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It is possible to protect people against chemical weapons without at the same time so immobilizing or burdening them that they are unable to function effectively. This is true of no other category of modern battlefield weapon. How far it is a characteristic that is displayed in practice, and what its wider implications might be, were the main matters before the Workshop on which the present volume is based. It had seemed to the conveners (the present authors) that so fundamental a difference between chemical and other categories of weapon must have a major bearing on international efforts to prevent the spread and use of chemical weapons and to achieve their elimination worldwide. This presumption was strongly borne out by what transpired at the Workshop.

The agenda included presentations on diverse aspects of antichemical protection, including the calculation of realistic threat levels for the design of protection; the design and performance of detectors, respirators, protective clothing and collective protection; decontamination; medical countermeasures; the protection of civil populations; the military effects of antichemical protective posture; doctrine and training; implications for chemical disarmament; and the provisions of the Chemical Weapons Convention that address antichemical protection, especially Article X with its focus on fostering mutual assistance and openness among states parties in matters of antichemical protection. The agenda also included discussion of the role and design of chemical defences after the Convention has entered into force.

The presentations served to initiate wide-ranging discussion that moved from the technical topics of the earlier sessions through to military and strategic considerations and on to the political and other more general factors that have now found expression in the CWC.

Effectiveness of antichemical protection

Specialists in antichemical protection from several

industrialized and developing countries described the design and performance of protective equipment employed by their national armed forces. Air filters for individual and collective protection contain particulate filters to remove smokes and aerosols, and include specially treated activated charcoal to remove toxic gases. Such filters can provide a high degree of protection against all known chemical-warfare agents and also against biological agents and radioactive particles. As the lungs are the part of the body most vulnerable to toxic agents, it was generally agreed that the respirator is the irreducible minimum of individual protective equipment.

Calculations presented to the Workshop based on toxicological, meteorological and military-operational considerations indicated that the acute respiratory hazard under realistic battlefield conditions in a chemical war would be highly localized and sporadic. Respirators affording protection factors even as low as 100 – i.e. capable of removing 99 percent of contaminants from air breathed through them – could keep respiratory casualty levels far below the casualty levels expected for today's conventional weapons. Modern respirators, correctly worn, are capable of providing protection factors hundreds of times better than this. They therefore greatly diminish the relative casualty threat of chemical weapons.

Protection for the skin is generally provided by garments that contain activated charcoal and are permeable to water vapour, so as to allow evaporative cooling through perspiration. The Workshop heard about the development of effective charcoal-containing filters and clothing of inexpensive design produced in a developing country. In several countries, charcoal-containing fabrics have passed through successive stages of technological change, and newer materials based on poromeric and hydrophilic films intended to allow greater body cooling in lightweight garments are under study.

Detectors of various types are used to determine when and to what degree individual or collective

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protection should be assumed and when it may be relaxed. Development of these devices is currently advancing rapidly.

A central point to emerge from these technical presentations was that antichemical protective technology is nowadays both highly developed and widely diffused. The essential similarity of protective equipments in so many different countries, and not only those of the industrialized North, attests to this. It suggests that, in comparison with other areas of military technology, the requirements for secrecy are considerably attenuated. The generic nature of so much of the technology also suggests this, for, at least as regards the centrally important area of physical protection, the technology is based on adsorptive processes which are largely agent-nonspecific, meaning that it can be expected to work as well against novel agents as against known ones. Just as Allied respirators during World War II would have been effective against Hitler's still-secret nerve gases, so also are today's respirators likely to afford protection against, say, toxins.

It was noted that protection of the general civil population is more costly and more difficult organizationally than the protection of military forces. Only very few countries have undertaken it since World War II, all of them relatively wealthy and with small highly organized citizenries. An effective CWC could therefore be seen as an important safeguard against the use of chemicals as terror weapons used on civil populations.

Modern combined-arms formations have carried out sustained operations in field exercises conducted under central European weather conditions in full antichemical protective posture without experiencing excessive degradation of military performance. The Workshop viewed, moreover, a videotape showing a field exercise conducted in hot dry weather in full sunlight in a Middle Eastern desert in which infantry accomplished a dismounted assault lasting several hours in full antichemical protective gear without suffering heat illness. Such performance is not possible, the Workshop was told, under conditions of high relative humidity, for here evaporative cooling is much less. The conclusion must be that, while antichemical protection will impose some degree of burden on logistics and performance, it can in many environments greatly

reduce the effectiveness of chemical weapons and hence, the incentives for their acquisition and use.

Implications for the Chemical Weapons Convention

From what was said about the effectiveness of antichemical protection there follow certain broad conclusions about its significance for chemical disarmament. First, antichemical protection can favour compliance with the CWC by reducing the incentive for having chemical weapons. Secondly, antichemical protection, if available generally, can enhance the effectiveness of verification by forcing a would-be violator to increase the scale and therefore the detectability of any production, storage or other proscribed activities he might undertake. Thirdly, if violations nevertheless occur, antichemical protection can render them much less dangerous. In short, antichemical protection can increase the security benefits of chemical disarmament and also decrease risks that the disarmament may present.

The Workshop accordingly saw good reason why antichemical protection should be maintained at near-present levels during the ten year period of stockpile destruction following entry into force of the CWC. The likelihood was envisaged, however, that after the destruction of declared stocks had been accomplished and depending on the universality and performance of the Convention, there would be a trend towards lower levels of protective effort, with priority given to maintenance of respiratory protection for military forces. At the same time there would be continued need for effort in respiratory protection for peaceful purposes, as in protection against toxic hazards encountered in industry.

The Workshop considered further that, since chemical disarmament must be global in order to be most effective, antichemical protection might best be made accessible to all states parties to the CWC. This posited a need for openness and cooperation in matters of antichemical protection among states parties. The treaty provides for both.

Under Article X, states parties have the right to request and, if the specified conditions are met, to receive assistance in antichemical protection via the treaty's international oversight body, the Organization for the Prohibition of Chemical

Weapons (OPCW). Such access to cooperative efforts could become one of the benefits of joining the treaty regime, thereby favouring universal membership. As to openness, another provision in Article X requires that, 'for the purposes of increasing the transparency of national programmes related to protective purposes', each state party shall make annual disclosures of information. How exactly that is to be done has been left to the OPCW to elaborate. These two provisions of the CWC will need to be implemented with particular care and far-sightedness if the full benefits of antichemical protection for the treaty-regime are to be realized.

It is the Preparatory Commission for the OPCW (PREPCOM) that has the task of making recommendations on possible transparency measures under Article X. Since there is evidently no compelling need for high secrecy around the antichemical protection programmes of states parties, the PREPCOM will presumably have some latitude to develop the reporting and disclosure requirements that most benefit the regime. A fundamental principle which it will surely seek to establish is that antichemical protective research and development ought, as a rule, to be pursued outside secret channels, both to avoid arousing suspicions inimical to the objectives of the Convention and to prevent actual abuses under the cover of secrecy. There should, in other words, be no antipersonnel chemicals in the development programmes of states parties that are not disclosable to the OPCW, incapacitating chemicals no less than lethal ones.

Conclusions

Looking back over the Workshop in the light of what the negotiators of the Chemical Weapons Convention achieved a year later in Geneva, two of the conclusions that emerged now have a special salience.

First, antichemical protection has a crucial role to play in enhancing the effectiveness of the new treaty regime. A corollary of this is that any substantial draw-down of protection during the transitional period between entry of the treaty into force and completion of chemical disarmament could weaken the treaty regime.

Second, international cooperation in antichemical

protection, including the provision of technical assistance to states parties requesting it in accordance with Article X, could strengthen the treaty. But for this effect to be achieved, national antichemical protective programmes must become more transparent. Such heightened transparency is needed anyway in order to reduce the potential of these programmes for abuse, real or suspected.



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