The present paper presents a theoretical assessment of the probability that chemical weapon tests would be detected by atmospheric monitoring at a national boundary.

From the analysis carried out it is concluded that:

(a) detection of a field test by instantaneous monitoring of the air at a national boundary is not feasible at a distance of 10,000 km from the source and could probably not be achieved beyond a distance of 500 km;

(b) a sample accumulation system positioned on a national boundary might theoretically detect an organophosphorus compound in a puff released 10,000 km upwind. However to establish the feasibility of this, experimental data are required on the degradation of puff concentration, during long-distance travel, by deposition, decomposition and wash-out;

(c) identification of organophosphorus agents by the system described will not be possible and in view of the risk of false alarms, resulting from the detection of commercial organophosphorus compounds, this system is considered not to warrant further investigation until identification can be achieved using 10 picogrammes of sample.

Statement by the Japanese Representative (Ogiso) to the Conference of the Committee on Disarmament: Chemical Weapons, July 6, 1976 [1]

As may be recalled, my delegation submitted in April 1974 a draft convention (CCD/420) on banning chemical weapons. As to the scope of the chemical warfare agents which should be ultimately banned, it indicated "chemical warfare agents of types and in quantities that have no justification for peaceful purposes". As to the modalities of the ban, it proposed a stage-by-stage approach, beginning with a ban on super-toxic agents for which verification is of high feasibility by the use of off-site, chemical and physical means.[2] As to verification, we have tried to contribute to the discussions on the subject by suggesting the parallel use of national means on the one hand in which the reporting of statistical data would be required and international means, on the other, in which inquiries and on-site inspection upon request would be conducted. On 13 April, Ambassador Martin of the United States made an extensive statement on this subject and made clear the position and the views of his country. As to the chemical warfare agents which should be banned from the outset, he said that "a first stage agreement should cover all lethal agents". As to the modalities of the ban, he said that "it would be necessary to construct a phased agreement on the basis of activities". As to verification, he observed that

[1] CCD/PV.709, pp. 16–19.
[2] *Documents on Disarmament, 1974*, pp. 99–106.

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direct verification including inspection for limited purposes would be most effective.[3] We appreciate that the United States, one of the countries which have a high responsibility on the question of banning chemical weapons, came forward with its concrete views with a view to expediting discussions on it. If the great majority of the members of this Committee favour the United States' views, my delegation is quite prepared to accept them as the basis for further discussion of the subject.

As to the scope of the agents to be prohibited, we understand the views of non-aligned countries that even less toxic chemical warfare agents should be prohibited as well as the highly toxic ones (CCD/400).[4] We also recall the comment on the Japanese draft proposal made by Sweden that "the intended exemptions from the prohibition"—exemptions from the suggested initial ban on super-toxic agents—"seem to be too many."[5] In the light of these views and as I stated on 13 April,[6] we do not intend to insist on our previous position of suggesting the initial ban of only super-toxic CWAs.

If, however, we expand the scope of the initially banned agents from super-toxic CWAs to all lethal CWAs, a number of dual-purpose agents naturally come within the scope of the initial ban. Since adequate techniques for verifying these dual-purpose agents are not available at present, the likelihood is that, for ensuring compliance with the convention, we depend to a great extent upon the genuineness of the information supplied by the Parties and consequently upon the mutual trust between the States Parties.

Our acceptance of the initial ban on all lethal CWAs is conditioned on general acknowledgement of such difficulties involved in verification, especially with respect to dual-purpose agents.

The phased approaches may be divided between the one concerning the agents which I touched upon now and the one concerning the activities which I now propose to discuss.

Since the Geneva Protocol of 1925 bans the use of chemical weapons,[7] the choice left for us now is on which activity out of development, production and stockpiling we should place our priority. In my opinion the ban on development is not practicable since science and technology have an essentially and inevitably dual character for both peaceful and military uses, and an objective distinction between them is therefore impossible. Therefore, restriction of the development will have to be achieved indirectly by a production ban.

Now, with regard to the two remaining activities, production and stockpiling, banning both of them would mean an excessive stress on ascertaining compliance with the convention, inasmuch as the scope of the initial ban is likely to be expanded to cover all lethal CWAs.

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[3] *Ante*, pp. 211–221.
[4] *Documents on Disarmament, 1973*, pp. 206–209.
[5] *Ante*, p. 135.
[6] *Ante*, pp. 221–225.
[7] *Documents on Disarmament, 1969*, pp. 764–765.

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Furthermore, when we try to choose our first priority between the two in terms of practical feasibility, we feel it desirable to ban production first, possibly coupled with a reduction of agreed amount of stockpiles, namely to check the increase in CWAs in the arsenals of States, and then to move on to the eventual destruction of all stockpiles, thus extending the scope of the prohibited activities. It may be pointed out as well that States possessing CWAs would feel themselves ready to agree to destroy all stockpiles only after ascertaining that the ban on production, possibly coupled with the partial ban on stockpiles, was being strictly enforced.

Next, I would like to touch upon verification. Recent working papers concerning the verification of CWAs include CCD/485 submitted by Sweden [8] and CCD/497 and CCD/498 submitted by the United States.[9] These papers suggest the high reliability of verification measures such as the use of technical instruments including monitoring devices and on-site inspection, when they are employed in combination in ascertaining the cessation or conversion into peaceful uses of CWA production facilities made known by States possessing CWAs and in ascertaining the destruction of the declared CWA stockpiles.

Despite these measures, we find it hard to ignore the difficulty that the production facilities and stockpiles hidden by some States possessing CWAs may escape verification. So, if the scope of the initially banned CWAs is to be expanded, the main emphasis of the verification measures based on the present day level of science and technology will have to be upon the deterrence of the violation of treaty obligations by the combined use of such instruments as monitoring devices on the one hand and on-site inspection on the other hand for such limited purposes as ensuring that observation by instruments is not obstructed. The combination of these means are to be employed with regard to the cessation of production at declared facilities or the destruction of reported CWA stockpiles.

Basing ourselves on the recognition of this fact, we intend to continue our study on the modalities of on-site inspection for limited purposes and technical means to deter violation of treaty obligations. We shall also have soon to call upon States possessing CWAs to make a political decision about accepting direct verification measures including on-site inspection for limited purposes.

I have thus far stated the views of my delegation on the scope and modalities of prohibition and also the verification of the ban on chemical weapons.

I will now proceed to make a few suggestions with a view to expediting the deliberations on this subject.

The United States working paper containing a review of the definitions of CWAs observes that toxicity has come to be recognized by

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[8] *Ante*, pp. 186–191.
[9] *Ante*, pp. 369–372, 372–376.

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many countries including mine as being the primary criterion in delimiting CWAs for the initial ban.[10]

The toxicity of a given chemical substance is different both qualitatively and quantitatively from others. For the purpose of comparing toxicity among various chemical substances, the lethal dose serves as a highly reliable index and it can be obtained for any chemical substance. The lethal dose can be expressed in numbers, and by the use of this numerical value, the toxicity of various substances can be compared.

I would like to suggest the merit of using this method and to formulate a LD 50 spectrum for the purpose of delimiting the CWAs to be banned. Our expert will in the informal meeting further amplify this idea. Should this Committee find itself ready to support the idea of formulating a LD 50 spectrum, then it would be desirable to entrust the work to a neutral international organ such as WHO.

It is reasonable to assume that, in the progress of the chemical industry, there will in fact be no limit to the number and types of chemical compounds which will be created. Furthermore, science and technology can both in their essence be used for both peaceful and military purposes. The logial consequence is that probably a great number of CWAs and chemical substances with CWA potential will be discovered and produced. Accordingly, even if we adopt the currently up-to-date LD 50 spectrum, it would have to be altered at some future date. In a similar manner, verification techniques will also have been improved.

For these reasons, a CW convention can be said to be one which requires as a matter of high importance the holding of review conferences. This in turn necessitates the adoption of provisions for periodical review conferences which would be preceded by a meeting of experts for the purpose of examining the expansion of the scope of agents and of the activities to be prohibited and to get a clear picture of the state of the improvement of verification techniques from a technical point of view. We should bear these needs in mind even at the present stage.

On the subject of the chemical weapons ban which involves so many complicated problems, the Minister of State for Foreign and Commonwealth Affairs of the United Kingdom, Lord Goronwy-Roberts, made known on 1 July that his delegation would submit to this Committee a draft convention in the course of summer session.[11] We look forward with great interest to the tabling of this draft convention.

The informal meeting of experts is presently taking place at the proposition of the Federal Republic of Germany, and significant steps are being taken towards expediting the deliberations of a convention on the CW ban. I wish to end my statement by hoping that further

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[10] *Ante*, pp. 376–381.
[11] *Ante*, p. 441.

progress will be made in the Committee on the basis of these achievements.

German Democratic Republic Working Paper Submitted to the Conference of the Committee on Disarmament: Catalytic Detoxification of Organophosphorus Chemical Warfare Agents, July 6, 1976 [1]

I. *Introduction*

The questions of banning the development, production and stockpiling of CW agents are closely related to the problem of detoxification of available stockpiles of CW agents. This problem has both scientific and technological implications.

From the scientific standpoint as well as from the technological one there exist quite different possibilities for the variety of CW agents to be converted into compounds of lower toxicity, or into completely non-toxic substances harmless to man and to the environment.

The problems have more intensively been studied for vesicants of the yperite type. Much experience relating to this type of CW agent has already been gathered because after World War I and II considerable quantities of these CW agents had been destroyed, detoxified or burned. But as to our information catalytic processes for detoxification had so far not been applied to these CW agents.

II. *The detoxification of organophosphorus CW-agents by non-catalytic methods*

However, the experience gained so far with organophosphorus CW agents is rather limited in regard to finding the most convenient method for detoxification on a technical scale.

The literature regarding both the military and chemical problems of detoxifying or destroying organophosphorus CW agents describes only those methods and processes which are suitable for either laboratory or special field use.

As to the destruction, or elimination of large stockpiles, or overstocked stockpiles of organophosphorus CW agents we have only press information on the United States action of submerging Sarin-filled shells in the Atlantic Ocean as well as on the burning of several thousand tons of "G-agents" (Tabun/Sarin/Soman-group). However, there were no additional technical details available worth generalizing.

Regarding the chemically possible reactions for detoxifying organophosphorus CW agents of the G- and V-type the splitting of esters in aqueous-alcoholic media by means of alkalies appears technically to be the most convenient method (apart from burning).

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[1] CCD/506, July 6, 1976.