firstly, it is most satisfying to note that the two sides believe that the future convention would be a comprehensive one with commitments never to develop, produce, otherwise acquire, stockpile or retain super-toxic lethal or harmful chemicals, or precursors of such chemicals, as well as chemical munitions or other means of chemical warfare. It also contains an undertaking to destroy all existing stocks.

Secondly, they proceed from the premises that the scope of the prohibition in any future convention would be determined on the basis of the general "purpose criterion". The goal of this is to give the treaty a fully unambigous content leaving no room for misinterpretation i.e. no violator can claim to have acted in ignorance.

Unfortunately outsiders cannot easily verify the purpose of the development and production of a chemical, thus condemning it as a chemical warfare agent on the basis of the purpose criterion is often impossible until the chemical has been used as such, or at least placed in munitions or army depositories, therefore, additional definitions for chemical agents have been found necessary for facilitating verification. As such additional definition, the two sides have first come to see the use of the toxicity criterion.

There seems to exist common agreement that the most dangerous super-toxic lethal chemicals can be defined as chemical with ld50=0.5 mg/kg (subcutaneous) or 2,000 mg-min/m3 (by inhalation). Since the compounds in this class have not proven to have any non-hostile use - outside the small amounts permitted for research and protection purposes - they can be totally prohibited and verified as chemical agents on the basis of the toxicity properties alone. Thus, if the toxicity of a chemical can be measured by an agreed method and it exceeds a given limit, it will be declared a prohibited agent.

In reality the determination of the toxicity may be difficult and time consuming, since known amounts of pure compounds are needed for reliable animal tests. It could be easier to identify the chemical structure of the compound in question if a certain state of readiness exists. Therefore a list of prohibited compounds as another supplemental criterion could be very useful, even if it could not include all the potential agents or already secretly developed ones, it could, if composed by experts of all countries, be complete enough to reliably indicate all the really important ones. Furthermore, since the purpose criterion would dominate as the primary one, the absence from the list would by no means exempt a chemical from the ban.

We believe that such a list of prohibited chemicals could be really useful only if accompanied by yet another amendment, namely information on the analytical facts and verification methods of each compound. If standardized verification and identification system for each compound be agreed upon, their application would greatly facilitate national verification and chemical defence measures and consequently reduce the changes of a surprise attack.

The same evaluation is even more essential to other lethal or harmful chemicals as the toxicity criterion cannot be determining for these compounds. There are numerous chemicals with ample non-hostile use with ld50 between 0.5-10 mg/kg,, e.g. pesticides and industrial intermediates. On the other hand, many known warfare agents, before all the binary precursors, have lower toxicity. The dual purpose chemicals present a special problem. It is not possible to control the production or use of such common chemicals as hydrogen cyanide or phosgen. Their ban must be based upon the purpose criterion. A large part of important chemical agents, for instance mustards could, however, be defined by means of chemical structure and be

totally prohibited. Concerning a third group, e.g. alkylphosphonochloridates and - fluoridates, which are important binary precursors with relatively limited civilian use, a licence system with surveillance should be established, and the production and use outside this system prohibited.

The idea of creating a consultative committee with a permanent secretariat for international verification measures has also gained common ground. This committee could also take care of the list of the prohibited compounds in order to keep it updated, as well as to control that the licence system has been applied. In addition, every party to the convention should have the right to make proposals concerning the list.

By way of conclusion we believe, taking into account that the convention should be comprehensive and the banning of chemical agents primarily based on purpose criterion, that verification would be best served if, in addition to the toxicity criterion, a list of known or strongly suspected chemical agents with standardized verification data could be made available. Complete verification is not possible. Small amounts of dangerous agents can be prepared in relatively simple laboratories, and even new extremely toxic compounds developed, often unintentionally, in connection with other investigations. These products may be dangerous e.g. in the hands of terrorists. Their large scale production and development for a militarily important weapons system can be disclosed by various detection means. Thus even if the list of prohibited agents cannot be complete in regard to potential or secret toxic agents, the amounts and significance of such compounds would be limited. The standardized verification methods could constitute a good analytical system for new not previously mentioned compounds.

Finally, we understand very well that the above-mentioned suggestions do not solve the difficult problem of verification. We believe, however, that if the realistic possibilities and limits of verification were diagnosed in the context of agreeing upon the scope of the ban, the reliability of the convention is increased.

COMMITTEE ON DISARMAMENT

CD/264
23 March 1982
Original: ENGLISH

UNITED STATES OF AMERICA

The United States Programme to Deter Chemical Warfare

Background

The ultimate goal of the United States in the area of chemical warfare (CW) is a complete and verifiable ban on the development, production, and stockpiling of chemical weapons. Until such a ban can be obtained, our objective, consistent with existing treaties and international law, is to deter the use of chemical weapons. The United States will not use chemical weapons unless chemical weapons are first used against us or our allies. The United States does not and will not possess biological or toxin weapons.

Soviet Chemical and Biological Warfare Programmes

Soviet military doctrine envisages the use of chemical weapons and acknowledges their value, particularly when used in massive quantities and in surprise attacks.

Of more significance, the Soviet Union and its allies are well prepared to wage chemical warfare and to fight in a chemically contaminated environment. The USSR possesses a wide variety of lethal and incapacitating chemical agents and the means to deliver them. They have a busy and expanding chemical proving ground and a large, well-trained chemical organization, with over 60,000 troops, whose status within the Soviet military hierarchy was enhanced during the 1970s. They have invested heavily in individual and collective protection and decontamination equipment, and they train with actual chemical agents.

In addition to extensive Soviet chemical warfare programmes, a major accident in Sverdlovsk and evidence in Southeast Asia indicate that the Soviet Union's arsenal also includes toxic substances specifically prohibited by the Biological and Toxin Weapons Convention.

United States Programme in the 1970s

In contrast with the Soviet Union during most of the 1970s, the United States allowed its retaliatory capability to decline, did little to improve defense against chemicals and neglected relevant defense doctrine and training. In addition, the United States in 1969 stopped the production of lethal or incapacitating chemical agents and the filling of new munitions with chemical agents. At the same time, the United States renounced the use of biological and toxin weapons, destroyed all stocks of these weapons and converted its biological warfare facilities to peaceful purposes.

Arms Control Efforts

While unilaterally restraining our capabilities, the United States made major efforts, in the late 1970s, to eliminate the chemical warfare threat by attempting to reach agreement with the Soviet Union on a comprehensive and verifiable ban on chemical weapons. Verification of such a ban is a complex and difficult problem.

These efforts stalemated due principally to fundamental disagreement on the tough issue of the need for effective verification of a CW ban and particularly Soviet intransigence on questions relating to on-site inspections. Negotiations were further complicated by our weakness in this area compared to the Soviets, who possessed a decisive military advantage and had little arms control incentive in the face of the large asymmetry in chemical warfare capabilities. The Soviets did, however, have an interest in negotiations as long as it impeded improvement of United States deterrent capabilities.

Requirements for Deterrence

In view of the over-all military balance between the United States and the Soviets, we cannot rely on other components of our military capabilities to deter chemical warfare. Consequently, to deter, we find we need to improve our CW capabilities sufficiently to deny the Soviets the significant military advantage they would gain from using chemical weapons. Improving our defences against chemical weapons is a necessary, but not sufficient, step to deny the Soviets such an advantage.

Improved defences can save lives, reduce casualties and reduce — but not eliminate — significant degradation of military performance in a chemically contaminated environment. The needed protective equipment reduces mobility, slows operations and makes many tasks difficult or impossible. Reliance solely on improved defences would leave the initiators of chemical warfare largely free to operate without the constraints imposed by protection; thus yielding them a major advantage and encouraging the use of chemical weapons.

Therefore, in addition to improving our defences we must maintain a capability to retaliate with chemical weapons, to reduce the incentive to the enemy's first use, since he would also have to operate with the encumbrance of protective equipment. However, our current chemical weapon stockpile (which will ultimately be destroyed) is inadequate to provide an effective deterrent. Most of the current stockpile is not usable because it is stored in bulk containers. Much of the remainder is in ammunition for weapons that have been or will be phased out of service. The current stockpile is also lacking in weapons that can be used against the rear echelons of attacking forces. Finally, the current stockpile presents logistical problems, due to the elaborate safety precautions required in transport, which further restrict its utility.

Programme Objectives and Requirements

It is the objective of the United States chemical warfare programme to improve defensive and retaliatory capabilities to deter CW attack and to provide incentive and gain leverage in arms control negotiations.

Recent United States Government programme requests include the following:

- The Carter Administration's CW programmes increased from $111 million in FY 1978 to $239 million in FY 1981, to improve defences against chemical warfare.

- In 1981 the new Administration's FY 1981 Defense Supplemental request included $20 million to purchase and install the equipment required to complete the binary production facility authorized and appropriated by the previous Congress.

- The FY 1982 Budget request included $532 million for chemical warfare programmes, primarily for defence, but no funds for the production of weapons.

The FY 1983 request for the chemical programme is $705 million, with over 70 per cent for defence and 10 per cent for disposal of obsolete chemical weapons. The remainder supports the retaliatory element of the deterrence programme and includes $30 million for procurement of binary chemical munitions: the 155mm binary artillery projectile, and the Bigeye aerial chemical bomb.

The defensive element of the FY 1983 programme ($508 million) will improve the quality and quantity of all aspects of chemical defense: training, individual and collective protection, detection and warning, decontamination and medical.

The objective for the retaliatory element of the programme ($123 million in FY 1983 including the funds for production) is to maintain the safest, smallest chemical munitions stockpile that provides the ability to deny a significant military advantage to any initiator of chemical warfare. We need not, and will not, plan to match the Soviets in agent/munition quantities and types.

The United States will continue to exercise responsible restraint in this area and will make only those improvements necessary to ensure that the United States has a credible and effective deterrent/retaliatory capability.

The binary munitions being developed by the United States contain two non-lethal substances which form the standard nerve gas only when mixed. The considerable safety, security, and logistical advantages that binary weapons offer during the entire life cycle from manufacturing through storage and transportation, to eventual disposal, make binaries the logical choice over unitary munitions for stockpile modernization. Transportation advantages make a strategy of centralized storage and crisis deployment more workable, and there is considerable flexibility in storage and control of the binary components.

Conclusion

The ultimate goal of United States policy is to eliminate the threat of chemical warfare by achieving a complete and verifiable ban on chemical weapons. Our programme supports this goal by improving our military posture sufficiently so that the Soviets will perceive they have nothing to gain from such warfare.

It is worth noting that since the end of World War I, all use of toxic chemical weapons has been against unprotected military forces and civilians who could not protect themselves and who had no ability to retaliate. Even in the intense European conflict of World War II following D-Day, Hitler did not use his chemical arsenal. He believed the Allies stood ready to retaliate.

The thrust of all our efforts in this area is to deter the use of chemical weapons, and to give incentive to the Soviet Union to join us in our objective of seeking a complete and verifiable ban on the development, production, and stockpiling of such weapons. If we are successful in achieving this ban, we will be able and eager to terminate the chemical weapons programme at any time.

COMMITTEE ON DISARMAMENT

CD/265*/
24 March 1982
Original: ENGLISH

FEDERAL REPUBLIC OF GERMANY

Working Paper

on

Principles and Rules for Verifying Compliance with a Chemical Weapons Convention

A. Introduction

1. There is general consensus that the observance of a convention prohibiting the development, production and stockpiling of chemical weapons and stipulating the destruction of existing stocks of such weapons requires adequate verification. The parties to the Geneva Protocol of 1925 banning the use of chemical weapons did not establish a verification mechanism. However, in the event of a gross violation of the Protocol, the general rules of international law still permit retaliation since the production and stockpiling of chemical weapons is not prohibited. This state of affairs engendering mutual mistrust was soon seen to be unsatisfactory by the international community. Not least as a result of this perception a comprehensive ban on chemical weapons was called for to avert once and for all the danger of these inhuman weapons being used. However, such a treaty does not do full justice to the security needs of the Contracting Parties if the problem of verifying compliance with its provisions is not reliably resolved.

2. There is also agreement that such verification should not be confined exclusively to national measures but that it should be a combination of national and international measures and mechanisms to be implemented by a special standing international body, referred to as the consultative committee in CD/220 and as "committee" below. The Contracting Parties must therefore undertake both to ensure at the national level observance of the convention and to submit to the monitoring carried out by the committee.

3. The Federal Republic of Germany, which renounced the production of chemical weapons as early as 1954 and agreed to international verification of its non-production of these weapons, is the only country with long-standing experience in international co-operation in this field. It presented this experience in a workshop in 1979 and recorded the results in CD/37. Its intention is not to recommend the procedure applied to the Federal Republic as a model, but to prove that international verification measures, including on-site inspections of chemical plants, are feasible without harming the Contracting Parties' legitimate interest in safeguarding business and production secrets.

4. The Federal Republic of Germany realizes that permanent and full-scale monitoring by means of on-site inspections of all military and non-military plants for the manufacture, stockpiling and destruction of chemical weapons and agents covered by a convention is not practicable since the necessary effort in terms of staff and finance would be excessive. It therefore advocates regular on-site inspections of all declared plants suited for the production of supertoxic chemical warfare agents, using a procedure by which the committee selects, by casting lots, a specific number of such plants every year for monitoring.

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5. In addition, it must remain possible to effect examinations and on-site inspections on challenge in the event of particular incidents. Such a procedure would not, however, be sufficient on its own for reliably verifying compliance with the convention, especially with regard to the obligation to destroy chemical weapons stocks and production plants and not to manufacture chemical weapons.

6. This paper is based on elements of previous papers presented to the Committee on Disarmament on the subject of a chemical weapons convention which met with a large measure of agreement and have been summarized in CD/220 as a result of the last session. It proceeds on the assumption that it is not practicable to subject to regular inspections all military and non-military plants for the manufacture, stockpiling and destruction of chemical weapons and agents covered by a convention. With regard to regular checks, the paper therefore concentrates on a procedure for inspecting plants suited for the manufacture of supertoxic chemical agents. The advantage of this type of regular procedure is that it can take place in a business-like atmosphere. The paper is based on the concepts outlined in CD/37, which have at the same time been developed further by subjecting binary chemical weapons to the rules. In part B below, the essential principles which a convention must contain are set out.

B. Essential principles of verification

(i)

1. Purpose of verification and obligations of the Contracting Parties

The purpose of verification is to ensure confidence in the observance of a convention and safeguard the security interests of the Contracting States. To this end, the Contracting Parties commit themselves, by treaty, to national statutory measures precluding a violation of the convention and to agreed international measures. The latter consist of regular checks on a precisely defined scale and of checks on special grounds (suspicion of the convention being violated). The Committee is responsible for carrying out the international verification measures. The Contracting Parties undertake to submit to the committee, within a specified brief period after the entry into force of the convention or, if it is ratified at a later date, when depositing their instrument of ratification, their declaration together with the data needed for regular checks and also to assist the committee by word and deed.

2. Explanations

In view of the different political, economic and technological conditions in the individual Contracting States, the type and scope of the national measures for verifying observance of the convention are subject to the authority and procedures of each individual State. For the purpose of evaluating statistical data, the committee will therefore recommend standardized methods and procedures and reach agreement on them with the Contracting Parties. Of central importance for verification are the regular checks described in section (ii) below. For the purpose of the special checks it is necessary from the point of view of the joint interest of completely dispelling any suspicions to use a method which may deviate from and even exceed the scope and procedure defined in section (ii) below.

(ii)

1. Scope of regular checks

At the start and end of the period envisaged in the convention the committee carries out inspections with regard to all declared chemical agent stocks and production plants to be destroyed and monitors on a continuous basis their destruction by means of suitable technical devices (e.g. flow-meters). For the duration of the destruction measures and for the regular monitoring to verify observance of the convention the committee will carry out on-site inspections of production and storage facilities, the percentage being determined annually by casting lots. These regular checks will cover the following:

- the destruction of stocks of supertoxic chemical weapons, including their binary components,

- the destruction of facilities for manufacturing supertoxic chemical warfare agents and munitions,

- checks of current industrial production of organo-phosphorus substances to ensure that supertoxic warfare agents or their binary components are not produced for hostile purposes,

- checks to ensure that the quantity of supertoxic chemical warfare agents permitted by the convention and manufactured and stored in the declared plants is not exceeded.

2. Explanations

(a) The procedure whereby the committee establishes each year by casting lots the number of plants to be examined offers the following advantages:

- each Contracting State is given equal treatment, which in turn contributes to a business-like and co-operative atmosphere.

- verification is set on an appropriate basis in terms of expenditure and manpower.

- no Contracting Party knows until shortly before the inspection is to take place which objects and facilities in its territory are to be examined. This means a high risk for any party intending to violate the convention.

(b) When the convention comes into force, a declaration is made of existing stocks of chemical weapons by type and quantity as well as of manufacturing and munitions-producing facilities. The possibility of submitting a complete declaration as a confidence-building measure already when signing the convention might be considered. The declaration marks the beginning of preparations for destroying all chemical warfare agents prohibited by the convention. Verification by the committee of the destruction of munitions and non-munitions stocks is restricted to the supertoxic chemical agents (CD/220) and their binary components defined by toxicity criteria in the convention. In view of the military significance and the effort required in terms of equipment and manpower, it is acceptable to forgo verifying the destruction of all chemical warfare agents prohibited by the convention.

(c) Pursuant to the provisions of the convention, its entry into force is accompanied by the commencement of preparations for dismantling all declared manufacturing and munitions-producing facilities. Verification by the committee in this respect means monitoring -- for the period envisaged in the convention -- the destruction, dismantling, sealing or the hand-over within a defined period of stocks for disposal.

(d) Effective verification of the non-production of supertoxic chemical warfare agents, including their binary components, for hostile purposes is not possible without including chemical plants producing organo-phosphorus compounds on an industrial scale. Binary chemical warfare agents, i.e. supertoxic chemical warfare agents which, until their military use, exist in the form of usually two components of lower toxicity, are, by virtue of their final toxicity, to be grouped together with supertoxic chemical warfare agents since they are of equal military significance. They must therefore be included in the convention and be subject to verification. After the convention has entered into force the Contracting Parties also declare their stocks of binary chemical warfare agents by type and quantity as well as the production facilities and the enterprises manufacturing and processing organo-phosphorus compounds on an industrial scale. Adequate verification by the committee is necessary to ensure that

- existing stocks of supertoxic chemical warfare agents, including binary components, in munitions or non-munitions form are destroyed, and
- essential components of binaries are not produced on an industrial scale if they are not used for civilian purposes on such a scale or, if used on an industrial scale for civilian purposes, are not diverted and stockpiled for hostile purposes. */

(iii)

1. Verification procedures

Verification by the committee on a scale defined in the convention requires that the Contracting Parties permit the following procedures:

- on-site inspections involving sampling and toxicological or -- for components of binaries -- chemico-physical determination of samples,
- near-site inspections involving chemico-physical analyses of effluent air and water at a distance from the production plant permitting reliable measurement,
- off-site inspections involving centralized monitoring with the aid of sensor-transmitted data, and
- statistical evaluation of production, supply and reprocessing sheets.

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*/ Example: The essential component of sarin is methylphosphoric acid dichloride which is not required for civilian purposes and, therefore, need not be produced on an industrial scale.

2. Explanations

Depending on the nature of the plants involved, different methods and procedures are needed for effective verification by the committee. The procedures to be permitted are not intended as alternatives but are to supplement one another, as required. The details will be established in collaboration with the appropriate national authority. The determining criteria will be concentration on the information actually needed and cost-effectiveness as regards equipment and manpower. In order to establish the absence of certain substances without simultaneously ascertaining the actual composition of the sample, merely toxicological tests or the determination of functional groups of chemical compounds are necessary. This ensures that production secrets are not revealed by the regular checks.

(iv)

1. Special checks

Every Contracting Party is entitled, if it has concrete grounds for suspecting that another party is violating the convention, to demand a special check by the committee. Such a check serves to establish the facts, if necessary by means of an on-site inspection by the committee. The findings must be set out in a report. If the matter cannot be clarified satisfactorily in this manner or if the State affected refuses verification without giving good reasons, every Contracting State is entitled to appeal to the United Nations. It may also withdraw from the convention in accordance with its provisions.

2. Explanations

Special checks are a necessary supplement of regular checks. The scope of a special check will therefore be determined by the nature and substance of the suspicion and by the degree of mutual co-operation in clarifying the matter; it cannot therefore be defined in detail. Its success is dependent on a party agreeing to the demanded clarification and making the necessary declaration. It pre-supposes a large degree of willingness to co-operate. As a result of the regular checks described in this paper, the occasion on which special checks become necessary will, incidentally, be few in number.

C. Concluding Remarks

This paper presents a verification arrangement which must form an integral part of a comprehensive convention banning chemical weapons. The paper is therefore intended to contribute towards reaching agreement on the minimum security requirements that have to be met and on how to secure maximum confidence in the convention being complied with.

The arrangement described above is acceptable, effective and necessary.

It is acceptable because

- it is non-discriminatory,
- it is confined to the most important and most hazardous types of chemical weapons,
- it necessitates relatively limited manpower and expenditure, and
- it ensures that production secrets are not revealed.

It is effective because

- it means a high risk for any party intending to violate the convention, and
- it includes binary chemical weapons.

It is necessary because

experience has shown that conventions without reliable verification arrangements (Geneva Protocol of 1925, Bacteriological Weapons Convention of 1972) are unsatisfactory, since existing doubts and accusations cannot be clarified. This impairs mutual trust and hence the conditions for further progress in international efforts for disarmament and arms control.

COMMITTEE ON DISARMAMENT

CD/266
CD/CW/WP.31
24 March 1982

Original: ENGLISH

Yugoslavia

Working Paper

Binary weapons and the problem of their definition and verification

The binary (separation) principle in the storage and use of different chemical compounds for military purposes has been known since the beginning of this century. Nevertheless, it seems that no great progress in the obtaining of binary ammunitions had been achieved before the sixties, primarily because of technical and technological deficiencies. As is known, this principle is today based on two (or more) chemical compounds - components with relatively low degree of toxicity are stored and transported separately and are then introduced into corresponding ammunition or equipment for the dispersion of chemical warfare agents. These components are not mixed until the shell or rocket is fired, when the mixing of components takes place, and by reaching the target it creates highly toxic chemical warfare agents. Chemical compounds - components which are indispensable for the creation of binary chemical munitions have been called "precursors" in a large number of working papers submitted to the CD during the past years and this year as well, with the basic aim that, according to the criterion for toxicity, they are or could be far less toxic than the final product which is generated by their mutual chemical reaction.

Today there is a trend (CD/CW/CRP.31 and CD/CW/CTC/13) for the term "precursor" to be applicable regardless of the process by which the agent is produced. All things considered, this means that the term "precursors" refers not only to binary chemical munitions but also to chemicals used in the production of chemical warfare agents in chemical plants.

The fact that the problem of binary weapons has been approached in this manner speaks about the complexity of this matter, both with regard to definition and with regard to verification.

The definitions of "precursors" as cited in CD/CW/CTC/4 of 16 March 1982 and in CD/CW/CRP.31 and CD/CW/CTC/13 of 18 March 1982 can, in our opinion, serve as a

basis for further talks on the ban of CW. The future Convention on the ban of CW must encompass at least a part of the "other harmful chemicals". In that case, it seems logical to us that the definition of "precursors" must also encompass those chemical compounds which are also a component part of this group of chemical warfare agents.

Technological progress will in the future surely make it possible for a larger number of chemical compounds to be used as "precursors", which will, of course, present a danger of the emergence of new "binary mixtures" with different toxic effects. Theoretically, it is possible for chemical compounds of lesser toxicity to cause, in contact with the environment (water, air and other) the creation of poisonous materials of higher toxicity, which in itself renders the defining of "precursors" more complex.

In view of today's achievements in this area, for the purpose of definition and verification, "precursors" should be divided in relation to the already known division of chemical warfare agents (see: CD/112). We thus suggest:

(a) Key "Precursors" for obtaining super-toxic lethal CWA,

(b) Key "Precursors" for obtaining other lethal CWA, and

(c) Key "Precursors" for obtaining other harmful CWA.

As concerns "precursor(s)" for obtaining super-toxic lethal CWA (nerve agents), in our opinion, the important binary precursors (i.e. alkylphosphonochloridates and -fluoridates) have a relatively limited use in times of peace. It therefore seems to us that it would not constitute any serious obstacle to treat these "precursors" as super-toxic lethal chemicals and to subject them to the same verification procedure. In our opinion a license system with surveillance should be established and the production and use outside this system prohibited.

It is certain that this division will also encompass a whole series of chemical compounds which serve a non-hostile purpose, especially if one bears in mind that even CWA from the group "other lethal" and "other harmful" serve dual purpose use. This is why dual purpose chemicals present a special problem. It is hardly possible to control the production or use of such common chemicals as hydrogen cyanide or phosgen. Therefore, their ban must be based on the purpose criterion. A large part of important chemical warfare agents, for instance mustards, could, however, be defined by means of chemical structure and be totally prohibited.

Based on the above, the definition of "precursor(s)" could, in our opinion, look as follows:

"Precursor(s)" are chemical compounds whose final chemical reactions enable the creation of chemical warfare agents of different toxicity levels: super-toxic lethal or lethal and other harmful chemical; regardless of whether this reaction is taking place during production (chemical plant), during use (binary chemical munitions) or at the site of use.

Apart from what we have said for the verification of "precursors" which enter into the denomination of super-toxic lethal chemical agents, we think that all three categories of chemical warfare agents should focus their attention on the so-called "main", "key" or "basic" precursors. For this reason, a list of "precursors" should be compiled which would serve as a basis for agreement on which chemical compounds should be the subject of only national verification and those which should be the subject of both national and international verification.

If there is no ban of CW within a reasonable amount of time, it can be expected that the number of chemical compounds that can be used as "precursors" will be extended.

COMMITTEE ON DISARMAMENT

CD/270
31 March 1982
Original: ENGLISH

LETTER DATED 31 MARCH 1982 FROM THE HEADS OF THE DELEGATIONS OF INDONESIA AND THE NETHERLANDS TRANSMITTING A DOCUMENT ENTITLED "INDONESIA AND THE NETHERLANDS - WORKING DOCUMENT - DESTRUCTION OF ABOUT 45 TONS OF MUSTARD AGENT AT BATUJAJAR, WEST-JAVA, INDONESIA"

We have the honour to transmit and request circulation of the enclosed document entitled:

"Indonesia and The Netherlands - Working Document - Destruction of about 45 tons of mustard agent at Batujajar, West-Java, Indonesia".

(signed) Nana S. Sutresna
Ambassador,
Head of the Delegation of
the Republic of Indonesia

(signed) Dr. Frans van Dongen
Ambassador
Head of the Delegation of
the Kingdom of The Netherlands

GE.82-61848

DESTRUCTUION OF ABOUT 45 TONS OF MUSTARD AGENT
AT BATUJAJAR, WEST-JAVA, INDONESIA

I. BACKGROUND

1. In the period between 1940 and 1941 the Government of the then "Netherlands East Indies" manufactured several tens of tons of mustard agent - using the thiodiglycol method - in a plant at an army site at Batujajar near the city of Bandung, West-Java, Indonesia. This stockpile was intended as a deterrent against the possible initiation of chemical warfare in an eventual war in the region. When the war broke out, chemical weapons were not used. The stockpile of mustard agents remained at the site during the Japanese occupation period. In the period between 1949 and the beginning of 1950, the plant was dismantled. However, the mustard agent, stored in sealed tanks in underground shelters was not destroyed. National authorities of the two countries did not know of the existence of mustard agent and only a limited number of poeple were aware of this situation.

2. Not until the second half of the seventies was attention drawn to this matter by one of the persons who had been involved in the dismantling of the plant. The Indonesian Government, which wanted to eliminate this dangerous heritage, requested technical assistance from the Netherlands Government, being responsible for the matter. For this purpose, it was agreed that the Netherlands Government would provide technical assistance, including technical experts, while the Indonesian Government would provide security and logistics during the operation. The Netherlands Government charged the Prins Maurits Laboratory TNO to provide such a assistance.

3. Accordingly, the Netherlands Government sent a fact-finding mission in April 1978. The fact-finding mission located five steel tanks of 10 cubic metres in stone shelters half-filled with water at a terrain adjacent to an artillery shooting range and in close proximity of an inhabited area. One of the tanks had corroded to the extent that the contents had apparently leaked out. Water and soil samples were taken from within the remains of the tank, from within the shelter and from the soil just outside and underneath the shelter at various depths. No mustard agent could be detected in these samples but decomposition products were present and the evil smell of polysulphide containing hydrolysis products was clearly perceptible. The other four tanks were found to contain sulphur mustard in an estimated total amount of 35,000 litres with a purity of 95 per cent.

4. The presence of this large amount of mustard in close proximity to populated areas and the possibility that the tanks could begin to leak were a point of great concern to the Indonesian Government and it was decided that the mustard should be disposed of as soon as possible.

II. CONSIDERATIONS RELATIVE TO THE CHOICE OF THE METHOD OF DESTRUCTION

5. Possible methods for destruction or disposal of mustard are reviewed in the Canadian Paper (CD/173 of 3 April 1981 1/) and in Canadian and United States CCD Pepers (CCD 434 2/ and 436 3/).

6. Initially, incineration of the mustard on board the M/T Vulcanus, which is owned by Ocean Combustion Services N.V., Rotterdam, was considered. This ship is equipped with two large incinerators and is frequently used for the destruction of industrial

wastes, e.g. organochlorine waste, 4/ by incineration at high sea. The Vulcanus was expected to be near Java in the beginning of 1979. However, the transport of the mustard from Batujajar over a distance of about 200 km through the densely populated areas of West-Java to the Tanjung Priok Harbour of Jakarta was considered to be too great a risk. This precluded also ocean dumping, which is generally considered unacceptable for several other reasons as well. 1/ On-site destruction was therefore necessary.

7. The following criteria were used in determining the method of destruction.

(a) the process must be effective in destroying the mustard completely;

(b) the process must be safe to operate and present no danger to the population in the vicinity;

(c) the process must be environmentally acceptable;

(d) the process must be able to operate under the Batujajar circumstances, e.g. restrictions on energy, water and materials supplies; availability of a large flat non-populated artillery shooting range, surrounded by settlements and adjacent to the storage site.

8. Open pit burning was environmentally unacceptable because of the resulting air pollution and would have presented an unacceptable risk to the neighbouring population.

9. Decontamination by reaction with Standard Tropical Bleach or the decontaminant DS-2 was considered impracticable inter alia because of the enormous amounts of decontaminants involved and the resulting disposal problem.

10. Miscellaneous methods described in the literature like reaction with sodium sulphide to an insoluble product 5/ or reaction with monoethanolamine (MEA) 6/ were only briefly considered and soon rejected. The first mainly because of the possibility of mustard being trapped in the solid and the disposal problem of the solid, the second because of the large amounts of MEA required (about 350 m^3) and the necessity to dispose of the reaction products by incineration.

11. Destruction by hydrolysis in the manner described by Canada, 1/, 7/ was studied and also rejected. Reasons for this were that it would require large amounts of water and neutralizing agent, large heating capacity, good analytical instrumentation for process control, which would all be very difficult to realise under the Batujajar circumstances, but the main reason was the large volume of hydrolysate (estimated at 120 m^3) that would have to be disposed of. Eventually the latter problem was solved in Canada by incineration of the hydrolysate, but in this case it seemed more practical to proceed directly to incineration of the mustard.

12. An incineration process has been used in the United States Chemical Agent and Munitions Disposal System (CAMDS). Details of CAMDS have been presented at the experts seminar held by the Ad hoc Working Group on Chemical Weapons in June 1980. More details on mustard destruction are contained in the Final Environmental Impact Statement for Project Eagle 8/ and in a laboratory report. 9/

13. For the destruction of the mustard in Batujajar the incineration method was finally chosen. For the design of the incineration process the necessary basic data were taken from the above-mentioned United States reports.

14. The effluent gases from the incineration of mustard will contain fairly large amounts of the corrosive and toxic gases sulphur dioxide and hydrochloric acid. In the United States CAIDS the effluent gases are cooled and scrubbed with alkaline solution and the resulting brine spray is dried so that the residue is a mixture of harmless inorganic salts. Assuming an incineration rate of 100 litres per hour scrubbing of the effluent gases would have required for the mustard in Batujajar 15 - 30 m^3 of water per hour, at least 150 tons of sodium hydroxide and would have created a disposal problem of about 10,000 m^3 of brine. It would have meant a technically much more complicated installation and would have required sophisticated process control equipment with additional chances of malfunctioning. If no acceptable solution for the disposal of the brine could be found, a spray drying installation would have to be installed with corresponding costs and difficulties with the provision of the required enormous amounts of energy. Instead, to cope with the problem of toxic gases in the effluent the concept of controlled incineration was developed for the Batujajar situation.

III. CONCEPT OF THE OPERATION

15. The concept of controlled incineration, which was to be applied in the destruction of mustard at Batujajar, was based on the dispersion of the effluent gases in the atmosphere without any purification. However, the burning rate of the mustard had to be adjusted to meteorological conditions in such a way that:

(a) outside the artillery shooting range, which is roughly rectangular with dimensions of 4.5 x 1.5 km and where the incineration would take place, the Maximum Immission Concentrations (M.I.C.) for sulphur dioxide and hydrochloric acid would never be exceeded. The MIC values are generally accepted maximum allowable concentrations at ground level which will not produce effects during indefinite exposure;

(b) inside the artillery shooting range the Maximum Allowable Concentrations (MAC values) for sulphur dioxide and hydrochloric acid would never be exceeded. The MAC (or TLV) values are considered to be the maximum allowable values for the time-weighted average concentrations during a normal working day, which will not produce adverse effects when the exposure period is defined as a normal working week during indefinite time.

16. The first condition would safeguard the health of the population living adjacent to the artillery shooting range, whereas the second condition would safeguard the health of the people involved in the destruction of the mustard.

17. In using dispersion models, the burning rates that would ensure the fulfilment of the above-mentioned conditions (allowable burning rates) had been calculated in dependence of the stability of the atmosphere, wind speeds and wind direction. The wind direction in relation to the shape of the terrain determined the distance over which sufficient dilution of the cloud should take place. The effluent gases would leave the chimney of the incinerator at a given speed and at an elevated temperature and the plume rise caused by these effects would have a positive influence

on the allowable burning rate. For extra safety, however, plume rise was not accounted for eventually in the tables resulting from the calculations.

18. These tables were to be used for the determination of the allowable burning rate during incineration upon indication of measured wind speed, wind direction and turbulence of the atmosphere. Furthermore, using portable measuring devices for sulphur dioxide and hydrochloric acid, it would be checked regularly whether the concentration of these gases at ground level was indeed below the standards set by their MIC and MAC values.

19. An incinerator should thus be designed and constructed that would enable the burning of mustard to be varied between zero and, according to the calculations, a maximum of 200 litres of mustard per hour.

20. The mustard would be pumped from the storage tanks into a transport tank of 2,000 litres (for greater flexibility two such tanks would be made available) using a pump unit, which would be designed to minimize the possibilities for contamination of personnel and surroundings. The full transport tank would then be moved towards the incinerator, which would be constructed some 4.5 km from the storage site on the artillery shooting range.

IV. DESCRIPTION OF THE EQUIPMENT

21. The incinerator was designed and built by the Central Technical Institute TNO. It consisted of a central chimney and two identical furnaces. Each furnace was equipped with a modified Oertly OE 5 two stage burner, which allowed burning of oil, of mustard and of mustard and oil simultaneously. The modification implied a separate mustard pump for which a one stage oilburner pump was chosen. Each furnace was also equipped with a ventilator which supplied air to the top of the furnace in order to cool the effluent gases, to maintain an underpressure in the furnace preventingleakages and to dilute the effluent gases initially. The burning rate could be caried from 0 - 200 litres per hour by adjustment of the liquid pressure on the nozzle and by changing the nozzle. The incinerator was provided with a number of automactic control devices, i.e.:

(a) an infra red flame safety device monitoring the existence of a proper flame inside the furnace;

(b) automatic switches monitoring the availability of sufficient combustion and dilution air (with combustion air shortage unburnt mustard might leave the furnace, with dilution air shortage the temperature of the effluent gases might increase to such an extent that the chimney's mechanical stability would be endangered);

(c) minimum and maximum temperature controls respectively ensuring that the furnace temperature was always above 800°C (and therefore the combustion efficiency of mustard was at least 99.9994 per cent) and that the furnace temperature could not rise above 1000°C.

22. If either one of these devices would be unset, the process would be stopped automatically. When changing nozzles of the burner, the dilution air ventilator had to be switched off and the furnace was shut off from the chimney. A safety

device prevented the untimely switching on of the dilution air ventilator. A flame ionization detector was used to check if unburnt mustard was leaving the chimney. A paramagnetic oxygen analyser measured the oxygen content of the effluent gases to check the combustion process. The temperature of the effluent gases was also measured continuously, because if the temperature would become too low, the upper part of the chimney might be attacked by the corrosive action of sulphur dioxide and hydrochloric acid whereas too high a temperature would be detrimental to the chimney's mechanical stability.

23. The power for the installation was provided by two sets of 10 KVA electricity generators. The whole installation was controlled from within a Portakabin, which housed the control panels and the measuring instruments.

24. The portable pump unit was designed and built at the Prins Maurits Laboratory. The pump itself was an air-driven membrane pump with Viton membranes and teflon valves. A diesel engine air compressor supplied the pressurized air. Filters were installed to prevent clogging of the nozzles of the burner by particulate material. The system offered the following possibilities:

(a) pumping of mustard from the storage tanks into the transport tanks;

(b) backflushing of the suction line with oil to decontaminate the suction part;

(c) flushing of the pressure line with oil for decontamination and emptying this line by blowing some air through it. This procedure assured that virtually no mustard was spilled when disconnecting the transport tank from the pump unit.

25. The different functions were obtained by opening and closing valves according to a strict procedure.

26. A meteomast was erected and the wind speed and wind direction were measured continuously at a height of 10 metres. The variations in wind direction were used to estimate the stability of the atmosphere. A portable measuring instrument for sulphur dioxide and semi-continuous measuring instruments for sulphur dioxide and hydrogen chloride were used to check the concentrations of these gases on and outside the artillery shooting range. The incinerator was constructed on a concrete foundation and was provided with lightning conductors.

27. A safety manual was written and strictly adhered to. During pumping, full protective gear consisting of mask, permeable protective clothing, boots and gloves were worn. This outfit was also worn when connecting the transport tank to the incinerator. Under the circumstances of high temperature and high humidity this put a large physiological burden on the personnel and could only be sustained for relatively short periods. In other situations as mentioned above, therefore, a partial protected posture was adopted which was changed to full protection only whenever liquid mustard was suspected to be present. Means for detection of mustard in liquid or gaseous form were available.

28. Decontamination and cleansing stations were set up near the incinerator and on the storage site. First aid means were available and medical assistance was assured by the presence of a medical doctor and an ambulance for transport to the Cimahi Hospital during the incineration phase.

V. THE COURSE OF THE OPERATION

29. The concept of the operation was developed shortly after the return of the fact-finding mission to the Netherlands; it was worked out in detail in the months that followed. At the end of October 1978, after the Indonesian authorities had consented to the plan, work on the design and the construction of the incinerator, pump unit and auxiliary equipment as well as on the provision of protective and detection equipment, etc. was started. By mid-February 1979 the incinerator could be tested for proper functioning and beginning of March 1979, 22 tons of equipment and materials were shipped to Indonesia to arrive in Jakarta on 28 April 1979.

30. In the meantime, the PUSNUBIKAD (NBC - Corps) of the Indonesian Army had made the necessary arrangements and preparations in Batujajar, such as construction of the foundation of the incinerator, improvements in road conditions on storage site and artillery shooting range, provision of domestic oil for heating the furnaces, organization of the transport of materials and equipment from Tanjung Priok Harbour to Batujajar, etc. The security and logistics of the operation were taken care of by the Indonesian Army. Personnel to assist in the construction of the equipment was also provided, and a team of officials from PUSNUBIKAD and other competent services of the army joined the Netherlands' team in the execution of the task.

31. The construction phase was started immediately after the arrival of the materials and equipment at Batujajar on 2 May 1979. This phase which included the final testing of the equipment and the adjustment of the various controls of the incinerator lasted until 28 May 1979.

32. The incineration phase commenced on 1 June 1979. In the period that followed until 2 July 1979, 32,290 litres of mustard were destroyed on the average of 1,000 litres per day.

33. Incineration took place only in daytime, from about half an hour after sunrise till half an hour before sunset. At night meteorological conditions were found to be not suitable for meeting the requirements of the controlled incineration concept. In daytime the meteorological conditions were more favourable than expected, in particular the wind direction, which at the beginning of the dry season was predominantly along the axis of the terrain. In combination with the effect of plume rise, which was considerable, this made it possible to attain the maximum burning rate of 160 litres per hour throughout almost the whole period. The concentrations of sulphur dioxide and hydrochloric acid were never found to exceed the MAC or MIC values respectively on and outside the terrain.

34. Two problems were encountered during the incineration period. First, the magnetic valves in the mustard circuit got stuck on several occasions, due to polymeric substances being present in minute amounts in the mustard, and had to be replaced. This was, however, a minor problem compared to difficulties encountered because of corrosion of the mustard pumps. This corrosion was caused by strong acidic constituents resulting from partial hydrolysis in the storage tanks (a.o. ferric chloride was present as a result of reaction of acid with the storage tank wall). The presence of these acidic constituents was in contrast with the results of the analysis of the samples taken in 1978. No acidic constituents were found and the purity was estimated at about 95 per cent. This might be the result of penetration of rain water into the storage tanks in the year that elapsed after sampling, or more likely of superficial sampling by the fact-finding mission in the previous year. The corrosion problems were encountered throughout the whole incineration period. These were solved by replacing the simple pumps when they did not function anymore. The problem became only serious when the replacement of the pumps of the fourth tank became so frequent that the stock of pumps became exhausted and incineration had to be interrupted from 26 - 28 June 1979.

35. In this situation, on 2 July 1979, the decision had to be taken to stop burning the last 2,710 litres remaining in the fourth tank. This amount was strongly acidic and contained about 20 per cent ferric chloride. The disposal of these 2,710 litres of mustard was eventually carried out by the Indonesian team using the method of hydrolysis. For safety purposes, the bunker was sealed off completely and the only way for the air to escape from the bunker was through a hardened plastic tube which penetrated into the bunker and which was erected vertically to a height of 3 metres from the surface of the bunker's cover. The mustard agent was destroyed by hydrolysis through addition of small quantities of sodium hydroxide solution and by mixing the contents of the storage tank, using the pump unit and some improvised heating. The addition of sodium hydroxide had to be stopped when detection made at a distance of 5 metres from the edge of the hardened plastic tube showed a positive reaction (heat produced during the hydrolysis enhanced the evaporation of the mustard). The addition of sodium hydroxide was continued when the detection proved to be negative. The work was completed in one and a half months during which chemical and toxicological analysis of the samples taken at regular intervals indicated that hydrolysis was complete.

36. After the pumping, a few tens of litres of mustard remained in the storage tanks. These were decontaminated by the addition of about 200 kilogrammes of standard tropical bleach as a slurry in water. Mixing was done with air from the air compressor and the air escaping from the tank was analysed from mustard vapour with the available means for mustard vapour detection. It took about three days before the mustard detection reaction became negative. The tanks were then filled with water completely. Later on the shelters were filled with soil. The decontamination of the transport tanks was carried out in a similar way using standard tropical bleach. The decontamination of the mustard circuit at the incinerator was done by first passing oil through this circuit into the incinerator for some time and later on possibly remaining mustard was destroyed by fire after taking it apart.

VI. CONCLUDING REMARKS

37. The described project (named OBONG, meaning "to burn" in Sundanese language) has demonstrated that for quantities of mustard and under the conditions as indicated, the destruction of the mustard can be safely carried out in a reasonable period of time, using the controlled incineration concept and the relatively simple equipment as described.

38. The technical difficulties encountered could have been avoided if the possible occurrence of acidic and polymeric products in stocks of mustard of about 40 years old had been taken into account. The existence of inorganic compounds and polymer products in the liquid had caused difficulties in its incineration. However, when a very good quality of detection equipment and analytical-chemical facilities are available, the elimination of limited quantities of such liquid can be carried out successfully by a simple method of hydrolysis.

39. The experience gained during this operation confirmed that on-site inspection during the destruction is the only effective means of verification of actual destruction.

40. The fact that the destruction was carried out before the conclusion of the Chemical Weapons Convention has also demonstrated the sincere will of the two countries effectively to promote the cause of disarmament.

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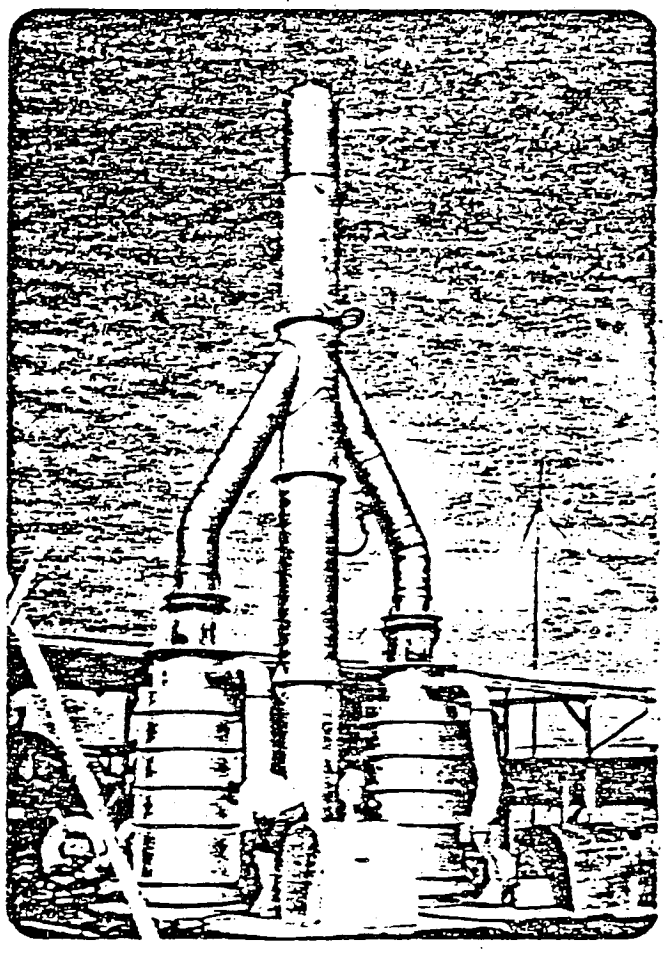

The incinerator at Batujajar

While the "recover" system is being developed for nuclear safeguards purposes, the concepts and technology involved may have utility for verification in other situations as well.

Outline of possible project

Co-operative international technical evaluation of "recover"

Agreement could be sought for a co-operative technical evaluation, conducted under the aegis of the CD, of use of "recover" techniques to aid CW verification. A technical panel open to all interested States — including non-CD members — could be established for this purpose. The panel could:

- explore possible specific applications for "recover" (for example, for assisting in the monitoring of mothballed CW facilities);
- promote co-operation in identification of suitable sensors and in development of new sensors which are compatible with the "recover" system; and
- sponsor an international demonstration project in which sensors would be installed in a few selected facilities to provide a realistic test of the monitoring system. (The cost for one facility might be roughly $20,000.)

Two years are likely to be needed to accomplish these tasks. Of course, if it appeared useful to continue, such tasks as sensor development could be extended.

The panel would forward to the CD periodic reports which outlined the panel's technical findings. It would be up to individual States to decide whether to support the use of "recover" as one component of a CW verification system.

Such an effort would be analogous to the IAEA technical evaluation effort outlined above. It could assist in resolving verification issues. It could be a confidence-building activity in which States co-operate to develop and evaluate improved monitoring arrangements.

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COMMITTEE ON DISARMAMENT

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SWEDEN

Working Paper

The concept "precursor" and a suggestion for definition for the purpose of a Chemical Weapons Convention

Introduction

During the consultations with delegations, assisted by experts, by the Chairman of the Working Group for Chemical Weapons regarding standardized toxicity determinations, the Swedish delegation presented a Working Paper, CD/CW/CTC/4. In response to the ensuing discussions on the matter the Swedish delegation now wants to submit a revised version taking into account points of views which were then raised by other delegations.

Several working papers have been submitted on the subject during the spring session 1982. Some of them are summarized and commented upon in Working Paper CD/266, 24 March 1982, presented by Yugoslavia, entitled Binary weapons and the problem of their definition and verification.

The main reason why the concept of "precursors" has a particular importance in connection with the Chemical Weapons Convention relates to the question of "binary chemical weapons". The idea of binary weapons, described below, is not new. It has for a long time been realized that these types of weapons have to be provided for under a CW-convention. The discussions on the matter in the Committee on Disarmament and its predecessors have been relatively vague until the imminence of production of such weapons spurred the discussion.

However, as a matter of fact precursors will have to be provided for under the convention also in order to monitor non-production of some chemical warfare agents. These relations are discussed below.

Binary and "classical" chemical weapons

The term "binary chemical weapon" should be used to denote the complete warhead or other disseminating device, which includes two more or less toxic chemicals, and which is constructed to let a chemical reaction take place between these chemicals to form a (super-)toxic chemical warfare agent immediately before and in connection with delivery to the target. The term should not be used to describe the (main) chemical end product, i.e. the chemical warfare agent itself, which is produced within the warhead. This production technique may be called the "binary technique", and the term be reserved for this purpose.

The same chemical warfare agent might also be produced from the same or other chemicals by means of other techniques, e.g. on a laboratory scale or in a large scale production of the warfare agent aimed at stockpiling the warfare agent in "bulk" stocks, or for charging "classical" chemical warheads.

Reactants, precursors and "key (CW) precursors"

In the science of chemistry the starting chemicals in a chemical reaction forming a particular chemical compound are usually called "reactants". In the case of production of chemical warfare agents the starting chemicals or "reactants" are sometimes called "precursors". Any unequivocal definition of this expression seems not to have been established. Sometimes both the reactants in a chemical reaction, forming the chemical warfare agent, are called precursors, but often only one of them. In the latter case, one usually chooses to denote the reactant "precursor" which in some respects is more unique than the others, i.e. it may be more difficult to produce, or it may not be readily available from commercial sources (usually because there is no peaceful use for the compound), or, in some cases e.g. regarding nerve agents, it mainly determines which class of compounds the final product will belong to.

In the case of the nerve agents, it is natural to denote the organophosphorus reactants "precursors". The other component in a reaction, which usually is a common commercial chemical, which need not concern us here, is then called "reactant". There can also be more than one such "other reactant".

It is suggested that this latter approach is followed when defining "precursor" for the purpose of a chemical weapons convention. The term "precursor" could also be made still more specialized for the purpose of a CW-convention by additional words, e.g. "key CW precursor", which has been proposed in the discussions during the consultations.

This approach could apply not only to the "binary technique" for production of chemical warfare agents, but also to other production processes. It would then refer to the "key CW precursor", which is used in the final step, or in starting the final consecutive steps in a "one pot synthesis" for the production of the chemical warfare agent, irrespective of the possibility that intermediate products may still be formed during the reaction process.

Obviously, there must exist "precursors" to the "key CW precursor". Even if it would be desirable to "catch" such "pre"-key CW precursors, with no peaceful uses, in an early part of the production chain, this seems to be impossible from a practical point of view.

Further, it is clear that in different types of production processes, different "key CW precursors" (as well as different "reactants") may be used to form the same chemical warfare agent. The method of definition suggested here would imply that they would be defined as "key CW precursors" irrespective of the method of production, i.e. irrespective of whether different precursors were used to obtain the same

Suggestion for definition of "key CW precursors"

A tentative suggestion for a definition of "key CW precursors" follows below. The Swedish delegation is open for comments and suggestions to improve the definition, which reads as follows:

"Key CW precursor" is the starting reactant in a one pot chemical synthesis forming a super-toxic lethal, other lethal, or other harmful chemical, which determines the main characteristics (class of compound, toxicity etc.) of the chemical formed, when the reaction is taking place:

1. in a chemical weapon warhead or other disseminating device for chemical weapons, immediately before the dissemination of the final, toxic product, i.e. the chemical warfare agent,

2. in a production facility producing super-toxic lethal, other lethal, or other harmful chemicals.

Purpose and quantity criteria

It is clear that one would also in the case of "key CW precursors" have to resort to the "purpose criterion", possibly together with the "quantity criterion" insofar as occasionally some "key CW precursor(s)" might find use for "peaceful purposes". To our knowledge, this is very rare with respect to organophosporus compounds, i.e. "key CW precursors" of nerve agents. It would thus not constitute any serious obstacle to treat the "key CW precursors" to super-toxic lethal chemicals in the same way as these chemicals to be subject to the same verification provisions under a convention.

The purpose and quantity criteria should, of course, in the same way apply also to such "key CW precursors" as could form "dual-purpose" chemicals.

Toxicity criterion

With respect to the applicability of the toxicity criterion to "key CW precursors" this should not be applied to these chemicals themselves, since there is no correlation to their toxicities and those of the final products. One could choose to let the toxicity criterion relate to the mixture containing the chemical warfare agent as an end product of the "one pot synthesis". One would then have to consider the fact that this final mixture would contain less of the warfare agent because of the presence of some other chemicals also formed during the reaction, which should lessen the toxicity as compared with the pure agent. On the other hand, the mere presence of other chemicals than the warfare agent in the final mixture might either enhance or diminish the toxicity. In the case of nerve agents the toxicity range would, however, refer these mixtures to super-toxic lethal or other lethal chemicals. It is sometimes presented as an unacceptable difficulty that toxicity tests on reaction mixtures, whether emanating from the "binary technique" or from an ordinary production process, would not result in sufficiently exact results to allow a clear cut dedication of the reaction mixture to one or another of the types of chemicals, (super-toxic lethal, other lethal and other harmful chemicals) to which the toxicity criterion applies. The technical solution to that problem is of course to analyse chemically the reaction mixture containing the formed chemicals. Once these formed chemicals are identified, samples of them could be tested for their toxicity, if such values had not already been established by agreed standardized toxicity tests. Such tests would lead to sufficiently exact results.

One might also apply a rule that when the tested toxicity of the reaction mixtures falls within the category of super-toxic lethal chemicals, the mixture itself as well as the identified "key CW precursor(s)" be referred to this group of chemicals.

If the toxicity was already known, the categorization of the formed chemical would already be clear, and the established presence of it in the reaction mixture by means of chemical analysis would make further toxicity tests unnecessary.

Conclusions

The consequence of this reasoning is that also the "key CW precursor", which took part in the reaction and which decided the character of the toxic chemical, i.e. the chemical warfare agent, can be related, even if indirectly to the toxicity criterion. Thus, if a "key CW precursor" by means of a chemical reaction with other reactants gives rise to e.g. a super-toxic lethal chemical, the precursor itself should be subject to the same provisions under the convention as the super-toxic lethal chemical.

Another conclusion is that this reasoning applies also in the case of unknown and undeclared chemical warfare agents. (Since they should be declared under a convention, we are here talking about a possible violation of the convention). If a binary chemical warhead, containing different precursors and reactants, was found, it would be possible first to identify the precursors chemically, then to let them react with each other and analyse chemically the formed chemicals, and, finally, if necessary, isolate them (if unknown) from the reaction mixture and test their toxicities. It would then be possible to decide which one (or more) of the precursors would be characterized as the "key CW precursor" to be subject to the provisions of the convention.

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Working Paper

Suggestions for measures to enhance confidence between the Parties negotiating a comprehensive ban on chemical weapons

In all disarmament negotiations a certain degree of trust between the Parties concerned is an important prerequisite for results. This seems to be particularly true with respect to the efforts to negotiate a comprehensive ban on chemical weapons. One of the characteristics of the negotiations to prohibit these weapons is the difficulty to obtain an effective verification system. Any agreement banning chemical weapons must, therefore, to some extent rely on mutual confidence.

Recent developments have caused increased distrust and a generally deteriorated atmosphere, particularly between the military powers possessing the largest quantities of chemical weapons. In order to improve prospects of ongoing negotiations on chemical weapons there is, therefore, an obvious need to take measures intended to enhance mutual confidence between the countries concerned already during the negotiating stage. Such "preconvention measures" would facilitate and shorten the time needed for negotiations.

It should be noted that some countries have already undertaken such measures in connection with the CD negotiations on chemical weapons.

Having in mind what has previously been undertaken and in order to go forward and intensify these efforts the Swedish delegation considers that it would be useful to discuss the matter in the framework of the CW negotiations in the CD. By way of examples the following preconvention measures could be considered.

1. Declaration of possession or non-possession of chemical weapons.

2. Visits to destruction plants and exchange of information regarding methods for destruction of chemical weapons.

3. Co-operation between States regarding protection of civilian and military personnel against chemical warfare.

4. Exchange of information on methods for monitoring scientific and technical development relevant to chemical weapons.

The declarations mentioned under point 1 have been called for virtually since the beginning of the negotiations on biological and chemical weapons in the late sixties.

Such declarations would in principle put all negotiating Parties whether they possess weapons or not on an equal footing with regard to the availability of relevant information about each other and demonstrate the commitment by possessing Parties to serious negotiations. Such declarations have already been made by many negotiating Parties.

The kind of visits and information exchange suggested under point 2, have already been organized both within and outside the CD context. The Swedish delegation considers that efforts to show that preparations already are under way to destroy chemical weapons, even if so far only with regard to obsolete and aging munition, would enhance the confidence in the ongoing negotiation. It is important that all possessing States contribute to these efforts. This would particularly be the case in relation to the destruction of chemical weapons, which is a problem that will have to be dealt with already during the negotiating phase.

The question of co-operation regarding protection referred to under point 3 has already been raised several times by negotiating Parties. Discussions about possible concrete measures to be taken should, therefore, be encouraged.

The item listed under point 4 has been subject to some preliminary discussions dating back to 1968. Further technical discussions on this issue should be initiated with a broad and comprehensive participation of the negotiating delegations.

It is the opinion of the Swedish delegation that a suitable starting point would be an exchange of views of the versatility of the suggested measures.

COMMITTEE ON DISARMAMENT

CD/231
15 April 1982
Original: ENGLISH

SPECIAL REPORT TO THE COMMITTEE ON DISARMAMENT
PREPARED IN VIEW OF THE SECOND SPECIAL SESSION
DEVOTED TO DISARMAMENT

Ad Hoc Working Group on Chemical Weapons

I. Introduction

1. Taking into consideration paragraph 75 of the Final Document of the first special session of the General Assembly of the United Nations devoted to disarmament which, while noting that negotiations had been proceeding for several years stated that the conclusion of a convention on chemical weapons was one of the most urgent tasks of multilateral negotiations, the Committee on Disarmament has consistently included the item "chemical weapons" on its agenda since 1979. In 1979, before the establishment of the ad hoc Working Group on Chemical Weapons, the item was dealt with in plenary meetings. In considering this item on its agenda, the Committee has been taking into account the provisions of existing international instruments on the subject as well as all proposals and documents, including draft texts of chemical weapons conventions and joint United States-USSR reports on progress in the bilateral negotiations on the prohibition of chemical weapons, presented within the framework of the Conference of the Committee on Disarmament (CCD) and the Committee on Disarmament (CD), the single multilateral disarmament negotiating forum.

II. Mandate and substantive considerations of the Working Group in 1980 and 1981

2. In 1980, the Committee on Disarmament established an ad hoc Working Group on Chemical Weapons by the following decision:

> "In discharging its responsibility for the negotiation and elaboration as a matter of high priority, of a multilateral convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction, the Committee on Disarmament decides to establish, for the duration of its 1980 session, an ad hoc working group of the Committee to define, through substantive examination, issues to be dealt with in the negotiation on such a convention, taking into account all existing proposals and future initiatives."

3. Under its 1980 mandate, the Working Group, having agreed to structure its work under the three general headings of "scope", "verification" and "other matters", undertook a substantive examination of the issues to be dealt with in the negotiations on a convention on the prohibition of chemical weapons. On the basis of this examination, the issues on which convergence of views among participating delegations emerged and those where no convergence of views existed were ascertained (document CD/131/Rev.1).

4. The Working Group was re-established by the Committee in 1981, to continue its work on the basis of its former mandate.

5. In 1981, the Working Group carried out a detailed examination of draft Elements of a chemical weapons convention, as proposed by the Chairman. These draft Elements covered the following issues: general provision; general definition of chemical weapons; prohibition of transfer; declarations; destruction, diversion, dismantling and conversion; super-toxic lethal chemicals for non-hostile military purposes; relationship with other treaties; international co-operation; general provision on verification; national legislation and verification measures; national technical means of verification; consultation and co-operation; consultative committee; amendments; review conference; duration and withdrawals; signature, ratification, accession; and the distribution of the convention. The questions related to definitions and criteria, declaration of possession of stocks of chemical weapons and means of production of chemical weapons, plans for their destruction or diversion for permitted purposes in time frames as well as forms of making such declarations were dealt with in annexes to the Elements. The same approach was suggested by the Chairman with respect to the destruction, dismantling or diversion for permitted purposes of declared stocks of chemical weapons and their means of production, the recommendations and guidelines concerning the functions and organization of the national verification system, as well as the details of the organization and procedures of the consultative committee. The Chairman revised the draft Elements on the basis of statements as well as of that of oral and written comments of delegations. These Elements, as revised by the Chairman, did not, however, reflect all the views which emerged on certain issues. The revised text of the Chairman's Elements, together with comments reflecting views put forward by delegations, were attached to the Group's 1981 report to the Committee (document CD/220).

III. Present state in the elaboration of a convention

6. In 1982, the Committee on Disarmament decided on the following mandate for the ad hoc Working Group on Chemical Weapons:

> ... "In discharging its responsibility for the negotiation and elaboration as a matter of high priority, of a multilateral convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction, the Committee on Disarmament decides to establish, for the duration of its 1982 session, an ad hoc working group of the Committee to elaborate such a convention, taking into account all existing proposals and future initiative with a view to enabling the Committee to achieve agreement at the earliest date." ...

7. The Group, during the first part of its 1982 session, began the elaboration of the provisions of a convention. At the suggestion of the Chairman, it carried out another detailed examination of the revised Elements and of the Comments thereto, with a view to elaborating alternative and supplementary formulations in particular corresponding to the views originally expressed in the Comments. These considerations of the revised Elements were grouped under the three previously agreed headings of "scope", "verification" and "other matters". A number of delegations submitted conference room papers containing new wording corresponding to their views originally reflected in the Comments. In addition, some delegations submitted related proposals in plenary statements and CD documents. Wording was also proposed for certain Elements and Annexes which had not been dealt with during the 1981 session. The Chairman submitted a proposal for the Preamble to a future convention.

8. The process of resolving differences of views continued. There was common understanding that the scope of the prohibition should include all existing and possible types of chemical weapons. The ad hoc Working Group examined in greater detail the major outstanding problems of the scope of the prohibition and of questions related to verification. The main differences regarding the scope concern the inclusion of provisions in the convention prohibiting the use of chemical weapons, provisions regarding the applicability of the convention with respect to animals and plants, and whether it should include the prohibition of planning, organization and training for the purpose of utilizing the toxic properties of chemicals in combat. Questions regarding the balance between national and international verification, the appropriateness of the inclusion of a provision on the use of national means of verification, the organization and functions of the Consultative Committee and the national verification or implementation system, as well as the issues of when on-site inspection shall take place and how a prohibition of binary chemical weapons should be verified remain to be agreed upon. A better understanding was reached of the need to ensure that verification of compliance with the convention be based on an adequate combination of national and international means. Measures relating to the implementation of the convention, such as declarations, were examined in more detail. Specific proposals were also put forward by a number of delegations with a view to improving the possible structure of a future convention. The revised Elements and Comments included in the 1981 report of the Working Group to the CD as well as the proposals and suggested texts submitted during the first part of the Committee's 1982 session will constitute a valuable basis for the Group's future work.

9. Following the practice introduced in 1981 by the Chairman to hold consultations on certain technical questions relevant to the future convention, the Chairman, at the Group's 1982 session, convened consultations on issues recommended for further examination in the Group's 1981 report. The 1982 consultations dealt specifically with methods to be agreed upon for toxicity determinations in connection with a chemical weapons convention. The Chairman reported to the Working Group that the participants in these consultations unanimously recommended standardized operating procedures for two specific types of toxicity determinations. The Working Group took note of the Chairman's report on the consultations and of the recommendations for standardized operating procedures. The Group agreed on the desirability of continuing consultations to allow for the examination of additional technical questions including some outstanding toxicological issues in relation to a chemical weapons convention.

10. The urgency of achieving real progress towards the conclusion of a convention on chemical weapons was unanimously recognized by the Working Group especially in the light of the second special session of the General Assembly devoted to disarmament. Accordingly, the Working Group endorsed the appeal of its Chairman for even more substantive contributions to advance the process of elaborating provisions of the convention at the earliest possible date.

COMMITTEE ON DISARMAMENT

CD/280
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STATEMENT MADE BY AMBASSADOR BOGUMIL SUJKA, CHAIRMAN OF THE AD HOC WORKING GROUP ON CHEMICAL WEAPONS, ON THE OCCASION OF THE SUBMISSION TO THE COMMITTEE ON DISARMAMENT OF THE REPORT OF THE GROUP

In my capacity as Chairman of the Working Group on Chemical Weapons, I have the honour to introduce a special report of this Group to the Committee on Disarmament prepared in view of the Second Special Session of the United Nations General Assembly devoted to disarmament. The text of the report is contained in the document CD/281 which, I hope, is available to all the distinguished representatives to this Committee.

I would like to be as brief as possible, as I have always been during our meetings. First of all, I wish to state, that in accordance with operative paragraph 5 of the United Nations General Assembly resolution, number 36/92F, this Committee has been requested to submit to the second SSOD, "a special report on the state of negotiations on various questions under consideration by the Committee." In a similar way, a specific requirement by the General Assembly has been stated in paragraph 4 of the United Nations General Assembly resolution number 36/96A, as far as chemical weapons are concerned. I hope that the report as contained in document CD/281, does reflect the present state of negotiations in the Committee's Working Group on the prohibition of chemical weapons.

The report itself being self-explanatory, I would like to share briefly with the Committee some important points of the discussion in the Working Group which led to the elaboration and adoption of this report. Thus, in its introductory part, the Group wished to refer directly to the paragraph 75 of the Final Document of the first special session devoted to disarmament which, let me recall, stresses the importance and urgency of negotiations on the complete and effective prohibition of the development, production and stockpiling of all chemical weapons and their destruction. On the other hand, the Group wished to refer, rather generally, to all other proposals and documents on the prohibition of chemical weapons which in the past had been presented within the framework of the Conference of the Committee on Disarmament and the Committee itself, assuming that merely listing them all would be a space taking and not very productive task, especially in view of the second special session.

The same approach has been displayed by the Group in elaborating the other parts of the report. Without going into details of its discussions in 1980 and in 1981, under its previous mandate, the Group emphasized the most significant points discussed in those two years as they, indeed, mark very important stages of negotiations on the prohibition of chemical weapons. As far as the present state of the work is concerned, the Group has underlined the importance of a new mandate which allows the elaboration of a convention and succinctly described the topics of discussions for the first half of its 1982 session and the main differences of views and problems which emerged in the discussion in the past two months or so.

There is one thing I would like to make as clear as possible: the Group wished to avoid repeating in this report, all over again, all the various views of particular delegations or groups of delegations on countless smaller and/or bigger problems that emerged during the over three-year long discussions. These are sufficiently reflected in the Working Group's report of 1980 contained in document CD/131/Rev.1, and of 1981 in the document CD/220. Both latter reports are specifically mentioned in the present report of the Group.

In my concluding statement to the Group, I described in considerable detail a possible course of action for the Group during the second half of the 1982 session. In this connection, I appealed to the members of the Group asking them to do specific preparatory work for the summer session if we are to approach as close as possible the stage of drafting the provisions of the convention. I do not want to repeat myself because that statement, in view of the interest shown by members of the Group, has been circulated by the Secretariat as a Working Paper of the Group on Chemical Weapons. But, with your permission, I would like to appeal again for displaying serious efforts by all delegations during the summer session so that we could translate as many dissenting views as possible into the alternative elements and then elaborate compromise elements. A compilation of draft elements and proposed new texts has also been made available to all delegations to facilitate the kind of exercise I am appealing for.

I would like to apologize to my predecessors: Ambassador Okawa and Ambassador Lidgard, for not mentioning their names as chairmen of the Group in 1980 and in 1981 respectively, in the introductory part of the report. I personally was of the opinion that that kind of introduction should not contain all the details I have noticed in the reports of other working groups. But certainly I am for uniformity of reports of all working groups in this respect and I hope that the Committee will agree to cover these problems in paragraphs 61 and 62 of its own report. The same proceedings could be also applied as to the participation of non-member States in the work of the Working Group.

Finally, let me refer to some recent discussions in the CD drafting group. My reply is brief: the Working Group, indeed, has not been directly reflecting in its activities the Committee's plenary discussions. It has conducted its work on the basis of a new, I repeat, new mandate which was adopted with the consent of all delegations. On the basis of that mandate and the programme of work, also adopted by consensus, the group has acted and its activities have been reflected in this report. Let me also say that, exactly, this is the principal aim of the Committee's report to reflect the course and trends of discussions that have been taking place in plenaries. The Group's report, in my view, had to be limited to the discussions in the Working Group itself. References to the discussions in plenary have been, of course, reflected in the Group's work, when such discussions contained specific proposals relevant to the subjects of negotiations in the Group.

As the distinguished members of the Committee are well aware, the Working Group on Chemical Weapons, has entered, with a new mandate, another, sensitive phase of its work. We have held another series of thorough examinations and complex problems. I wish to emphasize, as chairman of this Group, that despite the whole sensitivity and complexity of our negotiations, the work has been conducted in a spirit of mutual understanding, respect and co-operation. For this understanding, mutual respect and co-operation I thank at this moment cordially once more all the members of the Group.

I would like to ask that this statement be distributed as an official document of the Committee, as document CD/286 of the distinguished Chairman of the CPD Working Group, Ambassador Garcia Robles.

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BASIC PROVISIONS OF A CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF CHEMICAL WEAPONS AND ON THEIR DESTRUCTION

Proposal of the USSR

Chemical weapons are a barbaric means of destruction. Those weapons have already taken the lives of dozens of thousands of human beings and have maimed millions of people. At present, the threat of massive use of much more horrible types of chemical weapons is looming over mankind.

Peoples are demanding that this should be prevented and that the very possibility of the use of chemical weapons should be ruled out by prohibiting their production and by destroying accumulated stockpiles.

The Soviet Union is strongly in favour of this. True to the humane purposes of the Geneva Protocol of 1925 the USSR has never used chemical weapons anywhere, just as it has never transferred them to anyone.

Motivated by the desire to achieve a comprehensive and effective prohibition of chemical weapons the Soviet Union is submitting to UN Member States for their consideration the following basic provisions of a convention on the subject.

I. SCOPE OF PROHIBITION

General Provisions

Each State Party to the Convention should undertake never and under no circumstances to develop, produce, otherwise acquire, stockpile, retain, transfer chemical weapons, and to destroy or divert for permitted purposes accumulated stockpiles of such weapons and to destroy or dismantle facilities which provide capacities for production of chemical weapons.

Definition of chemical weapons

For the purposes of the Convention "chemical weapons" means:

a) super-toxic lethal chemicals, other lethal and harmful chemicals as well as their precursors except those among them which are intended for non-hostile purposes or military purposes not involving the use of chemical weapons and of types and in quantities which are consistent with such purposes;

b) munitions or devices, specifically designed to cause death or other harm through the toxic properties of the chemicals released as a result of the employment of these munitions or devices, including those of binary or multicomponent filling;

c) equipment specifically designed for use directly in connection with the employment of such munitions or devices.

Other definitions

For the purposes of the Convention:

1. Definition of the terms "a super-toxic lethal chemical", "other lethal chemical", "a harmful chemical" will be made on the basis of specific criteria of toxicity (lethality and/or harmfulness) for each of these categories of chemicals (will be set in the Convention on the basis of the levels agreed upon in the Committee on Disarmament).

2. "Permitted purposes" mean non-hostile purposes and military purposes which are not connected with the use of chemical weapons.

3. "Non-hostile purposes" mean industrial, agricultural, research, medical or other peaceful purposes, law enforcement purposes or purposes directly related to protection against chemical weapons.

4. Subject to definition in the Convention are also such terms as "a chemical", "an incapacitant", "an irritant", "a precursor", "capacity", "a facility".

Prohibition of transfer

Each State Party to the Convention should undertake:

a) not to transfer to anyone, directly or indirectly, any chemical weapons;

b) not to transfer to anyone, directly or indirectly, except to a State Party, any super-toxic lethal chemicals, incapacitants, irritants or their precursors even for permitted purposes;

c) not to assist anyone, or to encourage or induce anyone directly or indirectly to engage in activities prohibited under the Convention.

Non-stationing

Each State Party to the Convention should undertake not to station chemical weapons, including binary and multicomponent weapons on the territories of other States and to recall all its chemical weapons from territories of foreign States if they were stationed there earlier (dates for the fulfilment of this obligation shall be set in the Convention).

Destruction or diversion of stocks of chemical weapons

1. Each State Party to the Convention should undertake to destroy or divert for non-hostile purposes accumulated stocks of chemical weapons in the volume consistent with such purposes.

2. Destruction or diversion of stocks of chemical weapons is started by each State Party not later than 2 years, and is to be completed not later than 10 years, after a State has become Party to the Convention.

Initial operations of destruction could be, as a display of good will, carried out by each State Party possessing chemical weapons already at the initial stage of the functioning of the Convention.

Elimination or temporary conversion of facilities which provide capacities for production of chemical weapons

1. Each State Party should undertake to eliminate or dismantle facilities which provide capacities for production of chemical weapons.

2. Operations of eliminating or dismantling facilities which provide capacities for production of chemical weapons are to be started not later than 8 years, and are to be completed not later than 10 years, after the date when a State becomes Party to the Convention.

3. Any State Party to the Convention has the right, for the purposes of destroying stocks of chemical weapons, to convert temporarily facilities previously used for production of such weapons as well as to carry out destruction of stocks of chemical weapons at a specialized facility or facilities built for such purposes.

Permitted activities

1. Each State Party should have the right to retain, produce, acquire or use for permitted purposes any toxic chemicals and their precursors, of types and in quantities consistent with such purposes.

2. The aggregate quantity of super-toxic lethal chemicals for permitted purposes which are produced, diverted from stocks or otherwise acquired annually or are available, should at any time be minimal and in any case should not exceed one metric ton for any State Party to the Convention.

3. Each State Party which produces super-toxic lethal chemicals for permitted purposes concentrates such production at a single specialized facility of corresponding capacity subject to special agreement.

Protection of population and environment

When fulfilling obligations connected with destruction or diversion of stocks of chemical weapons and elimination of means of their production, each State Party will have to take all the necessary precautions for protection of population and environment.

Promotion of development goals

The Convention should facilitate creation of favourable prerequisites for economic and technical development of the Parties and for international cooperation in the field of peaceful chemical activities. And a possibility of intrusion in the areas of activities unrelated to the purposes of the Convention should be precluded.

II. DECLARATIONS AND CONFIDENCE-BUILDING MEASURES

1. Each State Party to the Convention should undertake to declare not later than 30 days after the Convention has entered into force or the State Party has adhered to it:

--its possession or non-possession of chemical weapons and capacities for their production;

--the volume of accumulated stocks of chemical weapons and capacities for their production;

--the volume of transfers to anyone of chemical weapons, technological equipment for their production and relevant technical documentation, which took place after 1 January 1946;

--the presence or absence on the territory of each State Party of stocks of chemical weapons and their volume, facilities for production of chemical weapons and their capacities which are under control of, or left over by, any other State, any group of States, any organisation or a private person.

2. Each State Party, not later than 30 days after the Convention has entered into force or the State Party has adhered to it, should declare that it has ceased all activities to produce chemical weapons and to transfer to anyone these weapons as well as technological equipment for their production and relevant technical documentation.

3. Each State Party undertakes to declare, not later than 6 months after the Convention has entered into force or the State Party has adhered to it, its plan for destruction or diversion for permitted purposes of stocks of chemical weapons as well as to declare, not later than one year before the commencement of destruction or dismantling of facilities which provide capacities for producing chemical weapons, its plans for their destruction and dismantling stating the location of the facilities.

4. Each State Party which carries out the destruction of stocks of chemical weapons at a facility (facilities) temporarily converted for these purposes or at a specialized facility, should declare the location of the said facility (facilities) within the time period provided for in the plan of destruction of these stocks.

5. Each State Party which carries out the production of super-toxic lethal chemicals for permitted purposes at a specialized facility, should declare its location by the date of the commencement of operation of this facility.

6. Each State Party should undertake:

a) to notify periodically on the implementation of the plan for destruction or diversion for permitted purposes of the available stocks of chemical weapons as well as of the plan for destruction or dismantling of facilities which provide capacities for production of chemical weapons. When such operations are carried out earlier than provided for in the plan, the State Party makes an appropriate notification;

b) to make appropriate notifications three months prior to the initiation of the implementation of each stage of the plan for destruction or diversion for permitted purposes of stocks of chemical weapons and of each stage of the plan for destruction or dismantling of facilities which provide capacities for production of chemical weapons; the location of the facility to be destroyed or dismantled is declared in an appropriate notification;

c) to make, not later than 30 days after the destruction or diversion of stocks of chemical weapons and after the destruction or dismantling of facilities which provide capacities for production of chemical weapons, appropriate statements to this effect.

7. Each State Party should undertake to make annual declarations on the produced, diverted from the stocks, acquired or used:

--super-toxic lethal, other lethal and harmful chemicals for purposes directly connected with the protection against chemical weapons;

--super-toxic lethal chemicals for industrial, agricultural, research, medical or other peaceful purposes as well as for military purposes not connected with the use of chemical weapons;

--other lethal and harmful chemicals for industrial, agricultural, research, medical or other peaceful purposes as well as irritants for purposes of law enforcement.

8. States Parties should proceed from the assumption that chemicals and precursors produced, acquired, retained and used for permitted purposes in cases when they represent a special danger from the viewpoint of their possible diversion for purposes connected with the use of chemical weapons, are to be included in appropriate lists. Each State Party should undertake to present annually information on the chemicals and precursors of chemicals included in these lists.

9. Each State Party should undertake to make notifications about each of its transfers to any other State Party, when this is not prohibited under the Convention, of super-toxic lethal chemicals, incapacitants and irritants as well aso ther chemicals which could be used as components for chemical weapons of binary or multicomponent filling.

10. The above-mentioned declarations, plans, notifications and statements will be sent to the Consultative Committee of States Parties to the Convention. Their contents as well as the procedure of drawing up required lists are to be defined in the Convention.

III. ENSURING COMPLIANCE WITH THE CONVENTION

General provisions on verification

1. States Parties to the Convention base their activities in verifying ~~the compliance with the provisions of the Convention on a combination~~ of national and international measures.

2. Each State Party to the Convention undertakes to take any internal measures it considers necessary in accordance with its constitutional processes, to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control.

3. To monitor the fulfilment of obligations provided for in the Convention any State Party may establish a Committee of National Verification (a national verification organisation) vested with the necessary juridical rights; its composition, functions and methods of work should be determined by the State Party to the Convention in accordance with its constitutional norms.

4. For the purpose of ensuring compliance with the provisions of the Convention by other States Parties, any State Party has the right to use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

States Parties which possess national technical means of verification may in cases of necessity place the information which they obtained through those means and which is important for the purposes of the Convention, at the disposal of other Parties.

5. Each State Party should undertake not to impede, including through the use of deliberate concealment measures, the national technical means of verification of other States Parties.

6. International measures of verification will be carried out through international procedures within the framework of the United Nations in accordance with its Charter and through consultations and cooperation between States Parties as well as through the services of the Consultative Committee of States Parties to the Convention.

Consultation and cooperation

1. The States Parties undertake to consult one another and cooperate in solving any problems which may arise in relation to the objectives of the Convention or in the application of its provisions.

2. The States Parties will exchange, bilaterally or through the Consultative Committee, information which they consider necessary to provide assurance of fulfilment of the obligations under the Convention.

3. Consultation and cooperation can also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter. These procedures can include the ~~use of the services of appropriate international organizations~~ in addition to those of the Consultative Committee.

4. In the interests of enhancing the effectiveness of the Convention the States Parties should agree in a due form on the prevention of any actions aimed at deliberately falsifying the actual state of affairs with regard to the compliance with the Convention by other States Parties.

Consultative Committee of States Parties to the Convention

1. For the purpose of carrying out broader international consultation and cooperation, information exchange and promoting verification in ~~the interests of complying~~ with the ~~provisions of the Convention~~, the States Parties establish a Consultative Committee within 30 days after the Convention has entered into force. Any State Party has the right to appoint its representative to the Committee.

2. The Consultative Committee is convened as necessary, as well as upon request of any State Party to the Convention within 30 days after the request is received.

3. Other questions relating to the organization and procedures of the Consultative Committee, its possible subsidiary bodies, their functions, rights, duties, methods of work, its role in on-site inspection, forms of cooperation with national verification organizations and others are to be elaborated.

Fact-finding procedure regarding compliance with the Convention, On-site inspections

1. Each State Party has the right to request, bilaterally or through the Consultative Committee, from another Party which is suspected of violating the Convention, information on the actual state of affairs. The State to which this request is sent, provides to the requesting State Party information in connection with such request.

2. Each State Party may, bilaterally or through the Consultative Committee, send to another State Party which is suspected of violating the Convention, a request for an on-site inspection. Such request may be sent after the possibilities of fact--finding within the framework of para 1 of this section have been exhausted and should contain all relevant information as well as all possible evidence supporting the validity of the request.

In particular requests may be sent in connection with notifications regarding the destruction of accumulated stocks of chemical weapons as well as the destruction and dismantling of facilities which provide capacities for chemical weapons production. The State Party to which such request is sent may treat this request favourably or decide otherwise. It should inform in time the requesting State Party about its decision and in case it is not prepared to agree to an inspection, it should give sufficiently convincing appropriate explanations.

3. Within the period of destruction or diversion for permitted purposes of the stocks of chemical weapons a possibility of carrying out systematic international on-site inspections (on the basis of an agreed quota, for example) of the destruction of stocks at a converted or specialized facility (facilities) should be provided for.

4. The Convention should provide for a possibility of carrying out international on-site inspections (on the basis of an agreed quota, for example) of the production of super-toxic lethal chemicals for permitted purposes at a specialized facility.

Procedure of lodging complaints with the UN Security Council. Provision of assistance

1. Any State Party which has reason to believe that any other State Party has acted or may be acting in breach of obligations deriving from the provisions of the Convention has the right to lodge a complaint with the Security Council of the United Nations. Such a complaint should include all relevant information as well as all possible evidence supporting the validity of the complaint.

2. Each State Party undertakes to cooperate in carrying out any investigation which the Security Council may initiate, in accordance with the provisions of the Charter of the United Nations, on the basis of the complaint received by the Security Council. The Security Council will inform the States Parties of the results of the investigation.

3. Each State Party to the Convention undertakes to provide or back up assistance, in accordance with the provisions of the Charter of the United Nations, to any State Party which so requests if the Security Council decides that such Party has been exposed to danger or, perhaps, is being exposed to danger as a result of violation by another State Party of obligations assumed under this Convention.

Relationship with the Geneva Protocol of 1925

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, as well as under the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques.

IV. CONCLUDING PROVISIONS OF THE CONVENTION

A procedure for the signing of the Convention, its ratification and entry into force, provisions concerning the Depositary, procedure for accession of States to the Convention and withdrawal from it, a mechanism for presenting amendments to the Convention, dates for holding review conferences and the status of such conferences should be provided for.

COMMITTEE ON DISARMAMENT

CD/298
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YUGOSLAVIA

WORKING PAPER

Some aspects of verification in a chemical weapons convention

During the negotiations held so far in the CCD and CD as well as in the working papers of some delegations it has been emphasized that verification is the basis for reaching an agreement in the elaboration of a convention on the ban of chemical weapons. Objective considerations of the verification procedure have indicated the complexity of this problem, both from its technical and political aspects. However, it can be concluded that there exists an agreement in principle on most of the technical issues of verification.

As is known, the Geneva Protocol of 1925 prohibits the use in war of chemical weapons. Since the Protocol of 1925 does not specifically prohibit the development, production and stockpiling of CWA, this was taken by some major military powers as a justification for intensive research to obtain new types of chemical weapons. Other industrialized countries also have experience in research and development of CWA, of types and quantities of CWA's which are used for the purpose of technical and medical protection (the developing of protective equipment, detection, decontamination, medical treatment and other).

At the meetings of the Committee on Disarmament and the group of experts held during 1980, 1981 and 1982, there was a harmonization of views regarding a series of very important issues such as: the scope of the future convention, definitions of chemical weapons and toxicity criteria, as well as on the need for States to declare their chemical weapon stocks and production units and agree to a fixed time-table for their destruction. However, the appearance of binary weapons has introduced new elements, even in cases when agreement had, in principle, been reached. Thus, for instance, the components of relatively low toxicity and non-toxic components (precursors) which are an integral part of binary weapons cannot be categorized according to the already adopted toxicity criteria of CWA. The fact that binary weapons contain "non-toxic" substances is of importance only to those who produce and possess such weapons and this primarily when it concerns their production, stockpiling and destruction. However, if one bears in mind the purpose of binary weapons, there

is then no difference from CWA which are today classified, in terms of toxicity, as supertoxic lethal chemicals. These data point to the indispensability of applying chemical, physical and biological methods of detection and identification for the purpose of verifying binary weapons in the course of production and stockpiling. The application of the cited methods is also very important when monitoring and proving the existence of activities linked with the verification of possible use of chemical weapons as well as for the monitoring of the destruction of CWA stocks in general. On the other hand, the combining of chemical, physical and biological methods creates the conditions for a credible verification of the existence or use of chemical weapons. The implementation of verification will be facilitated if agreement is reached with regard to the standardization of methods because results from several laboratories could then be compared and reproduced.

The verification of chemical weapons should, in our opinion, be implemented on the basis of a national and international procedure, where we consider that national verification does not preclude international verification but rather that they complement each other. In order to increase confidence among countries, it is possible that both national and international verification be based on an agreed, generally acceptable and unified identification system - methods that would be standardized for particular CWA categories. This, of course, does not preclude a separate national approach especially when a country has qualified personnel, equipment and organization in the gathering of samples, data processing and other. The standardizing of the methods of international verification can greatly facilitate the national verification system and chemical defense measures, in those countries as well which have no experience in developing their own verification methods. The standardizing of verification methods presupposes their periodical modification in accordance with scientific and technological progress. It is understandable that the introduction of new methods and procedures should be subject to agreement and acceptance on the part of an international organ created by the States Parties of the Chemical Weapons Convention. In our view the arms reduction and disarmament agreements must be founded on reasonable confidence, as is the case with some existing agreements. If there is a decrease in confidence or if there is doubt concerning the violation of agreements, then only verification measures can restore confidence among States Parties to the agreements. This is particularly true for the countries which possess production facilities and stockpiles of chemical weapons because the arms race, which is usually motivated by acquiring arms advantage or is justified by the need to not lag behind in the creation of new weapons, is most often initiated by these countries.

Although it may appear at a glance that the term verification is clear and that it is understood what it encompasses, there have so far been different opinions and explanations, which is confirmed by a number of working papers devoted to this issue. Bearing in mind the specific characteristics that CWA possess, the proposed international verification procedures reflect either political or technical difficulties. On the basis of negotiations held and working papers tabled thus far, it seems, in our opinion, that three fundamental categories of international verification appear:

(a) comprehensive (absolute) verification

(b) essential (necessary) verification

(c) limited (insufficient) verification

(a) Comprehensive (absolute) verification presupposes the voluntary acceptance of international inspection and a maximum of openness regarding the obtaining and gathering of necessary data in all stages of the verification procedure. In such a case, the State on whose territory verification is made gives the necessary technical, professional and other assistance according to need and is ready to co-operate. The time-frame for carrying out this verification should not, in principle, be defined, and depends on its scope. This verification comprises: on-site inspection; sampling and determination of samples by using standardized chemical, physical or biological methods. These analyses can be performed in the laboratories of the country in which inspection is being carried out, samples can be sent to the so-called reference laboratories, with regard to which there is agreement on part of the signatory countries to the effect that trustworthy analysis can be performed there, or both possibilities can be used at the same time. Within the scope of this inspection there can also be a medical check-up with the taking of samples (blood, urine, etc.); - near-site inspection: sampling and determination of samples by using chemical, physical or biological methods. These samples could represent contaminated air, effluent water etc. at a distance from the production plant permitting reliable mesaurements.

(b) Essential (necessary) verification presupposes a mutually agreed acceptance of international inspection which is in accordance with the conditions stipulated in the Convention. It can be carried out periodically (once or several times in a year) or when the need arises. The State on whose territory the inspection is carried out should secure unhindered work for the international commission. The participation

of the country in which the inspection is being carried out in offering technical and professional assistance depends on its readiness for co-operation. In principle, the time needed to complete the verification should be defined but also depends on the scope of the verification. This verification comprises:

- On-site inspection: sampling and sending of samples to reference laboratories outside the country where the verification is being performed.

- Near-site inspection: sampling of contaminated air, effluent water, etc. at a distance from the production plant permitting reliable measurements. Samples are sent to reference laboratories outside the country in which inspection is carried out.

- On-site and near-site inspection should also include medical examinations of people, with the taking of samples (blood, urine and other), who are employed in the plants as well as of people living in the nearest vicinity.

(c) Limited verification does not include the international verification procedure. The results and data of national verification[1/] are mostly used for the purpose of controlling violations of the Convention which, for understandable reasons, have a limited validity and utility. Limited verification can also use other sources of information which indirectly indicate a possible violation of the Chemical Weapons Convention. Under certain conditions, this verification can also encompass off-site inspection.

In case of suspicion of use of chemical weapons it is possible to use the three mentioned forms of verification (a, b, and c). We would like to underline that regardless of which type of verification is in question, what is essential is that it be performed on time. Thus, for example, when there is a suspicion that persistent CWA are being used, the time needed for taking samples for chemical and physical-chemical determination cannot be longer than two to three weeks, (depending on meteorological conditions). For non-persistent CWA, this time is far shorter and amounts, under the most favourable meteorological conditions to a couple of days.

The classification of international verification in this working paper is considered conditional and we propose it as working material for the considering of different levels of international verification.

1/ The national verification system in this working paper is understood to comprise the use of personnel and resources linked to one's own territory and differs from national technical verification which encompasses the monitoring of foreign territory from satellites.

COMMITTEE ON DISARMAMENT

CD/299[1]
29 July 1982

Original: ENGLISH

LETTER DATED 27 JULY 1982 ADDRESSED TO THE CHAIRMAN OF THE COMMITTEE ON DISARMAMENT FROM THE CHARGE D'AFFAIRES A.I. OF THE PERMANENT MISSION OF FINLAND, TRANSMITTING A DOCUMENT ENTITLED "SYSTEMATIC IDENTIFICATION OF CHEMICAL WARFARE AGENTS; IDENTIFICATION OF NON-PHOSPHORUS WARFARE AGENTS".

I have the honour to transmit to you a document entitled "Systematic Identification of Chemical Warfare Agents; Identification of Non-Phosphorus Warfare Agents". This study represents a further contribution of the Government of Finland to the work of the Committee on Disarmament on chemical weapons.

I would appreciate if the study would be circulated as an official CD document.

(Signed) Arto Kurittu
Chargé d'Affaires a.i.

1/ A limited distribution of this document in English has been made to the members of the Committee on Disarmament. Additional copies are available from the Ministry of Foreign Affairs of Finland, Helsinki.

GE.82-65194

COMMITTEE ON DISARMAMENT

CD/301
CD/CW/WP.39
4 August 1982
ENGLISH
Original : FRENCH

Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons

The 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, is one of the most important international instruments in the field of arms control.

Its importance was formally recognized in the Final Document of the first special session, paragraph 72 of which declares that all States should adhere to the Protocol.

It should perhaps, however, be pointed out that the international community had taken the view that prohibition of the development, production and stockpiling of chemical and bacteriological agents, and the destruction of such agents, whose use in war is prohibited by the Geneva Protocol, constituted a significant contribution to the achievement of disarmament under strict and effective international control.

The negotiations on this question resulted in the conclusion in 1972 of a first agreement on the prohibition of bacteriological (biological) weapons and toxin weapons and on their destruction. The Committee on Disarmament is at present elaborating a convention prohibiting chemical weapons, taking into account paragraph 75 of the Final Document, which describes this as one of the most urgent tasks of multilateral negotiations.

After the 1972 treaty, and taking into account the ongoing negotiation in the Committee on Disarmament, it becomes apparent that the international community cannot ignore another aspect of the process of reinforcing the Geneva Protocol: deciding on arrangements for monitoring compliance with the prohibition of the use in combat of chemical and bacteriological weapons. In its report to the thirty-fifth session of the General Assembly, the Committee on Disarmament made reference to this point.

There is more than one reason why compliance with the Geneva Protocol needs to be ensured:

(a) Every aspect of the undertaking begun in 1925 would then be completed, and the international régime concerning bacteriological (biological) and chemical weapons would thus be consolidated;

(b) Monitoring compliance with the prohibition of use in combat would meet a need that has been expressed on several occasions during the last few decades;

(c) An agreement on this question would create confidence and have a beneficial effect on the climate of international relations.

Moreover, the monitoring of compliance with the prohibition of the use in combat of chemical and bacteriological weapons can be effected only through an ad hoc instrument, in view of:

(a) The scope of the prohibition under the Geneva Protocol, which has customarily been regarded as being the broadest possible, including both bacteriological (biological) weapons and chemical weapons;

(b) The special procedures required for verification of compliance with the prohibition of the use in combat of chemical and bacteriological weapons.

The Committee on Disarmament, which is the only multilateral forum for disarmament negotiations, could be given the task of elaborating such an instrument, making whatever procedural arrangements it deemed appropriate, such as having the drafting done in its Ad Hoc Working Group on Chemical Weapons in view of the interrelatedness of the problems for purely practical reasons.

The elements of such an instrument, which might be entitled "Protocol on the monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons", could be structured as follows:

I. Preamble

Establishing the link between this Protocol, the Geneva Protocol of 1925, the 1972 Convention on the prohibition of biological weapons and the ongoing negotiations concerning the prohibition of chemical weapons;

Expressing the hope that States will agree among themselves, at the regional level, on measures stricter than those referred to in this Protocol.

II. Scope

Organization of the monitoring of the prohibition of the use in combat of the agents referred to in the Geneva Protocol of 1925 and of chemical and bacteriological (biological) or toxin weapons generally.

III. Activities and obligations

1. A firm commitment by States parties to consult one another and to co-operate in solving any problems which may arise in relation to compliance with the prohibition of the use of chemical and bacteriological (biological) or toxin weapons.

2. Such consultation and co-operation may also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter.

Such international procedures may involve the services of appropriate international organizations (e.g., WHO), as well as the services of the Advisory Committee established under this Protocol.

IV. Advisory Committee

1. An Advisory Committee shall be established as soon as this protocol enters into force. Its composition shall be as follows:

(a) Institutional arrangements

The Advisory Committee shall be composed of States parties to this Protocol, as well as States parties to the Geneva Protocol of 1925 and the 1972 Convention on biological weapons.

It shall be presided over by the depositary of this Protocol.

It shall meet every four years to define and assess its methods of work and to discuss technical and budgetary questions.

It may meet at other times, if special circumstances so warrant.

(b) Permanent Committee

Upon the entry into force of this Protocol, questions relating to its application shall be dealt with, between sessions of the Advisory Committee, by a Permanent Committee, which shall act on behalf of the Advisory Committee and subject to its approval.

The Permanent Committee shall have 10 members, appointed for a renewable four-year term by the depositary of this Protocol in consultation with the members of the Advisory Committee, taking into account the principle of equitable geographical distribution.

The chairmanship of the Permanent Committee shall rotate among its members, who must be nationals of States members of the Advisory Committee.

The members of the Permanent Committee may be assisted by experts.

A State member of the Advisory Committee which files a complaint or against which a complaint is filed shall be entitled, upon simply notifying the Chairman of the Permanent Committee, to designate a representative to sit on the Permanent Committee when the complaint is before it, if the membership of the Permanent Committee does not include a national of that member State.

The Permanent Committee shall have its seat in (New York) (Geneva).

(c) Technical Secretariat

The Advisory Committee and the Permanent Committee shall be assisted by a small Technical Secretariat, which shall be responsible for maintaining contacts with the members of the Advisory Committee and the Permanent Committee, for facilitating contacts between them and for assisting them in the performance of their duties.

The Technical Secretariat shall be responsible for, inter alia, designing and improving monitoring procedures (fact-finding and collection and impartial analysis of samples), in close consultation with the Advisory Committee, the Permanent Committee, national monitoring agencies and appropriate international organizations.

The Technical Secretariat shall be established as soon as this Protocol is opened for signature.

It shall be under the jurisdiction of the Advisory Committee and the Permanent Committee and shall report to them on its activities.

The depositary shall attend to the material organization of the Technical Secretariat.

The Technical Secretariat shall have its seat in (New York) (Geneva).

2. National monitoring agencies

The States members of the Advisory Committee shall endeavour to establish national monitoring agencies, with which the Advisory Committee and its organs shall maintain contact.

The national monitoring agencies shall assist the Advisory Committee and its organs in the performance of their duties.

3. Procedures

(a) A complaint may be brought before the Permanent Committee by one or more members of the Advisory Committee, by the depositary or by the Director of the Technical Secretariat if they have serious reasons to believe that the prohibition of the use in combat of chemical or bacteriological weapons has been violated.

The complaint must be set forth in detail and substantiated with evidence relating to the acts that are alleged.

(b) The Permanent Committee shall be convened by its Chairman immediately, or in any event not later than five days, after the complaint has been brought before it in accordance with paragraph 3 (a) above.

(c) The Committee shall first investigate whether a bilateral solution to the dispute is possible and shall offer it good offices for that purpose.

(d) If such a solution is not possible and the nature of the complaint so requires, the Permanent Committee may decide to dispatch a fact-finding mission to the area. The decision to dispatch a mission shall be regarded as being of a procedural nature. The State party against which the complaint has been made may itself request the Permanent Committee to dispatch a fact-finding mission to its territory. Where necessary, and after expeditiously consulting its members by any suitable procedure, the Chairman of the Permanent Committee may make all necessary arrangements for the dispatch of the mission, if possible within 48 hours of the event to which the complaint refers.

The Permanent Committee shall arrange for samples collected on the spot to be analysed by at least two laboratories selected, by agreement among its members, from a list of establishments proposed by the States members of the Advisory Committee.

(e) The Permanent Committee shall have the right to request, through its Chairman, to request States and international organizations to provide such information and assistance as it deems desirable to enable it to fulfil its task.

(f) If the State party in whose territory the events are alleged to have taken place refuses to admit the mission, it must furnish the Permanent Committee with appropriate explanations showing that the dispatch of such a mission to the area at that particular time would jeopardize its higher interests.

If the Permanent Committee is not satisfied with the explanations furnished by the State in question, it may, should it deem necessary, make a new request.

In case of a further refusal, it shall report the matter to the depositary, who shall in turn inform the competent United Nations bodies to which a complaint relating to the same events may have been brought.

(g) Whenever a State member of the Advisory Committee requests a determination of the facts in a specific case or the provision of an authoritative opinion, the Permanent Committee shall transmit to the depositary a summary of its findings or its authoritative opinion, in which all the views and information presented to it shall be set forth. The depositary shall circulate the summary to all States members of the Advisory Committee.

(h) The Advisory Committee and the Permanent Committee shall take all procedural decisions relating to the organization of their work by consensus where possible, or otherwise by a majority of the members present and voting. Substantive matters shall not be put to the vote. If the Advisory Committee and the Permanent Committee are unable to reach a unanimous decision with respect to determinations of facts or authoritative opinions which they have been requested to provide, they should render an account of the different views that have been taken.

V. Final provisions

1. The Protocol would be open for signature by all States. Any State which had not signed the Protocol before its entry into force could accede to it at any time.

2. The Protocol would be subject to ratification by the signatory States. The instruments of ratification or accession would be deposited with the Secretary-General of the United Nations.

3. The Protocol would enter into force when instruments of ratification had been deposited by two Governments.

4. The Protocol would enter into force for States whose instruments of ratification or accession were deposited after its entry into force on the date of deposit of their instruments of ratification or accession.

5. The depositary would promptly inform all States which had signed or acceded to the Protocol of the date of each signature, the date of deposit of each instrument of ratification or accession, the date of entry into force and the receipt of any other communication.

6. The Protocol would be registered by the depositary in accordance with Article 102 of the Charter of the United Nations.

7. The Protocol could provide for a review procedure so that, when the Convention on the prohibition of chemical weapons was concluded, the terms of the Protocol could be amended accordingly and use could be made of the Advisory Committee infrastructure to be established under the Convention, while ensuring that the special machinery for monitoring compliance with the prohibition covered by the Protocol was retained.

COMMITTEE ON DISARMAMENT

CD/306
10 August 1982
Original: ENGLISH

THE NETHERLANDS

Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants

1.1. A NON-INTRUSIVE METHOD TO VERIFY A BAN ON THE PRODUCTION OF NERVE AGENTS

One of the functions of an effective verification system with respect to a ban on the development, production and stockpiling of chemical weapons is to deter the production of chemical weapons, in particular the very dangerous nerve agents. To achieve adequate deterrence, procedures are necessary to ensure that a sufficient chance exists that clandestine production of nerve agents will be detected. On the other hand, one always strives for verification methods which are as non-intrusive as possible.

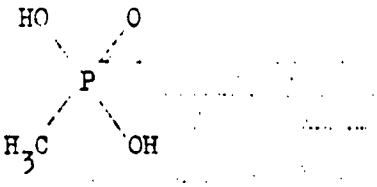
As a contribution to solve part of the problems involved, a highly sensitive method will be described to analyse waste water downstream of chemical production plants and to compare this with an upstream sample with the purpose of detecting the presence therein of nerve agents, their decomposition products or starting materials. The analytical procedure may be carried out in every laboratory equipped with a gas chromotograph and the method is sufficiently sensitive to give a positive indication even after extensive water purification.

From the results it may be concluded that the reported procedure gives a practically unambiguous and simple yes or no answer to the question whether nerve agents, their decomposition products or starting materials are present or not. After a positive detection -- which would only make the plant suspected -- a visit to the plant could be made to reveal the identity of the product manufactured.

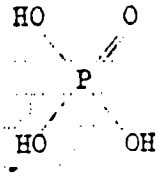
1.2. BASIS OF THE METHOD

The nerve agents are organophosphorus compounds and structurally related to pesticides. Generally both types of compounds may be prepared in similar production plants. However, an important structural difference between both types of compounds exists. The majority of the nerve agents is related to methylphosphonic acid (I),

whereas most of the commercially available organophosphorus pesticides have phosphoric acid (II) as their basic structure apart from a few pesticides based on I which generally have an experimental status[3-5].



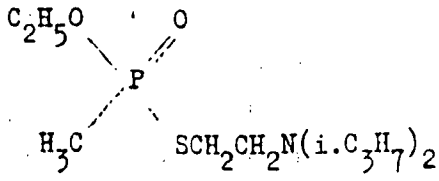
I



II

The Japanese delegation to the Conference of the Committee on Disarmament drew attention to the fact that the phosphurus-carbon bond is not cleaved under mild decomposing conditions. Besides gas chromatography in combination with a specific detection was mentioned as a suitable method to detect organophosphorus compounds at very low concentrations.[6]

A verification procedure, based on the above-mentioned considerations, is presented in this report. Samples from the Rhine and Meuse, both considered as heavily polluted rivers, were used as models for substantially diluted waste water downstream of chemical production plants. As such the procedure provides a rather non-intrusive inspection method. Ethyl S-2-di-isopropylaminoethyl methylphosphonotioate (VX).



was used as a representative of the nerve agents.

After a discussion of the investigations concerning the different aspects of the procedure in part 2 the ultimate procedure is described in part 3. Part 4 comprises some results obtained on application of the ultimate verification procedure on Rhine and Meuse river water samples. Some directions for future work conclude the report as part 5.

2. EVALUATION OF THE VERIFICATION PROCEDURE

2.1. Materials

Rhine river water samples were collected from the Lek at Bergambacht and analysed by the Dune Water Works of the Hague. The Meuse river was sampled at Keizerzveer and analysed by the Drinking Water Works of Rotterdam. The samples were stored in a refrigerating room. The chemical analyses of the water samples are listed in Table 1.

Table 1

Chemical analyses of Rhine and Meuse river samples

component		Rhine						Meuse
		12-12-'73	12-8-'74	20-11-'74	8-1-'75	25-8-'75	3-3-'76	23-2-'76
chloride	(mg/l)	230	175	168	83	140	196	37
sulphate	"	89	86	85	59	70	94	54
bicarbonate	"	140	146	156	146	149	193	134
nitrate	"	11.5	10.8	12.2	14.0	12.7	17.6	17.0
Kjeldahl nitrogen	"	4.4	1.7	2.2	1.5	1.0	2.6	1.9
orthophosphate		0.62	0.55	0.75	0.41	0.98	0.97	0.73
unfiltered	"	1.95	1.27	1.70	1.10	1.61	1.92	1.4
total organic carbon	"	6.2	7.8	5.9	8.0	5.5	8.2	6.9
silt	"	64	10	19	46	33	23	26
cholinesterase inhibition in parathion eq.	(µg/l)	0.17	0.25	0.24	0.04	0.08	0.13	-
pH		7.55	7.60	7.50	7.65	7.70	7.50	7.6
flow	(m^3/sec)	2572*	1648*	2870*	3497*	1964*	1329*	350**

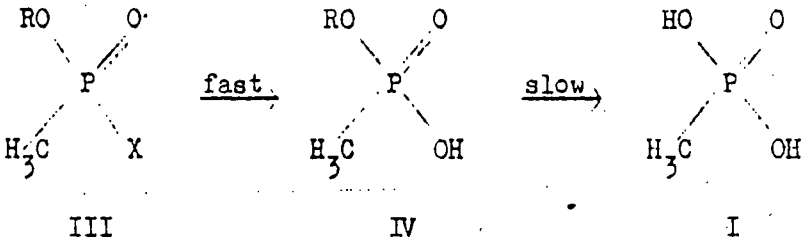
* Lobith.
** Lith.

For each experiment new glassware was used to preclude cross-contamination. ^{32}P-labelled methylphosphonic acid (specific activity 1 mCi/g) and ^{32}P-labelled VX (specific activity 20 mCi/g) as well as the corresponding unlabelled compounds were synthesized in this laboratory. Diazomethane was prepared and used in diethyl ether solution[7].

2.2. Hydrolysis

As stated in Chapter 1 gas chromatography in combination with a specific phosphorus detection is a suitable technique for the tracing of nerve agents in water at very low concentrations. To make the gas chromatographic picture as simple as possible (section 2.6) a complete hydrolysis should be carried out after which most

phosphorus-containing nerve agents will present themselves as methylphosphonic acid (equation 1), whereas organophosphorus pesticides will give rise to phosphoric acid (equation 2).

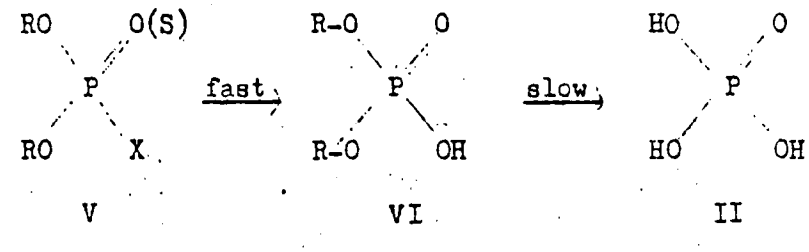


(1)

III IV I

Example of III: VX, in which R = C_2H_5 and X = $SCH_2CH_2N(i.C_3H_7)_2$

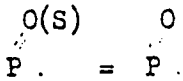
Sarin, in which R = $i.C_3H_7$ and X = F.



(2)

V VI II

Example of V: Parathion, in which R = C_2H_5, and X = $OC_6H_4NO_2$-p and

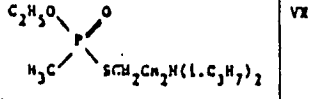
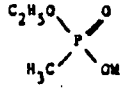
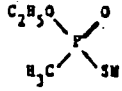
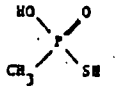
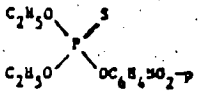
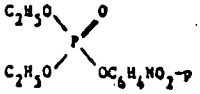
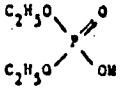
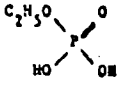
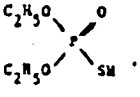
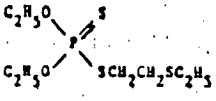
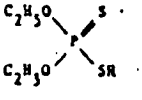
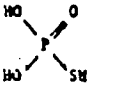
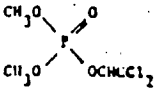
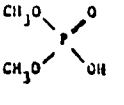
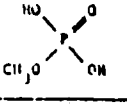


A strong acidic medium is a prerequisite to ensure a complete hydrolysis of both chemical warfare agents and pesticides with chemical formulae represented in equations 1 and 2 respectively. Moreover the process of hydrolysis should take place in a reasonable period of time. In order to establish optimum conditions, hydrolytic data of a number of organophosphorus compounds were collected.

In addition to some hydrolytic half-life values derived from literature a number of model compounds has been selected to determine their rates of hydrolysis. Experiments were carried out in 1 ml sealed glass ampoules containing 0.5 ml of 0.05 M sodium citrate/citric acid buffer at pH 3. The concentration of the different model compounds was 0.02 M. The ampoules were heated in an oil-bath at 130°C. From the quantitative analysis of the reaction mixture using high-voltage paper electrophoresis, paper chromatography, gas chromatography and ultraviolet spectroscopy the respective hydrolytic half-life values were determined[8], Table 2 comprises hydrolytic data of a representative of the nerve agents (VX), of some pesticides (Parathion, Disyston and DDVP) and of intermediates that might appear during hydrolysis. To motivate the presence of some of these intermediates it is to be remarked that in the acid hydrolysis of nerve agents (equation 1) and pesticides (equation 2) to I and II respectively, the

Table 2

Hydrolytic half-life values of some compounds related to phosphorus-containing nerve agents and pesticides at pH 7

	compound	systematic or trivial name	hydrolysis temp. (°C)	$t_{\frac{1}{2}}$ (h)	ref.
1		VX	130	0.24	-
2		ethyl hydrogen methylphosphonate	130	10	-
3		ethyl hydrogen methylthiophosphonate	130	9.8	-
4		methylphosphonothioic acid	130	0.36	-
5		Parathion	70	21	13
6		Paraoxon	70	23*	13
7		diethyl hydrogen phosphate	130	82	-
8		ethyl dihydrogen phosphate	130	1.42	-
9		diethyl hydrogen phosphorothioate	130	61	-
10		Disyston	70	62*	13
11		diethyl S-hydrogen phosphorodithioate	130	0.97	-
12		monothiophosphoric acid	52.8	1.2	14
13		DDVP	70	3.4*	13
14		dimethyl hydrogen phosphate	100	110	15
15		methyl dihydrogen phosphate	100	0.23	9

hydrolysis of the intermediately formed alkyl hydrogen methylphosphonate (IV) and dialkyl hydrogen phosphate (VI) is the rate determining step. Therefore hydrolytic data on these compounds are included.

The rates of hydrolysis of phosphates and phosphonates are known to be pH-dependent. The hydrolysis of alkyl dihydrogen phosphates[9] generally shows a maximum rate at pH 4; the hydrolysis rates of dialkyl hydrogen phosphates[10] and phosphonates[11] rise progressively when lowering the pH-value. Thiophosphates[12] show a maximum rate at pH 3. As a compromise and for practical reasons a pH 3 was selected for all hydrolysis experiments: acidic solutions below pH 3 may affect the performances (e.g. the capacity) of the anion-exchange column in the second step of the procedure (section 2.3).

A temperature of 130°C was selected to obtain measurable rates of hydrolysis in a four-days period.

From Table 2 it may be concluded that nerve agents, pesticides and their decomposition products hydrolyse to I and II respectively in a reasonable period of time at pH 3 and 130°C. In the ultimate procedure the temperature was increased to 160°C to obtain a complete hydrolysis of organophosphorus esters in 24 hours.

2.3. Isolation and concentration

After the hydrolysis the water samples of the Rhine and the Meuse river are passed through glass-fibre papers to remove solid particles (silt) preceding the use of the anion-exchange column. In this way the resin could be reused by means of a regeneration process*/ and a possible disturbance of the sample flow through the column was excluded. The adsorption of I onto the solid particles in the river samples is negligible as was determined by means of ^{32}P-labelled I. After filtration through the filter paper ng quantities of I were recovered quantitatively in the eluate.

A strong anion-exchange resin [type ϕ-$N(CH_3)_3^{(+)}$] is used to adsorb the methylphosphonate anion from the hydrolysed water samples. A simultaneous adsorption of other anions occurs e.g. chloride, sulphate and phosphate, which are generally present in excess when compared with the amount of compound I. The bicarbonate ion and other anions or weak acids are not adsorbed. A 2-3 fold excess in adsorption capacity of the anion-exchange column is used which is based on the average amount (3.5 meq.) of anions present in 0.5 litre of Rhine water in addition to the methylphosphonate ion and the added amount (about 3 meq.) of hydrochloric acid used to adjust the pH to 3. The first experiments were carried out with the commercially available anion-exchange resin

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*/ According to BIO-RAD: (step 1) resin-$Cl^{(-)}$ + NaOH → resin-$OH^{(-)}$; (step 2) resin-$OH^{(-)}$ + formic acid → resin-formate$^{(-)}$.

Amberlite IRA-400 in the chloride (Cl^-) form. On a column packed with this resin a quantity of 0.1 meq. of the methylphosphonate anion proved to be adsorbed incompletely from one litre of the water sample. 50-60 per cent of the added amount of I was not retained on the column. A quantitative adsorption of I was obtained when the resin was converted into the formate ($HCOO^-$) form. Afterwards a commercially available resin, type BIO-RAD AG 1-X8 ($HCOO^-$) was used. By means of a breakthrough chromatogram using a 0.5 litre sample containing 815 mg of chloride or 1200 mg of sulphate and 225 ng of ^{32}P-labelled I it was found that during the isolation I moved as a narrow band on the column in front of the chloride and the sulphate ions. Compound I eluted from the column only when the anion-content in the water sample surpassed the anion-exchange capacity of the column.

After the passage of the water sample the resin is washed with methanol to remove the interstitial water together with some neutral and basic compounds present in the original water sample. It is important that the hydrochloric acid-methanol solution, which is then used to elute the methylphosphonate anion, is dry because the subsequent evaporation of this solution in the presence of water gives rise to considerable losses of compound I.

A recovery of compound I amounting to 75-100 per cent was found after evaporation s was checked by experiments with ^{32}P-labelled I.

2.4. Derivatization

Compound I itself cannot be gas chromatographed but has to be converted into a volatile derivative to achieve a sensitive gas chromatographic detection and separation. The compound was transformed into dimethyl methylphosphonate using diazomethane in diethyl ether solution[7]. The yield of the esterification was nearly quantitative (95 per cent) as determined by gas chromatography (Chapter 3). Other acids such as phosphoric acid and sulphuric acid are methylated simultaneously. These acids may be present in the ion-exchange column eluate coming from the original water sample and trapped on the resin together with compound I.

2.5. Clean-up

This part of the complete verification procedure was introduced to obtain a proper gas chromatographic analysis of dimethyl methylphosphonate as outlined in section 2.6.

Ether as well as methanol are removed from the esterified sample (section 2.4) by means of boiling under reflux in a Vigreux column until a residual volume of 3-4 ml persists. This concentration step was checked by means of a number of experiments with mixtures containing 10 ml of benzene, 10 ml of ether, 1 ml of methanol and 3 ng of imethyl methylphosphonate. A recovery of 90-100 per cent of the phosphonate was found as determined by gas chromatographic analysis.

The procedure according to reference 16 using a small silica gel column removes the majority of trimethyl phosphate and dimethyl sulphate from the methylated sample solution. Details of the gas chromatographic interferences of dimethyl sulphate are given in section 4. The silica gel column is successively eluted with benzene, ethyl acetate, and methanol. It was found that the benzene fraction contains mainly dimethyl sulphate, the ethyl acetate fraction trimethyl phosphate and the first ml of the methanol fraction about 80 per cent of the added amount of dimethyl methylphosphonate.

2.6. Gas chromatographic analysis

For the separation of dimethyl methylphosphonate and trimethyl phosphate the performances (e.g. resolution and peak symmetry) of a number of different stationary phases such as SE-30, QF-1, FFAP, OV-225, DEGS and Triton X-305 were evaluated. Triton X-305 turned out to be the best.

The optimum column temperature was found to be 140-150°C. Due to an increased column bleeding at higher temperatures the column-life decreased considerably whereas an increase in detector noise and detector contamination occurred.

Besides the use of diazomethane for the esterification of methylphosphonic acid and phosphoric acid it is possible to use other diazoalkanes. The resolution of the resulting trialkyl phosphates and dialkyl methylphosphonates may be expressed by:

$$R_s = 2\,\frac{t_r(\text{trialkyl phosphate}) - t_r(\text{dialkyl methylphosphonate})}{y\,(\text{trialkyl phosphate}) + y(\text{dialkyl methylphosphonate})} \qquad (3)$$

where R_s stands for the resolution, t_r for the retention time and y for the peak width at the base. The results together with the retention time relative to dimethyl methylphosphonate are given in Table 3.

Table 3
Resolution and retention times relative to dimethyl methylphosphonate*/ of a number of methylphosphonates and phosphates

$(RO)_2P(O)CH_3$ R =	relative retention	$(RO)_3P(O)$ R =	relative retention	resolution
CH_3	1.00	CH_3	1.33	2.1
C_2H_5	1.29	C_2H_5	2.07	4.0
$n.C_3H_7$	2.57	$n.C_3H_7$	5.53	4.1
$i.C_3H_7$	1.09**/	$i.C_3H_7$	1.58	2.8

*/ Retention time is 200 sec, column temperature 140°C, for further gas chromatographic conditions see Chapter 3.

**/ Tailing peak.

From the results given in Table 3 it might be concluded that it is advisable to prepare either the ethyl or the n.propyl esters instead of the methyl esters. Nevertheless the use of the methyl esters is to be preferred for the following reasons:

(a) Dimethyl methylphosphonate is detected at least two times more sensitive than diethyl methylphosphonate and dipropyl methylphosphonate.

(b) When using the ethyl esters or n. propyl esters the analysis time will be increased two or four times respectively in comparison with that needed for the methyl esters.

(c) Methanol is used as a main component of the eluent system to desorb methylphosphonic acid from the anion-exchange column. In that case the use of diazomethane[17] is recommended.

Owing to its specificity for organophosphorus compounds the thermionic detector was the detector of choice. The mean lowest detectable amount of dimethyl methylphosphonate proved to be 0.23 ng (range 0.15-0.30 ng). The maximum injection volume was found to be 5 µl. More solvent volume caused an extinction of the detector flame.

Dimethyl methylphosphonate can be identified by means of its retention index according to Kovàts[18]. The index amounts to 1427 when determined at 170°C on Triton X-305 as a stationary phase. Under these conditions trimethyl phosphate, which will be detected as well, has a retention index of 1483.

To prove unambiguously that the peak ascribed to dimethyl methylphosphonate is not due to the presence of a non-phosphorus compound in relatively high concentration, the thermionic detector was used in combination with a flame ionization detector. In case of a non-phosphorus compound the last mentioned detector will give a relatively high pressur

3. DESCRIPTION OF THE VERIFICATION PROCEDURE

From the results outlined in the preceding Chapter the following method was selected to verify the presence of nerve agents or their decomposition products in waste water.

Hydrolysis: The hydrolysis is carried out in sealed 750 ml Carius tubes containing 500 ml water samples adjusted to pH 3 using 0.5 N hydrochloric acid. The tubes are heated in an oil-bath at 160°C during 24 hours.

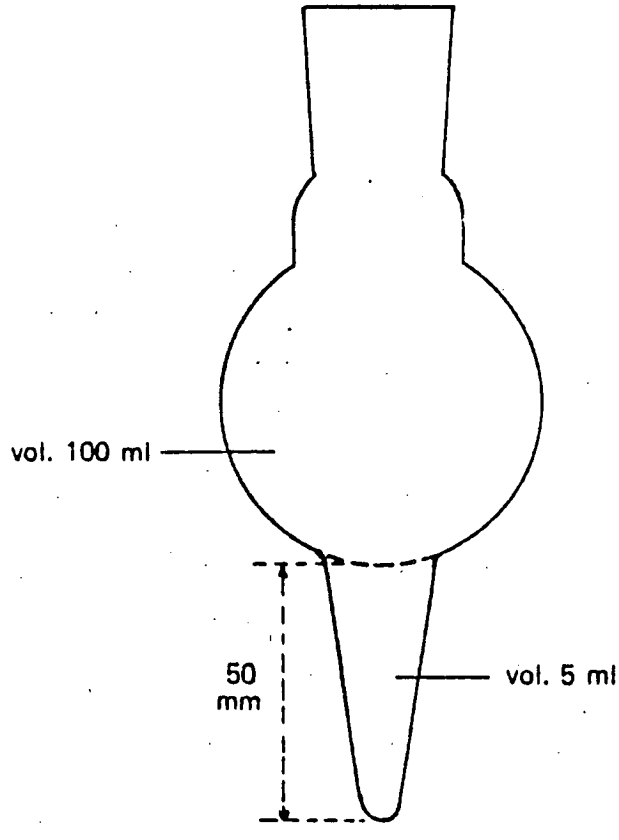

Figure 1. Pear-shaped flask to concentrate the column eluate.

Isolation and concentration: After filtration through glass-fibre paper (Whatman, GF/A) the hydrolyzed sample is passed through an anion-exchange column (length 20 cm, i.d. 11 mm) packed with AG 1-X8 (formate form, BIO-RAD) at a flow rate of 1-2 ml/min. After the passage of the sample the exchange column is washed with 30 ml of methanol. Methylphosphonic acid and other acids adsorbed on the resin are eluted at a flow rate of 0.5-1 ml/min with 20 ml of acidified (with gaseous hydrochloric acid up to 3N) methanol. The eluate, collected in a pear-shaped flask (Fig. 1), is concentrated to a volume of less than 1 ml by evaporation in a water-bath maintained at 50°C, using a gentle stream of air.

Derivation: A solution of diazomethane, generated from N-methyl-N-nitroso-p-toluenesulphonamide and potassium hydroxide[7], in ether is added to the residue of the eluate until a yellow colour persists. The mixture is allowed to stand for 15-20 minutes. The excess of diazomethane is removed by means of a few droplets of acetic acid.

Clean-up procedure: After the addition of 10 ml of benzene the methylated solution is concentrated by boiling under reflux using a Vigreux column (length 19 cm, i.d. 11 mm) until a residual volume of 3-4 ml. To prevent bumping of the boiling liquid use is made of a device consisting of a glass bar bent in a U-form[7]. During boiling the pear-shaped part of the reaction flask (Fig. 1) is immersed in an oil-bath, which is gently heated from room temperature up to 160°C in the course of 45 minutes.

Silica gel, after pretreatment by heating for 48 hours at 135°C, is partially deactivated by shaking with 3 per cent (w/w) distilled water. After four hours the gel is ready for use. To a column (length 19 cm, i.d. 8 mm) plugged with glass wool 1 g of the silica gel is added, followed by 2 g of a hydrous sodium sulphate[16]. The column is prewashed with 10 ml of hexane. The sample solution is transferred to the silica gel column which is successively rinsed with 16 ml of benzene, 24 ml of ethyl acetate and 8 ml of methanol at a flow rate of 0.2-0.4 ml/min. The eluates of benzene, ethyl acetate and the initial 1 ml of methanol are collected separately. The methanol fraction is set aside for further use.

Gas chromatography: The gas chromatographic analyses are carried out on a Becker gas chromatograph, type 409, equipped with a thermionic detector (TID), type 712. The coiled glass column (length 2 m, i.d. 1.5 mm) is packed with Chromosorb W-AW/DMCS 80-100 mesh coated with Triton X-305 (25 per cent w/w) after sieving in the particle range from 149-177 µm. The column, injector and detector are maintained at 150, 200 and 200°C respectively. Gas flow rates are 40 ml/min for nitrogen, 65 ml/min for hydrogen and 250 ml/min for air. Because of the use of a splitter at the end of the column [ratio (3:1)] only 20 ml of nitrogen pro minute reached the TID detector. The remaining part is led to a flame ionization detector. Maximum sample volumes of 5 µl can be injected. Reference samples of comparable concentration are used for quantitative measurements.

4. APPLICATION AND DISCUSSION

Once developed the complete verification procedure was checked by adding varying quantities (0.1 µg - 1 mg) of VX to 1 litre of demineralized water and Rhine river water.

Based on dimethyl methylphosphonate a mean recovery of 73 ± 11 per cent was obtained in demineralized water. The clean-up part of the procedure was omitted in this case. Considerable concentrations of phosphoric acid (approximately 0.2 mg/litre) were found which were detected as trimethyl phosphate by gas chromatography. Phosphoric acid is probably released from the wall of the glassware during hydrolysis.

Samples obtained after the addition of a relatively high quantity (1 mg) of VX to 1 litre of Rhine river water were analysed similarly. A clean-up of the sample before the gas chromatographic analysis proved to be unnecessary because no interfering substances were present at that concentration level and the comparable amounts of dimethyl methylphosphonate and trimethyl phosphate could be sufficiently separated by gas chromatography. Based on dimethyl methylphosphonate a recovery of 78 ± 10% (n=6) was obtained.

In the analytical procedure carried out with small quantities of VX (0.1-1 µg) added to 1 litre of Rhine river water the clean-up method had to be introduced because of interferences in the gas chromatographic analysis. First of all separation of small amounts of dimethyl methylphosphonate from a 1000 fold excess of trimethyl phosphate proved to be insufficient because of overlapping of the peaks. Moreover dimethyl sulphate interfered seriously in the detection of dimethyl methylphosphonate. Depending on the hydrogen flow the thermionic detector gave negative or positive peaks for dimethyl sulphate which influenced the response of dimethyl methylphosphonate, because of peak overlap. Dimethyl sulphate was identified by the combination of gas chromatography and mass spectrometry (type JEOL JMS-01-SG). It is most probably formed by methylation of sulphuric acid present in the Rhine river samples (concentration level of sulphate ≃ 80 mg/litre). The interferences of excess trimethyl phosphate and dimethyl sulphate could be overcome when using a clean-up of the methylated sample before the gas chromatographic analysis. In this way it proved to be possible to analyse concentrations of VX added to Rhine river water samples down to 250 ng/litre. Based on dimethyl methylphosphonate a recovery of 80-90 per cent was found in Rhine river samples taken 25 August 1975.

These recoveries were corrected for an amount of dimethyl methylphosphonate (0.7-0.8 µg/litre) detected in the same Rhine river samples to which no VX was added. The identity of this compound was approved by mass fragmentography on a Finnigan quadrupole gas chromatograph-mass spectrometer, type 3100-003D. The peak was scanned a three characteristic m/e values: 79, 94 and 109 which correspond with $(CH_3O)P(O)H^{(+)}$, $(CH_3O)P(O)H(CH_3)^{(+)}$ and $(CH_3)_2P(O)^{(+)}$. The peak intensity ratio was 6:4.4:1 which

equals the result obtained with a reference sample of dimethyl methylphosphonate. Owing to the small amount the intensity of the molecular ion was too small for scanning.

Later on the same compound was detected in the Rhine river samples of 3 March 1976 (conc. 760 ng/litre) and in the Meuse river sample of 23 February 1976 (180 ng/litre). Obviously one or more emission sources in or at both rivers give rise to the presence of a compound containing a PCH_3 group in the molecule. Literature gives no indication that such compounds occur in nature. It is known that a number of insecticides containing a P-C bond are commercially available e.g. Dyfonate (ethyl S-phenyl ethylphosphonodithioate). As a result of the described analytical procedure dimethyl ethylphosphonate will result. According to its retention index (1468) this compound will not interfere in the gas chromatographic analysis of dimethyl methylphosphonate (retention index 1427, see section 2.6). However, Mecarphon[5] to our knowledge the only commercially available pesticide containing a PCH_3 group will give rise to dimethyl methylphosphonate on application of the analytical procedure and will thus interfere in the verification process.

As stated in section 2.6 the mean lowest amount of dimethyl methylphosphonate detectable by gas chromatography (section 2.6) is 0.23 ng of dimethyl methylphosphonate or 250 ng of VX per litre of water, being corrected for a mean recovery of 80 per cent and an original water sample volume of 0.5 litre, which was concentrated to a volume of 1 ml. This means that if a plant carries off at least 5 kg of VX or an equivalent quantity of its decomposition products or starting materials in 24 hours into a river with a flow of 250 m^3/sec it will be detected. A survey of advanced waste treatment technology has revealed that carbon adsorption processes would be capable of reducing a concentration of 1 mg/litre of phosphorus containing insecticides in a waste stream to less than 1 µg/litre[4]. This concentration lies well above the detection limit of the procedure described.

As to the possible presence of PCH_3-containing compounds may also be due to a natural or industrial background a reference sample upstream of the chemical production plant has to be analysed in addition to a downstream sample.

5. FUTURE WORK

Further research is needed to get acquainted with the natural or industrial occurrence of compounds which will deliver dimethyl methylphosphonate after application of the described procedure.

Experiments will be carried out to investigate the applicability of the procedure in case of binary nerve agent systems in which the nerve agent is formed by mixing two compounds during the delivery of the projectile to its target.

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COMMITTEE ON DISARMAMENT

CD/307
10 August 1982
Original: ENGLISH

THE NETHERLANDS

WORKING PAPER CONCERNING THE VERIFICATION OF THE PRESENCE OF NERVE AGENTS, THEIR DECOMPOSITION PRODUCTS OR STARTING MATERIALS DOWNSTREAM OF CHEMICAL PRODUCTION PLANTS

INTRODUCTION

In 1977 the Netherlands tabled a document (CCD/533 dated 22 April 1977, now reissued as document CD/306) describing a relatively non-intrusive method to determine the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants. The rationale behind this method is that most of the super-toxic nerve agents contain a phosphorusmethyl (P-Me) bond which is very stable towards chemical reactions and can be used as a kind of "fingerprint".

In the last paragraph of the aforementioned document two subjects for further studies were announced, viz. an investigation into the applicability of the method with regard to precursors for binary nerve agents and a study into the background of P-Me compounds present in several types of water. This document addresses both problems.

A part of this work has been reported in references 1-4.

THE METHOD

Since the appearance of CCD/533 the verification procedure has been slightly modified. Details of this modification are given in Annex I.

BINARY NERVE AGENTS

As has been mentioned above, the P-Me bond occurring in the most toxic nerve agents is chemically very stable. It is also relatively difficult to produce. Thus it is highly improbable that this chemical bond is formed during the short period in which the chemical precursors are in contact with each other in a binary (a multicomponent for that matter) weapon. So one has to assume that one of the precursors does already contain the P-Me bond and as a consequence will be liable to the fingerprinting method. Two types of P-Me precursors can be distinguished. The first type is represented by methylphosphonic difluoride (I) which has been

mentioned as a precursor for the production of the so-called G-agents (II). This compound is very reactive and hydrolyses in water very rapidly while forming methylphosphonic acid. Consequently the verification procedure can be applied without any change.

In case of the so-called V-agents, methylphosphonites may be used as precursors. A representative of these compounds is ethyl diisopropylaminoethyl methylphosphonite, better known by its code name QL (III), which is a precursor of the nerve agent VX (IV) (5). In water QL decomposes completely and very rapidly into methylphosphinic acid (V). By using the verification procedure only a small amount of methylphosphonic acid (VI) is formed. On methylation with diazomethane the aforementioned compounds are converted into methyl hydrogen methylphosphinate (VII) and dimethyl methylphosphonate (VIII) respectively. Application of the clean-up procedure - a necessity for the proper analysis of the phosphonate - was not very satisfactory as the phosphinate eluted only partially. However, by means of gas chromatographic analysis carried out before the clean-up procedure the phosphinate was identified on basis of its retention index.

In conclusion it may be stated that binary precursors like QL are detected by means of the verification procedure and moreover may be distinguished from other compounds originating from nerve agents and starting materials.

I = $CH_3P(O)F_2$
II = $(RO)CH_3P(O)F$
III = $(C_2H_5O)CH_3POCH_2CH_2N(iC_3H_7)_2$
IV = $(C_2H_5O)CH_3P(O)SCH_2CH_2N(iC_3H_7)_2$
V = $CH_3P(O)H(OH)$
VI = $CH_3P(O)(OH)_2$
VII = $CH_3P(O)H(OCH_3)$
VIII = $CH_3P(O)(OCH_3)_2$

ENVIRONMENTAL BACKGROUND LEVELS OF COMPOUNDS CONTAINING THE P-ME BOND

A search was carried out to get acquainted with the occurrence of P-Me containing compounds in water from natural or industrial origin as these will also give rise to dimethyl methylphosphonate on application of the verification procedure. The concentration of P-Me containing compounds was determined in several surface waters sampled in a number of countries in Europe and North-America (2,3). According to the grades of pollution as indicated by the sampling authorities the water samples were divided into four distinct groups. The results are summarized in Table 1. The mean values of the dimethyl methylphosphonate concentration of the different groups increase in accordance with their grade of pollution. This suggests that the background of P-Me containing compounds is due to industrial sources.

Table I: The concentration of P-Me containing compounds (determined as dimethyl methylphosphonate) of the surface water samples arranged in accordance with the different pollution grades

Classification	dimethyl methylphosphonate conc. (µg/l)*
very clean	-
clean	0.2
industrially polluted	0.5
waste water	13

* = mean value

- = nothing or below detection limit of 0.14 µg/l

The commercially available P-Me containing flame retardants (3) or the corresponding starting materials and decomposition products will give rise to dimethyl methylphosphonate on application of the verification procedure. Another source for the background may be methylphospholane dichloride (CH_3PCl_2) which is commercially available and is a starting material for many other products (3). Many of these products will be hydrolysed to methylphosphinic acid [$CH_3PH(O)(OH)$] which is susceptible to oxidation and will be detected as dimethyl methylphosphonate by means of the verification method. These commercially available, industrially produced P-Me containing compounds may be sources of the background as mentioned in Table I.

What are the consequences of these background values of P-Me containing compounds for the applicability of verification method?

For economic, environmental and security reasons it is reasonable to expect that the amount of nerve agents or their decomposition products in the discharge will not exceed 0.01 per mil of the agents produced (4). This means that a nerve agent production facility designed to produce 12 tons per day, as mentioned in a publication of the United States Arms Control and Disarmament Agency (6), may carry off 120 g of a nerve agent (or more probably an equivalent amount of its decomposition products) per day into a waste stream with a flow rate of 7 litre sec^{-1} (4); this results in a concentration of about 200 µg $litre^{-1}$, which far exceeds the detection limit of the verification procedure (0.14 µg $litre^{-1}$). Ultimately, the waste stream may flow into a river. In the case of a river flow below 2000 m^3 sec^{-1} the concentration of the nerve agent (or the P-Me containing decomposition compounds) originating from the waste stream will be above the detection limit within a few hundred meters downstream of the waste outlet (4). To establish if a certain plant carries off compounds

containing the P-Me linkage and to correct for a background of these compounds it is necessary to compare a downstream sample with an upstream sample. The size of both samples must be such that a specified difference in terms of standard deviation will be found statistically significant according to the t-test with a chosen level of significance in a specified percentage of cases. With a level of significance of 0.05, a difference of two standard deviations will be found with a probability of 0.95 if both sample sizes are chosen to be seven or more (4). In our measurements we found that the standard deviation was about 12 per cent of the determined value. Consequently with a background of 0.5 μg litre $^{-1}$ (the mean value of industrially polluted surface waters, see Table I) a downstream concentration originating from the waste stream of 0.12 μg litre $^{-1}$ would be detected. As this concentration is comparable with the detection limit of 0.14 μg it may be concluded that the above-mentioned background does not affect the maximum distance of a few hundred meters downstream where samples could be taken.

FUTURE WORK

The P-Me verification procedure is sensitive even in heavily polluted water. It gives a simple yes or no answer to the question of whether compounds related to chemical warfare nerve gases containing the P-Me linkage are present or not. Nevertheless the methods lacks specifity. The intact P-Me containing chemical warfare agents or their decomposition products are all transformed into the same compound: dimethyl methylphosphonate. Experiments are now started to concentrate trace amounts of chemical warefare agents from water using adsorption tubes packed with the porous polymers XAD or TENAX as adsorbent. After a thorough removal of the water adhered onto the adsorption material the isolated chemical warfare agent will be desorbed thermally from the tubes and analysed on-line in a qualitative and quantitative way by capillary gas chromatography combined with a phosphorus-specific detector or a mass spectrometer. It may be expected that relatively high volumes of water samples can be handled, thus ensuring high sensitivity. This will be necessary because generally, after a natural or manual-induced decomposition or after adsorption processes only trace amounts of the original, intact chemical warfare agents will be present in the water samples.

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ANNEX

In this annex a summary of the verification procedure is given including the modification.

The water samples are hydrolysed at pH 3 during 24 hours. The resulting acids are concentrated on an ion-exchanger and after elution converted into methyl esters by means of diazomethane. Methyl hydrogen methylphosphinate [$CH_3P(O)H(OCH_3)$] and dimethyl methylphosphonate [$CH_3P(O)(OCH_3)_2$] are analysed by gas chromatography on a wide-bore capillary column coated with Carbowax 20 M. The analysis of these compounds is performed respectively before and after the application of the silica gel clean-up column. The Kovats retention indices are 1645 and 1659 respectively at 110°C. The detection was carried out by a thermionic, phosphorus-specific detector. Further details are given in ref. 1-4.

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COMMITTEE ON DISARMAMENT

CD/308
CD/CW/WP.40
10 August 1982

Original: ENGLISH

LETTER DATED 9 AUGUST 1982 FROM THE HEADS OF THE DELEGATIONS OF THE FEDERAL REPUBLIC OF GERMANY AND OF THE KINGDOM OF THE NETHERLANDS ADDRESSED TO THE CHAIRMAN OF THE COMMITTEE ON DISARMAMENT TRANSMITTING A DOCUMENT CONTAINING PRELIMINARY QUESTIONS CONCERNING CD/294

Please find attached hereto a document containing preliminary questions concerning CD/294 submitted by the Soviet Union.

We kindly request you to circulate this document on behalf of the delegations of the Federal Republic of Germany and of The Netherlands as an official document of the Committee on Disarmament.

(Signed) Dr. Henning Wegener
Ambassador
Head of the Delegation
of the Federal Republic
of Germany

(Signed) Dr. Frans van Dongen
Ambassador
Head of the Delegation
of the Kingdom of
The Netherlands

Introduction

This document supersedes and elaborates upon the set of questions put forward by the delegation of the Federal Republic of Germany in the meeting of the Ad Hoc Working Group on Chemical Weapons of 22 July 1982 (doc. CD/CW/CRP.63) and is submitted with a view to facilitate the clarification which the delegation of the Union of Soviet Socialist Republics undertook to submit in due course.

Preliminary questions concerning CD/294 submitted by the Soviet Union "Basic Provisions of a Convention on the Prohibition of the Development, Production and Stockpiling of Chemical Weapons and on their Destruction".

Non-stationing (I)

(1) Why is a specific provision for "non-stationing" provided? To what period after entry into force of the Convention would this provision apply? How is it envisioned that this provision would be verified?

Promotion of development goals (I)

(2) What precise activities (examples) are understood by "international co-operation in the field of peaceful chemical activities"?

Declarations of harmful chemicals (II.7)

(3) How could declaration of harmful chemicals be realized without interfering with the operation of a large section of the commercial chemical and pharmaceutical industry?

(II.8)

(4) What substances (examples) are envisaged to be included in the list suggested in paragraph 8?

General Provisions on Verification (III)

(5) What specific procedures are referred to in the phrase "international measures of verification shall be carried out through international procedures within the framework of the United Nations"?

(Consultative Committee, paragraph 2)

(6) How is it to be decided when convening the Consultative Committee is "necessary"?

Fact-finding procedure relating to compliance with the Convention. On-site inspections

(7) (paragraph 1) What information is the State which receives a request obligated to provide?

(8) (paragraph 2) What procedure applies after a challenged State Party refuses a request for an on-site inspection? Who will decide whether explanations are "appropriate and sufficiently convincing"?

(9) (paragraph 2 bis) Under this approach is it necessary to have suspicion of a violation before submitting any request for an on-site visit in connection with a notification concerning the destruction and dismantling of a chemical weapons production facility?

(10) (Fact-finding procedure, etc., paragraphs 3 and 4) Would international on-site inspection be agreed in advance in the Convention? To what does the word "possibility" refer?

(11) Would the international on-site inspections referred to in paragraphs 3 and 4 be conducted under the aegis of the Consultative Committee?

(12) (paragraph 3) In its working paper of 3 August 1977 (CCD/539) the Soviet Union states that verification of the destruction of CW stockpiles serves the following main purposes:

"To establish

(a) the fact of the destruction of an agent of a certain type,

(b) the quantity of the agent destroyed, and

(c) the quality of this agent,

and to produce appropriately documented results of the verification".

Are the "systematic international on-site inspections" proposed by the Soviet Union designed to achieve these goals?

(13) What is meant in this connection by an "agreed quota"? What does the quota refer to (number of stockpiles, amount of weapons, total number of visits, total number of man-days, number of visits per site, etc.)? How is the quota to be agreed upon? (In the Consultative Committee?)

(14) On what principle would the quota be based?

(15) If question (12) were, in principle, to be answered in the affirmative:

Would this require a detailed account of the weapons, stockpiles and production facilities within the framework of the declarations to be provided according to II, 1 and 3?

(16) Do the "international on-site inspections" include the possibility of near-site use of technical means of verification of the destruction process of chemical weapon stockpiles?

(17) Why are "systematic international on-site inspections" requested only for the destruction of stockpiles, but not for "the destruction and dismantling of facilities"? Is there a difference between "destruction" and "dismantling" of production facilities?

(18) As the destruction of production facilities is to be completed only 10 years after the State concerned becomes a Party to the CW convention (see I item 7 "elimination ... of facilities"): How is non-production to be verified in the meantime in production facilities which have been mothballed or in which CW stockpiles are being destroyed?

(19) Under paragraph 4, why is the word "systematic" not used? In other words, what is the difference between "systematic international on-site inspection" (paragraph 3) and "international on-site inspection" (paragraph 4)?

(20) Do we understand the provision in paragraph 4 correctly as intending to guarantee that the maximum amount of supertoxic agents permitted (1 t) is not surpassed? What is meant in this connection by "quota"? How is it to be ascertained that the upper limit is not exceeded?

(21) If the interpretation given in question (20) above is correct:

How is international verification of the permitted quantities to be ensured if international on-site inspections are limited to special production facilities which may produce permitted quantitites of supertoxic agents, while verification through international on-site inspections of the production of other chemical plants producing precursors for supertoxic substances can only take place if the State concerned agrees?

COMMITTEE ON DISARMAMENT

CD/311[1/]
11 August 1982
Original: ENGLISH

NORWAY

Working Paper on verification of a Chemical Weapons Convention - sampling and analysis of chemical warfare agents under winter conditions

Background

In connection with the Norwegian participation in the ad hoc Working Group on Chemical Weapons and as a Norwegian contribution to the work of this group, a research programme, sponsored by the Norwegian Ministry of Foreign Affairs was initiated in 1981 on the sampling and identification of chemical warfare agents under winter conditions.

A primary objective of the research programme was to focus on some of the verification problems the Consultative Committee will have to solve. Methods for verification of the convention, including methods for sampling and analysis should be outlined preferably before the Convention enters into force. This would better enable the Committee to take immediate action on an investigation of an alleged breach of the convention.

Unless chemical weapons are used on a massive scale, definitive evidence will prove difficult to obtain due to the large number of different agents which may be selected and because military objectives may be achieved with limited amounts of agents. Further, many compounds may be highly volatile or be rapidly degraded, leaving only trace amounts at the site.

The procedures selected for sampling and analysis of residual amounts of chemical agents, must take into consideration climatic conditions and the terrain of the contaminated area. Because of Norway's geographical location and meteorological conditions, the programme was concentrated on sampling and identification of chemical warfare agents used under winter conditions, i.e. snow or ice-covered ground at subzero temperature.

1/ A limited distribution of a research report on sampling and analysis of chemical warfare agents under winter conditions, in English only, has been annexed to this document. Further copies can be obtained from the secretariat of the Committee on Disarmament.

These conditions are found in a large part of the world for more than four months of the year. Particular attention has been paid to carrying out the experiments under field conditions, and as far as possible to avoid the artificial conditions of a laboratory set up. The investigation has been based on a scenario in which chemical agents, nerve or mustard agents, have been used at low level (0,25 gm/m^2) against unprotected troops and civilians. The programme is aimed at outlining procedures to be used by an international group of experts which arrives at the scene for taking samples between one day and four weeks after an alleged attack, and examining the possibility they have for making a firm conclusion.

Results of the research programme

The analytical methods used and the results of the research programme are explained in the annex to this working paper. In summary, the experiments have shown that if a chemical attack with nerve agents or mustard occurs under winter conditions, the amount of agent present will rapidly decrease with time depending on the weather conditions. Part of the agent will be lost by evaporation from the ground and part by decomposition in contact with snow. The dominating meterological factor under winter conditions determining the rate of loss of agent is the wind speed. The loss of a nerve agent, like sarin, at low wind speed such as in a forest (1-2 metres per second) will be three times less than the loss at high wind speed (10 metres per second) often found in an open area. Another, but less important factor is the temperature. It was a surprise to learn that the decomposition of an agent in snow is much faster than in water. The decomposition of an agent like sarin will be five times faster at -1°C than at -10°C and 20 times faster at -1°C than at -20°C.

The possibility of drawing firm conclusions regarding identity of an agent is therefore highly dependent upon the time factor and the weather condition in the area. Practical field experiments showed that identification can be made by analysis of snow samples taken as long as two weeks after the attack, in some cases even more than four weeks after the attack. Identification of nerve agent such as Vx and soman can be achieved over a much longer period after an attack than for sarin and tabun. The verification of mustard under winter conditions is highly dependent on its original purity and whether it is mixed with other chemical agents.

Particular attention has been paid to sampling procedures. Experiments showed that some agents are rapidly lost from the snow surface, but may be recovered in deeper snow layers. None of the agents did, however, penetrate deep into the snow, even after a long time. Samples should therefore be collected from the top 10 cm layer below the original snow surface. Newly fallen snow covering the ground after an attack will prevent evaporation and increase the length of time chemical warfare agents may be reliably detected.

In a real situation the time between sampling and analysis of an agent will be of importance. The agent is stable after extraction into a dry organic solvent. The agent will also be preserved for a long period if transported in a closed vessel below -20°C. In both forms it is possible to store the samples for more than two weeks before analysis. Other means of preserving the sample will depend upon the chemical and physical properties of the agent and this needs further investigation.

Some of the decomposition products of the chemical warfare agents may be recovered from the environment a long time after the actual agents have disappeared. Typical examples are the hydrogen methyl phosphonates which are derived from nerve agent, G-type. Due to the physical properties of these decomposition products, identification of these compounds may be extended for a considerable length of time after an attack and thereby greatly enhance the chances for positive verification.

Concluding remarks

The Chemical Weapons Convention must contain adequate verification provisions. The verification measures should be two-fold, measures taken by states themselves and international measures. These two types of verification complement each other.

The Consultative Committee should be established at the entry into force of the convention. It should be a permanent body for the monitoring of the implementation of and compliance with the provisions of the convention. All State Parties to the convention should be represented in the Committee.

The Committee should be authorized to conduct on-site inspections, in order to fulfil its responsibilities. For this reason, it must be able to draw on the necessary technical expertise. The Consultative Committee should establish a pool of well qualified international experts from which a multilateral team of experts could be selected in each case.

The Consultative Committee should also as soon as possible after its establishment, adopt comprehensive verification procedures. The procedures should be flexible enough to take into account any new scientific achievements in this field. The regular updating of the procedure should be the responsibility of the Consultative Committee. Each phase of the implementation of the convention might require a separate verification procedure.

It is equally important that each representative to the Consultative Committee has the right through the chairman to request from States Parties such information and assistance as are necessary for effective verification.

In elaborating the procedures for on-site inspection it is necessary to take into account the time element. As the Norwegian research programme shows, the possibility to determine the presence of chemical weapons decreases rapidly with time, even under winter conditions.

In the second phase of the Norwegian research programme which will take part during the winter 1983, problems related to preparation of samples in the field, storage of samples until analyzed by an internationally recognized laboratory and the behaviour of other agents such as irritants will be investigated. Efforts will also be devoted to the possibility of using the decomposition products of chemical agents under winter conditions as additional evidence for identification since this may significantly extend the possibility for making firm conclusions for a long period after an attack.

COMMITTEE ON DISARMAMENT

CD/313
16 August 1982
Original: ENGLISH

CANADA

A PROPOSED VERIFICATION ORGANIZATION FOR A CHEMICAL WEAPONS CONVENTION

I. INTRODUCTION

1. The second United Nations Special Session on Disarmament (UNSSOD II) succeeded in reaffirming the urgency of dealing effectively with the Chemical Weapons (CW) problem and in recognizing the application of international verification techniques as the critical issue in CW negotiations. Several potentially significant initiatives announced during the Special Session could serve to reinforce the mandate of the CD in coming to grips with the issue.

2. First, the Soviet Union in its memorandum concerning curbing the arms race, urged intensification of "joint efforts by States of the Committee on Disarmament to draft an international convention on the prohibition and elimination of Chemical Weapons". It recognized "international procedures including on-site verification on an agreed basis" as an essential element of the verification process. Acceptance of the principle of on-site inspection after having "taken into account other States' wishes", was assessed by Foreign Minister Gromyko as a basis for a breakthrough in reaching an international agreement. This assessment has generally been accepted as a positive approach to the development of an acceptable international verification procedure in the negotiation of a CW convention.

3. The principle of on-site verification in the context of a Chemical Weapons Convention has been of particular concern to the Federal Republic of Germany. As the only country to have renounced the production of chemical weapons and to have accepted international controls including on-site inspection to this effect, the Federal Republic of Germany has unique and valuable experience which it has shared with the CD in a number of working papers. The invitation issued by Chancellor Schmidt on 14 June during his address at UNSSOD II, to organize a symposium on the subject in 1983 is therefore of special significance. Since the establishment of the CW ad hoc working group extremely useful work under the Chairmanships of Ambassadors Okawa, Lidgard and Sujka has been accomplished in the technically demanding areas of toxicity.

4. There now appears to be a requirement to develop in more concrete terms the structure of a CW verification organization taking into consideration the verification aspects of the proposals by the USSR on basic provisions of a convention as well as the submission by the Federal Republic of Germany concerning principles and rules for verifying compliance with a Chemical Weapons Convention, both of which were tabled at UNSSOD II. The proposed organization in this paper has been developed using those submissions as well as the working papers already available to the CD as background.

II. BACKGROUND

5. Between 1970 and 1978 there were a number of working papers submitted to the Conference of the Committee on Disarmament (CCD) proposing wording for a draft convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction. The last of these (CCD/512) was submitted by the United Kingdom on 6 August 1976 and contained provisions which seemed to summarize much of the thought expressed by delegations up to that time, particularly as it pertained to possible verification of such a convention. In 1979 and in 1980, the United States and the Soviet Union tabled with the Committee on Disarmament (CD) joint reports (CD/48 and CD/112) which helped to define areas of common agreement.

6. During the 1980 and 1981 sessions of the CD, Canada submitted working papers (CD/113 and CD/167) which served to develop further some of the verification and control requirements for a chemical weapon treaty based on an analysis of activities. CD/167 was seen as a very useful guide outlining what needed to be verified and possible minimum approaches which might be made. Subsequently the Netherlands in CD/203 developed some thoughts on certain aspects of possible verification procedures and the Chemical Weapons Working Group in its final report (CD/220) of the 1981 session summarized progress made in this area.

7. These papers placed before the CD a framework within which to consider in more concrete terms the structure of a verification organization. In this regard working papers of the United Kingdom (CD/244) and the Federal Republic of Germany (CD/265) contributed useful guidance on principles and rules for verifying compliance with a chemical weapons convention. This Canadian working paper proposes an organization which combines the national and international aspects of CW verification in a manner of application which is fair, simple reciprocal and non-discriminatory in nature.

III. VERIFICATION, SCOPE AND STRUCTURE

8. Each State party to the convention would be expected to provide implementation within its territory through a national implementing authority in accordance with its constitutional processes. Implementation provisions and such national involvement in verification as is required would be undertaken under international direction to ensure equitable implementation within all national territories. The national authority would provide assistance to the international committees and would support international verification measures in order to provide adequate assurance of compliance by and to all States.

9. For the purpose of ensuring compliance with the provisions of the Convention by other States Parties, any State Party would have the right to use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

10. States Parties which possess national technical means of verification would in cases of necessity place the information which they obtained through those means and which is important for the purposes of the Convention, at the disposal of other Parties.

11. Each State Party would undertake not to impede, including through the use of deliberate concealment measures, the national technical means of verification of other States Parties.

12. International measures of verification would be carried out through international procedures in a manner consistent with the United Nations Charter and through consultations and co-operation between States Parties as well as through the services of the International Consultative Committee of States Parties to the Convention.

13. To verify compliance with the terms of the convention dealing with the initial declaration and destruction of chemical stocks and production facilities and with the total and general prohibition of development, production and stockpiling of such weapons three levels of responsibility comprising international and national elements would be required. These elements would, of course, be considered complementary to each other. The structure would include all States parties to the convention and would be set up upon signing of the treaty in order to commence operation upon the entry into force. The structure referred to in this paragraph would consist of the following three elements:

(a) International Consultative Committee

(b) International Verification Organization — Agency ?

(c) National Authorities.

IV. INTERNATIONAL CONSULTATIVE COMMITTEE

14. The International Consultative Committee of States Parties to the Convention (ICC) referred to in CD/220 as "the committee", would consist of representatives from all States parties of the Convention. It would be expected to hold regular sessions at least once per year and be prepared to meet at the request of any State party with a view to considering matters connected with the implementation of this convention on verification of compliance with its provisions.

15. Such a Committee would undertake to:

(a) ensure compliance with the obligations undertaken by States parties to the convention by verifying the execution of measures agreed upon and detailed in the convention and its annexes;

(b) assist States in developing the details of agreed implementation and verification procedures;

(c) report to the appropriate body of the United Nations to periodically inform it of the progress achieved in the implementation of the provisions of the convention and promptly notify it of any failure in compliance by States parties with their obligations under the convention;

(d) provide for the establishment of such advisory bodies as may be necessary for working out the details of further verification measures which will be required as the programme of destruction of stocks and facilities and of the implementation of the other provisions (vis-à-vis chemical weapons production, stockpiling and use) progresses;

(e) provide for other expert study groups as may be required to give study to the elaboration of the verification process as it applies to chemical weapons and to unforeseen problems;

(f) receive reports on the progress of the implementation of the programme through approved information exchange and verification arrangements; and

(g) recruit staff for the Secretariat on an equitable international and geographic basis.

16. The Consultative Committee would be assisted by a small permanent secretariat which would act on behalf of the Committee in the administration and implementation of the verification processes. The secretariat would develop and maintain a system, available to the Committee and to States parties to the Convention, which would document the destruction of declared stockpile and production facilities in the initial phases and the assurances of non-development, production and stockpiling in follow-on stages. The actual verification process, using a number of methods including periodic on-site inspections, as required and agreed upon, would be accomplished by the International Verification Agency.

VI. INTERNATIONAL VERIFICATION AGENCY

The International Verification Agency (IVA) would act on behalf of the International Consultative Committee in the verification process and would continue to evolve as its responsibilities developed.

17. It would be supplemented by technical and non-technical experts nominated by States parties. Some experts would be on staff while others would be provided temporarily when required. During the period of destruction of declared stocks and facilities, methods of verification and the number of inspections might vary from that required for the longer-term aspects of the convention. The IVA would be expected to:

(a) apply a combination of verification methods (remote sensing, on-site inspection, data analysis) to ensure that States parties are adhering to the convention;

(b) offer support to the national authorities to fulfil their mandates;

(c) develop a capability to evaluate submissions of national authorities;

(d) be responsible for the co-ordination of inspections with national authorities;

(e) receive and validate complaints from member States as directed by the Consultative Committee.

VII. NATIONAL IMPLEMENTATION AUTHORITIES

18. Each signatory to this convention would be required to maintain a National Implementation Authority (NIA) for implementation and verification of the provisions of the convention. It would be appropriate for each State party to identify a national point of contact for the IVA. For most, however, this national responsibility could probably be met through the use of existing government agencies. In any event these authorities would be expected to:

(a) have access to a selection of inspection personnel both technical and non-technical;

(b) be prepared to maintain documentation of the type required to satisfy international verification requirements;

(c) be responsible for routine monitoring required by the convention;

(d) receive and assist international inspections determined by the IVA according to the direction of the International Consultative Committee on the provisions of the convention for those activities requiring routine inspections;

(e) provide data and other relevant information to the IVA for exchange;

(f) co-operate in providing expertise to the IVA; and

(g) ensure prompt and effective reception and co-operation if required to host an IVA inspection directed by the International Consultative Committee under complaints procedures.

VIII. CONCLUSION

19. The verification organization proposed in this paper is based on the four principles of equity, non-discrimination, reciprocity and the preservation of national sovereignty. It should be possible therefore to adopt provisions which will provide adequate security for all States in the conclusion of a chemical weapons treaty.

COMMITTEE ON DISARMAMENT

CD/316
CD/CW/WP.42
19 August 1982

ENGLISH
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FRANCE

Working paper

Monitoring of the destruction of stocks of chemical weapons

The destruction of stocks of chemical weapons is one of the basic elements of any convention on the total prohibition of chemical weapons. Effective monitoring of destruction and the confidence which can be placed in the relevant verification procedures are of paramount importance, since they must enable every country possessing chemical weapons to ensure that it has not allowed itself to be tricked into a situation where a multilateral treaty becomes a unilateral renunciation.

Reliable monitoring is made particularly necessary by the fact that, for technical reasons, the stock destruction process necessarily extends over several years.

The monitoring procedure to be instituted depends on a number of parameters. Three of these appear to be essential;

declarations;

the elements to be destroyed; and

the methods of destruction.

1. Declarations

From the point of view of destruction techniques, the content of declarations can be reduced to two possibilities:

either stocks are declared by elements and class of toxicity (super-toxic lethal chemical, toxic lethal chemical, harmful chemical);

or stocks are declared in detail by elements and by type of toxic substance (exact name of the toxic chemical).

2. The elements to be destroyed

From the point of view of the destruction techniques to be applied to them, stocks of chemical weapons may be classified in three categories:

chemical agents in bulk;

munitions or containers without their explosive devices or which can be safely dismantled;

munitions or containers with their explosive devices which cannot be safely dismantled.

3. The methods of destruction

Various methods for the destruction of chemical agents and munitions have been suggested or described in a number of working papers.

In the specific situation where the agent is a dual-purpose chemical, which can be used in the chemical industry for non-military purposes, it could be transferred to that industry under supervision and in accordance with approved procedures. Only munitions containing the chemical in question would then have to be destroyed.

France itself carried out an operation of this kind in the 1950s at Pont-de-Claix (Isère). It involved the destruction of phosgene shells. The toxic substance was extracted from the munitions in a specially equipped plant, where they arrived defused. The chemical was then stored in special containers for resale to the private chemical industry. The bodies of munitions, after decontamination, were then destroyed and the metal content recovered.

After this operation, the site of the plant at Pont-de-Claix was leased by the Ministry of Defence to the private sector after the site as a whole had been made free of toxic substances and chemicals.

The destruction of a number of chemical agents in bulk has already been carried out in various countries as part of the elimination of outdated stocks:

incineration of mustard gas with scrubbing of gaseous effluents by a sodium solution (United States, CCD/436);

hydrolysis of mustard gas, followed by incineration of the hycrolysate and scrubbing of gaseous effluents (Canada, CCD/434);

chemical neutralization of Sarin (United States, CCD/367);

incineration of mustard gas (Indonesia, Netherlands, CD/270);

United States' experts have proposed a pilot plant for the destruction of obsolete munitions.

Other procedures have been proposed. The German Democratic Republic proposed, for example, the use of catalytic procedures:

catalysis by hydroperoxide, hypochlorite, and copper complexes (CCD/506).

These methods have apparently not been thoroughly tested.

Although the disposal of chemical munitions at sea, as practised by a number of countries since the end of the Second World War, seemed at the time to be both the most economical solution and the easiest from the technical point of view, it entails a risk of intolerable pollution of the marine environment and could be considered a violation of the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and

weapons on the sea-bed. This procedure also presents the problem of the monitoring of the transport of toxic lethal substances over long distances.

Disposal at sea will not be taken into account. Nor will disposal in underground cavities which, while it gives rise to none of the above-mentioned problems, constitutes a temporary storage, rather than a destruction, procedure.

With regard to methods of destruction, the following possibilities exist:

1. Neutralization or chemical hydrolysis;
2. Incineration;
3. A combination of the chemical neutralization and incineration procedures.
4. Specific points to be monitored - verification methods to be applied

The specific points to be verified should be chosen in such a way that:

the accuracy of declarations can be verified;

destruction can be shown to have actually taken place;

the impossibility of reconversion or diversion of residues can be verified.

In the tables below, an attempt is made to define these specific points within the context of the destruction of toxic chemicals in bulk and chemical munitions.

In the case of destruction of munitions, the question of defusing of munitions is not taken into account, since the procedures used do not call for verification under a convention on chemical weapons.

Specific points to be monitored

Possible methods

1. Toxic chemicals in bulk

Chemical methods of destruction	Incineration	Chemical methods + Incineration
Verify: either the "identity" of the toxic substance to be destroyed: by simple laboratory methods - for example, gas chromatography in the case of known chemicals or the declared toxicity of the chemical: by methods recommended by the convention. This verification may be systematic, involving the checking of each container of toxic chemical, or by sampling, in which case the percentage of samples to be taken should be determined in advance. Verify that the entire declared quantity has actually been destroyed. The destruction procedure must be examined and the possible diversion "points" carefully identified and placed under observation, either with the aid of black boxes, or using remote surveillance methods. The exact tonnage of chemical destroyed should be verified by automatic or other quantitative measurements.		
Verify the quality of the final product The product must be chemically neutral, non-toxic and non-reconvertible. Verification may be either systematic using automated or other laboratory methods, or by sampling, in which case the percentage of samples to be taken must be determined in advance. The quantity of final product must be assessed and compared with the initial input of toxic chemical to be destroyed.		Verify the total destruction by incineration of the salts produced The toxicity of salts produced should be evaluated using the methods recommended by the convention. The incineration procedure must be examined, and the specific points affording possibilities for diversion identified and placed under observation using the methods referred to above. Where the salts to be destroyed can be classified in the third category of chemicals, only the exact tonnage destroyed will be verified.

2. Destruction of Munitions

Chemical destruction methods	Incineration	Chemical methods plus incineration

Verify the "identity" and the quantity of munitions to be destroyed

This verification can be carried out by visual methods and/or by weighing.

Estimate the quantity of toxic substance contained in the munition

This estimate may be based on the declarations of the possessor country.

Verification of these declarations by sampling will be carried out at the time of recovery of the toxic substance.

Verify that all the toxic substance contained in the munitions is actually subjected to the destruction procedure

In the toxic substances recovery plant, the possibilities of diversion will be investigated and key points placed under surveillance either using black boxes, or by means of remote surveillance.

Inspections by sampling must be made of munitions bodies leaving the plant, with a view to verifying that all the toxic substance has actually been recovered.

Verify that the munitions bodies have been destroyed or put permanently out of commission

This verification may be either systematic or by sampling. In the latter case, samples must be selected at random and in accordance with the wishes of the inspector.

Verification of the destruction of the toxic substance will be effected in accordance with table 1.

The specific points to be monitored referred to above are the points to be verified by international inspection. Such international monitoring, however restrictive this solution may be, can be made fully effective only through the permanent physical presence of international inspectors, the number of whom must be consistent with the importance and duration of the destruction process to be used and the chosen destruction methods.

Where a sound and reliable technology makes it possible to dispense with the permanent presence of an inspector in certain specific cases, it should be given preference.

Security and environmental problems do not, a priori and with the exception of international arrangements, fall within the purview of international verification.

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Working paper on toxicity criteria for "Key CW precursors"

The possible future production of chemical weapons by the "binary technique" will make it necessary to clarify and define some concepts e.g. "precursor". It will also be necessary to find toxicity criteria for "binary chemical weapons" and for their main constituents in order to classify and include them in a future convention for prohibition of CW-agents.

During the consultations with delegations, assisted by experts, held by the Chairman of the Working Group for Chemical Weapons regarding standardized toxicity determinations during the CD spring session 1982, the Swedish delegation presented a paper entitled: The concept "precursor" and a suggestion for definition for the purpose of a Chemical Weapons Convention (CD/CW/CTC/4). A revised version of this working paper in which points of view raised by other delegations during the spring session 1982 have been taken into account, was presented later (CD/277, 7 April 1982).

Some chemicals used in a chemical synthesis of a CW-agent are more important than others for the result of the synthesis. For such a chemical the term "key CW precursors" was suggested and defined as follows (CD/277).

"Key CW precursor" is the starting reactant in a one pot chemical synthesis forming a super-toxic lethal, other lethal, or other harmful chemical, which determines the main characteristics (class of compound, toxicity etc.) of the chemical formed when the reaction is taking place:

1. In a chemical weapon warhead or other disseminating device for chemical weapons, immediately before the dissemination of the final, toxic product, i.e. the chemical warfare agent;

2. In a production facility producing super-toxic lethal, other lethal, or other harmful chemicals.

It appears not to be very useful to apply toxicity criteria to "key CW precursors" themselves in a future CW convention. Preferably purpose and quantity criteria could be used to classify "key CW precursors" as suggested in CD/277. The nature of the "key CW precursor" is decisive for the resulting CW end product(s) of a certain chemical reaction. However, the toxicity of the "key CW precursor" need not be related to the toxicity of the end product(s) in that chemical reaction. Therefore, the toxicity criteria will have to be applied to the main end products of the "one pot synthesis" and - in order to detect any case of synergism - to mixtures of these end products.

A. For the classification of a chemical compound, suspected to be a "key CW precursor", we suggest the following test procedure.

The suspected "key CW precursor" is allowed to react with other chemical compounds, which from a theoretical point of view may give rise to a CW-agent. The (main) end products formed in this chemical reaction should be subject to qualitative as well as quantitative chemical analysis. Each of the identified (main) end products should be tested for their individual toxicity, with the exception of chemicals with a toxicity already known and documented.

The methods used to test the toxicity should be those agreed upon for CW-agents. If the result of the toxicity test shows that the toxicity of one chemical end product in the chemical reaction is such that the end product will be classified as a "super-toxic lethal chemical" (CD/220), no further toxicity test is needed.

B. However, if the toxicity test shows that the end products are less toxic, the end products will have to be tested for toxicity in a mixture. In this mixture, the quantitative proportion between the various chemicals in the mixture must be the same as the one obtained in the chemical reaction during a certain set of conditions. If the mixture, when tested for toxicity, will be classified as "super-toxic lethal chemical" no further toxicity test is needed.

C. If the mixture is less toxic, the most toxic end product should be tested for its toxicity mixed with each separate end product of the chemical reaction.

In a future convention against production, storing etc. of CW-agents, a "key CW precursor" should be treated as a "super-toxic lethal chemical", if any of the chemical end products, or if the mixture of the main end products or if the most toxic end product combined with any other less important end product(s) has a LD_{50}-value less than 0.5 mg/kg and/or a LCt_{50}-value less than 2,000 mg.min/m^3.

If by means of any of the three methods mentioned above a chemical compound is found to give rise to compounds or mixtures with a higher LD_{50} and/or LCt_{50} it should be treated as "other lethal chemicals" or "other harmful chemicals" as defined in CD/112.

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Working paper on monitoring destruction of stockpiles of chemical weapons and chemical warfare agents

Introduction

A critical issue for the trust, which States will put in a future chemical weapons convention prohibiting the acquisition and retention of chemical weapons and prescribing their destruction, will no doubt be the destruction of the weapons and the possibilities the convention will provide for verifying compliance with this provision. It therefore seems useful to look particularly at these issues as soon as possible and as detailed as necessary during the negotiations. This Working Paper concentrates on verification problems in relation to the destruction of chemical munition and bulk stockpiles of chemical warfare agents. The available literature is rather extensive, see e.g. references 1-15, and cannot be fully accounted for in this preliminary analysis of the principles.

It concentrates on two types of chemical weapons (agents), mustard gas and nerve gas. Two rather different destruction procedures have been chosen and the process flows have been simplified in order to highlight particularly those points, which are of principal interest for a discussion on verifying destruction. As a basis for the models we have used the destruction of mustard gas, as described by the Netherlands and Indonesia in reference 7 and the destruction of nerve gases in the United States of America as described in reference 11. This does not mean that the Swedish delegation in any way regards these two particular methods as preferable to others. Before a future, practical application many more detailed problems will remain to be solved, and probably local conditions will have a strong influence on the choice of method and type of verification.

The local conditions will probably have a particular influence in the case of destruction of old stocks of chemical weapons, which were hidden in the earth or in the sea many years ago, after World Wars I and II. Such rediscovered stockpiles have now and then already been taken care of in different countries. See e.g. Kurata: Lessons learned from the destruction of the chemical weapons of the Japanese Imperial forces, p. 77 in reference 10. It seems necessary to have particular provisions for the purpose, when a future convention comes into force, in order to clarify ambiguities about the sources of munitions to be destroyed. Destruction of such old munition should not need to be verified. On the other hand, there seems to be no reasons against on-site verification of such activities.

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The aim of a comprehensive study would be to try and identify any information about the destruction process which could be:

(1) critical to obtain assurance that the chemical weapons (agents) are actually being destroyed -- with or without on-site inspection,

(2) possible to obtain in an as non-intrusive way as possible but at the same time being safeguarded against attempts to manipulate the information gathering,

(3) possible to transmit in a cheap and safe form from the monitoring instrument to a central decision-maker at another location.

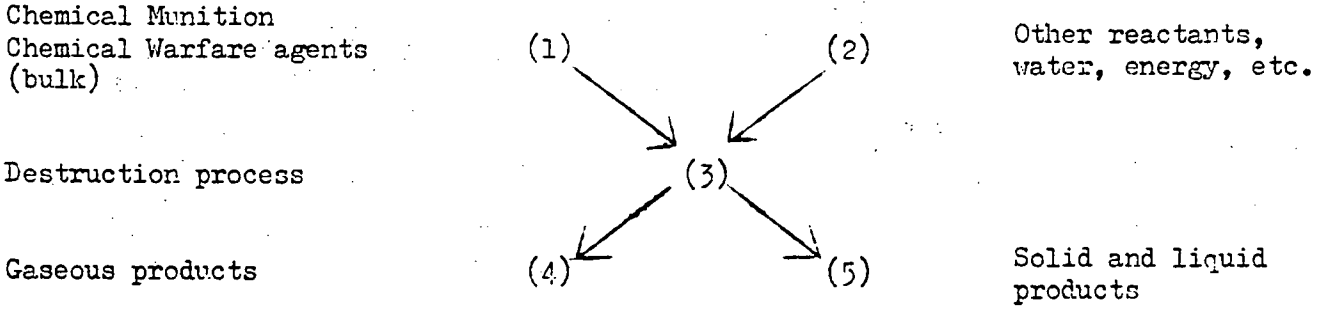
The present Working Paper constitutes a preliminary approach in this direction.

Experiences of similar problems made in other contexts, which are relevant also for the design of the verification process of a chemical weapons convention, should be utilized in this process. This is the reason for referring to the study on transmission of monitoring information from verification stations in the nuclear energy industry (RECOVER ref. 14) as one aspect in this Working Paper. See also reference 8. It is, however, clear that this system constitutes only one of the components of a verification structure. Its main initial interest may be to point to the availability of such transmission systems. The following account of the RECOVER-system therefore limits itself to a factual summary of a preliminary evaluation of the results obtained so far during the development of the system according to the draft report in reference 14.

Principal aspects of destruction of chemical weapons and its verification under a chemical weapons convention

The purpose of verifying the destruction of chemical weapons or bulk stockpiles of chemical warfare agents is to ensure that at least those quantities of the weapons and bulk stockpiles, which a Party has declared as being under its jurisdiction, are being destroyed, i.e. transformed into products which cannot again be converted back into chemical weapons or warfare agents.

A schematic description of a destruction process can be made in the following way:



With regard to the marked processes (1-5) the following comments can be made:

(1) The amount of agent introduced into the destruction process should be carefully monitored in order to avoid overestimates of the actual quantities destroyed and thereby eliminating the possibility of clandestine withholding of the declared stocks. This problem was addressed e.g. in reference 5. This principle requires knowledge of the chemical content of the munition and bulk stockpiles. If such knowledge cannot be obtained, continuous toxicity tests on the material introduced into the destruction process, as described in Working Paper CD/405, reference 3, are necessary. In such a case automation would not be possible and accordingly inspection personnel would have to carry out the toxicity determinations at the site of the destruction.

(2) The uni-directional flow and amount of reactants, as well as their carry-throughs into the destruction confinement have to be checked initially and also periodically by visual on-site monitoring.

(3) It may not be necessary to follow in detail the destruction process itself provided (a) that the flow direction of the process can be followed, (b) that there is no unknown in- or outflow of materials to or from the confined destruction facility, and (c) that there is only limited space within the destruction facility to stockpile products. However, from a practical point of view, some of the monitoring measures applied to follow the ongoing destruction as a chemical process might be of use, e.g. for following the direction of the flow of the process. In any case, so many parameters have to be followed during the destruction process that they should be utilized also for verification purposes.

(4) Monitoring gaseous products emitted into the atmosphere is not necessary from the disarmament point of view. Such products cannot be collected again and converted into chemical warfare agents. Monitoring of these products may however be necessary with regard to safety of workers and neighbouring population. Harmless concentrations of degradation products or of the agents themselves, which so far seems to have occurred in closed off areas of the CAMDS facility (ref. 11), can be monitored continuously and be related to other parameters following the destruction process. Thus, even such monitoring may contribute to increase the confidence in the proper performance of the destruction over the time.

(5) The solid and fluid waste products resulting from the process have to be monitored in several respects. Thus, the quantity has to be established, the toxicity -- or rather absence of toxicity -- has to be stated. The occurrence of typical degradation products could be followed continuously, i.e. if the destruction process gives rise to such products. The possibility for the waste products to be reconverted into chemical warfare agents has to be investigated. If economy or other factors speak for a destruction process that produces reconvertible waste products, measures must be taken to dispose of them in a way which makes reconversion uneconomical.

Some details of the described process have to be discussed further.

Under (1), two possibilities can be foreseen:

(a) the destruction is performed on the whole piece of munition of bulk container without separating the components (metallic parts, explosives and chemical warfare agent),

(b) the components are separated and destroyed by means of different processes.

(a) would require methods like (very hot) thermal destruction, destruction by means of nuclear explosions, or simply stowing away the stockpiles in inaccessible parts of the earth such as the deep ocean trenches. These methods have all met with objections in different respects, although they certainly have some technical advantages. They will thus not be discussed further in this Working Paper. The process discussed here will involve the technical process of separating the munition parts from the agents, and the bulk containers from the agent.

In both cases it is necessary to ascertain the amount of agents and its toxicity or chemical identity. Since this may in some cases be difficult or even impossible with respect to the method used for the destruction, some sort of statistical random sampling of the munition or bulk containers subject to destruction has to be applied. This would comprise:

- observation of the number of units to be destroyed,

- random sampling of the containers, the samples to be subject to measurement of volume or weight of the agent content, as well as toxicity or chemical identity to be checked against declared information.

Such a random sampling with accompanying measurements may technically be difficult to perform. However, a detection probability (to find out whether serious cheating occurs, i.e. efforts to try and withhold more than 10 per cent of existing stockpiles) of 75-90 per cent seems to be sufficient for a deterring effect against cheating. That would imply that for a lot of 100,000 pieces of munition, only 13 randomly chosen pieces need to be checked. However, this approach would also require monitoring of the flow of the agent into the destruction facility. Some of these problems have already been discussed in different connections, see e.g. reference 10.

Description of two models for destruction of chemical weapons and chemical warfare agents

Both nerve gases and mustard gas can be destroyed by means of chemical reactions or by incineration. These methods are used in the two models described below.

The destruction processes for the two agents are described by means of two simplified flow charts. The aim is to display the flow of material and to identify possible check-points for verification purposes. See Figures 1 and 2.

I. Model for destruction of nerve gases

The model is based on the United States facility for destruction of nerve gases in Utah, United States of America (Chemical Agent Munitions Disposal System, CAMDS, Tooele Army Depot, Utah, see ref. 11).

At one part of the facility munition is taken apart. The agent (GB or VX) is collected and pumped to storage tanks, and from there to the reaction vessels. In these the agents are destroyed by hydrolysis (GB) or acid chlorinolysis (VX) respectively. The reaction mixtures are evaporated and the residuing salt mixtures transported to separate deposit areas (see Flow chart 1).

The separated explosives are burnt in a furnace.

The remainder of the munition and the bulk containers are heated in another furnace, whereby residues of the agents are destroyed thermally.

For verification purposes, the most important parts are the pipelines leading from the storage tanks to the reaction vessels. They are marked by an (X) in the chart. Types and quantities of agents can be measured and registered at these points. Data resulting from them could conceivably be compared with figures concerning the amounts used of the reactants, sodium hydroxide, hydrochloric acid and chlorine, which are added as marked by (T) in the chart. Finally, the amounts of salt residues can be measured and their contents of methyl-phosphonates be determined.

It should be pointed out here, that the actual CAMDS facility in Utah does not seem to be constructed with regard to verification purposes for the actual processes. Thus, that particular facility in its present form can only serve as a model for verifying destruction by on-site inspection.

Taking into account the details described above, it is obvious that the process could easily be monitored by continuously attending verification personnel -- in addition to the processing personnel. However, given the possible restriction that such personnel can attend only occasionally or only when specifically called for, the question arises which of the available data can be selected as particularly important for assessing the progress of the process. Given the choice, how can the data be acquired and distributed in a safe way? For the present model, the following suggestions can be made:

Random samples for checking the type of agent might be taken from the items to be processed. This can be done by means of an automated process. The type of agent might be checked by gas chromatography, if the agent is known. The amount of agent might e.g. be registered as the volume of agent filling the storage tank, from which the agent is then pumped into the destruction process. Also samples for confirming the presence of the agent in the storage tank can be taken, and, by the same means, the presence of the agent in the pipeline. The flow of the agent might be followed by a flowmeter in the pipeline.

As mentioned above, the salt residues can be monitored, probably in batches.

All data could then be correlated to each other as a final check.

It is, of course, conceivable that all these arrangements could be circumvented. They certainly would be of no use if they were installed without any outside checks of the facilities. The verification authority would have to inspect their installation and function, and also periodically and randomly the performance of the destruction process. At such occasions, the process could be checked at the facility and comparisons be made with the data provided through the monitoring instruments. In this way one would also obtain a "signature" for the process, which might serve as a basis for evaluating incoming data to the verification authority during periods when no inspection personnel was present at the facility.

Such an approach might serve to obtain a reasonably high degree of probability that the destruction is really carried through.

The presented discussion on destruction of nerve gas munition is far from complete. It is only intended to serve as a basis for discussion. It should be observed that the suggested model presupposes several forms of on-site inspection, but it is also to a large extent non-intrusive. Data, resulting from the measurements can e.g. be distributed internationally, and every party to a convention can investigate and evaluate them, as long as confidence prevails that the data are authentic.

II. Model for destruction of mustard gas

The model is based on the method described in CD/270, 31 March 1982 (ref. 7). The method was utilized for destruction of about 45 tons of Mustard Agent at Batujajar, West-Java, Indonesia, during 1979.

The mustard agent was stockpiled in storage tanks from which it was pumped into a furnace, the temperature of which was kept at a suitable level by means of oil burning. The gaseous waste products from the incineration were let out through a smoke-stack, without separation of toxic products like sulphur-dioxide or hydrogenchloride. See Flow chart 2.

With respect to the verification of this process, two factors should be pointed out:

It was a question of destruction of only about 45 tons of agent, not several thousands of tons.

Although being the result of careful design, the facility was extremely simple and was built at the site of the stockpile. It was also easily removed from the site after completion of the destruction, which lasted only a couple of months.

These two factors both facilitate and make difficult a verification of the destruction.

Again, inspection on site during the time of destruction, perhaps with the aid of some very simple identification methods, would constitute a reliable and cheap verification.

On the other hand, if some form of remote monitoring of the kind discussed above for nerve gas destruction, had to be applied, such an elaborate set-up would probably not be economical. Also only one point is actually useful for monitoring devices, i.e. the pipeline between the storage tank and the furnace, where a flowmeter and a device for identification of the agent might be situated. However, only one such device could easily be tampered with, and might thus not be reliable. The only correlation would be against the volume of the storage tank. This volume must be measured on the site and its content verified. An independent level indicator might verify that the content disappears at the same rate and at the same time as the flowmeters in the pipelines show during the process.

Some assistance might also result from correlating the oil burning rate and the emission data for e.g. sulphurdioxide, such data being evidence of the ongoing process. Still, the small size of the facility seems to be an important argument against remote verification, since possible evasive measures might more easily be undertaken. This same conclusion was drawn by the authors of the Working Paper CD/270, albeit without giving any particular reasons for that opinion.

One should also remember that the mustard gas is not as toxic as the nerve gases. Confinement and safety precautions thus may not need to be equally stringent. It would be more difficult to instal monitoring equipment and at the same time secure their independent function. Perhaps a fool-proof instrument can be developed that can at least monitor the flow and the type of agent in the pipeline, and disseminate its results to a remote verification authority.

The situation would perhaps be more similar to the nerve gas destruction if also munitions and not only bulk stockpiles had to be taken care of. If should be noted that the CAIDS facility can handle also the destruction of mustard agent munitions.

Comments on RECOVER as a basis for a discussion on its possible application in the verification of a chemical weapons convention

The following comments refer to a draft evaluation of the experimental RECOVER system (ref. 14) and are made in order to stimulate the discussion on the possible application of RECOVER in the verification of a chemical weapons convention. The following issues are considered:

- For what particular purposes has RECOVER been found reasonably well applicable?
- What restrictions influence the cost-benefit of the system?
- What amount of information can the system handle?
- What seems to be the present state of development of the system?

RECOVER was developed as a secure system for remote verification of the status of containment and surveillance instruments employed at different types of nuclear facilities. Those considered were light-water reactors, pressurized heavy-water power reactors, fast critical facilities, mixed-oxide fuel fabrication plants, spent-fuel reprocessing plants, centrifuge enrichment plants and inactive stores of plutonium or highly enriched uranium.

It was found that RECOVER could be beneficial and cost-effective in the safeguarding of pressurized heavy-water power reactors, fast critical facilities and inactive stores of plutonium or highly enriched uranium. In all these cases RECOVER could reduce the inspection frequencies by at least a factor 2, which would result in a net saving of the order of $100,000 per year and facility. In the case of plutonium or high enriched uranium storage facilities the conditions for this would be (1) the store is relatively inactive, which means that nuclear material is neither added to, nor removed from the store more often than once per month, (2) maintenance on the store can by synchronized with the inspections, and (3) false alarms and failures resulting in a loss of continuity of knowledge for a time long enough for the removal of a significant quantity of nuclear material do not occur more frequently than roughly once every two months.

In all other of the above-mentioned facilities RECOVER was found not to be cost-effective. The main negative factor is the necessity for inspectors to be present frequently to verify material flows, regardless of whether RECOVER is employed or not.

It should be pointed out that interest on the capital costs of RECOVER equipment has been neglected in the evaluation. Taking this into account would substantially increase the costs of the system and reduce the net savings.

The RECOVER system consists of four major components: a monitoring unit (MU), an on-site multiplexer (OSM), a portable verification unit (PVU), and a resident verification unit (RVU). The MU (of which there might be several) would be attached to a containment and surveillance device. This device or sensor could be a film camera, a fibre-optics seal, or any of a host of other devices that are capable of being monitored electronically.

The MU would register the status of various parameters, monitor its own status, store the information, and, on demand, transmit it to the OSM. Present design for the MU allows for the storage of up to eight bits of information. The MU updates itself approximately 100 times per second.

The OSM interrogates all MU's attached to it, stores data on their status, and, on demand, transmits the data to the RVU over the international telephone system. It also monitors and stores data on its own status and on tampering attempts. Today up to 30 MU's may be attached to it and its storage capacity is 2,000 characters. The frequency at which it interrogates the MU's may vary, but every hour or half hour would be typical.

The PVU is a portable device with a keyboard and a display that enables the inspector to provide the MU's and the OSM with the proper values of certain parameters. On command it can display the current status and operating parameters of the OSM and its MU's, as well as its own operating parameters. One PVU can service up to eight OSM's.

The RVU is a microprocessor-based device attached to the telephone system. It interrogates the OSM's, receives the coded transmissions, decodes them, stores them, detects whether any predefined "alert" status exists, and activates audio-visual alarms in response to such alerts. The information stored may be displayed on a colour-graphics screen or printed out as hard copy. The frequency at which the RVU interrogates an OSM will vary between once per day to once per week, depending on the sensitivity of the site. At present, the RVU is capable of monitoring 40 devices (MU's plus OSM's). However, changes have been proposed that would enable it to sustain a network of 100-500 facilities.

Conclusions

The present preliminary analysis allows the following tentative conclusions with regard to the verification of destruction of chemical weapons:

1. On-site inspection would be necessary at least during the construction of a destruction facility, in order to assure the confinement of the facility with respect to out- and in-lets to the destruction space.

2. Occasional on-site inspections would be necessary during the destruction period in order to check the process followed in situ by means of monitoring equipment providing data for transmission to a distant receiver.

3. Destruction at small and technologically simple destruction facilities processing a limited amount of chemical weapons may have to be followed continually by on-site inspection.

4. There might exist possibilities to monitor particular events during the destruction process and correlate monitoring data with each other to give a reliable picture of the ongoing process also when transmitted to a distant location. As mentioned under paragraph 2 checks have to be made occasionally on site in order to sustain the reliability of the monitoring.

5. Some further technical work may still have to be performed in order to develop suitable tamper-proof monitoring equipment.

6. The type of information that may have to be transmitted from the destruction site to a distant verification authority may range from television pictures and chromatograms to simple numerical information.

7. The experience with RECOVER makes it probable that such information can be transmitted safely over unlimited distances. However, these experiences also show that the need for on-site inspection may differ for different processes, and thereby influence the cost benefit of the transmission system. A corresponding situation would probably apply to the verification of destruction of stockpiles of chemical weapons, as evident from paragraphs 1-5 above.

8. It is necessary and seems possible to work out the technical solutions, which still do not exist, on the assumption that the destruction of chemical weapons would have to be followed and registered in an unambiguous way, irrespective of whether the verification will be carried out finally by national or by international verification authorities.

Fig. 1

Simplified flow chart for destruction of nerve gas munition at CAMDS, USA

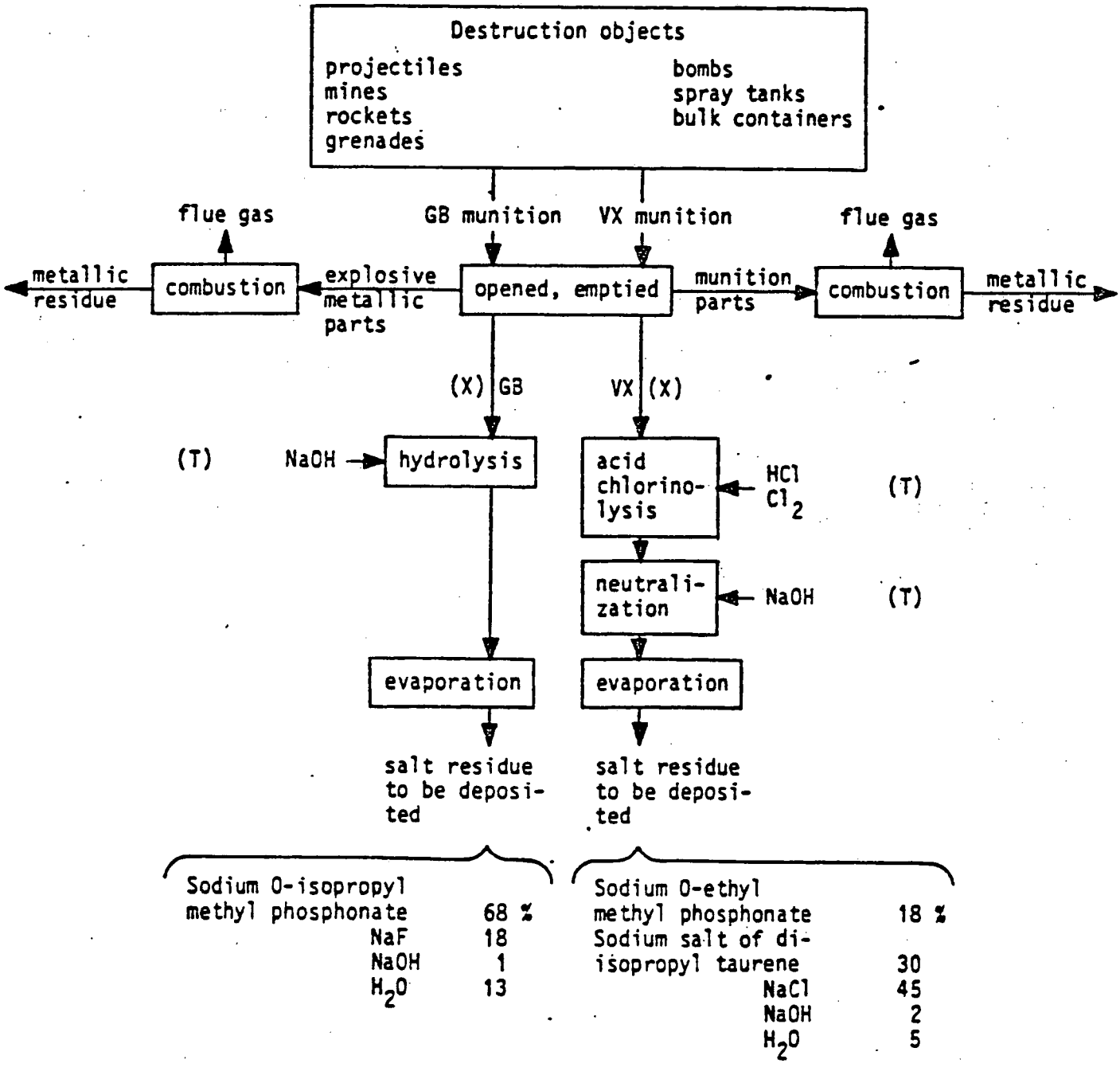
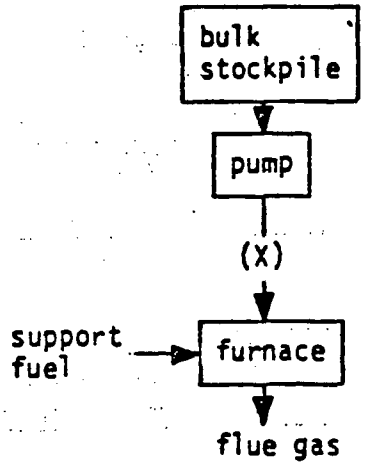


Fig. 2

Simplified flow chart for destruction of mustard gas in Batujajar



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FEDERAL REPUBLIC OF GERMANY

Chemical Weapons Convention

Working Paper: Proposals on "Declaration", "Verification" and the "Consultative Committee"

A. Introduction

1. Supplementary to Working Paper CD/265 on "Principles and rules for verifying compliance with a chemical weapons convention", the following proposals develop and specify the concept of adequate verification of compliance with a CW convention as outlined in the previous document.

2. It was pointed out in CD/265 that international verification measures are indispensable in monitoring compliance with a convention. It was explained that such measures should consist in regular checks and in checks on special grounds. Both measures include on-site inspections and involve sampling and toxicological or chemico-physical determination of samples as well as the evaluation of statistical data.

3. The concept explained in CD/265 is based upon limiting the scope of regular inspections to an essential minimum. The specific element of the proposal contained therein lies in the division of verification measures into "on-challenge" inspections, which comprise all areas covered by the ban, and regular inspection measures, which are aimed at particularly sensitive areas covered by the ban. The aim of this concept is to make the risk of detection for a potential violator of the convention as high as possible while minimizing the number of inspections required. To attain this objective, a lot-casting procedure is proposed to cover certain areas, thereby reducing the number of regular inspections.

4. In addition to the proposals contained in Working Paper CD/265, the following proposals also cover the part of the convention entitled "Declarations". Arrangements for the operation of the Consultative Committee are only dealt with insofar as they are relevant to the parts of the convention which cover declarations and verification.

5. The proposals outlined in part B I 1 (d) on declarations concerning the civilian industrial sector relate to the number and location of all industrial facilities for the production of organo-phosphorous substances, since particularly this area of civilian production, as it can produce CW "key precursors", constitutes a potential source of danger.

6. The proposals outlined in B II 5 - 7 on regular inspections include measures whose chronological sequence whether it might be continuous or periodic has yet to be agreed upon.

B. Proposals

I. Declarations

1. Each State Party to the Convention undertakes to declare within 30 days after the Convention has entered into force or the State Party has acceded to it:

(a) its possession or non-possession of chemical weapons.

(b) its stocks of chemical weapons and its production and filling facilities of such weapons. The declaration shall specify the amount of chemical agents, including CW precursors, by chemical name and subdivided in bulk and munitions and equipment specially designed for chemical weapons purposes.

The declaration shall also include the stockpile location and the location of facilities for the production and filling of chemical weapons.

(c) the location of the facility for small-scale production of super-toxic lethal substances for purposes permitted under the convention.

(d) the number and location of all industrial facilities for the production of organophosphorous substances.

(e) its plans for the destruction of stocks of chemical weapons or for their diversion to permitted purposes.

(f) its plans for the destruction or dismantling of facilities for producing and filling chemical weapons as well as for the temporary conversion under the terms of the convention.

2. Each State Party undertakes to declare annually:

(a) the progress of the destruction or diversion of stocks of chemical weapons and of the destruction or dismantling of its respective production and filling facilities. Annual progress reports shall contain the same details as specified in article 1 (b);

(b) its production for protective purposes of super-toxic lethal substances;

(c) any changes in the number and/or location of the industrial facilities for producing organophosphorous substances.

3. Not later than 30 days after expiration of the agreed period for the destruction of stocks and production and filling facilities each State Party shall declare whether it has fully carried out its obligation regarding the complete elimination of chemical weapons and the respective production and filling facilities.

II. Verification and domestic measures

1. Each State Party undertakes to carry out any measures it considers necessary in accordance with its constitutional processes to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control.

2. The Contracting Parties undertake to consult one another and to co-operate in any question regarding the implementation of the Convention.

3. The Contracting Parties are entitled to use national means of verification at their disposal, including national technical means, for the purpose of ensuring compliance with the provisions of the Convention, in a manner consistent with generally recognized principles of international law.

4. The Contracting Parties undertake to ensure observance of the Convention by accepting international measures of verification. Such measures shall consist of regular checks as defined in articles 5 - 7 of the Convention and of checks on special grounds according to article 8.

International measures of verification shall be executed under the authority of a Standing Consultative Committee.

Each State Party undertakes not to impede, including through the use of deliberate concealment measures, either the national technical means of verification of other States Parties or international measures of verification.

The Contracting Parties undertake to assist the Consultative Committee in the fulfilment of its tasks and to accept its decisions, including on-site inspections.

5. Regular checks shall cover:

(a) the destruction of stocks of chemical weapons including CW precursors,

(b) the destruction or dismantling of production and filling facilities of chemical weapons,

(c) the allowed maximum amount of super-toxic lethal substances for protective purposes,

(d) the industrial production of organophosphorous substances.

6. Regular checks shall be carried out in a way that safeguards the legitimate interests of the Parties in business and production secrets.

Regular checks shall include on-site inspections involving sampling and toxicological or chemico-physical determination of samples and statistical evaluation.

Further methods of verification and the procedures to be followed will be contained in a separate document which will become part of the Convention.

7. On-site inspections shall take place:

(a) periodically at declared storage facilities of chemical weapons and at declared production and filling facilities - where monitoring is continuous - starting with the declaration and ending with the complete destruction of such facilities;

(b) annually for the production facilities mentioned under 5. (c) and (d) above through determination by casting lots on a percentage basis.

8. Each Contracting Party is entitled, if it has concrete grounds for suspecting that another Party is violating the Convention, to demand a special check by the Consultative Committee. The Committee shall investigate the facts, if necessary by means of an on-site inspection.

Each State Party undertakes to co-operate in carrying out any investigation which the Consultative Committee may initiate and agrees to all measures needed to clarify the facts. A party may reject a request for a special check only if the overwhelming majority of the members of the Consultative Committee consider the request in question to be totally unfounded.

III. The Standing Consultative Committee

1. (a) The Consultative Committee shall be established when the Convention enters into force. Each State Party is entitled to appoint a representative to the Committee.

(b) The Consultative Committee shall be presided over by the Depositary and have a permanent Secretariat.

2. The Consultative Committee shall be responsible for:

(a) all questions relating to the execution of international measures of verification as defined in the Convention,

(b) ascertaining the facts and providing expert opinions with regard to problems raised pursuant to the provisions of the Convention by a State Party, in particular concerning allegations by a State Party of ambiguities in or violations of compliance with the Convention,

(c) facilitating compliance with the Convention, e.g. by developing standard international methods and routines to be applied by national and international organs,

(d) receiving and distributing any data relevant to the provisions of this Convention which are made available by national organs,

(e) co-operating closely in other respects with national organs and providing them with necessary assistance.

3. Details of the organization and work of the Consultative Committee and of the procedures for regular checks under article B. II. 5 and for checks on special grounds according to articles B. II. 8 are dealt with in a separate Protocol which forms an integral part of the Convention.

COMMITTEE ON DISARMAMENT

CD/333
CD/CW/WP.44
14 September 1982
Original: ENGLISH

Views of the Chairman of the Ad Hoc Working Group on Chemical Weapons on possible compromise wordings of the elements of a future convention

PREAMBLE

States Parties to this Convention,

Reaffirming their adherence to the objectives of general and complete disarmament, including the prohibition and elimination of all types of weapons of mass destruction,

Convinced that the prohibition of the development, production and stockpiling of chemical weapons and their destruction represent a necessary step towards the achievement of general and complete disarmament under effective international control,

Determined, for the sake of all mankind to exclude completely the possibility of chemicals being used as weapons,

Convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to eliminate this risk,

Considering that peaceful co-operation among States should strengthen international co-operation in scientific fields, especially in that of chemistry,

In conformity with the undertaking contained in the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, to continue negotiations in good faith with a view to reaching early agreement on effective measures for the prohibition of the development, production and stockpiling of chemical weapons and on their destruction,

Recognizing the important significance of the Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925 and also of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, in force since 26 March 1975, and calling upon all States to comply strictly with the said agreements.

Recognizing the important contribution that the Convention can make through its implementation to the social and economic development of States, particularly developing countries,

Desiring also to contribute to the realization of the purposes and principles of the Charter of the United Nations.

Element I: General Provisions

1. Each State Party to this Convention undertakes never, under any circumstances, to develop, produce, otherwise acquire, stockpile, retain, transfer directly or indirectly, chemical weapons as defined in Element II and to destroy or divert to permitted purposes the stocks of such weapons and to destroy or dismantle facilities of the production of chemical weapons. */

2. Each State Party to this Convention undertakes not to assist, encourage or induce anyone, directly or indirectly, to engage in activities prohibited in this Convention.

Element II: General Definition of Chemical Weapons

1. "Chemical Weapons", as referred to in Element I, are defined as the aggregate of the means of chemical warfare comprising:

(a) Super-toxic lethal chemicals and their precursors **/ of special significance for the formation of such chemicals, including binary or multicomponent munitions or similar devices, other lethal and other harmful chemicals, except those intended for permitted purposes in types and quantities consistent with such purposes;

(b) Any munitions or devices, including binary or multicomponent munitions and devices specifically designed to cause death or other harm through the toxic properties of the chemicals released as a result of the employment of such munitions or devices;

(c) Equipment specifically designed for use directly in connection with the employment of such munitions or devices.

2. For the purposes of this Convention any element of the aggregate of the means of chemical warfare mentioned in paragraph 1 of this Element, is considered as a chemical weapon.

Element III: Other Definitions

For the purposes of this Convention:

1. A "Super-toxic lethal chemical" is any chemical with a median lethal dose which is less than or equal to 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation), when measured by the methods set forth in CD/CW/WP.30 Annexes III and IV.

2. An "Other lethal chemical" is any chemical with a median lethal dose which is greater than 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in CD/CW/WP.30 Annexes III and IV.

3. An "Other harmful chemical" is any chemical with a median lethal dose which is greater than 10 mg/kg (subcutaneous administration) or 20,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in CD/CW/WP.30 Annexes III and IV.

4. A "Precursor of special significance for the formation of super-toxic lethal chemicals" is a reactant which predetermines the main characteristics of the mentioned chemical formed in a one pot synthesis:

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*/ Alternatives see page 1 of Annex to document CD/334.

**/ Concept of precursors is to be further elaborated.

- in a binary or multicomponent munition or in similar device;

- at a facility of production of super-toxic lethal chemicals.

5. A "Facility" means a plant or part of plant, specifically designed for the production of chemical weapons (as defined in Element II), destruction of such weapons, as well as for production of super-toxic lethal chemicals for permitted purposes.

6. "Capacity" means capacity of a facility to produce or destroy a certain amount of chemical weapons or to produce a certain amount of super-toxic lethal chemicals for permitted purposes during a given period of time.

7. "Permitted purposes" means non-hostile purposes and military purposes not connected with the use of chemical weapons.

8. "Non-hostile purposes" means industrial, agricultural, research, medical or other peaceful purposes, law-enforcement purposes or purposes directly connected with protection against chemical weapons.

9. "Destruction/diversion" means

(a) with regard to chemicals - their change into products which cannot be re-utilized for the purposes of chemical weapons, including their change both into degradation products and into products which can be used for permitted purposes;

(b) with regard to munitions and devices as well as equipment specifically designed for use directly in connection with the employment of such munitions or devices, making them unserviceable for the purposes of chemical weapons.

10. "Destruction/dismantling" with regard to facilities means physically taking apart or disintegration of the facilities with the removal of all parts of the facilities in an unserviceable state for the use for the purposes of chemical weapons, or partial dispersed employment for permitted purposes of some or all parts of the facilities in a serviceable state.

11. An "incapacitant" */

12. An "irritant" */

Element IV: Prohibition of transfer and non-stationing

1. Each State Party to this Convention undertakes:

(a) Not to transfer to anyone, directly or indirectly, any chemical weapons, as defined in Element II.

(b) Not to transfer to anyone, directly or indirectly, even for permitted purposes, except to another State Party, of any super-toxic lethal chemicals or their precursors, incapacitants or irritants.

2. Each State Party to this Convention undertakes not to station chemical weapons, including binary and multicomponent weapons, in the territories of other States and also undertakes to withdraw all its chemical weapons, including binary and multicomponent weapons, from the territories of other States if they were stationed there earlier, not later than ..... **/ after this Convention comes into force for this Party.

*/ To be elaborated.

**/ To be agreed upon.

Element V: Destruction, Diversion of Stocks of Chemical Weapons

1. Each State Party to the Convention undertakes to destroy its stocks of chemical weapons as defined for the purposes of the Convention or divert them for permitted purposes in quantities consistent with such purposes.

2. Each State Party to the Convention undertakes to begin destruction or diversion for permitted purposes of its stocks of chemical weapons not later than ... months/years, */ and complete it not later than 10 years after the Convention comes for it into force.

3. For the purposes of destruction of stocks of chemical weapons each State Party to the Convention shall have the right to convert temporarily facilities previously used for the production of such weapons or construct a specialized facility or facilities for such purposes.

4. Procedures related to the measures to be taken during the fulfilment of the obligations under paragraphs 1 and 2 of this Element should ensure that these measures are interrelated and co-ordinated in scope, sequence and timing. Other matters concerning procedures and conditions are set forth in Annex to this Element.

Element V

(Annex)

Destruction, Diversion of Stocks of Chemical Weapons

Procedures and operations used for destruction or diversion of stocks of chemical weapons:

At initial stage: **/

Submission of plans for destruction or diversion for permitted purposes of stocks of chemical weapons, which shall include indications of:

(a) quantities of chemical weapons (quantities and types of chemicals) to be destroyed; **/

(b) time schedule for the stages of the process of destruction for specific types of chemicals;

(c) methods of destruction excluding the possibility of the re-utilization of final products for the purposes of chemical weapons;

(d) location of facility or facilities used for destruction of stocks;

(e) quantities and types of chemicals which will be diverted for permitted purposes;

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*/ Alternatives see page 19 of Annex to document CD/334.

**/ Alternatives see page 20 of Annex to document CD/334.

(f) time schedule for the stages of the process of diversion for permitted purposes for specific types of chemicals:

(g) purposes of diversion.

At destruction stage: */

(To be elaborated in connection with the declarations required from Parties relating to destruction or diversion of stocks.)

Element VI: Destruction, dismantling or temporary conversion of facilities for the production of chemical weapons

1. Each State Party to this Convention undertakes to destroy or dismantle facilities for the production of chemical weapons and not to build new facilities for these purposes.

2. Each State Party to this Convention undertakes to cease all activities relating to the production of chemical weapons as well as to the transfer directly or indirectly to anyone of such weapons and technological equipment for their production and relevant technical documentation.

3. Each State Party to this Convention undertakes to begin the destruction or dismantling of the facility (facilities) temporarily converted in accordance with paragraph 3 of Element V for the destruction of the stocks of chemical weapons after the conclusion of the destruction of such stocks.

4. Operations for destruction or dismantling of facilities for the production of chemical weapons shall begin not later than ... months/years, **/ and be completed not later than 10 years after a State becomes a Party to the Convention.

Matters relating to procedures and conditions are set forth in the Annex to this Element.

Element VI

(Annex)

Destruction, dismantling or temporary conversion of facilities for the production of chemical weapons

Procedures and operations used for destruction, dismantling or temporary conversion of facilities:

At the stage before the beginning of actual destruction: ***/

Declarations of plans for destruction, dismantling or temporary conversion of facilities producing chemical weapons, containing indication of:

(a) time frames for destruction or dismantling;

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*/ Alternatives see page 20 of Annex to document CD/334.

**/ Alternatives see page 21 of Annex to document CD/334.

***/ Alternatives see page 22 of Annex to document CD/334.

(b) location of facilities;

(c) information concerning the use of individual elements of the dismantled equipment:

(i) names and quantities of such equipment;

(ii) ways of using the dismantled equipment for peaceful purposes;

(d) location of facility/facilities temporarily converted for destroying the stocks of chemical weapons.

At destruction stage: */

Notifications made ... **/ months before the commencement of implementation of each stage of the plans for destruction, dismantling or temporary conversion of facility/facilities with the indication of the location of the facility/facilities.

Periodic notifications of the process of the implementation of the plans for destruction, dismantling or temporary conversion of such facilities. ***/

Element VII: Permitted activities

1. Each State Party to the Convention has the right to retain, produce, acquire or use for permitted purposes any toxic chemicals and their precursors, in types and quantities consistent with such purposes.

2. The aggregate quantity of super-toxic lethal chemicals for permitted purposes which are produced, diverted from stocks or otherwise acquired annually or are available shall at any time be minimal and shall not, in any case, exceed one metric ton for any State Party to the Convention. ****/

3. Each State Party which produces super-toxic lethal chemicals for permitted purposes shall concentrate such production at a single specialized facility of appropriate capacity. **/

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*/ Alternatives see page 22 of Annex to document CD/334.

**/ To be agreed upon.

***/ Other procedures and operations are to be elaborated in connection with the declarations which would be made by the Parties concerning destruction, dismantling or temporary conversion of facilities.

****/ Alternatives see page 20 of Annex to document CD/334.

Element VIII: Protection of the Populations and the Environment

Each State Party to this Convention in the course of the destruction or diversion of the stocks of chemical weapons and destruction, dismantling or temporary conversion for the purposes of destruction of chemical weapons of the facilities for the production of chemical weapons shall take all necessary precautions and utilize safe methods of destruction so as to avoid harm to populations and to the environment.

Element IX: International Co-operation

1. This Convention should be implemented in a manner to avoid hampering the economic or technological development of States Parties or international co-operation in the field of peaceful chemical activities, including the international exchange of chemicals and equipment for production, processing or use of chemicals for peaceful purposes in accordance with the provisions of the Convention.

2. Each State Party to this Convention shall undertake to facilitate the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemicals for peaceful purposes consonant with the aims of this Convention.

3. Each State Party to this Convention shall undertake to allocate a substantial part of possible savings in military expenditures as a result of disarmament measures agreed upon in this Convention to economic and social development, particularly of the developing countries.

4. Any State Party to this Convention with an aim of its implementation shall have the right to transfer chemical weapons to another State Party for the purpose of destruction of those weapons in accordance with the provisions of this Convention.

Element X: Declarations

1. Each State Party to this Convention shall undertake as soon as possible after the Convention's entry into force or the State Party's adherence to it and in any case not later than 30 days thereafter:

(a) to declare whether or not it possesses chemical weapons as they are defined in paragraphs 1 and 2 of Element II, of their production, regardless of their being employed at the entry of the Convention into force for it, counting all facilities providing such capacities which it possesses on its own national territory or beyond its boundaries, or it has on its national territory under ownership of another State including those whose ownership is not defined;

(b) to declare that it has ceased all activities relating to the production of chemical weapons or the transfer to anyone of such weapons, of technological equipment for their production and of relevant technical documentation.

2. Each State Party to this Convention undertakes not later than 30 days after the Convention comes for it into force to declare:

- the magnitude of the stocks of chemical weapons, as defined in Element II of this Convention, in accordance with the provisions set forth in Annex III to this Convention;

- facilities/aggregate capacities for the production of chemical weapons, as defined in Element II of this Convention, in accordance with the provisions set forth in Annex III to this Convention;

- the volume of transfers to anyone of chemical weapons, as defined in Element II of this Convention, of technological equipment for their production, and of relevant technical documentation which took place after 1 January 1946, in accordance with the provisions set forth in Annex ...; */

- whether or not there exist in its territory stocks of chemical weapons, as they are defined in Element II, and with what capacities, which are under control of, or have been left by, any other State, group of States, organization or private person, in accordance with the provisions set forth in Annex .... */

3. Each State Party undertakes not later than ... days/months **/ after the Convention comes into force or the State Party's adherence to it its plan for the destruction or diversion to permitted purposes of stocks of chemical weapons, in accordance with the provisions set forth in Annex .... */

4. Each State Party to this Convention undertakes not later than ... days/months/one year before the commencement of the destruction or dismantling of facilities of production of chemical weapons, to declare its plans for their destruction or dismantling, stating the location of the facilities, in accordance with the provisions set forth in Annex .... */

5. Each State Party undertakes:

(a) (i) to submit annual periodical notifications concerning the implementation of the plan for the destruction or diversion for permitted purposes of the stocks of chemical weapons;

(ii) to submit notifications concerning each consecutive stage of destruction or diversion to permitted purposes of stocks of chemical weapons three months before the beginning of each such stage;

(b) (i) to submit annual/periodic notifications concerning the implementation of the plan for destruction or dismantling of facilities of the production of chemical weapons;

(ii) to submit notifications concerning each consecutive stage of destruction or dismantling of facilities of production of chemical weapons three months before the beginning of each such stage;

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*/ To be elaborated.

**/ To be agreed.

(c) to submit, not later than 30 days after the destruction or diversion of stocks of chemical weapons and not later than 30 days after the destruction or dismantling of facilities of the production of chemical weapons, appropriate statements to that effect.

6. Each State Party to this Convention which carries out the production of super-toxic lethal chemicals for permitted purposes/for purposes directly connected with the protection against chemical weapons */ at a specialized facility shall declare its location before the date of the commencement of the facility's operation.

7. Each State Party to this Convention undertakes to submit annual declarations concerning the following substances produced, diverted from stocks, acquired or used:

(a) (i) super-toxic lethal, other lethal and harmful chemicals for purposes directly connected with protection against chemical weapons;

(ii) super-toxic lethal chemicals for industrial, agricultural, research, medical or other peaceful purposes and for military purposes not connected with the use of chemical weapons;

(iii) other lethal and harmful chemicals for industrial, agricultural, research, medical or other peaceful purposes and irritants for purposes of law enforcement;

(b) the chemicals mentioned above as well as the precursors produced, acquired, retained and used for permitted purposes, when they represent a special danger from the viewpoint of their possible utilization for purposes of chemical weapons, must be included in appropriate lists. Each State Party to the Convention undertakes to present annually information on the chemicals and precursors of chemicals included in those lists. **/

8. Each State Party to this Convention undertakes to submit notifications concerning each of its transfers to any other State Party, where not prohibited by the Convention, of super-toxic lethal chemicals, incapacitants and irritants and of other chemicals which could be used as components for chemical weapons with binary or multicomponent charges, including the names of recipient States.

9. The above-mentioned declarations, plans, notifications and statements shall be submitted to the Consultative Committee which informs about these declarations, plans, notifications and statements the States Parties to this Convention.

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*/ See alternatives, pages 16 and 17, paras.7 and 8 of Annex to document CD/334.

**/ The Annex, which contains lists and other relevant provisions, is to be agreed upon and elaborated.

Element X
(Annex)

Declarations

Declaration of stocks of Chemical Weapons

Will encompass

(a) quantity (in metric tons) of the stocks of chemicals in bulk and in munitions in accordance with toxicity categories; */

(b) quantity (in metric tons) of precursors, as defined in Element III of this Convention, in accordance with toxicity categories **/ separately as designed for:

- binary or multicomponent munitions or devices;
- unitary munitions or devices;

(c) quantity of munitions or devices ***/ as defined in subparagraph (b) of paragraph 1 of Element II;

(d) quantity of equipment specifically designed for use directly in connection with the employment of the munitions and devices ***/ as defined in subparagraph (b) of paragraph 1 of Element II;

(e) other questions. ***/

Declaration of Facilities/Aggregate Capacities for the Production of Chemical Weapons

Will encompass

(a) facilities/aggregate capacities for the production of chemicals designed for the purposes of chemical weapons by the categories of such chemicals;

(b) facilities/aggregate capacities for the production of precursors, as defined in Element III of this Convention, separately as designed for:

- binary or multicomponent weapons;
- unitary weapons;

(c) timing of declarations of the locations of facilities and other questions. ****/

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*/ See alternatives, p. 12 of Annex to document CD/334.

**/ See alternatives, p. 13 of Annex to document CD/334.

***/ To be agreed upon and elaborated.

****/ To be agreed.

Element XI: General Provision on Verification

States Parties to this Convention shall base their activities relating to the verification of compliance with the provisions of the Convention on a combination of national and international measures.

Element XII: National Implementation Measures

1. Each State Party to this Convention undertakes to take any measures it considers necessary in accordance with its constitutional process to implement the Convention and, in particular, to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control.

2. Each State Party to this Convention shall inform the Consultative Committee of the legislative and executive measures it has taken with respect to the implementation of the Convention.

3. Each State Party to this Convention shall, in accordance with its constitutional process, designate an authority which shall be charged with the primary responsibility with regard to overseeing the implementation and to co-operating with the Consultative Committee and the authorities carrying out similar functions in other States Parties.

4. Recommendations and guidelines on the functions of such an authority are set forth in the Annex IV to this Element.

Element XII
(Annex)

National Implementation Measures */

Recommendations and guidelines on the functions of a National Implementation Authority:

In national aspect:

(a) To oversee the implementation of the obligations undertaken by a State Party under this Convention within its national territory or under its jurisdiction or its control anywhere.

(b) To implement effectively its functions the Authority shall have the right:

- to receive relevant information from the executive organs on the actual state of affairs concerning the implementation of the Convention;

- to be acquainted with the relevant information concerning the research and development as well as production and commercial activities of enterprises of the chemical industry and related branches, including production and commercial documentation of the industrial firms engaged in manufacturing chemical and other products which may be related to the scope of the Convention;

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*/ See alternatives, p. 33 of Annex to document CD/334.

- to have access to facilities producing super-toxic lethal chemicals, harmful chemicals and precursors which fall under the scope of the Convention;

- to have access to facilities being dismantled or already dismantled, or temporarily converted to the destruction of stocks of chemical weapons and to the specialized facility designed for the production of the super-toxic lethal chemicals for permitted purposes;

- to have access to sensing devices and instruments in the above-mentioned facilities and to make necessary measurements;

- to have financial resources necessary for the implementation of its functions;

- to submit to the government reports on its activities which may be made public.

In International Aspect

(a) To provide the Consultative Committee with the necessary information on carrying out its tasks in connection with the verification of the compliance with the Convention.

(b) To provide all necessary assistance in on-site inspections, including technical assistance.

(c) To participate in the selection of both technical and other personnel for on-site inspections.

(d) To co-operate with the Consultative Committee, appropriate international organizations and national authorities charged with the supervision of the implementation of the Convention in other States Parties.

Element XIII: National Technical Means of Verification */

1. Each State Party to this Convention may use national technical means of verification at its disposal for the purpose of providing assurance of compliance with the provisions of the Convention in a manner consistent with generally recognized principles of international law. **/

2. Monitoring in accordance with paragraph 1 of this Element may be carried out by each State Party to this Convention by the employment of its own national technical means of verification or with full or partial assistance on the part of any other State Party.

3. Each State Party to this Convention shall not impede, including through the use of deliberate concealment measures the national technical means of verification of other States Parties operating in accordance with paragraph 1 of this Element.

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*/ See alternative, p. 36 of Annex to document CD/334.

**/ See alternatives, p. 36 of Annex to document CD/334.

Element XIV: Consultations and Co-operation

1. The States parties to this Convention undertake to consult one another and co-operate in solving any problem which may arise in relation to the objectives of the Convention or in connection with the application of its provisions.

2. The States parties to this Convention shall exchange, bilaterally, multilaterally or through the Consultative Committee, information which they consider necessary to provide assurance of fulfilment of the obligations assumed under the Convention.

3. Consultation and co-operation shall also be undertaken through appropriate international procedures within the framework of the United Nations, in accordance with its Charter. Such procedures may include the use of the services of appropriate international organizations in addition to those of the Consultative Committee.

4. In the interests of enhancing the effectiveness of this Convention the States parties of this Convention shall not take any actions aimed at deliberately falsifying the actual state of affairs with regard to compliance with the Convention by other States parties.

Element XV: Consultative Committee

1. For the purpose of carrying out broader international consultation, co-operation and exchanging necessary information among States parties, providing expert opinion and promoting in other fashions the verification of the compliance with the provisions of the Convention the States parties shall establish a Consultative Committee within 30 days after the Convention's entry into force. Any State party shall have the right to appoint its representative to the Committee.

2. The Consultative Committee shall be convened as necessary and also at the request of any State party to the Convention within 30 days after the request has been received. */

3. Other questions relating to the organization and procedures of the Consultative Committee, its subsidiary bodies, their functions, rights, duties and methods of work, its role in on-site inspections, forms of co-operation with national implementation authorities, funding of its activities and other matters are set forth in Annex .. **/

4. In order to ensure the establishment of the Consultative Committee at the time given in paragraph 1 of this Element, after the signature of the Convention by .. ***/ States there shall be established a Preparatory Committee open for all signatory States.

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*/ See Options, p.41 of Annex to document CD/334.

**/ To be elaborated.

***/ To be agreed.

Element XVI: Fact-finding procedure

1. Each State party shall have the right to request, bilaterally or through the Consultative Committee, from another Party which is suspected of violating the Convention information on the actual state of affairs. The State to which the request is sent shall provide the requesting State party with information in connection with the request.

2. Each State party may, bilaterally or through the Consultative Committee, send to another State party which is suspected of violating the Convention a request for an on-site inspection. Such request may be sent after the possibilities of fact-finding within the framework of paragraph 1 of this element have been exhausted and shall contain all relevant information and all possible evidence supporting the validity of the request. The State party to which such a request is sent may treat the request favourably or decide otherwise. It shall inform the requesting State party in good time about its decision, and if it is not prepared to agree to an inspection, it shall give appropriate explanations.

3. Each State party, which is suspected of violating the Convention, shall have right to request an on-site inspection on its territory or anywhere under its jurisdiction or control.

Element XVII: On-site Inspection

1. The States parties to this Convention shall verify the destruction of stocks of chemical weapons at a converted or specialized facility (facilities) within a period of time envisaged for these purposes pursuant to provisions of Element V of this Convention through carrying out international on-site inspections on the basis to be agreed upon. */

2. The States parties to this Convention shall verify the production of super-toxic lethal chemicals for permitted purposes at a specialized facility (facilities) through carrying out international on-site inspections on the basis to be agreed upon. */

Element XVIII: Procedures with regard to possible violations of obligations under the Convention

1. Any State party which has reason to believe that any other State party has acted or may be acting in violation of obligations deriving from the provisions of the Convention shall have the right to lodge a complaint with the United Nations Security Council. Such complaint shall include all relevant information and all possible evidence supporting the validity of the complaint.

2. Each State party undertakes to co-operate in carrying out any investigation which the Security Council may initiate in accordance with the provisions of the Charter of

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*/ See alternatives, pages 42 and 43 of Annex to document CD/334.

the United Nations, on the basis of the complaint received by the Security Council. The Security Council shall inform the States parties of the results of the investigation.

3. Each State party to the Convention undertakes to provide assistance or support assistance being provided, in accordance with the provisions of the Charter of the United Nations, to any State party which requests it if the Security Council decides that such party has been exposed to danger as a result of the violation by another State party of obligations assumed under this Convention.

Element XIX: Relationship with Other Treaties

Nothing in this Convention shall be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, and the Convention on Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques.

Element XX: Amendments

1. Any State party to this Convention may propose amendments to the Convention. The text of any proposed amendment shall be submitted to the Depositary, who shall promptly circulate it to all States parties.

2. An amendment shall enter into force for all States parties to this Convention which have accepted it, upon the deposit with the Depositary of instruments of acceptance by a majority of States parties. Thereafter it shall enter into force for any remaining State party on the date of deposit of its instrument of acceptance.

Element XXI: Review Conference

1. .... years */ after the entry into force of this Convention, or earlier if it is requested by a majority of parties to the Convention by submitting a proposal to this effect to the Depositary, a conference of States parties to the Convention shall be held at Geneva, Switzerland, to review the operation of the Convention, with a view to assuring that the purposes of the Convention are being realized. Such review should take into account any new scientific and technological developments relevant to the Convention.

2. Further review conferences shall be held at intervals of ... years */ thereafter, and at other times if requested by a majority of the States parties to the Convention.

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*/ To be agreed.

Element XXII: Duration and Withdrawals

1. This Convention is of unlimited duration.

2. Each State Party to this Convention in exercising its national sovereignty has the right to withdraw from the Convention, if it decides that extraordinary events related to the subject matter of the Convention, have jeopardized its supreme interests. It shall give notice of such withdrawal to the Depositary three months in advance. Such notice shall include a statement of extraordinary events it regards as having jeopardized its supreme interests.

3. The Depositary on its part shall immediately inform the Security Council of the United Nations of the submission of a notice of withdrawal from a State Party to the Convention.

Element XXIII: Signature, Ratification, Accession

1. This Convention shall be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph 3 of this Element can accede to it at any time.

2. This Convention is subject to ratification by signatory States. Instruments of ratification or accession shall be deposited with the Secretary-General of the United Nations.

3. This Convention enters into force upon the deposit of instruments of ratification by ...*/ Governments, in accordance with paragraph 2 of this Element. **/

4. For those States whose instruments of ratification or accession are deposited after the entry into force of this Convention, it enters into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary shall promptly inform all signatory States and States Parties of the date of each signature, the date of deposit of each instrument of ratification or accession and the date of entry into force of this Convention and of any amendments thereto, as well as of the receipt of other notices.

6. This Convention shall be registered by the Depositary in accordance with Article 102 of the Charter of the United Nations.

7. Annexes to the Convention shall be considered an integral part of this Convention.

Element XXIV: Distribution of the Convention

This Convention of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send duly certified copies thereof to the Governments of the States Parties to the Convention and to Specialized and Associated Agencies of the United Nations system.

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*/ To be agreed.

**/ See options p.31 of Annex to document CD/334.

COMMITTEE ON DISARMAMENT

CD/334
15 September 1982
Original: ENGLISH

Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament

I. INTRODUCTION

1. A review of the work of the Committee on Disarmament on the question of chemical weapons during the first part of its 1982 session is contained in the special report presented to the Second Special Session of the General Assembly devoted to disarmament(document CD/292), which also covers the work of the Committee on Disarmament on this subject since 1979.

II. ORGANIZATION OF WORK AND DOCUMENTATION

2. In accordance with the decision taken by the Committee on Disarmament at its 174th plenary meeting held on 23 April 1982, the Ad Hoc Working Group on Chemical Weapons resumed its work on 20 July 1982 under the Chairmanship of Ambassador Bogumil Sujka of Poland. Mr. A. Bensmail, Senior Political Affairs Officer, United Nations Centre for Disarmament, served as Secretary of the Ad Hoc Working Group.

3. It should be recalled that the Ad Hoc Working Group on Chemical Weapons was re-established for 1982 at the 156th plenary meeting of the Committee on Disarmament held on 18 February 1982, with the following mandate:

> "... In discharging its responsibility for the negotiation and elaboration as a matter of high priority, of a multilateral convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction, the Committee on Disarmament decides to establish, for the duration of its 1982 session, an ad hoc working group of the Committee to elaborate such a convention, taking into account all existing proposals and future initiatives with a view to enabling the Committee to achieve agreement at the earliest date. ...".

4. The Ad Hoc Working Group held 26 meetings from 20 July to 15 September 1982. In addition, the Chairman held a number of informal consultations with delegations.

5. At the 177th plenary meeting of the Committee on Disarmament, the Chairman reported on the progress of work of the Ad Hoc Working Group.

6. The representatives of the following States not members of the Committee on Disarmament participated in the work of the Ad Hoc Working Group on Chemical Weapons: Austria, Denmark, Finland, Greece, Ireland, Norway, Spain and Switzerland.

GE.82-66568

7. During the second part of its 1982 session the following official documents dealing with Chemical Weapons were presented to the Committee on Disarmament:

- Document CD/294, dated 21 July 1982, submitted by the delegation of the Union of Soviet Socialist Republics, entitled "Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction"

- Document CD/298, dated 26 July 1982, submitted by Yugoslavia, entitled "Working paper on some aspects of verification in a chemical weapons convention"

- Document CD/299, dated 29 July 1982, submitted by Finland, entitled "Letter dated 27 July 1982, addressed to the Chairman of the Committee on Disarmament from the Chargé d'Affaires a.i. of the Permanent Mission of Finland, transmitting a document entitled 'Systematic identification of chemical warfare agents; identification of non-phosphorus warfare agents'"

- Document CD/301, dated 4 August 1982, submitted by Belgium, entitled "Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons"

- Document CD/306, dated 10 August 1982, submitted by the Netherlands, entitled "Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants"

- Document CD/307, dated 10 August 1982, submitted by the Netherlands, entitled "Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants"

- Document CD/308, dated 10 August 1982, submitted by the Federal Republic of Germany and the Kingdom of the Netherlands, entitled "Letter dated 9 August 1982 from the Heads of the Delegations of the Federal Republic of Germany and of the Kingdom of the Netherlands to the Chairman of the Committee on Disarmament transmitting a document containing preliminary questions concerning CD/294"

- Document CD/311, dated 11 August 1982, submitted by Norway, entitled, "Working paper on verification of a chemical weapons convention - sampling and analysis of chemical warfare agents under winter conditions"

- Document CD/313, dated 16 August 1982, submitted by Canada, entitled "A proposed verification organization for a chemical weapons convention"

- Document CD/316, dated 19 August 1982, submitted by France, entitled "Working paper on the monitoring of the destruction of stocks of chemical weapons"

- Document CD/324, dated 6 September 1982, submitted by Sweden, entitled "Working paper on toxicity criteria for 'key CW precursors'"

- Document CD/325, dated 6 September 1982, submitted by Sweden, entitled "Working paper on monitoring destruction of stockpiles of chemical weapons and chemical warfare agents"

- Document CD/326, dated 6 September 1982, submitted by the Federal Republic of Germany, entitled "Chemical Weapons - Working paper: Proposals on 'Declaration'. 'Verification', and the 'Consultative Committee'"

- Document CD/333, dated 14 September 1982, submitted by Poland, entitled "Views of the Chairman of the Ad Hoc Working Group on Chemical Weapons on possible compromise wordings of the elements of a future convention"

8. During the second part of its 1982 session, the following working papers were circulated to the Working Group:

- CD/CW/WP.35 submitted by the Union of Soviet Socialist Republics, entitled "Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction" (also issued as CD/294)

- CD/CW/WP.36 entitled "Consultations with delegations, assisted by experts, by the Chairman of the Working Group on Chemical Weapons"

- CD/CW/WP.33/Corr.1 entitled "Corrigendum to the Compilation of revised Elements and Comments thereto (CD/220), proposed new texts and alternative wordings as well as comments on new texts"

- CD/CW/WP.37 submitted by Yugoslavia, entitled "Working paper on some aspects of verification in a chemical weapons convention" (also issued as CD/298)

- CD/CW/WP.38 submitted by Yugoslavia, entitled "Suggested alternative definition of Chemical Weapons"

- CD/CW/WP.39 submitted by Belgium, entitled "Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons" (also issued as CD/301)

- CD/CW/WP.40 submitted by the Federal Republic of Germany and the Kingdom of the Netherlands, entitled "Letter dated 9 August from the Heads of the Delegations of the Federal Republic of Germany and of the Kingdom of the Netherlands addressed to the Chairman of the Committee on Disarmament transmitting a document containing preliminary questions concerning CD/294" (also issued as CD/308)

- CD/CW/WP.41 and Corr.1 entitled "Report of the Chairman to the Working Group on Chemical Weapons on the consultations held with experts on technical issues"

- CD/CW/WP.42 submitted by France, entitled "Working paper on the Monitoring of the destruction of stocks of chemical weapons" (also issued as CD/316)

- CD/CW/WP.43 entitled "Draft Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament"

- CD/CW/WP.44 submitted by Poland, entitled "Views of the Chairman of the Ad Hoc Working Group on possible compromise wordings of the elements of a future convention" (also issued as CD/333)

9. The following Conference Room Papers were also submitted to the Working Group during the second part of its 1982 session:

- CD/CW/CRP.60 entitled "Summary by the Chairman of initial comments made with respect to the suggested wording for Annex IV: recommendations and guidelines concerning the functions and organization of the national verification system CD/CW/CRP.42)"

- CD/CW/CRP.61 entitled "Opening statement by the Chairman of the Working Group on Chemical Weapons on 20 July 1982"

- CD/CW/CRP.62 submitted by China, entitled "Suggested alternative wording for Element II and Annex I"

- CD/CW/CRP.63 submitted by the Federal Republic of Germany, entitled "List of questions addressed to the delegation of the USSR on 22 July 1982 by the delegation of the Federal Republic of Germany with respect to document CD/294 (CD/CW/WP.35)"

- CD/CW/CRP.64 entitled "Timetable for the Chairman's consultations with experts on technical issues as presented in document CD/CW/WP.36 on 23 July 1982, to be held 2-6 August 1982"

- CD/CW/CRP.65 submitted by China, entitled "Suggested alternative wording for Element IX, 2(a) and (d)"

III. CHAIRMAN'S CONSULTATIONS WITH DELEGATIONS ON TECHNICAL ISSUES

10. Following the practice introduced in 1981 by the Chairman to hold consultations on certain technical questions relevant to the future Convention, the Chairman, during the second part of the 1982 session of the Group, convened consultations with delegations on issues recommended for further examination and in his previous report contained in document CD/CW/WP.30 of 22 March 1982. These consultations were held from 2 to 6 August 1982 and dealt specifically with the following issues:

(a) With regard to scope, possible standardized physical, chemical or biological methods enabling determination of the toxicity of "other harmful chemicals" and products formed in different kinds of production processes (including the binary technique) for chemical warfare agents, particularly those belonging to super-toxic lethal chemicals;

(b) With regard to verification, possible technical methods to monitor destruction of chemical weapons, inter alia, by means of specialized information gathering "black boxes", including the means for transmission and processing of such information.

11. At its 6th meeting, held on 11 August 1982, the Chairman of the Ad Hoc Working Group presented the report on his consultations as contained in document CD/CW/WP.41 and Corr.1. The Working Group devoted its 8th meeting to an in-depth discussion of this report. The Group took note of this report. While the usefulness of these consultations was unanimously recognized, the need to structure them according to the requirements of the future convention was emphasized, bearing in mind the close link between its technical and political aspects.

It was felt that the consultations with delegations on technical issues should be clearly relevant to the work of the Working Group. It was agreed that in the future the report should duly reflect the differing views expressed in these consultations. Some delegations emphasized that Chairman's consultations with delegations on technical issues can play a useful role only when they can contribute to the clarification of technical issues for such provisions of the future convention on which agreement in principle has been achieved. Other delegations held the view that these consultations could also help to provide a concrete basis for the consideration of key issues on which no agreement has yet been reached.

12. It was agreed that Chairman's consultations on technical issues should focus on the questions listed below. It was further agreed that during the time devoted to these consultations, between six and eight meetings should be devoted to each item, two meetings to the presentation of other technical issues of direct relevance to the work of the Working Group, aimed at facilitating the negotiating process, and four meetings for discussion of the report on the consultations.

Topics to be discussed:

A. On the basis of the working hypothesis on the definition of chemical weapons (see Annex, pages 3-10) including the concepts of precursors and key precursors, it is suggested that the following questions may be directed to the technical expertise of delegations:

(a) what are the views on the "working hypothesis" on definition of these concepts?

(b) to what extent - and by which method - would it be possible to compose lists of key precursors?

B. With respect to destruction of stockpiles of chemical weapons, verification procedures should

(i) verify the types and quantities of chemicals to be destroyed;

(ii) ensure that they have been destroyed.

In this connection technical experts of delegations may be asked to address the following questions:

(a) what technical procedures could be suggested in order to monitor destruction of stockpiles of chemical weapons?

(b) what specific elements need to be included in declarations made by State Parties, in order to meet the requirements mentioned above?

(c) do methods of destruction of stockpiles need to be specified, and in what detail, in order to assure State Parties that stocks have been destroyed and are not capable of being diverted again to use as chemical weapons?.

IV. SUBSTANTIVE CONSIDERATIONS DURING THE SECOND PART OF THE 1982 SESSION

13. During the second part of its 1982 session, the Group at the suggestion of the Chairman, proceeded to another detailed examination of the Revised Elements and of the Comments Thereto, contained in document CD/CW/WP.33 and Corr.1 with a view to elaborating the provisions of the future convention.

14. As a result of the consideration of the Revised Elements and of the Comments Thereto, and after extensive informal consultations in the Working Group, the Working Group accepted the Chairman's suggestion to establish nine open-ended contact groups in order to advance the process of elaboration of the convention. These informal contact groups, which are listed below, dealt with the following spheres of the convention:

(a) Element I: scope of the chemical weapons convention;
(Co-ordinator: Mr. T. Melescanu, Romania)

(b) Element II: definitions;
(Co-ordinator: Dr. J. Lundin, Sweden)

(c) Element IV: declarations;
(Co-ordinator: Mr. T. Altaf, Pakistan)

(d) Element V: destruction, diversion, dismantling and conversion;
(Co-ordinator: Mr. S. Duarte, Brazil)

(e) Element IX: general provisions on verification;
(Co-ordinator: Mr. G. Skinner, Canada)

(f) Preamble and Final Clauses of the future chemical weapons convention;
(Co-ordinator: Mr. R. Steele, Australia)

(g) Element X: national implementation measures
(Co-ordinator: Dr. H. Thielicke, German Democratic Republic)

(h) Element XI: national technical means of verification
(Co-ordinator: Dr. H. Thielicke, German Democratic Republic)

(i) Elements XII and XIII: consultation and co-operation;
consultative committee.
(Co-ordinator: Miss N. Nascimbene, Argentina)

15. The results of the work of these Contact Groups were reflected in the reports of the Co-ordinators which were discussed in-depth in the Working Group and subsequently revised by the co-ordinators. These reports are attached in-extenso in the Annex. The method of work adopted by the Working Group in the second part of its 1982 session, and in particular the functioning of open-ended contact groups, was recognised by all delegations as fully appropriate for the present stage. Delegations paid tribute to the Chairman, Ambassador Sujka, for his imaginative proposals in this regard.

16. The Chairman, having taken into account:

- the views expressed by different delegations at the plenary meetings of the Committee devoted to Chemical Weapons;
- the extensive discussions during the meetings of the Working Group;
- the equally extensive discussion in the contact groups;
- the thorough examination of and discussion on the report of each of the contact groups;
- and the consultations with numerous delegations,

presented his views on possible compromise wordings of the elements of the future convention. These views are contained in document CD/333(CD/CW/WP.44). The Working Group appreciated the Chairman's contribution and recommended to take it into consideration along with the reports of the contact groups in its deliberations during 1983.

17. The Ad Hoc Working Group on Chemical Weapons has agreed to recommend to the Committee on Disarmament that the Group should resume its work on 17 January 1983. It has further agreed that it should start its 1983 session with the Chairman's consultations with delegations on technical issues.

18. The Ad Hoc Working Group on Chemical Weapons has agreed to recommend to the Committee on Disarmament that the Group should continue its work under the present Chairman between 17 and 28 January 1983, taking into account all existing proposals and future initiatives. During this period the Group will continue the work carried out in 1982, including through meetings of the contact groups established in 1982, and through the Chairman's consultations on technical issues envisaged in paragraph 12 above. It also agreed to recommend that the consultations on technical issues should continue to the end of the first week of the Committee's 1983 session, and that the 1982 Chairman of the Working Group should prepare a report on the basis of his consultations. It was further agreed that the work of the Working Group itself during the period 17-28 January should be reported as part of the 1983 report.

ANNEX

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ANNEX

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON THE SCOPE OF THE CHEMICAL WEAPONS CONVENTION

I. Basic positions:

1. Text without a prohibition of use:

"Each State Party to this Convention undertakes, under no circumstances, to develop, produce, otherwise acquire, stockpile, retain or transfer chemical weapons, and to destroy or dispose for permitted purposes of existing stocks of such weapons, and also to destroy or dismantle facilities and means of production of such weapons."

2. Direct inclusion of a prohibition of the use of chemical weapons in Element I:

"Each State Party to this Convention undertakes never in any circumstances to develop, produce, otherwise acquire, stockpile, retain, transfer or use chemical weapons and to destroy or otherwise dispose of existing stocks of chemical weapons and means of production of such weapons."

II. Proposals for optional alternatives concerning the reaffirmation of the "non-use" regime provided for in the 1925 Geneva Protocol, and its reinforcement through one or more of the following:

(a) a preambular provision recalling the 1925 Geneva Protocol and reaffirming the prohibition of use;

(b) a specific provision prohibiting use in situations not covered by the 1925 Geneva Protocol;

(c) a provision stating that CW convention should not be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Geneva Protocol of 1925 (along the lines of existing Element VII);

(d) a specific article in the body of the future convention recognizing that any use of chemical weapons will constitute a violation of the chemical weapons convention and stipulating that as a consequence the provisions on verification included in CW convention will apply to such situations as well;

(e) a specific provision should be included in the section dealing with the "complaints procedure" of the future Convention. Such a provision should recognize that any use of chemical weapons by a State Party or with the assistance of a State Party would indicate a violation of one or more of the obligations assumed under the scope of the Convention. The competence of the Consultative Committee would consequently be extended to the allegations of use.

(f) provisions for the verification in CW Convention will include methods and mechanisms for the verification of the prohibition to use chemical weapons.

(g) separate mechanism for investigating suspected use of chemical weapons and biological weapons in combat;

(h) including the prohibition of use in the definitions of the chemical weapons convention;

(i) in the interests of enhancing the effectiveness of the Convention, the States Parties shall agree in due form to prevent any actions aimed at deliberately falsifying the actual state of affairs with regard to compliance with the Convention by other States Parties.

III. Co-ordinator's proposals for "a working hypothesis":

In the event that consensus is reached that Element I of the future convention may not include a reference to the prohibition of use, this question could be handled as follows:

In the preamble of the Convention, a paragraph will recall the 1925 Geneva Protocol and reaffirm the prohibition to use chemical weapons; Element VII will also contain a reference to the Geneva Protocol stating that the Convention should not be interpreted in any way as limiting or affecting the obligations assumed by States on the basis of the 1925 Protocol;

In addition, a new article will be included in the Convention recognizing that any use of chemical weapons will ipso jure constitute an evidence of a violation of the CW Convention and, accordingly, the provisions on verification included in CW Convention will apply to such situations as well.

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Prohibition of the planning, organization and training in chemical warfare capability

In the last meeting of the Group, a short exchange of views on the possible inclusion of the prohibition of the planning, organization and training into a CW convention took place. It appeared that the basic positions expressed on this subject remain the same. It was consequently agreed to postpone a discussion on this item till after further discussions on other problems like verification or non-use.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON DEFINITIONS

1. The Contact Group has considered basic definitions for the purpose of the convention of "chemical weapons", "precursors" and toxicity criteria, and of "permitted purposes". Discussions have also been held on the possible meaning of expressions concerning other aspects of the convention as "production capability/capacity" and "destruction".

2. In its work, the Contact Group has recognized that the possible outcome of its deliberation could not be perceived as in any way binding for the delegations, who took part, or for any other delegations. The basic positions of delegations still are those reflected in CD/220 and WP.33, both in the "elements" and in the comments to them, and also in CD/294.

3. The co-ordinator feels, however, that he was supported by the Contact Group in his endeavours to present "working hypothesis" regarding the possible content of the definitions mentioned, at the same time accounting for the main divergent or optional views on the suggested content. The report, therefore, presents such working hypothesis and comments on them, and, when necessary, preceded by an introduction to the subject. The introduction contains points of view which were offered by delegations as explanations for suggested parts of definitions.

4. Even if it is the hope that the working hypotheses might serve delegations in their work to narrow differences of views on definitions, they should be considered to be only basic approaches. Thus they are not intended to reflect all the controversial issues which are discussed to be included in the scope, even if occasionally some reference may be made to that.

5. Before starting the work on definitions, the Contact Group discussed the "purpose criterion". It was agreed that this concept need not be defined for the purpose of the convention. However, the following tentative description seemed to be generally acceptable:

(1) It allows a State to determine what it is allowed to do and what it must not do.

(2) It provides a guideline for one State to evaluate another State's activities.

(3) It provides, together with the quantity criterion, a starting point for elaborating more specific criteria (e.g. toxicity, lists). Such criteria can serve as a guide to selection and application of specific verification measures.

6. Working hypothesis regarding a basic definition of chemical weapons.

(a) The definition should comprise only such concepts which are necessary for the purpose of the convention.

(b) The definition should express the typical effects of chemical weapons, i.e. that their effects are due to the utilization of the toxic properties of chemicals to cause death or other harm.

Comments:

Weapons utilizing other properties of chemicals, e.g. radioactivity or their content of energy, are not to be considered as chemical weapons even if such chemicals happen to be more or less toxic.

It may be a question of presentation where in the definition this idea should be expressed, whether in an introductory part of the definition or in the body of the definition.

Suggestions have been made that reference has to be made to the use in war, armed conflict or combat in this connection.

The formulation suggested about toxic properties of chemicals could imply a reference to toxic effects of chemical weapons to all living organisms.

(c) The term "chemical weapons" should be applied to each of three different categories of items:

(i) Toxic chemicals which meet certain criteria, and their precursors.

(ii) Munitions and devices which meet certain criteria. This category includes binary and other multi-component munitions or devices.

(iii) Equipment specifically designed for use directly in connection with the employment of such munitions or devices.

Comments:

The above mentioned part of the definition that chemical weapons utilize the toxic properties of chemicals could as well appear in the body, (i)-(iii), of the definition.

Another approach might be to define "chemical warfare agent" and apply the criteria referred to under (a) to such chemical warfare agents.

(d) The general undertakings in an Article I of a future convention shall not apply to chemicals, which can be shown to be produced etc. for certain permitted purposes in quantities appropriate for such purposes. However, such chemicals may have to be subject to certain clarification procedures concerning the provisions in article I, as may be expressed in appropriate future articles on verification.

Comment:

The way to express this in the convention is not agreed upon yet.

(e) The criteria for placing chemicals in toxicity categories as super-toxic lethal chemicals, other lethal chemicals, and other harmful chemicals, could be expressed as follows:

(i) A "super-toxic lethal chemical" is any toxic chemical with a median lethal dose which is less than or equal to 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation), when measured by the methods set forth in .

(ii) Any "other lethal chemical" is any toxic chemical with a median lethal dose which is greater than 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation) and which is less than or equal to 10 mg/kg (subcutaneous administration) or 20,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in .

(iii) Any "other harmful chemical" is any toxic chemical with a median lethal dose which is greater than 10 mg/kg (subcutaneous administration) or 20,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in .

Comments:

Preliminary agreed protocols for toxicity determinations by subcutaneous administrations and by inhalation have been worked out during technical consultations.

The category "other harmful chemical" might be subdivided into categories, which referred to other toxic effects than lethal effects. This would presume agreements on methods to measure such other harmful effects as sensory irritant effects, mentally and physically incapacitating effects, skin lesion effects etc.

(b) For the purpose of the convention a general and broad definition of "precursor" could contain the following:

(i) Precursors as mentioned in , are chemicals, which, when made to react chemically form chemicals as are mentioned in (reference to the place where super-toxic lethal, other lethal, and other harmful chemicals first are mentioned in the definition of chemical weapons).

Comment:

An alternative formulation might be:

"Precursor" means any chemical, which may be used as a reactant in production of a super-toxic lethal chemical, other lethal chemical, or other harmful chemical.

(ii) It would be prohibited under the convention to develop, produce, stockpile, otherwise acquire, retain or transfer precursors as defined above other than for permitted purposes.

(c) A definition of "key precursor" could contain the following:

(i) A key precursor would be the reactant(s) in one or in a few consecutive chemical syntheses leading to the formation of a super-toxic lethal, other lethal, or other harmful chemical, which determines the class of chemical (expressed in the chemical structure) of the toxic chemical(s) formed when the reaction(s) is taking place

- in a production facility producing super-toxic lethal, other lethal or other harmful chemicals,
- in a chemical weapon warhead or other disseminating device for chemical weapons, before the dissemination of the intended final, toxic product(s); or outside the dissemination device during or after dissemination.

(ii) Key precursors would have to be destroyed i.e. transformed into chemicals without significance themselves for production of toxic chemicals. Such destruction as well as non-production of key precursors should be subject to verification as set out in .

Comments:

A definition of key precursors thus could contain the following characteristics:

The key precursor would

- be a precursor in the final stages of the production process,

- be particularly important in determining the end product,
- be of relatively little use for non-hostile purposes,
- pose a serious risk from the standpoint of an effective ban and therefore require particular attention with respect to verification.

A definition of key precursor may also serve State Parties to a convention as a guide for evaluation of future developments with respect to key precursors which have not previously been generally known or were discovered in the future.

For the latter purpose, alleged key precursors, and for which data proving this were lacking, could be related to any of the three types of toxic chemicals by means of toxicity determinations on their end products formed in their reactions with other precursors.

The existence of the definition would also serve as a guideline when chemicals falling under the general definition of precursors above may not need to be destroyed or could be diverted or produced for permitted purposes.

Optional to having an explicit definition of key precursors, it might be possible to have only a list of key precursors. Such a list could be established and revised as necessary by the Consultative Committee on the basis of agreed criteria similar to those discussed above. This might make it possible to have a simple definition like e.g.:

"Key precursor" means a precursor which has been identified by the Consultative Committee, on the basis of agreed criteria, as requiring particular attention from the point of view of destruction.

A list of key precursors could also be made up in addition to a definition of key precursors.

The question of lists of key precursors was not thoroughly discussed during the consultations but seems to be favourable to most delegations. Nor was it discussed as to which extent they might be revised.

9. A preliminary discussion was held with respect to possibly needed definitions, for the purpose of the convention, of "production facility", "production capacity" and of "destruction". The background material presented as a basis for the discussions by the co-ordinator are presented below, amended in accordance with the few points of view there was time to obtain on these matters during the consultations.

(a) "Production facility" could mean the plant or part of plant, where chemical weapons be produced.

(b) "Production capacity" could mean the amount of chemical weapons that might be produced during a given period of time under agreed assumption, and/or
the number of production facilities, which might produce chemical weapons and their combined output during one year under agreed assumptions.

Comment:

Instead of their combined output, the output of each production facility might be given.

(c) "Destruction" could mean one or more of the following activities to eliminate chemical weapons and production facilities.

(i) With regard to chemical weapons

Chemicals:

Change of the chemical into degradation products, which may be uneconomical to utilize for repeated production of the same chemical. The process should be performed in a way that is not detrimental to the environment.
This might include utilization of the chemical directly in a (irreversible) production process leading to other chemicals, which could not economically be utilized for production of the same chemical or facilitate production of such chemicals. Such a change of the chemical may be referred to as diversion or conversion instead of destruction, and would have to be declared and performed according to agreed procedures, and be subject to particular verification measures.

Munitions and devices:

Make such munitions or devices unserviceable for chemical weapons purposes, preferably by crushing them into pieces.

Specifically designed equipment:

Make such equipment unserviceable and removed from weapons systems etc.

(ii) With regard to production facilities

- physically take apart or disintegrate the facility and remove all parts in an unserviceable state from the facility, leaving the site empty,
- dismantle and disperse for other purposes some or all of the parts of a production facility. Removed parts and the purposes of their utilization should be declared and verified.

APPENDIX

Reference material:

Document CD/112, 7 July 1980, p. 2-3, entitled

"Letter dated 7 July 1980 addressed to the Chairman of the Committee on Disarmament from the representatives of the USSR and the United States to the Committee on Disarmament."

Document CD/220, 17 August 1981, entitled

"Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament."

Document WP.33, 28 April 1982, p. 5-11, entitled

"Compilation of revised Elements and Comments thereto (CD/220), proposed new texts and alternative wordings as well as comments on new texts."

Document CD/266, 24 March 1982, submitted by Yugoslavia, entitled

"Working paper, Binary weapons and the problem of their definition and verification."

Document CD/294, 21 July 1982, submitted by the USSR, entitled

"Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction, Proposal of the USSR."

Document CD/CW/CRP.62, 26 July 1982, submitted by China, entitled

"Suggested alternative wording for Element II and Annex I."

Document CD/CW/WP.30, 22 March 1982, Annexes III and IV, entitled

"Report of the Chairman to the Working Group on Chemical Weapons on the consultations held on issues relating to toxicity determinations."

Document CD/CW/WP.38, 28 July 1982, submitted by Yugoslavia, entitled

"Suggested alternative definitions of Chemical Weapons."

Document CD/CW/CRP.31, CD/CW/CTC/13, 19 March 1982, submitted by United States of America, entitled

"Precursors."

Document CD/CW/CTC/15, 26 July 1982, submitted by Sweden, entitled

"Chairman's Consultations on Toxicity Criteria."

Document CD/CW/CTC/19, 5 August 1982, submitted by China, entitled

"Chairman's Consultations on Toxicity Criteria."

Document CD/CW/CTC/27, 9 August 1982, submitted by USSR, entitled

"Some problems associated with the prohibition of binary weapons and the verification of compliance with such prohibition."

A number of written suggestions from delegations, as well as many earlier contributions to the Working Group, have not been listed here.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT IV (DECLARATIONS)

1. POSSESSION OR NON-POSSESSION

Possession or non-possession of "Chemical Weapons" (as defined in the relevant element of CW Convention including all components) and production facilities in use or inoperative whether on State's own property or abroad or belonging to other State(s) on one's own property including those whose ownership is not well defined.

Timings: Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

(A) "Chemical Weapons" Stocks

(a) Agents: Description by weight in metric tons including quantities in bulk and filled into munitions and

Alternative I Description by toxicity category:

- Supertoxic lethal nerve gases (G-gases, V-gases);
- Supertoxic lethal blister gases (H-gases);
- Other supertoxic lethal chemicals;
- Other lethal chemicals;
- Other harmful chemicals including incapacitants, psychotropic chemicals, Convulsants and disabling chemicals; irritants including those meant for law enforcement purposes.

Alternative II Description by toxicity category (supertoxic lethal, other lethal and other harmful) and by chemical names.

(b) Precursors:

Alternative I Precursors including those of binary type and individual chemicals in accordance with the categories mentioned in (a) Alternative I above.

Alternative II Description by weight in metric tons filled and unfilled and by chemical names.

(c) Munitions and devices

Alternative I As described through toxicity categories quantities of agents and precursors.

Alternative II (i) Types, weight and number of unfilled.

(ii) Types, weight and number of filled.

(d) "Equipment specifically designed for use in CW"

Alternative I As described through toxicity categories quantities of agents and precursors.

Alternative II Types and number including of auxiliary filling equipment.

Location:

Alternative I No declarations.

Alternative II Exact description of location by precise geographic co-ordinates.

Timing: Not later than 30 days after the convention's entry into force or the State Party's adherence to it.

(B) Production Facilities:

(a) Type

Alternative I Declaration for purposes of destruction

(i) Agent production and key precursor production facilities including types of products.

(ii) Filling facilities.

(iii) Key precursor production facilities.

Alternative II Declaration for purposes of destruction as well as Confidence Building Measures

(i) Agent production and key precursor production facilities including types of products.

(ii) Filling facilities.

(iii) Key precursor production facilities.

(iv) Munitions and devices production facilities which are exclusively or partially designed or used for this purpose.

(b) Capacity of Production Facilities

Alternative I Types, weight and/or quantity in terms of time as follows:

(i) Capacities for production of chemicals are declared directly in units of chemicals weight.

(ii) Capacities for filling of munitions are declared in units of chemical weights.

(iii) Capacities for production of filled munitions of binary or multicomponent charges are declared in units of chemicals' weight as applied to the chemicals of a specific type which could be formed in combat use.

(iv) Capacities for production of unfilled munition of binary or multicomponent charges are declared in units of weight of the chemicals which could be formed after filling the munitions.

Alternative II — Types, weight and/or quantity in terms of time.

Location: Exact geographical location of facilities will be declared in degrees, minutes and seconds.

Declarations will also include description of following types of facilities:

(i) Existing facilities: Last date of operation.

(ii) Converted; present use; last date used for CW.

(iii) Dual purpose facilites:

Alternative I — No declaration of dual purpose facilites.

Alternative II — Dual purpose facilities which are specifically designed or used in part for production of any chemical which is primarily used for CW.

Alternative III — Dual purpose facilities which are capable of conversion to proper CW facilities.

Alternative IV — The number and location of all industrial facilities for the production of organophosphorous substances.

Timings:

Alternative I

(i) Possession of facilities 30 days after the Convention's entry into force or the State Party's adherence to it.

(ii) Capacity of facilities not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Location: Not later than one year before destruction.

Alternative II — All declarations regarding possession, capacity and location of facilities be made not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Stocks and production facilities belonging to other States

(a) Total quantity [in units of weight] according to each type of chemical [super-toxic lethal, other lethal and other harmful chemicals];

(b) Facilities for the production of chemical weapons or any of their elements, controlled by any other State, group of States, organization or private individual [indication of capacity of such facilities].

Possible need for declaration of findings of old stocks of chemical weapons, which were not known to a Party itself, when the convention entered into force, and of plans for the destruction of such stocks.

2. PLANS FOR DESTRUCTION OF STOCKS

Declarations regarding plans and time frames for destruction of stocks will cover "Chemical Weapons" as defined in the relevant element of the Convention.

Description of destruction process will cover the following:

(i) Type of operation.

(ii) Time schedule including percentage quantities planned for destruction in specific time frames.

(iii) What is being destroyed and at what location.

(iv) Aimed at end production.

Alternative I — Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Alternative II — Within 90 days after the Convention's entry into force or the State Party's adherence to it.

Alternative III — Within six months after the Convention's entry into force or the State Party's adherence to it.

3. PLANS FOR ELIMINATION OF PRODUCTION FACILITIES

Declarations regarding plans and time frames for elimination of production facilities will cover the following:

(i) Location of facilities.

(ii) Plans for (a) dismantling; and (b) destruction.

(iii) Time frames for completion of separate stages of elimination (if necessary)

Description of destruction process will cover the following:

(i) Type of operation.

(ii) Time schedule.

(iii) What is being destroyed and at what location.

(iv) Aimed at end product (if any including description of equipment elements for peaceful purposes).

Timings:

Alternative I — Within 30 days after the Convention's entry into force or the State Party's adherence to it.

Alternative II — Within six months after the Convention's entry into force or the State Party's adherence to it.

Alternative III — Within seven years after the Convention's entry into force or the State Party's adherence to it.

4. IMPLEMENTATION OF THE PLANS FOR DESTRUCTION OF STOCKS

(i) Progress report of stocks destroyed during last year/period including details of types, quantities and destruction methods.

(ii) Plans for destruction during next year/period including details of types, quantities and destruction methods.

5. IMPLEMENTATION OF THE PLANS FOR DISMANTLING/DESTRUCTION OF PRODUCTION FACILITIES

(i) Progress report of facilities dismantled/destroyed during last year/period including type and location and elimination method.

(ii) Plans for dismantling/destruction of facilities during next year period including location, type and elimination method.

Timings: Annual/Periodical.

6. COMPLETION OF ELIMINATION ACTIVITIES

Declaration of completion of elimination activities of all "Chemical Weapons" and production facilities.

Timings: Not later than 10 years.

7. STOCKS OF SUPER-TOXIC LETHAL CHEMICALS FOR PERMITTED PURPOSES AND THE FACILITIES FOR PRODUCTION OF SUCH CHEMICALS

(a) Super-toxic lethal chemicals produced, diverted from stocks, acquired or used:

Alternative I

(i) For purposes directly connected with protection against chemical weapons;

(ii) For industrial, agricultural, research, medical or other peaceful purposes and for military purposes not connected with the use of chemical weapons.

Alternative II

(i) For purposes directly connected with protection against chemical weapons.

(b) Location and capacity of the specialized facility for the production of super-toxic lethal chemical for protective/permitted purposes.

Timings: Within 30 days - (for stocks held at entry into force)
Annual/Periodic - (subsequently).

8. Alternative I Production and use of other lethal chemicals for permitted purposes.

Alternative II Production and use of commercial chemicals which pose a special risk.

Alternative III Production of organophosphorous substances.

Other lethal chemicals and precursors produced, acquired retained or used for permitted purposes including their quantities, total production, chemical names, uses and location and capacity of facilities where produced.

Timings: (i) Within 30 days - (for stocks held)

(ii) Annual/Periodic - (subsequently).

9. TRANSFERS

Alternative I (i) Volume of transfers since 1 January 1946.

(a) Quantities of chemicals transferred/super-toxic, lethal, other lethal and other harmful chemicals.

(b) Quantities of transferred munitions and other means of combat use/weight of the chemicals filled in those munitions;

(c) Technological equipment for the production of chemical weapons and corresponding technical documentation/in units of weight of the chemicals which could have been produced as a result of such transfers.

(ii) Declare type and quantity of super-toxic lethal chemicals transferred for permitted purposes and names of recipient State(s).

Alternative II Declare type and quantity of super-toxic lethal chemicals transferred for protective purposes and names of recipient State(s).

Timings: For Alternative I (i)

Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

For Alternative I (ii) and Alternative II

30 days in advance of transfer.

10. DIVERSION OF STOCKS

Details of types, quantity and intended use.

Timings: Alternative I

Along with/as part of the declaration of plans for destruction of the stocks.

Alternative II

Along with/as part of the declaration of implementation of destruction of stocks.

11. CONVERSION OF PRODUCTION FACILITIES TO DESTRUCTION FACILITIES

Details including location, type, capacity.

Timings: Alternative I

Along with/as part of plans for elimination of facilities.

Alternative II

At the time of declaration of plans for destruction of stocks.

12. CESSATION OF ACTIVITIES RELATED TO POSSIBLE USE OF CHEMICAL WEAPONS

(a) Issue an open general order to the effect that planning, organization and training intended to enable the utilization of toxic properties of chemicals as weapon in combat should not take place;

(b) Ascertain that all organization charts, plans, manuals etc. containing provisions intended to enable the utilization of toxic properties of chemicals as weapon in combat, are withdrawn or revised;

(c) Declare the composition of equipment intended to protect against chemical weapons.

Timings: Not later than 10 years.

OPTION: No such declaration.

SUBMISSION OF DECLARATIONS

All declarations will be submitted to the Consultative Committee who will inform all States Parties.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT V
(DESTRUCTION, DIVERSION, DISMANTLING AND CONVERSION)

A - DESTRUCTION OF STOCKS:

I - ARTICLE: Agreed sub-elements to be included

(a) general obligation to destroy all existing stocks of chemical weapons;*/

(b) possibility of diversion of stocks for peaceful purposes, subject to conditions and circumstances set forth in the Annex;

(c) obligation to utilize sage methods of destruction that will avoid harm to the environment and to populations;**/

(d) provision on international co-operation to facilitate implementation of the Convention,***/ including the possibility of transfer of chemical weapons to another State Party for the purpose of destruction;

(e) indication of the over-all duration of the process of destruction, to be counted from the time the Convention enters into force for each State Party (suggestion: 10 years):

- time of start of actual destruction (alternatives):

(i) not later than six months after the Convention enters into force for each State Party;

(ii) not later than two years after the Convention enters into force for each State Party.

Other sub-elements proposed by some Delegations:

(a) obligation to destroy precursors that may be used for binary weapons;*/

(b) placement of all stocks under international supervision at the time the Convention enters into force for each State Party;

(c) obligation to utilize methods of destruction that permit adequate verification.

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*/ Suggested addition: "This includes all items defined as 'chemical weapons', including all types of precursors". If under the Element "Definitions", all precursors fall within the definition of "chemical weapons", this addition would render unnecessary the proposed sub-element (a) for the Article.

**/ This obligation could be stated in a separate Article applying to the destruction of both stocks and facilities.

***/ This provision could be stated in an appropriate place so as to apply both to the destruction of stocks and of facilities.

II - ANNEX: Agreed sub-elements to be included:

(a) conditions and circumstances for permitted diversion of stocks for peaceful purposes (to be further elaborated);*/

(b) procedures and operations to be accomplished during the over-all period of destruction:

- initial stage (from the time the Convention enters into force for each State Party to the time of start of actual destruction):
  - submission of plans for destruction of stocks; such plans should include:
    + quantities and types of agents to be destroyed;
    + time scheduled for the process of destruction;
    + description, in general terms, of method(s) to be employed for destruction;
    + indication of place(s) of facility(ies) used for destruction.
  - destruction stage (from the start of actual destruction to the end of over-all period of destruction):
    + (to be seen in connection with the declarations required from Parties relating to destruction of stocks).

Other sub-elements proposed by some Delegations:

(a) provisions for ensuring adequate balance during destruction stage so as to avoid the acquisition of military advantage by one State Party over another (p.ex., agreed rates of destruction);

(b) provisions for ensuring minimization of economic damage and for avoiding unnecessary or burdensome interference with peaceful chemical industry.

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*/ Suggested conditions and circumstances: (a) list of agents the diversion of which would be permitted; (b) international supervision of diversion; (c) diversion to be carried out in an irreversible manner, so as to prevent the re-utilization of component agents as weapons.

B - DESTRUCTION OF FACILITIES

I - ARTICLE: Agreed sub-elements to be included:

(a) general obligation to destroy and dismantle facilities,*/ and not to construct new ones;

(b) obligation to close down such facilities at the time the Convention enters into force for each State Party, and to cease production of chemical weapons at that time;

(c) provision for temporary conversion of production facilities into facilities for the purpose of destruction of stocks;

(d) obligation not to reconvert such converted facilities, and to destroy or dismantle them as soon as they are no longer needed for the purpose of destruction of stocks;

(e) indication of over-all maximum duration of the process of destruction, to be counted from the time the Convention enters into force for each State Party (suggestion: 10 years)

- time of start of actual destruction:

(alternative suggestions)

(i) six months after the Convention enters into force for each State Party;

(ii) not later than eight years after the Convention enters into force for each State Party.

Other sub-elements proposed by some Delegations:

(a) provision for the possibility of building special facilities for the purpose of destruction of stocks;

(b) provision for the possibility of re-utilization in peaceful industry of certain types and categories of equipment, according to specification to be set forth in the Annex.

(c) obligation to utilize methods of destruction that permit adequate verification.

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*/ The term "facility" should be understood as defined in Element II. The following definition was suggested by some Delegations: "Facilities and/or equipment designed or used for the production of any chemical which is primarily useful for chemical weapons purposes, or for filling chemical munitions".

II - ANNEX: Agreed sub-elements to be included:

(a) elaboration of procedures and operations to be accomplished during the over-all period of destruction:

(i) initial stage (from the time the Convention enters into force for each State Party to the time of the start of actual destruction)

- immediate cessation of production and closing down of facilities;
- submission of detailed plans for destruction of facilities; such plans should include:
  + location of facility(ies);
  + description of method(s) to be employed for destruction;
  + indication of facility to be temporarily converted for destruction of stocks;
  + plans for destruction of such converted facility.

(ii) destruction stage (from the start of actual destruction to the end of the over-all period):

(to be seen in connection with the declarations required from Parties relating to the destruction of facilities).

Other sub-elements proposed by some Delegations:

(a) specification of types and categories of equipment that could be reused in peaceful industry;

(b) provisions for ensuring adequate balance during the destruction stage, so as to avoid the acquisition of military advantage by one State Party over another (p.ex., agreed rates of destruction).

C - QUESTIONS BEARING ON ELEMENT V THAT SHOULD BE DEALT WITH ELSEWHERE IN THE CONVENTION

(a) issues pertaining to "Definitions":

- definition of weapons and agents prohibited under the Convention and which should thus be destroyed (see Section A on "Destruction of Stocks" and note to agreed sub-element (a) of the Article and to proposed sub-element (a));
- definition of facilities and/or equipment for the production of chemical weapons, which should thus be destroyed (see Section B on "Destruction of Facilities" and note to agreed sub-element (a) of the Article);
- definition of the concept of destruction/dismantling, both with regard to stocks and with regard to facilities.

(b) issues pertaining to "Declaration":

- specification of all declarations to be required from States Parties relating to the process of destruction/dismantling, both of stocks and facilities, including periodical declarations (suggestion: annual declarations during the destruction stage):
- specification of the authority to which plans for destruction of stocks and facilities should be submitted (suggestion: the Consultative Committee);

(c) issues pertaining to "Verification":

- adequate procedures for the verification of compliance with the obligations set forth in Element V.

(d) issues pertaining to the prohibition of transfer of chemical weapons:

- exception to the obligation not to transfer chemical weapons, so as to permit the transfer of stocks for destruction purposes as set forth in the Article on stocks (see Section A, "Destruction of Stocks", sub-element (d) of the Article).

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT IX
(GENERAL PROVISIONS ON VERIFICATION)

ELEMENT IX - MIGHT CONTAIN THE FOLLOWING POINTS:

1. Purpose of verification: to provide assurance of compliance with the provisions of the Convention (CD 220).

2. Scope of verification: appropriate and agreed verification measures should be applied on the basis of the principle of reciprocity to, inter alia:

   (a) Elements I-IV, concerning prohibition of development, production, other acquisition, stockpiling, retention and transfer of chemical weapons;

   (b) Elements I and V, concerning destruction or otherwise disposal of existing stocks of chemical weapons and their means of production; over an agreed period of time;

   (c) Element VI concerning super-toxic lethal chemicals for non-hostile military purposes;

   (d) Enquiry into facts, including on-site verification on an agreed basis, on questions related to alleged contravention of the terms of the convention.

3. Means of verification:

   (a) Technical means of verification: Element IX could indicate that agreed techniques of verification appropriate to the task required are identified under each substantive head (now contained in Elements II-VI);

   (b) Organizational means of Verification: Element IX could provide for the establishment of a Consultative Committee to act as a permanent body for the monitoring of the implementation of and compliance with the terms of the Convention.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON THE PREAMBLE AND FINAL CLAUSES OF THE FUTURE CHEMICAL WEAPONS CONVENTION

SECTION A: CONCEPTS AND OPTIONS

PREAMBLE

Concepts

(i) Bringing about general and complete disarmament

(ii) CW ban as a necessary disarmament step

(iii) Determination to exclude possibility of use; CW use repugnant to the conscience of mankind

(iv) Strengthening peaceful co-operation in scientific fields

(v) BW Convention undertaking on CW negotiations

(vi) Recognizing significance of 1925 Protocol and BW Convention

(vii) Charter of the United Nations

(viii) CW convention important for social and economic development

Options

- inclusion of prohibition of use in first preambular paragraph
- chemistry for the benefit of mankind
- principle of non-diminished security (at lower levels of armaments)

SECTION B: VARIOUS SPECIFIC PROPOSAL

PREAMBLE

(i) Disarmament

Reaffirming their adherence to the objectives of general and complete disarmament, including the prohibition and elimination of all types of weapons of mass destruction;

(ii) CW

Convinced that the prohibition of the development, production and stockpiling of chemical weapons and their destruction represent a necessary step towards the achievement of general and complete disarmament under effective international control;

(iii) Use

Determined, for the sake of all mankind to exclude completely the possibility of chemical agents being used as weapons; convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk;

(iv) Peaceful co-operation

Considering that peaceful co-operation among States should strengthen international co-operation in scientific fields, especially in that of chemistry;

Alternative Considering that the achievements in the field of chemistry should be used exclusively for the benefit of mankind

(v) BW Convention

In conformity with the undertaking contained in the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, to continue negotiations in good faith with a view to reaching early agreement on effective measures for the prohibition of the development, production and stockpiling of chemical weapons and on their destruction;

(vi) 1925 Protocol

Recognizing the important significance of the Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925 and also of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, in force since 26 March 1975, and calling upon all States to comply strictly with the said agreements;

(vii) United Nations Charter

Desiring also to contribute to the realization of the purposes and principles of the Charter of the United Nations;

(viii) Social and Economic Development

Recognizing the important contribution that the Convention can make through its implementation to the social and economic development of States, especially developing countries.

Option

Guided by the principle of non-diminished security of any State or group of States.

ELEMENT VII - RELATIONSHIP WITH OTHER TREATIES

No limiting or detracting from the obligations assumed under 1925 Protocol or any other international treaties.

Options

- specific reference to obligations under Biological Weapons Convention
- specific reference to obligations under ENMOD
- possibility of linking CW convention to 1925 Protocol.

ELEMENT VII - RELATIONSHIP WITH OTHER TREATIES

Draft Element

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or any other international treaty or any existing rules of international law governing armed conflicts.

Reference to BW

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature on 10 April 1972, or any other international treaty or any existing rules of international law governing armed conflicts.

Reference to ENMOD

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature on 10 April 1972, and the Convention on Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD), or any other international treaty or any existing rules of international law governing armed conflicts.

ELEMENT VIII - INTERNATIONAL CO-OPERATION

Concepts

(i) Avoidance of hampering international co-operation in peaceful and protective chemical activities;

(ii) Undertaking to facilitate, promote and participate in exchange of materials and information

(iii) Undertaking to allocate any savings as a result of CW convention.

Options

- facilitate international co-operation in peaceful chemical activities
- participate in fullest possible exchange (including co-operation on training and equipping with protective measures)
- undertaking to assist other Parties on request.

ELEMENT XIV - AMENDMENTS

(i) Amendments proposed by any Party; submitted to Depositary; circulated to other Parties;

(ii) Entry into force of amendments for each Party accepting amendments upon acceptance by majority of Parties; thereafter for each remaining Party on date of acceptance by it.

Options

- Amendments considered at Review Conference
- Party after entry into force, failing expression of a different intention, considered as party to treaty as amended.

ELEMENT VIII - INTERNATIONAL CO-OPERATION

Draft Element

(1) This Convention should be implemented in a manner designed to avoid hampering the economic or technological development of States Parties to the Convention or international co-operation in the field of peaceful and protective chemical activities, including the international exchange of chemicals and equipment for production, processing or use of chemical agents for peaceful and protective purposes in accordance with the provisions of the Convention.

(2) Each State Party to this Convention should undertake to facilitate, promote and participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemicals for peaceful and protective purposes consonant with the aims of this Convention.

(3) Each State Party to this Convention should undertake to allocate a substantial part of possible savings in military expenditures as a result of disarmament measures agreed upon in this Convention to economic and social development, particularly of the developing countries.

Fullest possible exchange

Each State Party to this Convention should undertake to facilitate, promote and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemicals for peaceful purposes consonant with the aims of this Convention. Where appropriate such exchange should extend to co-operation on protective measures.

Assistance to Parties

Each State Party to this Convention undertakes to provide or support assistance, in accordance with the United Nations Charter, to any Party to the Convention which so requests, if the Security Council decides that such Party has been exposed to danger as a result of violation of the Convention.

ELEMENT XV - REVIEW CONFERENCE

Concepts

(i) Review after five years if majority of Parties agree

(ii) Five year intervals.

ELEMENT XVI - DURATION AND WITHDRAWALS

Concepts

(i) Unlimited duration;

(ii) Right of withdrawal; three months notice to Depositary; statement of extraordinary events jeopardizing supreme interests;

(iii) Notification to Security Council.

ELEMENT XIV - AMENDMENTS

Draft Element

(1) Any State Party to this Convention may propose amendments to the Convention. The text of any proposed amendment shall be submitted to the Depositary, who shall promptly circulate it to all States Parties.

(2) An amendment shall enter into force for all States Parties to this Convention which have accepted it, upon the deposit with the Depositary of instruments of acceptance by a majority of States Parties. Thereafter it shall enter into force for any remaining States Party on the date of deposit of its instrument of acceptance.

ELEMENT XV - REVIEW CONFERENCE

Draft Element

(1) Five years after the entry into force of this Convention, or earlier if it is requested by a majority of Parties to the Convention by submitting a proposal to this effect to the Depositary, a conference of States Parties to the Convention should be held at Geneva, Switzerland, to review the operation of the Convention, with a view to assuring that the purposes of the Convention are being realized. Such review should take into account any new scientific and technological developments relevant to the Convention.

(2) Further review conferences should be held at intervals of five years thereafter, and at other times if requested by a majority of the States Parties to this Convention.

ELEMENT XVI - DURATION AND WITHDRAWALS

Draft Element

(1) This Convention should be of unlimited duration.

(2) Each State Party to this Convention should in exercising its national sovereignty have the right to withdraw from the Convention, if it decides that extraordinary events related to the subject matter of the Convention, have jeopardized its supreme interests. It should give notice of such withdrawl to the Depositary three months in advance. Such notice should include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

(3) The Depositary on its part should immediately inform the Security Council of the United Nations of the submission of a notice of withdrawal from a State Party to the Convention.

ELEMENT XVII - SIGNATURE, RATIFICATION, ACCESSION

Draft Element

(1) This Convention should be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph 3 of this Element could accede to it at any time.

(2) This Convention should be subject to ratification by signator States. Instruments of ratification or accession should be deposited with the Secretary-General of the United Nations.

(3) This Convention should enter into force upon the deposit of instruments of ratification by ... Governments, in accordance with paragraph 2 of this Element.

(4) For those States whose instruments of ratification or accession are deposited after the entry into force of this Convention, it should enter into force on the date of the deposit of their instruments of ratification or accession.

(5) The Depositary should promptly inform all signatory States and States Parties of the date of each signature, the date of deposit of each instrument of ratification or accession and the date of the entry into force of this Convention and of any amendments thereto, as well as of the receipt of other notices.

(6) This Convention should be registered by the Depositary in accordance with Article 102 of the Charter of the United Nations.

(7) Annexes of the Convention should be considered an integral part of this Convention.

ELEMENT XVII - SIGNATURE, RATIFICATION, ACCESSION

Concepts

(i) Open to all States; accession at any time

(ii) Subject to ratification; deposited with United Nations Secretary-General

(iii) Entry into force with specified number of ratifications

(iv) Entry into force for late accession

(v) Depositary to notify all Parties of each signature, ratification or accession

(vi) Registered in accordance with United Nations Charter

(vii) Annexes of convention integral.

Options

- twenty ratifications for entry into force
- entry into force requires ratification by all permanent members of Security Council.

ELEMENT XVIII - DISTRIBUTION OF THE CONVENTION

Texts, in all United Nations languages, distributed by Depositary.

Options

Twenty Ratifications

This Convention should enter into force upon the deposit of instruments of ratification by 20 Governments, in accordance with paragraph 2 of this Element.

All Security Council members

This Convention shall enter into force upon the deposit of instruments of ratification by ... Governments, including the Governments of the States permanent members of the United Nations Security Council.

ELEMENT XVIII - DISTRIBUTION OF THE CONVENTION

Draft Element

This Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, should be deposited with the Secretary-General of the United Nations, who should send duly certified copies thereof to the Governments of States members of the United Nations and its specialized agencies.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT X

(NATIONAL IMPLEMENTATION MEASURES)

1. Article on national measures

Working hypothesis:

Each State Party should take any measures it considers necessary in accordance with its constitutional processes to implement the Convention, and in particular to prohibit and prevent any activity in violation of the Convention anywhere under its jurisdiction or control.

Each State Party would also inform the Consultative Committee of what legislative and administrative measures it had taken with respect to the implementation of the Convention.

2. Possible article on national body

Options:

- Each State Party would designate a central authority and point of contact having responsibility with regard to overseeing the implementation of the Convention and to co-operating with the Consultative Committee and the central authorities of other States Parties. Guidelines concerning the functions of this central authority could be set out in Annex ....
- Each State Party would identify its point of contact being responsible for the co-operation with the Consultative Committee.
- No special reference to national body, since this question could be regarded as covered by the article on national measures.

3. Possible Annex containing guidelines concerning the functions of the national body

In case there will be agreement on the first option in paragraph 2 such an Annex could be necessary. The contents of this Annex should be further discussed. The following ideas with regard to possible guidelines are quoted from different Working papers and serve only illustrative purposes:

(a) The central authority to be designated by each State Party under Article .... should be organized and employed by each State Party in accordance with its own legislation.

(b) "national aspect":

- to oversee the implementation of the obligations concerning
  - prohibition of development, production, other acquisition, stockpiling, retention and transfer of chemical weapons;
  - destruction of stocks of chemical weapons;
  - destruction or dismantling of means of production of chemical weapons;
  - temporary conversion of means of production of chemical weapons for the purpose of destroying stocks of such weapons;
  - super-toxic lethal chemicals for non-hostile military purposes; (This list would be specified in accordance with the final agreement on the scope of prohibition.)
- to oversee the implementation of the above mentioned obligations the central authority should be in a position
  - to get the relevant information from the corresponding executive organs, agencies and enterprises to investigate the actual state of affairs concerning compliance with the Convention;
  - to examine reports on development activities as well as the productive and commercial activities of enterprises of the chemical industry and related fields, including productive commercial documentations of the enterprises of industrial firms engaged in the manufacture of chemical and other products which could be related to the scope of the Convention;
  - to visit enterprises producing supertoxic lethal chemicals, harmful chemicals and precursors, which fall under the scope of the Convention;
  - to visit enterprises being dismantled or already dismantled, or converted to the production of the above mentioned chemicals for permitted purposes;
  - to sample probes of waste gases, waste water and soil;
  - to install in the above mentioned enterprises sensing devices and make the necessary measurements;
  - to get the financial means necessary for the implementation of its functions;
  - to submit to the government concerned reports on its activities which would be publicized.

(c) "international co-operative aspect":

- to provide the Consultative Committee with all data necessary to the execution of the task of the Committee with respect to verification of compliance with the Convention;
- to extend in case of international inspections all assistance requested including technical assistance and the provision of data;
- to have access to a selection of inspection personnel both technical and non-technical;
- to be prepared to maintain documentation of the type required to satisfy international verification requirements;
- to co-operate in providing expertise to the Consultative Committee;
- to co-operate with the central authorities of other States Parties and with corresponding international organizations concerning issues connected with the implementation of the Convention.

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT XI
(NATIONAL TECHNICAL MEANS OF VERIFICATION)

1. Paragraph on the compatibility of the use of NTM with international law

Options:

- Any use of national technical means of verification for the purpose of monitoring compliance by other States with the provisions of the Convention must be consistent with generally recognized principles of international law.
- Each State Party to the Convention may use national technical means of verification at its disposal for the purpose of monitoring compliance with the provisions of the Convention in a manner consistent with generally recognized principles of international law.

2. Paragraph on assistance and the provision of information

Options:

- Verification pursuant to paragraph 1 of this article may be undertaken by any State Party using its own national technical means of verification, or with the full or partial assistance of any other State Party.
- Any State Party which possesses national technical means of verification may, where necessary, place at the disposal of other Parties information which it has obtained through those means and which is important for the purposes of the Convention.
- Any information so obtained should be confidential to the State Party which carried out monitoring, unless or until evidence was sufficient to suggest non-compliance by another State Party. In this case the Consultative Committee should be informed.
- All States parties to the Convention should have access to information gathered by the use of national technical means of verification through the Consultative Committee, at which disposal States Parties possessing such information would place it.

3. Paragraph on non-interference with NTM

Working hypothesis:

Each State Party to the convention should undertake not to impede, including through the use of deliberate concealment measures or in any other manner, the national technical means of verification of other States Parties operating in accordance with paragraph 1.

(In the view of some delegations provision on non-interference with NTM should depend on a paragraph on the provision of information along the lines of the fourth option in paragraph 2. The question of non-concealment should be further clarified.)

Alternative to Element XI on the lines of Article III, paragraph 5 of the Sea-bed Treaty:

"Verification pursuant to this article may be undertaken by any State Party using its own means, or with the full or partial assistance of any other State Party, or through appropriate international procedures within the framework of the United Nations and in accordance with its Charter".

(Note: - first part may be regarded as covered by the first option in paragraph 2 of this paper;
- second part may be regarded as covered by Element XIII).

REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENTS XII AND XIII (CONSULTATION AND CO-OPERATION : CONSULTATIVE COMMITTEE)

ELEMENT XII: Consultation and co-operation

I. It was generally agreed that the Convention should include a provision regarding normal consultations and co-operation according to the following lines:

(a) Commitment by States parties to consult and co-operate.

(b) Consultations and co-operation may be undertaken:
directly between two or more parties;
through appropriate international procedures including the services of appropriate international organizations and of the Consultative Committee. (It was generally agreed to include a specific reference to the Consultative Committee underscoring its special role).

(c) Substance of consultations and co-operation: any matter in relation to the objectives of, or in the application of, the provisions of the Convention.

For further consideration:

- Specific reference to the United Nations General Assembly and/or Security Council.

II. Fact-finding procedures concerning alleged ambiguities in or violations of the compliance with the Convention

(a) General formulation encouraging States parties to hold bilateral contacts.

(b) Right for every State party (challenging or challenged) to request the Consultative Committee to carry out a fact-finding procedure, including its right to request a specific activity to be carried out by the Consultative Committee (e.g. on-site inspections).

(c) Such request must be substantiated.

(d) Obligation to co-operate in the fact-finding procedure.

(e) Appropriate explanations must be provided in case of a refusal to an on-site inspection.

(f) Obligation of the Consultative Committee to inform States parties about the results of its procedures.

(g) General reference to the right of every State to resort to the mechanisms provided by the Charter of the United Nations.

For further consideration:

- Decision by the Consultative Committee on the merits of a request and on the appropriate activity to be carried out for a fact-finding procedure concerning alleged ambiguities in or violations of the compliance with the Convention.
- Provision containing a strong commitment by States parties to co-operate with the Consultative Committee in its investigations.
- Action the Consultative Committee might take after a refusal by a State party to an on-site inspection:
  - request further information
  - request a reconsideration of the decision.
- Provision of assistance to a State party in case of a breach of the Convention:
  - subsumed in the general reference to the United Charter
  - or formulated in specific terms
- Question of falsifying the actual state of affairs with regard to compliance with the Convention by other States parties.

ELEMENT XIII: Consultative Committee

A. ORGANIZATIONAL QUESTIONS

1. CHAPEAU

It was agreed that there should be a general formulation stating the purposes of the Consultative Committee, i.e.:

- to carry out broader international consultation and co-operation
- to ensure the availability of international data
- to provide expert advice
- to oversee the implementation of the Convention
- to promote the verification of the continued compliance with the provisions of the Convention

2. TIMING FOR THE ESTABLISHMENT

- Consultative Committee: shortly, e.g. 30 days, after entry into force of the Convention.
- It was generally agreed that some preparatory work before the establishment of the Consultative Committee would be needed.

For further consideration:

Preparatory Committee

- temporary body
- established after X number of signatures of the Convention

- open to every signatory
- functions: to carry out preparatory technical work, make recommendations to the Consultative Committee

3. COMPOSITION

- 1 representative by each State party
- advisers by each State party

For further consideration:

- President.-Options:
  - Depositary (United Nations Secretary-General or his personal representative)
  - elected by the States parties
  - rotative presidency
  - collective presidency
- Right or obligation of every State party to become members of the Consultative Committee

4. SUBORDINATE BODIES

It was generally agreed that the Consultative Committee would have:

- A technical secretariat
- A sub-organ or sub-organs of a reduced membership to operate on a permanent basis

For further consideration:

- Membership of the sub-organ(s). It was suggested:
  - equitable geographical distribution
  - renewed every X years
  - some permanent members
- Functions

Suggested additions:

- Fact-finding panel: operational body composed of political representatives with appropriate technical support of a reduced number of States parties to carry out, at the request of a State party, a fact-finding procedure concerning alleged ambiguities in or violations of the compliance with the Convention
- Expert study groups: to be created on an ad hoc basis to elaborate specific studies on matters of importance for the implementation of the Convention
- Verification teams: for carrying out systematic on-site inspections under the aegis of the technical secretariat.

5. MEETINGS

- Extraordinary meetings.- Options:
  - at the request of one State party
  - at the request of an X number of States parties
  - at the request of the sub-organ(s)
  - at the request of the depositary

  For further consideration:
- Regular meetings.- Options:
  - every year
  - at longer intervals, e.g. depending on the need to appoint members of the secretariat or of the sub-organ(s)

6. RULES OF PROCEDURE

- On questions of substance: no voting. If the Committee is unable to provide for a unanimous report it shall present the different views involved.

  For further consideration:
  - On questions relative to the organization of its work.

    It was suggested that the Committee should work where possible by consensus but otherwise by a majority of votes
  - Decision on a request by a State party for a fact-finding procedure concerning alleged ambiguities in or violation of the compliance with the Convention

7. CO-OPERATION OF STATES PARTIES WITH THE CONSULTATIVE COMMITTEE

   For further consideration:

8. EXPENSES.- It was suggested: - borne by States parties

9. Specific provision stating the right of the Consultative Committee to REQUEST ASSISTANCE OR INFORMATION TO APPROPRIATE INTERNATIONAL ORGANIZATIONS

Note: The final placement of the sub-elements listed above in an article or in an annex will depend on the decision to be taken with regard to the general structure of the Convention.

B. FUNCTIONS OF THE CONSULTATIVE COMMITTEE

Generally agreed functions:

1. To carry out broader international consultation
   closely co-operate with the States parties [authorities responsible for National Verification/Implementation]
   provide the States parties with the necessary technical assistance.
2. To receive, request and distribute data relevant to the provisions of the Convention which may be available by States parties [authorities responsible for National Verification/Implementation] and to analyse such information.
3. To elaborate technical questions relevant to the implementation of the Convention, e.g. drawing up and revising lists of precursors, agreed technical procedures.
4. To carry out and/or participate in systematic on-site inspections in order to:
   - monitor destruction of CW stockpiles
   - monitor the single facility for small-scale production of super-toxic lethal chemicals [for non-hostile military purposes] [for permitted purposes].

   Suggested additions:
   - monitor the inactive status of CW production and filling facilities
   - monitor destruction/dismantling of CW production and filling facilities
   - monitor production of certain commercial chemicals which are agreed to pose a special risk
   - monitor the inactive status of CW stockpiles

   For further consideration:
   - The role of the Consultative Committee in the systematic on-site inspections:
     - sole responsibility
     - shared responsibility, e.g. with the State party concerned
   - The characteristics of the systematic on-site inspections (permanent basis-periodicity-random selection - agreed procedures).

5. To receive a request of a State party for a fact-finding procedure in case of alleged ambiguities in or violations of the compliance with the Convention

   - To request further information as appropriate
   - To carry out and/or participate in a challenge on-site inspection

   Suggested addition:

   - to carry out a challenge on-site inspection concerning allegations of use of chemical weapons by or with the assistance of a State party

6. To present an annual/periodic report of all its activities prepared, if appropriate, by the secretariat or by the sub-organ(s).

APPENDIX

It was generally agreed that it should be elaborated in an annex containing:

I. Technical procedures for systematic and challenge on-site inspections

- Rights and functions of the inspectors
- Rights and functions of the host-State personnel
- General kinds of inspection procedures
- General kinds of equipment to be utilized in the inspections and who provides it.

For further consideration:

- Sources of inspection personnel.

II. General framework for the activities to be carried out during the inspections to be performed, e.g.

- for the regular monitoring of the destruction of CW stockpiles
- for the regular monitoring of the single facility for small-scale production of super-toxic lethal chemicals
- in the course of fact-finding procedures.

Note: The elements listed above could be separated in two different annexes depending on the final decision to be taken with regard to the general structure of the Convention.

COMMITTEE ON DISARMAMENT

CD/334/Corr. 1
16 September 1982
Original: ENGLISH

Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament

Corrigendum

Page 5, paragraph 12, line 1

Insert the next before Chairman's

Page 7

Delete paragraph 17. Paragraph 18 should be re-numbered accordingly.

GE.82-66586

COMMITTEE ON DISARMAMENT

CD/335
23 September 1982
Original: ENGLISH

REPORT OF THE COMMITTEE ON DISARMAMENT TO THE UNITED NATIONS GENERAL ASSEMBLY

GE.82-66601

1/ To be issued as separate volumes of this report.

~~use or threat of use of nuclear weapons. The Committee further decided that~~ the Ad Hoc Working Group would report to the Committee on the progress of its work before the conclusion of the first part of the 1982 session, in view of the convening of the second special session of the General Assembly devoted to disarmament.

62. At its 157th plenary meeting on 23 February 1982, the Committee decided to nominate the representative of Pakistan as Chairman of the Ad Hoc Working Group.

63. As a result of its deliberations, the Ad Hoc Working Group submitted a special report to the Committee (document CD/285), which contains an account of the substantive negotiations during the 1979, 1980 and 1981 sessions, as well as the first part of the 1982 session of the Committee. The statement made by the Chairman of the Ad Hoc Working Group on the occasion of the submission of the report is contained in document CD/290. At its 173rd plenary meeting on 21 April 1982 the Committee adopted the special report of the Ad Hoc Working Group, which is an integral part of the Special Report of the Committee on Disarmament to the second special session of the General Assembly devoted to disarmament.

64. At the commencement of the second part of the 1982 session, the representative of Pakistan, who is Chairman of the Working Group, recalled in a statement before the plenary that the Group of 21 in document CD/280 had inter alia expressed the view "that further negotiations in the Ad Hoc Working Group on this item are unlikely to be fruitful so long as the nuclear-weapon States do not exhibit a genuine political will to reach a satisfactory agreement". The Group of 21 had "therefore, urged the nuclear-weapon States concerned to review their policies and to present revised positions on the subject to the second Special Session". He stated that "at the special session there was no response at all to these concerns of the Group of 21 from two of the nuclear-weapon States concerned, and that the work on this item had reached an impasse".

65. Having taken note of the above-mentioned assessment of the state of negotiations, it was generally understood that the Working Group would not hold any meetings during the second half of 1982.

66. One delegation disagreed with the assessment of the state of negotiations expressed in CD/280 and with the views expressed by the representative of Pakistan, ~~and stated~~ it had been prepared ~~to resume work on the issue~~.

D. Chemical Weapons

67. The item on the agenda entitled "Chemical Weapons" was considered by the Committee, in accordance with its programme of work, during the periods from 22 to 26 March and from 9 to 13 August.

68. The Committee had before it the following new documents submitted during its 1982 session in connection with the item:

(a) Document CD/244, dated 18 February 1982, submitted by the delegation of the United Kingdom of Great Britain and Northern Ireland, entitled "Working Paper on Verification and the Monitoring of Compliance in a Chemical Weapons Convention".

(b) Document CD/253, dated 25 February 1982, submitted by the delegation of the Union of Soviet Socialist Republics, entitled "Tass statement of 19 February 1982".

(c) Document CD/258 and Corr.1, dated 9 March 1982, submitted by the delegations of Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Mongolia, Poland and the Union of Soviet Socialist Republics, entitled "Working Paper: Binary weapons and the problem of effective prohibition of chemical weapons".

(d) Document CD/263, dated 22 March 1982, submitted by Finland, entitled "Working Paper on the Relation of Verification to the Scope of a Ban on Chemical Warfare Agents".

(e) Document CD/264, dated 23 March 1982, submitted by the delegation of the United States of America, entitled "The United States Programme to Deter Chemical Warfare".

(f) Document CD/265, dated 24 March 1982, submitted by the delegation of the Federal Republic of Germany, entitled "Working Paper on Principles and Rules for Verifying Compliance with a Chemical Weapons Convention".

(g) Document CD/266, dated 24 March 1982, submitted by the delegation of Yugoslavia, entitled "Working Paper: Binary weapons and the problem of their definition and verification".

(h) Document CD/270, dated 31 March 1982, submitted by the delegations of Indonesia and the Netherlands, entitled "Destruction of about 45 tons of mustard agent at Batujajar, West-Java, Indonesia".

(i) Document CD/271, dated 1 April 1982, submitted by the delegations of the United States of America, the United Kingdom and Australia, entitled "Technical evaluation of 'recover' techniques for CW verification".

(j) Document CD/277, dated 7 April 1982, submitted by the delegation of Sweden, entitled "Working Paper: The concept 'precursor' and a suggestion for definition for the purpose of a Chemical Weapons Convention".

(k) Document CD/279, dated 14 April 1982, submitted by the delegation of Sweden, entitled "Working Paper: Suggestions for measures to enhance confidence between the Parties negotiating a comprehensive ban on chemical weapons".

(l) Document CD/294, dated 21 July 1982, entitled "Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction - proposal of the USSR".

(m) Document CD/298, dated 26 July 1982, submitted by the delegation of Yugoslavia, entitled "Working Paper: Some aspects of verification in a chemical weapons convention".

(n) Document CD/299, dated 29 July 1982, submitted by Finland, entitled "Systematic Identification of Chemical Warfare Agents Identification of Non-Phosphorus Warfare Agents".

(o) Document CD/301, dated 4 August 1982, submitted by the delegation of Belgium, entitled "Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons".

(p) Document CD/306, dated 10 August 1982, submitted by the delegation of the Netherlands, entitled "Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants".

(q) Document CD/307, dated 10 August 1982, submitted by the delegation of the Netherlands, entitled "Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants".

(r) Document CD/308, dated 10 August 1982, submitted by the delegations of the Federal Republic of Germany and the Netherlands, entitled "Preliminary questions concerning CD/294 submitted by the Soviet Union 'Basic Provisions of a Convention on the Prohibition of the Development, Production and Stockpiling of Chemical Weapons and on their Destruction'".

(s) Document CD/311, dated 11 August 1982, submitted by Norway, entitled "Working paper on verification of a chemical weapons convention - sampling and analysis of chemical warfare agents under winter conditions".

(t) Document CD/313, dated 16 August 1982, submitted by the delegation of Canada, entitled "A proposed verification organization for a chemical weapons convention".

(u) Document CD/316, dated 19 August 1982, submitted by the delegation of France, entitled "Working Paper: Monitoring of the destruction of stocks of chemical weapons".

(v) Document CD/324, dated 6 September 1982, submitted by the delegation of Sweden, entitled "Working paper on toxicity criteria for 'Key CW precursors'".

(w) Document CD/325, dated 6 September 1982, submitted by the delegation of Sweden, entitled "Working paper on monitoring destruction of stockpiles of chemical weapons and chemical warfare agents".

(x) Document CD/326, dated 6 September 1982, submitted by the delegation of the Federal Republic of Germany, entitled "Working Paper: Proposals on 'Declaration', 'Verification' and the 'Consultative Committee'".

(y) Document CD/333, dated 14 September 1982, entitled "Views of the Chairman of the Ad Hoc Working Group on Chemical Weapons on possible compromise wordings of the elements of a future convention".

69. In accordance with the Committee's decision concerning subsidiary bodies at its 156th plenary meeting on 18 February 1982, as contained in document CD/243, an Ad Hoc Working Group on Chemical Weapons was established to elaborate a convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction, taking into account all existing proposals and future initiatives, with the view to enabling the Committee to achieve agreement at the earliest date. The Committee further decided that the Ad Hoc Working Group would report to the Committee on the progress of its work before the conclusion of the first part of its 1982 session, in view of the convening of the second special session of the General Assembly devoted to disarmament.

70. At its 157th plenary meeting on 25 February 1982, the Committee decided to nominate the representative of Poland as the Chairman of the Ad Hoc Working Group.

71. At its 163rd plenary meeting on 16 March 1982, the Committee decided, in response to a request of the Chairman of the Ad Hoc Working Group, to invite the Director-General of the World Health Organization and the Director of the Regional Office for Europe of the United Nations Environment Programme, to nominate representatives to attend certain meetings of the Ad Hoc Working Group on Chemical Weapons, for the purpose of providing technical information, when it was deemed necessary, in respect of establishing toxicities of chemicals and the international register of potentially toxic chemicals.

72. As a result of its deliberations during the first part of the 1982 session the Ad Hoc Working Group submitted a special report to the Committee (document CD/281/Rev.1) which contains an account of its consideration of the item during the 1980 and 1981

sessions as well as the first part of the 1982 session. The statement made by the Chairman of the Ad Hoc Working Group on the occasion of the submission of the report is contained in document CD/288. At its 173rd plenary meeting on 21 April 1982, the Committee adopted the special report of the Ad Hoc Working Group, which is an integral part of the Special Report of the Committee on Disarmament to the second special session of the General Assembly devoted to disarmament. (CD/292 and Corr.1-3)

73. In accordance with the decision of the Committee at its 174th plenary meeting on 23 April 1982, the Ad Hoc Working Group resumed its work on 20 July 1982. During the period 2-6 August, the Chairman of the Ad Hoc Working Group held consultations with delegations on technical questions. A number of experts from delegations participated in those consultations.

74. During the 1982 session, the Ad Hoc Working Group held 42 meetings between 24 February and 15 September 1982 and the Chairman also conducted informal consultations during that period. As a result of its deliberations, the Ad Hoc Working Group submitted a report to the Committee, as contained in document CD/334.

75. At its 188th plenary meeting on 17 September 1982, the Committee adopted the report of the Ad Hoc Working Group, which is an integral part of this report and reads as follows:

"I. INTRODUCTION

"1. A review of the work of the Committee on Disarmament on the question of chemical weapons during the first part of its 1982 session is contained in the special report presented to the Second Special Session of the General Assembly devoted to disarmament(document CD/292), which also covers the work of the Committee on Disarmament on this subject since 1979.

"II. ORGANIZATION OF WORK AND DOCUMENTATION

"2. In accordance with the decision taken by the Committee on Disarmament at its 174th plenary meeting held on 23 April 1982, the Ad Hoc Working Group on Chemical Weapons resumed its work on 20 July 1982 under the Chairmanship of Ambassador Bogumil Sujka of Poland. Mr. A. Bensmail, Senior Political Affairs Officer, United Nations Centre for Disarmament, served as Secretary of the Ad Hoc Working Group.

"3. It should be recalled that the Ad Hoc Working Group on Chemical Weapons was re-established for 1982 at the 156th plenary meeting of the Committee on Disarmament held on 18 February 1982, with the following mandate:

> '... In discharging its responsibility for the negotiation and elaboration as a matter of high priority, of a multilateral convention on the complete and effective prohibition of the development, production and stockpiling of chemical weapons and on their destruction, the Committee on Disarmament decides to establish, for the duration of its 1982 session, an ad hoc working group of the Committee to elaborate such a convention, taking into account all existing proposals and future initiatives with a view to enabling the Committee to achieve agreement at the earliest date. ...'.

"4. The Ad Hoc Working Group held 26 meetings from 20 July to 15 September 1982. In addition, the Chairman held a number of informal consultations with delegations.

"5. At the 177th plenary meeting of the Committee on Disarmament, the Chairman reported on the progress of work of the Ad Hoc Working Group.

"6. The representatives of the following States not members of the Committee on Disarmament participated in the work of the Ad Hoc Working Group on Chemical Weapons: Austria, Denmark, Finland, Greece, Ireland, Norway, Spain and Switzerland.

"7. During the second part of its 1982 session the following official documents dealing with Chemical Weapons were presented to the Committee on Disarmament:

- Document CD/294, dated 21 July 1982, submitted by the delegation of the Union of Soviet Socialist Republics, entitled 'Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction'

- Document CD/298, dated 26 July 1982, submitted by Yugoslavia, entitled 'Working paper on some aspects of verification in a chemical weapons convention'

- Document CD/299, dated 29 July 1982, submitted by Finland, entitled "Letter dated 27 July 1982, addressed to the Chairman of the Committee on Disarmament from the Chargé d'Affaires a.i. of the Permanent Mission of Finland, transmitting a document entitled "Systematic identification of chemical warfare agents; identification of non-phosphorus warfare agents"'

- Document CD/301, dated 4 August 1982, submitted by Belgium, entitled 'Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons'

- Document CD/306, dated 10 August 1982, submitted by the Netherlands, entitled 'Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants'

- Document CD/307, dated 10 August 1982, submitted by the Netherlands, entitled 'Working paper concerning the verification of the presence of nerve agents, their decomposition products or starting materials downstream of chemical production plants'

- Document CD/308, dated 10 August 1982, submitted by the Federal Republic of Germany and the Kingdom of the Netherlands, entitled 'Letter dated 9 August 1982 from the Heads of the Delegations of the Federal Republic of Germany and of the Kingdom of the Netherlands to the Chairman of the Committee on Disarmament transmitting a document containing preliminary questions concerning CD/294'

- Document CD/311, dated 11 August 1982, submitted by Norway, entitled, "Working paper on verification of a chemical weapons convention - sampling and analysis of chemical warfare agents under winter conditions'

- Document CD/313, dated 16 August 1982, submitted by Canada, entitled 'A proposed verification organization for a chemical weapons convention'

- Document CD/316, dated 19 August 1982, submitted by France, entitled 'Working paper on the monitoring of the destruction of stocks of chemical weapons'

- Document CD/324, dated 6 September 1982, submitted by Sweden, entitled 'Working paper on toxicity criteria for "key CW precursors"'

- Document CD/325, dated 6 September 1982, submitted by Sweden, entitled 'Working paper on monitoring destruction of stockpiles of chemical weapons and chemical warfare agents'

- Document CD/326, dated 6 September 1982, submitted by the Federal Republic of Germany, entitled 'Chemical Weapons - Working paper: Proposals on "Declaration", "Verification", and the "Consultative Committee"'

- Document CD/333, dated 14 September 1982, submitted by Poland, entitled 'Views of the Chairman of the Ad Hoc Working Group on Chemical Weapons on possible compromise wordings of the elements of a future convention'

"8. During the second part of its 1982 session, the following working papers were circulated to the Working Group:

- CD/CW/WP.35 submitted by the Union of Soviet Socialist Republics, entitled 'Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction' (also issued as CD/294)

- CD/CW/WP.36 entitled 'Consultations with delegations, assisted by experts, by the Chairman of the Working Group on Chemical Weapons'

- CD/CW/WP.33/Corr.1 entitled 'Corrigendum to the Compilation of revised Elements and Comments thereto (CD/220), proposed new texts and alternative wordings as well as comments on new texts'

- CD/CW/WP.37 submitted by Yugoslavia, entitled 'Working paper on some aspects of verification in a chemical weapons convention' (also issued as CD/298)

- CD/CW/WP.38 submitted by Yugoslavia, entitled 'Suggested alternative definition of Chemical Weapons'

- CD/CW/WP.39 submitted by Belgium, entitled 'Memorandum on monitoring of the prohibition of the use in combat of chemical and bacteriological (biological) or toxin weapons' (also issued as CD/301)

- CD/CW/WP.40 submitted by the Federal Republic of Germany and the Kingdom of the Netherlands, entitled 'Letter dated 9 August from the Heads of the Delegations of the Federal Republic of Germany and of the Kingdom of the Netherlands addressed to the Chairman of the Committee on Disarmament transmitting a document containing preliminary questions concerning CD/294' (also issued as CD/308)

- CD/CW/WP.41 and Corr.1 entitled 'Report of the Chairman to the Working Group on Chemical Weapons on the consultations held with experts on technical issues'

- CD/CW/WP.42 submitted by France, entitled 'Working paper on the Monitoring of the destruction of stocks of chemical weapons' (also issued as CD/316)

- CD/CW/WP.43 entitled 'Draft Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament'

- CD/CW/WP.44 submitted by Poland, entitled 'Views of the Chairman of the Ad Hoc Working Group on possible compromise wordings of the elements of a future convention' (also issued as CD/333)

"9. The following Conference Room Papers were also submitted to the Working Group during the second part of its 1982 session:

- CD/CW/CRP.60 entitled 'Summary by the Chairman of initial comments made with respect to the suggested wording for Annex IV: recommendations and guidelines concerning the functions and organization of the national verification system CD/CW/CRP.42)'

- CD/CW/CRP.61 entitled 'Opening statement by the Chairman of the Working Group on Chemical Weapons on 20 July 1982'

- CD/CW/CRP.62 submitted by China, entitled 'Suggested alternative wording for Element II and Annex I'

- CD/CW/CRP.63 submitted by the Federal Republic of Germany, entitled "List of questions addressed to the delegation of the USSR on 22 July 1982 by the delegation of the Federal Republic of Germany with respect to document CD/294 (CD/CW/WP.35)"

- CD/CW/CRP.64 entitled 'Timetable for the Chairman's consultations with experts on technical issues as presented in document CD/CW/WP.36 on 23 July 1982, to be held 2-6 August 1982'

- CD/CW/CRP.65 submitted by China, entitled "Suggested alternative wording for Element IX, 2(a) and (d)'

"III. CHAIRMAN'S CONSULTATIONS WITH DELEGATIONS ON TECHNICAL ISSUES

"10. Following the practice introduced in 1981 by the Chairman to hold consultations on certain technical questions relevant to the future Convention, the Chairman, during the second part of the 1982 session of the Group, convened consultations with delegations on issues recommended for further examination and in his previous report contained in document CD/CW/WP.30 of 22 March 1982. These consultations were held from 2 to 6 August 1982 and dealt specifically with the following issues:

(a) With regard to scope, possible standardized physical, chemical or biological methods enabling determination of the toxicity of "other harmful chemicals" and products formed in different kinds of production processes (including the binary technique) for chemical warfare agents, particularly those belonging to super-toxic lethal chemicals;

(b) With regard to verification, possible technical methods to monitor destruction of chemical weapons, inter alia, by means of specialized information gathering "black boxes", including the means for transmission and processing of such information.

"11. At its 6th meeting, held on 11 August 1982, the Chairman of the Ad Hoc Working Group presented the report on his consultations as contained in document CD/CW/WP.41 and Corr.1. The Working Group devoted its 8th meeting to an in-depth discussion of this report. The Group took note of this report. While the usefulness of these consultations was unanimously recognized, the need to structure them according to the requirements of the future convention was emphasized, bearing in mind the close link between its technical and political aspects.

It was felt that the consultations with delegations on technical issues should be clearly relevant to the work of the Working Group. It was agreed that in the future the report should duly reflect the differing views expressed in these consultations. Some delegations emphasized that Chairman's consultations with delegations on technical issues can play a useful role only when they can contribute to the clarification of technical issues for such provisions of the future convention on which agreement in principle has been achieved. Other delegations held the view that these consultations could also help to provide a concrete basis for the consideration of key issues on which no agreement has yet been reached.

"12. It was agreed that the next Chairman's consultations on technical issues should focus on the questions listed below. It was further agreed that during the time devoted to these consultations, between six and eight meetings should be devoted to each item, two meetings to the presentation of other technical issues of direct relevance to the work of the Working Group, aimed at facilitating the negotiating process, and four meetings for discussion of the report on the consultations.

Topics to be discussed:

A. On the basis of the working hypothesis on the definition of chemical weapons (see Annex, pages 3-10) including the concepts of precursors and key precursors, it is suggested that the following questions may be directed to the technical expertise of delegations:

(a) what are the views on the "working hypothesis" on definition of these concepts?

(b) to what extent - and by which method - would it be possible to compose lists of key precursors?

B. With respect to destruction of stockpiles of chemical weapons, verification procedures should

(i) verify the types and quantities of chemicals to be destroyed;

(ii) ensure that they have been destroyed.

In this connection technical experts of delegations may be asked to address the following questions:

(a) what technical procedures could be suggested in order to monitor destruction of stockpiles of chemical weapons?

(b) what specific elements need to be included in declarations made by State Parties, in order to meet the requirements mentioned above?

(c) do methods of destruction of stockpiles need to be specified, and in what detail, in order to assure State Parties that stocks have been destroyed and are not capable of being diverted again to use as chemical weapons?

"IV. SUBSTANTIVE CONSIDERATIONS DURING THE SECOND PART OF THE 1982 SESSION

"13. During the second part of its 1982 session, the Group at the suggestion of the Chairman, proceeded to another detailed examination of the Revised Elements and of the Comments Thereto, contained in document CD/CW/WP.33 and Corr.1 with a view to elaborating the provisions of the future convention.

"14. As a result of the consideration of the Revised Elements and of the Comments Thereto, and after extensive informal consultations in the Working Group, the Working Group accepted the Chairman's suggestion to establish nine open-ended contact groups in order to advance the process of elaboration of the convention. These informal contact groups, which are listed below, dealt with the following spheres of the convention:

(a) Element I: scope of the chemical weapons convention;
(Co-ordinator: Mr. T. Melescanu, Romania)

(b) Element II: definitions;
(Co-ordinator: Dr. J. Lundin, Sweden)

(c) Element IV: declarations;
(Co-ordinator: Mr. T. Altaf, Pakistan)

(d) Element V: destruction, diversion, dismantling and conversion;
(Co-ordinator: Mr. S. Duarte, Brazil)

(e) Element IX: general provisions on verification;
(Co-ordinator: Mr. G. Skinner, Canada)

(f) Preamble and Final Clauses of the future chemical weapons convention;
(Co-ordinator: Mr. R. Steele, Australia)

(g) Element X: national implementation measures
(Co-ordinator: Dr. H. Thielicke, German Democratic Republic)

(h) Element XI: national technical means of verification
(Co-ordinator: Dr. H. Thielicke, German Democratic Republic)

(i) Elements XII and XIII: consultation and co-operation; consultative committee.
(Co-ordinator: Miss N. Nascimbene, Argentina)

"15. The results of the work of these Contact Groups were reflected in the reports of the Co-ordinators which were discussed in-depth in the Working Group and subsequently revised by the co-ordinators. These reports are attached in-extenso in the Annex. The method of work adopted by the Working Group in the second part of its 1982 session, and in particular the functioning of open-ended contact groups, was recognised by all delegations as fully appropriate for the present stage. Delegations paid tribute to the Chairman, Ambassador Sujka, for his imaginative proposals in this regard.

"16. The Chairman, having taken into account:

- the views expressed by different delegations at the plenary meetings of the Committee devoted to Chemical Weapons;
- the extensive discussions during the meetings of the Working Group;
- the equally extensive discussion in the contact groups;
- the thorough examination of and discussion on the report of each of the contact groups;
- and the consultations with numerous delegations,

presented his views on possible compromise wordings of the elements of the future convention. These views are contained in document CD/333(CD/CW/WP.44). The Working Group appreciated the Chairman's contribution and recommended to take it into consideration along with the reports of the contact groups in its deliberations during 1983.

"17. The Ad Hoc Working Group on Chemical Weapons has agreed to recommend to the Committee on Disarmament that the Group should continue its work under the present Chairman between 17 and 28 January 1983, taking into account all existing proposals and future initiatives. During this period the Group will continue the work carried out in 1982, including through meetings of the contact groups established in 1982, and through the Chairman's consultations on technical issues envisaged in paragraph 75.12 above. It also agreed to recommend that the consultations on technical issues should continue to the end of the first week of the Committee's 1983 session, and that the 1982 Chairman of the Working Group should prepare a report on the basis of his consultations. It was further agreed that the work of the Working Group itself during the period 17-28 January should be reported as part of the 1983 report.

"ANNEX

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON THE SCOPE OF THE CHEMICAL WEAPONS CONVENTION

"I. Basic positions:

"1. Text without a prohibition of use:

'Each State Party to this Convention undertakes, under no circumstances, to develop, produce, otherwise acquire, stockpile, retain or transfer chemical weapons, and to destroy or dispose for permitted purposes of existing stocks of such weapons, and also to destroy or dismantle facilities and means of production of such weapons.'

"2. Direct inclusion of a prohibition of the use of chemical weapons in Element I:

'Each State Party to this Convention undertakes never in any circumstances to develop, produce, otherwise acquire, stockpile, retain, transfer or use chemical weapons and to destroy or otherwise dispose of existing stocks of chemical weapons and means of production of such weapons.'

"II. Proposals for optional alternatives concerning the reaffirmation of the 'non-use' regime provided for in the 1925 Geneva Protocol, and its reinforcement through one or more of the following:

(a) a preambular provision recalling the 1925 Geneva Protocol and reaffirming the prohibition of use;

(b) a specific provision prohibiting use in situations not covered by the 1925 Geneva Protocol;

(c) a provision stating that CW convention should not be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Geneva Protocol of 1925 (along the lines of existing Element VII);

(d) a specific article in the body of the future convention recognizing that any use of chemical weapons will constitute a violation of the chemical weapons convention and stipulating that as a consequence the provisions on verification included in CW convention will apply to such situations as well;

(e) a specific provision should be included in the section dealing with the 'complaints procedure' of the future Convention. Such a provision should recognize that any use of chemical weapons by a State Party or with the assistance of a State Party would indicate a violation of one or more of the obligations assumed under the scope of the Convention. The competence of the Consultative Committee would consequently be extended to the allegations of use.

(f) provisions for the verification in CW Convention will include methods and mechanisms for the verification of the prohibition to use chemical weapons.

(g) separate mechanism for investigating suspected use of chemical weapons and biological weapons in combat;

(h) including the prohibition of use in the definitions of the chemical weapons convention;

(i) in the interests of enhancing the effectiveness of the Convention, the States Parties shall agree in due form to prevent any actions aimed at deliberately falsifying the actual state of affairs with regard to compliance with the Convention by other States Parties.

"III. Co-ordinator's proposals for 'a working hypothesis':

"In the event that consensus is reached that Element I of the future convention may not include a reference to the prohibition of use, this question could be handled as follows:

In the preamble of the Convention, a paragraph will recall the 1925 Geneva Protocol and reaffirm the prohibition to use chemical weapons; Element VII will also contain a reference to the Geneva Protocol stating that the Convention should not be interpreted in any way as limiting or affecting the obligations assumed by States on the basis of the 1925 Protocol;

In addition, a new article will be included in the Convention recognizing that any use of chemical weapons will ipso jure constitute an evidence of a violation of the CW Convention and, accordingly, the provisions on verification included in CW Convention will apply to such situations as well.

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"Prohibition of the planning, organization and training in chemical warfare capability

"In the last meeting of the Group, a short exchange of views on the possible inclusion of the prohibition of the planning, organization and training into a CW convention took place. It appeared that the basic positions expressed on this subject remain the same. It was consequently agreed to postpone a discussion on this item till after further discussions on other problems like verification or non-use.

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON DEFINITIONS

"1. The Contact Group has considered basic definitions for the purpose of the convention of 'chemical weapons', 'precursors' and toxicity criteria, and of 'permitted purposes'. Discussions have also been held on the possible meaning of expressions concerning other aspects of the convention as 'production capability/capacity' and 'destruction'.

"2. In its work, the Contact Group has recognized that the possible outcome of its deliberation could not be perceived as in any way binding for the delegations, who took part, or for any other delegations. The basic positions of delegations still are those reflected in CD/220 and WP.33, both in the 'elements' and in the comments to them, and also in CD/294.

"3. The co-ordinator feels, however, that he was supported by the Contact Group in his endeavours to present 'working hypothesis' regarding the possible content of the definitions mentioned, at the same time accounting for the main divergent or optional views on the suggested content. The report, therefore, presents such working hypothesis and comments on them, and, when necessary, preceded by an introduction to the subject. The introduction contains points of view which were offered by delegations as explanations for suggested parts of definitions.

"4. Even if it is the hope that the working hypotheses might serve delegations in their work to narrow differences of views on definitions, they should be considered to be only basic approaches. Thus they are not intended to reflect all the controversial issues which are discussed to be included in the scope, even if occasionally some reference may be made to that.

"5. Before starting the work on definitions, the Contact Group discussed the 'purpose criterion'. It was agreed that this concept need not be defined for the purpose of the convention. However, the following tentative description seemed to be generally acceptable:

(1) It allows a State to determine what it is allowed to do and what it must not do.

(2) It provides a guideline for one State to evaluate another State's activities.

(3) It provides, together with the quantity criterion, a starting point for elaborating more specific criteria (e.g. toxicity, lists). Such criteria can serve as a guide to selection and application of specific verification measures.

"6. Working hypothesis regarding a basic definition of chemical weapons.

(a) The definition should comprise only such concepts which are necessary for the purpose of the convention.

(b) The definition should express the typical effects of chemical weapons, i.e. that their effects are due to the utilization of the toxic properties of chemicals to cause death or other harm.

Comments:

Weapons utilizing other properties of chemicals, e.g. radioactivity or their content of energy, are not to be considered as chemical weapons even if such chemicals happen to be more or less toxic.

It may be a question of presentation where in the definition this idea should be expressed, whether in an introductory part of the definition or in the body of the definition.

Suggestions have been made that reference has to be made to the use in war, armed conflict or combat in this connection.

The formulation suggested about toxic properties of chemicals could imply a reference to toxic effects of chemical weapons to all living organisms.

(c) The term 'chemical weapons' should be applied to each of three different categories of items:

(i) Toxic chemicals which meet certain criteria, and their precursors.

(ii) Munitions and devices which meet certain criteria. This category includes binary and other multi-component munitions or devices.

(iii) Equipment specifically designed for use directly in connection with the employment of such munitions or devices.

Comments:

The above mentioned part of the definition that chemical weapons utilize the toxic properties of chemicals could as well appear in the body, (i)-(iii), of the definition.

Another approach might be to define "chemical warfare agent' and apply the criteria referred to under (a) to such chemical warfare agents.

(d) The general undertakings in an Article I of a future convention shall not apply to chemicals, which can be shown to be produced etc. for certain permitted purposes in quantities appropriate for such purposes. However, such chemicals may have to be subject to certain clarification procedures concerning the provisions in article I, as may be expressed in appropriate future articles on verification.

Comment:

The way to express this in the convention is not agreed upon yet.

(e) The criteria for placing chemicals in toxicity categories as super-toxic lethal chemicals, other lethal chemicals, and other harmful chemicals, could be expressed as follows:

(i) A 'super-toxic lethal chemical' is any toxic chemical with a median lethal dose which is less than or equal to 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation), when measured by the methods set forth in

(ii) Any 'other lethal chemical' is any toxic chemical with a median lethal dose which is greater than 0.5 mg/kg (subcutaneous administration) or 2,000 mg-min/m^3 (by inhalation) and which is less than or equal to 10 mg/kg (subcutaneous administration) or 20,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in

(iii) Any 'other harmful chemical' is any toxic chemical with a median lethal dose which is greater than 10 mg/kg (subcutaneous administration) or 20,000 mg-min/m^3 (by inhalation) when measured by the methods set forth in

Comments:

Preliminary agreed protocols for toxicity determinations by subcutaneous administrations and by inhalation have been worked out during technical consultations.

The category 'other harmful chemical' might be subdivided into categories, which referred to other toxic effects than lethal effects. This would presume agreements on methods to measure such other harmful effects as sensory irritant effects, mentally and physically incapacitating effects, skin lesion effects etc.

No attempts have been made as yet to evaluate the possible coverage of a definition as expressed in the present Working Hypothesis with regard to toxins and tear gases. Only the possibility that it may cover herbicides was pointed to in the last comment under (b) above.

"7. Working hypothesis regarding a basic definition of "permitted purposes".

(a) Permitted purposes would consist of two main elements

(i) non-hostile purposes, and

(ii) military purposes not related to the use of chemical weapons.

(b) Non-hostile purposes would include research, industrial, agricultural, medical or other peaceful purposes, law enforcement purposes, purposes directly connected to protection against chemical weapons.

"8. Working hypothesis of a basic definition of 'precursor'.

(a) Introductory remarks

For the purpose of a chemical weapons convention there seems to be a need (a) to ensure a ban on production, etc. of any chemical used for production of chemicals to which the term chemical weapon might be applied and (b) to determine which of these chemicals, which may require particular attention from the standpoint of verification.

The former chemicals may be identified in a general way in the convention as 'precursors' to fall under the provisions in article I, prohibiting development, production and stockpiling chemical weapons, in order to preclude the theoretical possibility that the convention might be interpreted as allowing production etc. of these precursors for chemical weapons purpose.

In order to meet the requirement under (b) it would probably be necessary to identify the particular chemicals among the precursors, which are in some way critical for the production of chemical weapons, e.g. by determining the main type of compound formed, and which may not have any peaceful use. These precursors might be singled out in the convention, e.g. as 'key precursors'. Key precursor stockpiles may have to be declared and destroyed, and these activities be subject to verification measures, which might also apply to their future non-production. These measures would not apply to precursors in general, because these would under the future ban only be produced etc. for permitted purposes according to the purpose criterion.

(b) For the purpose of the convention a general and broad definition of 'precursor' could contain the following:

(i) Precursors as mentioned in , are chemicals, which, when made to react chemically form chemicals as are mentioned in (reference to the place where super-toxic lethal, other lethal, and other harmful chemicals first are mentioned in the definition of chemical weapons).

Comment:

An alternative formulation might be:

'Precursor' means any chemical, which may be used as a reactant in production of a super-toxic lethal chemical, other lethal chemical, or other harmful chemical.

(ii) It would be prohibited under the convention to develop, produce, stockpile, otherwise acquire, retain or transfer precursors as defined above other than for permitted purposes.

(c) A definition of 'key precursor' could contain the following:

(i) A key precursor would be the reactant(s) in one or in a few consecutive chemical syntheses leading to the formation of a super-toxic lethal, other lethal, or other harmful chemical, which determines the class of chemical (expressed in the chemical structure) of the toxic chemical(s) formed when the reaction(s) is taking place

- in a production facility producing super-toxic lethal, other lethal or other harmful chemicals,
- in a chemical weapon warhead or other disseminating device for chemical weapons, before the dissemination of the intended final, toxic product(s); or outside the dissemination device during or after dissemination.

(ii) Key precursors would have to be destroyed i.e. transformed into chemicals without significance themselves for production of toxic chemicals. Such destruction as well as non-production of key precursors should be subject to verification as set out in

Comments:

A definition of key precursors thus could contain the following characteristics:

The key precursor would

- be a precursor in the final stages of the production process,

- be particularly important in determining the end product,
- be of relatively little use for non-hostile purposes,
- pose a serious risk from the standpoint of an effective ban and therefore require particular attention with respect to verification.

A definition of key precursor may also serve State Parties to a convention as a guide for evaluation of future developments with respect to key precursors which have not previously been generally known or were discovered in the future.

For the latter purpose, alleged key precursors, and for which data proving this were lacking, could be related to any of the three types of toxic chemicals by means of toxicity determinations on their end products formed in their reactions with other precursors.

The existence of the definition would also serve as a guideline when chemicals falling under the general definition of precursors above may not need to be destroyed or could be diverted or produced for permitted purposes.

Optional to having an explicit definition of key precursors, it might be possible to have only a list of key precursors. Such a list could be established and revised as necessary by the Consultative Committee on the basis of agreed criteria similar to those discussed above. This might make it possible to have a simple definition like e.g.:

'Key precursor' means a precursor which has been identified by the Consultative Committee, on the basis of agreed criteria, as requiring particular attention from the point of view of destruction.

A list of key precursors could also be made up in addition to a definition of key precursors.

The question of lists of key precursors was not thoroughly discussed during the consultations but seems to be favourable to most delegations. Nor was it discussed as to which extent they might be revised.

"9. A preliminary discussion was held with respect to possibly needed definitions, for the purpose of the convention, of 'production facility', 'production capacity' and of 'destruction'. The background material presented as a basis for the discussions by the co-ordinator are presented below, amended in accordance with the few points of view there was time to obtain on these matters during the consultations.

(a) 'Production facility' could mean the plant or part of plant, where chemical weapons be produced.

(b) 'Production capacity' could mean the amount of chemical weapons that might be produced during a given period of time under agreed assumption, and/or
the number of production facilities, which might produce chemical weapons and their combined output during one year under agreed assumptions.

Comment:

Instead of their combined output, the output of each production facility might be given.

(c) 'Destruction' could mean one or more of the following activities to eliminate chemical weapons and production facilities.

(i) With regard to chemical weapons

Chemicals:

Change of the chemical into degradation products, which may be uneconomical to utilize for repeated production of the same chemical. The process should be performed in a way that is not detrimental to the environment.
This might include utilization of the chemical directly in a (irreversible) production process leading to other chemicals, which could not economically be utilized for production of the same chemical or facilitate production of such chemicals. Such a change of the chemical may be referred to as diversion or conversion instead of destruction, and would have to be declared and performed according to agreed procedures, and be subject to particular verification measures.

Munitions and devices:

Make such munitions or devices unserviceable for chemical weapons purposes, preferably by crushing them into pieces.

Specifically designed equipment:

Make such equipment unserviceable and removed from weapons systems etc.

(ii) With regard to production facilities

- physically take apart or disintegrate the facility and remove all parts in an unserviceable state from the facility, leaving the site empty,
- dismantle and disperse for other purposes some or all of the parts of a production facility. Removed parts and the purposes of their utilization should be declared and verified.

"APPENDIX

"Reference material:

"Document CD/112, 7 July 1980, p. 2-3, entitled

'Letter dated 7 July 1980 addressed to the Chairman of the Committee on Disarmament from the representatives of the USSR and the United States to the Committee on Disarmament.'

"Document CD/220, 17 August 1981, entitled

'Report of the Ad Hoc Working Group on Chemical Weapons to the Committee on Disarmament.'

"Document WP.33, 28 April 1982, p. 5-11, entitled

'Compilation of revised Elements and Comments thereto (CD/220), proposed new texts and alternative wordings as well as comments on new texts.'

"Document CD/266, 24 March 1982, submitted by Yugoslavia, entitled

'Working paper, Binary weapons and the problem of their definition and verification.'

"Document CD/294, 21 July 1982, submitted by the USSR, entitled

' Basic provisions of a convention on the prohibition of the development, production and stockpiling of chemical weapons and on their destruction, Proposal of the USSR.'

"Document CD/CW/CRP.62, 26 July 1982, submitted by China, entitled

'Suggested alternative wording for Element II and Annex I.'

"Document CD/CW/WP.30, 22 March 1982, Annexes III and IV, entitled

'Report of the Chairman to the Working Group on Chemical Weapons on the consultations held on issues relating to toxicity determinations.'

"Document CD/CW/WP.38, 28 July 1982, submitted by Yugoslavia, entitled

'Suggested alternative definitions of Chemical Weapons.'

'Document CD/CW/CRP.31, CD/CW/CTC/13, 19 March 1982, submitted by United States of America, entitled

' Precursors.'

"Document CD/CW/CTC/15, 26 July 1982, submitted by Sweden, entitled

'Chairman's Consultations on Toxicity Criteria.'

"Document CD/CW/CTC/19, 5 August 1982, submitted by China, entitled

' Chairman's Consultations on Toxicity Criteria.'

"Document CD/CW/CTC/21, 9 August 1982, submitted by USSR, entitled

'Some problems associated with the prohibition of binary weapons and the verification of compliance with such prohibition.'

A number of written suggestions from delegations, as well as many earlier contributions to the Working Group, have not been listed here.

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT IV (DECLARATIONS)

"1. POSSESSION OR NON-POSSESSION

Possession or non-possession of 'Chemical Weapons' (as defined in the relevant element of CW Convention including all components) and production facilities in use or inoperative whether on State's own property or abroad or belonging to other State(s) on one's own property including those whose ownership is not well defined.

Timings: Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

(A) 'Chemical Weapons' Stocks

(a) Agents: Description by weight in metric tons including quantities in bulk and filled into munitions and

Alternative I Description by toxicity category:

- Supertoxic lethal nerve gases (G-gases, V-gases);
- Supertoxic lethal blister gases (H-gases);
- Other supertoxic lethal chemicals;
- Other lethal chemicals;
- Other harmful chemicals including incapacitants, psychotropic chemicals, Convulsants and disabling chemicals; irritants including those meant for law enforcement purposes.

Alternative II Description by toxicity category (supertoxic lethal, other lethal and other harmful) and by chemical names.

(b) Precursors:

Alternative I Precursors including those of binary type and individual chemicals in accordance with the categories mentioned in (a) Alternative I above.

Alternative II Description by weight in metric tons filled and unfilled and by chemical names.

(c) Munitions and devices

Alternative I As described through toxicity categories quantities of agents and precursors.

Alternative II (i) Types, weight and number of unfilled.

(ii) Types, weight and number of filled.

(d) 'Equipment specifically designed for use in CW'

Alternative I As described through toxicity categories quantities of agents and precursors.

Alternative II Types and number including of auxiliary filling equipment.

Location:

Alternative I No declarations.

Alternative II Exact description of location by precise geographic co-ordinates.

Timing: Not later than 30 days after the convention's entry into force or the State Party's adherence to it.

(B) Production Facilities:

(a) Type

Alternative I Declaration for purposes of destruction

(i) Agent production and key precursor production facilities including types of products.

(ii) Filling facilities.

(iii) Key precursor production facilities.

Alternative II Declaration for purposes of destruction as well as Confidence Building Measures

(i) Agent production and key precursor production facilities including types of products.

(ii) Filling facilities.

(iii) Key precursor production facilities.

(iv) Munitions and devices production facilities which are exclusively or partially designed or used for this purpose.

(b) Capacity of Production Facilities

Alternative I Types, weight and/or quantity in terms of time as follows:

(i) Capacities for production of chemicals are declared directly in units of chemicals weight.

(ii) Capacities for filling of munitions are declared in units of chemical weights.

(iii) Capacities for production of filled munitions of binary or multicomponent charges are declared in units of chemicals' weight as applied to the chemicals of a specific type which could be formed in combat use.

(iv) Capacities for production of unfilled munition of binary or multicomponent charges are declared in units of weight of the chemicals which could be formed after filling the munitions.

Alternative II — Types, weight and/or quantity in terms of time.

Location: Exact geographical location of facilities will be declared in degrees, minutes and seconds.

Declarations will also include description of following types of facilities:

(i) Existing facilities: Last date of operation.

(ii) Converted; present use; last date used for CW.

(iii) Dual purpose facilites:

Alternative I — No declaration of dual purpose facilites.

Alternative II — Dual purpose facilities which are specifically designed or used in part for production of any chemical which is primarily used for CW.

Alternative III — Dual purpose facilities which are capable of conversion to proper CW facilities.

Alternative IV — The number and location of all industrial facilities for the production of organophosphorous substances.

Timings:

Alternative I

(i) Possession of facilities 30 days after the Convention's entry into force or the State Party's adherence to it.

(ii) Capacity of facilities not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Location: Not later than one year before destruction.

Alternative II — All declarations regarding possession, capacity and location of facilities be made not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Stocks and production facilities belonging to other States

(a) Total quantity [in units of weight] according to each type of chemical [super-toxic lethal, other lethal and other harmful chemicals];

(b) Facilities for the production of chemical weapons or any of their elements, controlled by any other State, group of States, organization or private individual [indication of capacity of such facilities].

Possible need for declaration of findings of old stocks of chemical weapons, which were not known to a Party itself, when the convention entered into force, and of plans for the destruction of such stocks.

"2. PLANS FOR DESTRUCTION OF STOCKS

Declarations regarding plans and time frames for destruction of stocks will cover 'Chemical Weapons' as defined in the relevant element of the Convention.

Description of destruction process will cover the following:

(i) Type of operation.

(ii) Time schedule including percentage quantities planned for destruction in specific time frames.

(iii) What is being destroyed and at what location.

(iv) Aimed at end production.

Alternative I — Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

Alternative II — Within 90 days after the Convention's entry into force or the State Party's adherence to it.

Alternative III — Within six months after the Convention's entry into force or the State Party's adherence to it.

"3. PLANS FOR ELIMINATION OF PRODUCTION FACILITIES

Declarations regarding plans and time frames for elimination of production facilities will cover the following:

(i) Location of facilities.

(ii) Plans for (a) dismantling; and (b) destruction.

(iii) Time frames for completion of separate stages of elimination (if necessary)

Description of destruction process will cover the following:

(i) Type of operation.

(ii) Time schedule.

(iii) What is being destroyed and at what location.

(iv) Aimed at end product (if any including description of equipment elements for peaceful purposes).

Timings:

Alternative I — Within 30 days after the Convention's entry into force or the State Party's adherence to it.

Alternative II — Within six months after the Convention's entry into force or the State Party's adherence to it.

Alternative III — Within seven years after the Convention's entry into force or the State Party's adherence to it.

"4. IMPLEMENTATION OF THE PLANS FOR DESTRUCTION OF STOCKS

(i) Progress report of stocks destroyed during last year/period including details of types, quantities and destruction methods.

(ii) Plans for destruction during next year/period including details of types, quantities and destruction methods.

"5. IMPLEMENTATION OF THE PLANS FOR DISMANTLING/DESTRUCTION OF PRODUCTION FACILITIES

(i) Progress report of facilities dismantled/destroyed during last year/period including type and location and elimination method.

(ii) Plans for dismantling/destruction of facilities during next year period including location, type and elimination method.

Timings: Annual/Periodical.

"6. COMPLETION OF ELIMINATION ACTIVITIES

Declaration of completion of elimination activities of all 'Chemical Weapons' and production facilities.

Timings: Not later than 10 years.

7. STOCKS OF SUPER-TOXIC LETHAL CHEMICALS FOR PERMITTED PURPOSES AND THE FACILITIES FOR PRODUCTION OF SUCH CHEMICALS

(a) Super-toxic lethal chemicals produced, diverted from stocks, acquired or used:

Alternative I

(i) For purposes directly connected with protection against chemical weapons;

(ii) For industrial, agricultural, research, medical or other peaceful purposes and for military purposes not connected with the use of chemical weapons.

Alternative II

(i) For purposes directly connected with protection against chemical weapons.

(b) Location and capacity of the specialized facility for the production of super-toxic lethal chemical for protective/permitted purposes.

Timings: Within 30 days - (for stocks held at entry into force)
Annual/Periodic - (subsequently).

"8. Alternative I Production and use of other lethal chemicals for permitted purposes.

Alternative II Production and use of commercial chemicals which pose a special risk.

Alternative III Production of organophosphorous substances.

Other lethal chemicals and precursors produced, acquired retained or used for permitted purposes including their quantities, total production, chemical names, uses and location and capacity of facilities where produced.

Timings: (i) Within 30 days - (for stocks held)

(ii) Annual/Periodic - (subsequently).

"9. TRANSFERS

Alternative I (i) Volume of transfers since 1 January 1946.

(a) Quantities of chemicals transferred/super-toxic, lethal, other lethal and other harmful chemicals.

(b) Quantities of transferred munitions and other means of combat use/weight of the chemicals filled in those munitions;

(c) Technological equipment for the production of chemical weapons and corresponding technical documentation/in units of weight of the chemicals which could have been produced as a result of such transfers.

(ii) Declare type and quantity of super-toxic lethal chemicals transferred for permitted purposes and names of recipient State(s).

Alternative II Declare type and quantity of super-toxic lethal chemicals transferred for protective purposes and names of recipient State(s).

Timings: For Alternative I (i)

Not later than 30 days after the Convention's entry into force or the State Party's adherence to it.

For Alternative I (ii) and Alternative II

30 days in advance of transfer.

"10. DIVERSION OF STOCKS

Details of types, quantity and intended use.

Timings: Alternative I

Along with/as part of the declaration of plans for destruction of the stocks.

Alternative II

Along with/as part of the declaration of implementation of destruction of stocks.

"11. CONVERSION OF PRODUCTION FACILITIES TO DESTRUCTION FACILITIES

Details including location, type, capacity.

Timings: Alternative I

Along with/as part of plans for elimination of facilities.

Alternative II

At the time of declaration of plans for destruction of stocks.

"12. CESSATION OF ACTIVITIES RELATED TO POSSIBLE USE OF CHEMICAL WEAPONS

(a) Issue an open general order to the effect that planning, organization and training intended to enable the utilization of toxic properties of chemicals as weapon in combat should not take place;

(b) Ascertain that all organization charts, plans, manuals etc. containing provisions intended to enable the utilization of toxic properties of chemicals as weapon in combat, are withdrawn or revised;

(c) Declare the composition of equipment intended to protect against chemical weapons.

Timings: Not later than 10 years.

OPTION: No such declaration.

SUBMISSION OF DECLARATIONS

All declarations will be submitted to the Consultative Committee who will inform all States Parties.

" REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT V
(DESTRUCTION, DIVERSION, DISMANTLING AND CONVERSION)

"A - DESTRUCTION OF STOCKS:

I - ARTICLE: Agreed sub-elements to be included

(a) general obligation to destroy all existing stocks of chemical weapons;*/

(b) possibility of diversion of stocks for peaceful purposes, subject to conditions and circumstances set forth in the Annex;

(c) obligation to utilize sage methods of destruction that will avoid harm to the environment and to populations;**/

(d) provision on international co-operation to facilitate implementation of the Convention,***/ including the possibility of transfer of chemical weapons to another State Party for the purpose of destruction;

(e) indication of the over-all duration of the process of destruction, to be counted from the time the Convention enters into force for each State Party (suggestion: 10 years):

- time of start of actual destruction (alternatives):

(i) not later than six months after the Convention enters into force for each State Party;

(ii) not later than two years after the Convention enters into force for each State Party.

Other sub-elements proposed by some Delegations:

(a) obligation to destroy precursors that may be used for binary weapons;*/

(b) placement of all stocks under international supervision at the time the Convention enters into force for each State Party;

(c) obligation to utilize methods of destruction that permit adequate verification.

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*/ Suggested addition: "This includes all items defined as 'chemical weapons', including all types of precursors". If under the Element "Definitions", all precursors fall within the definition of "chemical weapons", this addition would render unnecessary the proposed sub-element (a) for the Article.

**/ This obligation could be stated in a separate Article applying to the destruction of both stocks and facilities.

***/ This provision could be stated in an appropriate place so as to apply both to the destruction of stocks and of facilities.

"II - ANNEX: Agreed sub-elements to be included:

(a) conditions and circumstances for permitted diversion of stocks for peaceful purposes (to be further elaborated);*/

(b) procedures and operations to be accomplished during the over-all period of destruction:

- initial stage (from the time the Convention enters into force for each State Party to the time of start of actual destruction):
  - submission of plans for destruction of stocks; such plans should include:
    + quantities and types of agents to be destroyed;
    + time scheduled for the process of destruction;
    + description, in general terms, of method(s) to be employed for destruction;
    + indication of place(s) of facility(ies) used for destruction.
  - destruction stage (from the start of actual destruction to the end of over-all period of destruction):
    + (to be seen in connection with the declarations required from Parties relating to destruction of stocks).

Other sub-elements proposed by some Delegations:

(a) provisions for ensuring adequate balance during destruction stage so as to avoid the acquisition of military advantage by one State Party over another (p.ex., agreed rates of destruction);

(b) provisions for ensuring minimization of economic damage and for avoiding unnecessary or burdensome interference with peaceful chemical industry.

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*/ Suggested conditions and circumstances: (a) list of agents the diversion of which would be permitted; (b) international supervision of diversion; (c) diversion to be carried out in an irreversible manner, so as to prevent the re-utilization of component agents as weapons.

"B - DESTRUCTION OF FACILITIES

"I - ARTICLE: Agreed sub-elements to be included:

(a) general obligation to destroy and dismantle facilities,*/ and not to construct new ones;

(b) obligation to close down such facilities at the time the Convention enters into force for each State Party, and to cease production of chemical weapons at that time;

(c) provision for temporary conversion of production facilities into facilities for the purpose of destruction of stocks;

(d) obligation not to reconvert such converted facilities, and to destroy or dismantle them as soon as they are no longer needed for the purpose of destruction of stocks;

(e) indication of over-all maximum duration of the process of destruction, to be counted from the time the Convention enters into force for each State Party (suggestion: 10 years)

- time of start of actual destruction:

(alternative suggestions)

(i) six months after the Convention enters into force for each State Party;

(ii) not later than eight years after the Convention enters into force for each State Party.

Other sub-elements proposed by some Delegations:

(a) provision for the possibility of building special facilities for the purpose of destruction of stocks;

(b) provision for the possibility of re-utilization in peaceful industry of certain types and categories of equipment, according to specification to be set forth in the Annex.

(c) obligation to utilize methods of destruction that permit adequate verification.

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*/ The term 'facility' should be understood as defined in Element II. The following definition was suggested by some Delegations: 'Facilities and/or equipment designed or used for the production of any chemical which is primarily useful for chemical weapons purposes, or for filling chemical munitions'.

"II - ANNEX: Agreed sub-elements to be included:

(a) elaboration of procedures and operations to be accomplished during the over-all period of destruction:

(i) initial stage (from the time the Convention enters into force for each State Party to the time of the start of actual destruction)

- immediate cessation of production and closing down of facilities;
- submission of detailed plans for destruction of facilities; such plans should include:
  + location of facility(ies);
  + description of method(s) to be employed for destruction;
  + indication of facility to be temporarily converted for destruction of stocks;
  + plans for destruction of such converted facility.

(ii) destruction stage (from the start of actual destruction to the end of the over-all period):
(to be seen in connection with the declarations required from Parties relating to the destruction of facilities).

Other sub-elements proposed by some Delegations:

(a) specification of types and categories of equipment that could be reused in peaceful industry;

(b) provisions for ensuring adequate balance during the destruction stage, so as to avoid the acquisition of military advantage by one State Party over another (p.ex., agreed rates of destruction).

" C - QUESTIONS BEARING ON ELEMENT V THAT SHOULD BE DEALT WITH ELSEWHERE IN THE CONVENTION

(a) issues pertaining to 'Definitions':

- definition of weapons and agents prohibited under the Convention and which should thus be destroyed (see Section A on 'Destruction of Stocks' and note to agreed sub-element (a) of the Article and to proposed sub-element (a));
- definition of facilities and/or equipment for the production of chemical weapons, which should thus be destroyed (see Section B on 'Destruction of Facilities' and note to agreed sub-element (a) of the Article);
- definition of the concept of destruction/dismantling, both with regard to stocks and with regard to facilities.

(b) issues pertaining to 'Declaration':

- specification of all declarations to be required from States Parties relating to the process of destruction/dismantling, both of stocks and facilities, including periodical declarations (suggestion: annual declarations during the destruction stage):
- specification of the authority to which plans for destruction of stocks and facilities should be submitted (suggestion: the Consultative Committee);

(c) issues pertaining to 'Verification':

- adequate procedures for the verification of compliance with the obligations set forth in Element V.

(d) issues pertaining to the prohibition of transfer of chemical weapons:

- exception to the obligation not to transfer chemical weapons, so as to permit the transfer of stocks for destruction purposes as set forth in the Article on stocks (see Section A, 'Destruction of Stocks', sub-element (d) of the Article).

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT IX
(GENERAL PROVISIONS ON VERIFICATION)

"ELEMENT IX - MIGHT CONTAIN THE FOLLOWING POINTS:

"1. Purpose of verification: to provide assurance of compliance with the provisions of the Convention (CD 220).

"2. Scope of verification: appropriate and agreed verification measures should be applied on the basis of the principle of reciprocity to, inter alia:

(a) Elements I-IV, concerning prohibition of development, production, other acquisition, stockpiling, retention and transfer of chemical weapons;

(b) Elements I and V, concerning destruction or otherwise disposal of existing stocks of chemical weapons and their means of production; over an agreed period of time;

(c) Element VI concerning super-toxic lethal chemicals for non-hostile military purposes;

(d) Enquiry into facts, including on-site verification on an agreed basis, on questions related to alleged contravention of the terms of the convention.

"3. Means of verification:

(a) Technical means of verification: Element IX could indicate that agreed techniques of verification appropriate to the task required are identified under each substantive head (now contained in Elements II-VI);

(b) Organizational means of Verification: Element IX could provide for the establishment of a Consultative Committee to act as a permanent body for the monitoring of the implementation of and compliance with the terms of the Convention.

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON THE PREAMBLE AND FINAL CLAUSES OF THE FUTURE CHEMICAL WEAPONS CONVENTION

SECTION A: CONCEPTS AND OPTIONS

"PREAMBLE

Concepts

(i) Bringing about general and complete disarmament

(ii) CW ban as a necessary disarmament step

(iii) Determination to exclude possibility of use; CW use repugnant to the conscience of mankind

(iv) Strengthening peaceful co-operation in scientific fields

(v) BW Convention undertaking on CW negotiations

(vi) Recognizing significance of 1925 Protocol and BW Convention

(vii) Charter of the United Nations

(viii) CW convention important for social and economic development

Options

- inclusion of prohibition of use in first preambular paragraph
- chemistry for the benefit of mankind
- principle of non-diminished security (at lower levels of armaments)

SECTION B: VARIOUS SPECIFIC PROPOSAL

"PREAMBLE

(i) Disarmament

Reaffirming their adherence to the objectives of general and complete disarmament, including the prohibition and elimination of all types of weapons of mass destruction;

(ii) CW

Convinced that the prohibition of the development, production and stockpiling of chemical weapons and their destruction represent a necessary step towards the achievement of general and complete disarmament under effective international control;

(iii) Use

Determined, for the sake of all mankind to exclude completely the possibility of chemical agents being used as weapons; convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk;

(iv) Peaceful co-operation

Considering that peaceful co-operation among States should strengthen international co-operation in scientific fields, especially in that of chemistry;

Alternative Considering that the achievements in the field of chemistry should be used exclusively for the benefit of mankind

(v) BW Convention

In conformity with the undertaking contained in the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, to continue negotiations in good faith with a view to reaching early agreement on effective measures for the prohibition of the development, production and stockpiling of chemical weapons and on their destruction;

(vi) 1925 Protocol

Recognizing the important significance of the Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925 and also of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, in force since 26 March 1975, and calling upon all States to comply strictly with the said agreements;

(vii) United Nations Charter

Desiring also to contribute to the realization of the purposes and principles of the Charter of the United Nations;

(viii) Social and Economic Development

Recognizing the important contribution that the Convention can make through its implementation to the social and economic development of States, especially developing countries.

Option

Guided by the principle of non-diminished security of any State or group of States.

"ELEMENT VII - RELATIONSHIP WITH OTHER TREATIES

No limiting or detracting from the obligations assumed under 1925 Protocol or any other international treaties.

Options

- specific reference to obligations under Biological Weapons Convention
- specific reference to obligations under ENMOD
- possibility of linking CW convention to 1925 Protocol.

"ELEMENT VII - RELATIONSHIP WITH OTHER TREATIES

Draft Element

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or any other international treaty or any existing rules of international law governing armed conflicts.

Reference to BW

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature on 10 April 1972, or any other international treaty or any existing rules of international law governing armed conflicts.

Reference to ENMOD

Nothing in this Convention should be interpreted as in any way limiting or detracting from the obligations assumed by States Parties to the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, or under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature on 10 April 1972, and the Convention on Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD), or any other international treaty or any existing rules of international law governing armed conflicts.

"ELEMENT VIII - INTERNATIONAL CO-OPERATION

Concepts

(i) Avoidance of hampering international co-operation in peaceful and protective chemical activities;

(ii) Undertaking to facilitate, promote and participate in exchange of materials and information

(iii) Undertaking to allocate any savings as a result of CW convention.

Options

- facilitate international co-operation in peaceful chemical activities
- participate in fullest possible exchange (including co-operation on training and equipping with protective measures)
- undertaking to assist other Parties on request.

"ELEMENT XIV - AMENDMENTS

(i) Amendments proposed by any Party; submitted to Depositary; circulated to other Parties;

(ii) Entry into force of amendments for each Party accepting amendments upon acceptance by majority of Parties; thereafter for each remaining Party on date of acceptance by it.

Options

- Amendments considered at Review Conference
- Party after entry into force, failing expression of a different intention, considered as party to treaty as amended.

"ELEMENT VIII - INTERNATIONAL CO-OPERATION

Draft Element

(1) This Convention should be implemented in a manner designed to avoid hampering the economic or technological development of States Parties to the Convention or international co-operation in the field of peaceful and protective chemical activities, including the international exchange of chemicals and equipment for production, processing or use of chemical agents for peaceful and protective purposes in accordance with the provisions of the Convention.

(2) Each State Party to this Convention should undertake to facilitate, promote and participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemicals for peaceful and protective purposes consonant with the aims of this Convention.

(3) Each State Party to this Convention should undertake to allocate a substantial part of possible savings in military expenditures as a result of disarmament measures agreed upon in this Convention to economic and social development, particularly of the developing countries.

Fullest possible exchange

Each State Party to this Convention should undertake to facilitate, promote and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of chemicals for peaceful purposes consonant with the aims of this Convention. Where appropriate such exchange should extend to co-operation on protective measures.

Assistance to Parties

Each State Party to this Convention undertakes to provide or support assistance, in accordance with the United Nations Charter, to any Party to the Convention which so requests, if the Security Council decides that such Party has been exposed to danger as a result of violation of the Convention.

"ELEMENT XV - REVIEW CONFERENCE

Concepts

(i) Review after five years if majority of Parties agree

(ii) Five year intervals.

"ELEMENT XVI - DURATION AND WITHDRAWALS

Concepts

(i) Unlimited duration;

(ii) Right of withdrawal; three months notice to Depositary; statement of extraordinary events jeopardizing supreme interests;

(iii) Notification to Security Council.

"ELEMENT XIV - AMENDMENTS

Draft Element

(1) Any State Party to this Convention may propose amendments to the Convention. The text of any proposed amendment shall be submitted to the Depositary, who shall promptly circulate it to all States Parties.

(2) An amendment shall enter into force for all States Parties to this Convention which have accepted it, upon the deposit with the Depositary of instruments of acceptance by a majority of States Parties. Thereafter it shall enter into force for any remaining States Party on the date of deposit of its instrument of acceptance.

"ELEMENT XV - REVIEW CONFERENCE

Draft Element

(1) Five years after the entry into force of this Convention, or earlier if it is requested by a majority of Parties to the Convention by submitting a proposal to this effect to the Depositary, a conference of States Parties to the Convention should be held at Geneva, Switzerland, to review the operation of the Convention, with a view to assuring that the purposes of the Convention are being realized. Such review should take into account any new scientific and technological developments relevant to the Convention.

(2) Further review conferences should be held at intervals of five years thereafter, and at other times if requested by a majority of the States Parties to this Convention.

"ELEMENT XVI - DURATION AND WITHDRAWALS

Draft Element

(1) This Convention should be of unlimited duration.

(2) Each State Party to this Convention should in exercising its national sovereignty have the right to withdraw from the Convention, if it decides that extraordinary events related to the subject matter of the Convention, have jeopardized its supreme interests. It should give notice of such withdrawl to the Depositary three months in advance. Such notice should include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

(3) The Depositary on its part should immediately inform the Security Council of the United Nations of the submission of a notice of withdrawal from a State Party to the Convention.

"ELEMENT XVII - SIGNATURE, RATIFICATION, ACCESSION

Draft Element

(1) This Convention should be open to all States for signature. Any State which does not sign the Convention before its entry into force in accordance with paragraph 3 of this Element could accede to it at any time.

(2) This Convention should be subject to ratification by signator States. Instruments of ratification or accession should be deposited with the Secretary-General of the United Nations.

(3) This Convention should enter into force upon the deposit of instruments of ratification by ... Governments, in accordance with paragraph 2 of this Element.

(4) For those States whose instruments of ratification or accession are deposited after the entry into force of this Convention, it should enter into force on the date of the deposit of their instruments of ratification or accession.

(5) The Depositary should promptly inform all signatory States and States Parties of the date of each signature, the date of deposit of each instrument of ratification or accession and the date of the entry into force of this Convention and of any amendments thereto, as well as of the receipt of other notices.

(6) This Convention should be registered by the Depositary in accordance with Article 102 of the Charter of the United Nations.

(7) Annexes of the Convention should be considered an integral part of this Convention.

"ELEMENT XVII - SIGNATURE, RATIFICATION, ACCESSION

Concepts

(i) Open to all States; accession at any time

(ii) Subject to ratification; deposited with United Nations Secretary-General

(iii) Entry into force with specified number of ratifications

(iv) Entry into force for late accession

(v) Depositary to notify all Parties of each signature, ratification or accession

(vi) Registered in accordance with United Nations Charter

(vii) Annexes of convention integral.

Options

- twenty ratifications for entry into force
- entry into force requires ratification by all permanent members of Security Council.

"ELEMENT XVIII - DISTRIBUTION OF THE CONVENTION

Texts, in all United Nations languages, distributed by Depositary.

Options

Twenty Ratifications

This Convention should enter into force upon the deposit of instruments of ratification by 20 Governments, in accordance with paragraph 2 of this Element.

All Security Council members

This Convention shall enter into force upon the deposit of instruments of ratification by ... Governments, including the Governments of the States permanent members of the United Nations Security Council.

"ELEMENT XVIII - DISTRIBUTION OF THE CONVENTION

Draft Element

This Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, should be deposited with the Secretary-General of the United Nations, who should send duly certified copies thereof to the Governments of States members of the United Nations and its specialized agencies.

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT X

"(NATIONAL IMPLEMENTATION MEASURES)"

"1. Article on national measures

Working hypothesis:

Each State Party should take any measures it considers necessary in accordance with its constitutional processes to implement the Convention, and in particular to prohibit and prevent any activity in violation of the Convention anywhere under its jurisdiction or control.

Each State Party would also inform the Consultative Committee of what legislative and administrative measures it had taken with respect to the implementation of the Convention.

"2. Possible article on national body

Options:

- Each State Party would designate a central authority and point of contact having responsibility with regard to overseeing the implementation of the Convention and to co-operating with the Consultative Committee and the central authorities of other States Parties. Guidelines concerning the functions of this central authority could be set out in Annex ....
- Each State Party would identify its point of contact being responsible for the co-operation with the Consultative Committee.
- No special reference to national body, since this question could be regarded as covered by the article on national measures.

"3. Possible Annex containing guidelines concerning the functions of the national body

In case there will be agreement on the first option in paragraph 2 such an Annex could be necessary. The contents of this Annex should be further discussed. The following ideas with regard to possible guidelines are quoted from different Working papers and serve only illustrative purposes:

(a) The central authority to be designated by each State Party under Article .... should be organized and employed by each State Party in accordance with its own legislation.

(b) 'national aspect':

- to oversee the implementation of the obligations concerning
  - prohibition of development, production, other acquisition, stockpiling, retention and transfer of chemical weapons;
  - destruction of stocks of chemical weapons;
  - destruction or dismantling of means of production of chemical weapons;
  - temporary conversion of means of production of chemical weapons for the purpose of destroying stocks of such weapons;
  - super-toxic lethal chemicals for non-hostile military purposes; (This list would be specified in accordance with the final agreement on the scope of prohibition.)
- to oversee the implementation of the above mentioned obligations the central authority should be in a position
  - to get the relevant information from the corresponding executive organs, agencies and enterprises to investigate the actual state of affairs concerning compliance with the Convention;
  - to examine reports on development activities as well as the productive and commercial activities of enterprises of the chemical industry and related fields, including productive commercial documentations of the enterprises of industrial firms engaged in the manufacture of chemical and other products which could be related to the scope of the Convention;
  - to visit enterprises producing supertoxic lethal chemicals, harmful chemicals and precursors, which fall under the scope of the Convention;
  - to visit enterprises being dismantled or already dismantled, or converted to the production of the above mentioned chemicals for permitted purposes;
  - to sample probes of waste gases, waste water and soil;
  - to install in the above mentioned enterprises sensing devices and make the necessary measurements;
  - to get the financial means necessary for the implementation of its functions;
  - to submit to the government concerned reports on its activities which would be publicized.

(c) 'international co-operative aspect':

- to provide the Consultative Committee with all data necessary to the execution of the task of the Committee with respect to verification of compliance with the Convention;
- to extend in case of international inspections all assistance requested including technical assistance and the provision of data;
- to have access to a selection of inspection personnel both technical and non-technical;
- to be prepared to maintain documentation of the type required to satisfy international verification requirements;
- to co-operate in providing expertise to the Consultative Committee;
- to co-operate with the central authorities of other States Parties and with corresponding international organizations concerning issues connected with the implementation of the Convention.

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENT XI
"(NATIONAL TECHNICAL MEANS OF VERIFICATION)

"1. Paragraph on the compatibility of the use of NTM with international law

Options:

- Any use of national technical means of verification for the purpose of monitoring compliance by other States with the provisions of the Convention must be consistent with generally recognized principles of international law.
- Each State Party to the Convention may use national technical means of verification at its disposal for the purpose of monitoring compliance with the provisions of the Convention in a manner consistent with generally recognized principles of international law.

"2. Paragraph on assistance and the provision of information

Options:

- Verification pursuant to paragraph 1 of this article may be undertaken by any State Party using its own national technical means of verification, or with the full or partial assistance of any other State Party.
- Any State Party which possesses national technical means of verification may, where necessary, place at the disposal of other Parties information which it has obtained through those means and which is important for the purposes of the Convention.
- Any information so obtained should be confidential to the State Party which carried out monitoring, unless or until evidence was sufficient to suggest non-compliance by another State Party. In this case the Consultative Committee should be informed.
- All States parties to the Convention should have access to information gathered by the use of national technical means of verification through the Consultative Committee, at which disposal States Parties possessing such information would place it.

"3. Paragraph on non-interference with NTM

Working hypothesis:

Each State Party to the convention should undertake not to impede, including through the use of deliberate concealment measures or in any other manner, the national technical means of verification of other States Parties operating in accordance with paragraph 1.

(In the view of some delegations provision on non-interference with NTM should depend on a paragraph on the provision of information along the lines of the fourth option in paragraph 2. The question of non-concealment should be further clarified.)

Alternative to Element XI on the lines of Article III, paragraph 5 of the Sea-bed Treaty:

'Verification pursuant to this article may be undertaken by any State Party using its own means, or with the full or partial assistance of any other State Party, or through appropriate international procedures within the framework of the United Nations and in accordance with its Charter'.

(Note: - first part may be regarded as covered by the first option in paragraph 2 of this paper;
- second part may be regarded as covered by Element XIII).

"REPORT OF THE CO-ORDINATOR OF THE CONTACT GROUP ON ELEMENTS XII AND XIII (CONSULTATION AND CO-OPERATION : CONSULTATIVE COMMITTEE)

"ELEMENT XII: Consultation and co-operation

"I. It was generally agreed that the Convention should include a provision regarding normal consultations and co-operation according to the following lines:

(a) Commitment by States parties to consult and co-operate.

(b) Consultations and co-operation may be undertaken:
directly between two or more parties;
through appropriate international procedures including the services of appropriate international organizations and of the Consultative Committee. (It was generally agreed to include a specific reference to the Consultative Committee underscoring its special role).

(c) Substance of consultations and co-operation: any matter in relation to the objectives of, or in the application of, the provisions of the Convention.

For further consideration:

- Specific reference to the United Nations General Assembly and/or Security Council.

"II. Fact-finding procedures concerning alleged ambiguities in or violations of the compliance with the Convention

(a) General formulation encouraging States parties to hold bilateral contacts.

(b) Right for every State party (challenging or challenged) to request the Consultative Committee to carry out a fact-finding procedure, including its right to request a specific activity to be carried out by the Consultative Committee (e.g. on-site inspections).

(c) Such request must be substantiated.

(d) Obligation to co-operate in the fact-finding procedure.

(e) Appropriate explanations must be provided in case of a refusal to an on-site inspection.

(f) Obligation of the Consultative Committee to inform States parties about the results of its procedures.

(g) General reference to the right of every State to resort to the mechanisms provided by the Charter of the United Nations.

For further consideration:

- Decision by the Consultative Committee on the merits of a request and on the appropriate activity to be carried out for a fact-finding procedure concerning alleged ambiguities in or violations of the compliance with the Convention.
- Provision containing a strong commitment by States parties to co-operate with the Consultative Committee in its investigations.
- Action the Consultative Committee might take after a refusal by a State party to an on-site inspection:
    - request further information
    - request a reconsideration of the decision.
- Provision of assistance to a State party in case of a breach of the Convention:
    - subsumed in the general reference to the United Charter
    - or formulated in specific terms
- Question of falsifying the actual state of affairs with regard to compliance with the Convention by other States parties.

"ELEMENT XIII: Consultative Committee

"A. ORGANIZATIONAL QUESTIONS

"1. CHAPEAU

It was agreed that there should be a general formulation stating the purposes of the Consultative Committee, i.e.:

- to carry out broader international consultation and co-operation
- to ensure the availability of international data
- to provide expert advice
- to oversee the implementation of the Convention
- to promote the verification of the continued compliance with the provisions of the Convention

"2. TIMING FOR THE ESTABLISHMENT

- Consultative Committee: shortly, e.g. 30 days, after entry into force of the Convention.
- It was generally agreed that some preparatory work before the establishment of the Consultative Committee would be needed.

For further consideration:

Preparatory Committee

- temporary body
- established after X number of signatures of the Convention

- open to every signatory
- functions: to carry out preparatory technical work, make recommendations to the Consultative Committee

"3. COMPOSITION

- 1 representative by each State party
- advisers by each State party

For further consideration:

- President.-Options:
  - Depositary (United Nations Secretary-General or his personal representative)
  - elected by the States parties
  - rotative presidency
  - collective presidency
- Right or obligation of every State party to become members of the Consultative Committee.

"4. SUBORDINATE BODIES

It was generally agreed that the Consultative Committee would have:

- A technical secretariat
- A sub-organ or sub-organs of a reduced membership to operate on a permanent basis

For further consideration:

- Membership of the sub-organ(s). It was suggested:
  - equitable geographical distribution
  - renewed every X years
  - some permanent members
- Functions

Suggested additions:

- Fact-finding panel: operational body composed of political representatives with appropriate technical support of a reduced number of States parties to carry out, at the request of a State party, a fact-finding procedure concerning alleged ambiguities in or violations of the compliance with the Convention
- Expert study groups: to be created on an ad hoc basis to elaborate specific studies on matters of importance for the implementation of the Convention
- Verification teams: for carrying out systematic on-site inspections under the aegis of the technical secretariat.

"5. MEETINGS

- Extraordinary meetings.- Options:
  - at the request of one State party
  - at the request of an X number of States parties
  - at the request of the sub-organ(s)
  - at the request of the depositary

  For further consideration:
- Regular meetings.- Options:
  - every year
  - at longer intervals, e.g. depending on the need to appoint members of the secretariat or of the sub-organ(s)

"6. RULES OF PROCEDURE

- On questions of substance: no voting. If the Committee is unable to provide for a unanimous report it shall present the different views involved.

  For further consideration:
  - On questions relative to the organization of its work. It was suggested that the Committee should work where possible by consensus but otherwise by a majority of votes
  - Decision on a request by a State party for a fact-finding procedure concerning alleged ambiguities in or violation of the compliance with the Convention

"7. CO-OPERATION OF STATES PARTIES WITH THE CONSULTATIVE COMMITTEE

For further consideration:

"8. EXPENSES.- It was suggested: - borne by States parties

"9. Specific provision stating the right of the Consultative Committee to REQUEST ASSISTANCE OR INFORMATION TO APPROPRIATE INTERNATIONAL ORGANIZATIONS

Note: The final placement of the sub-elements listed above in an article or in an annex will depend on the decision to be taken with regard to the general structure of the Convention.

"B. FUNCTIONS OF THE CONSULTATIVE COMMITTEE

Generally agreed functions:

"1. To carry out broader international consultation
closely co-operate with the States parties [authorities responsible for National Verification/Implementation]
provide the States parties with the necessary technical assistance.

"2. To receive, request and distribute data relevant to the provisions of the Convention which may be available by States parties [authorities responsible for National Verification/Implementation] and to analyse such information.

"3. To elaborate technical questions relevant to the implementation of the Convention, e.g. drawing up and revising lists of precursors, agreed technical procedures.

"4. To carry out and/or participate in systematic on-site inspections in order to:

- monitor destruction of CW stockpiles
- monitor the single facility for small-scale production of super-toxic lethal chemicals [for non-hostile military purposes] [for permitted purposes].

Suggested additions:

- monitor the inactive status of CW production and filling facilities
- monitor destruction/dismantling of CW production and filling facilities
- monitor production of certain commercial chemicals which are agreed to pose a special risk
- monitor the inactive status of CW stockpiles

For further consideration:

- The role of the Consultative Committee in the systematic on-site inspections:
  - sole responsibility
  - shared responsibility, e.g. with the State party concerned
- The characteristics of the systematic on-site inspections (permanent basis-periodicity-random selection - agreed procedures).

"5. To receive a request of a State party for a fact-finding procedure in case of alleged ambiguities in or violations of the compliance with the Convention

- To request further information as appropriate
- To carry out and/or participate in a challenge on-site inspection

Suggested addition:

- to carry out a challenge on-site inspection concerning allegations of use of chemical weapons by or with the assistance of a State party

"6. To present an annual/periodic report of all its activities prepared, if appropriate, by the secretariat or by the sub-organ(s).

" APPENDIX

It was generally agreed that it should be elaborated in an annex containing:

"I. Technical procedures for systematic and challenge on-site inspections

- Rights and functions of the inspectors
- Rights and functions of the host-State personnel
- General kinds of inspection procedures
- General kinds of equipment to be utilized in the inspections and who provides it.

For further consideration:

- Sources of inspection personnel.

"II. General framework for the activities to be carried out during the inspections to be performed, e.g.

- for the regular monitoring of the destruction of CW stockpiles
- for the regular monitoring of the single facility for small-scale production of super-toxic lethal chemicals
- in the course of fact-finding procedures."

Note: The elements listed above could be separated in two different annexes depending on the final decision to be taken with regard to the general structure of the Convention.