

# The BWC Intersessional Process towards the Sixth Review Conference and Beyond<sup>1</sup>

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20th Pugwash Workshop Study Group on the Implementation of the CBW Conventions, Geneva, Switzerland, 8-9 November 2003

Workshop Report  
by Scott Spence, HSP Hague Researcher

## INTRODUCTION

This was the tenth of the current Pugwash workshop series on chemical and biological warfare (CBW) to be held in Geneva. It was convened jointly with the Harvard Sussex Program on CBW Armament and Arms Limitation (HSP) and hosted by the Swiss Pugwash Group. The meetings were held on the campus of the Graduate Institute of International Studies.

Forty-one people attended the workshop, by invitation and in their personal capacities, from 16 countries (Australia, Belgium, Canada, China, Germany, Ireland, Israel, Italy, New Zealand, South Korea, the Russian Federation, South Africa, Sweden, Switzerland, the United Kingdom, and the United States). This report does not necessarily reflect a consensus of the workshop as a whole, or of the Study Group.

The focus of the workshop was the BWC Intersessional Process and, in particular, the First Meeting of States Parties in November 2003 and the Second and Third Meetings of Experts and of States Parties in 2004 and 2005. The workshop also looked ahead to the Sixth Review Conference in 2006 and beyond.

The meeting opened with a welcome by Professor Jean-Pierre Stroot, President of the Board of the Geneva International Peace Research Institute (GIPRI) and former Director of Research, IISN, Belgium. Professor Stroot recently took over the Pugwash Geneva office.

In addition to the various reports on developments outside the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (the BWC) during the previous year, the main items for discussion by the workshop under the rubric of the BWC Intersessional Process included: national measures to implement the BWC prohibitions, national measures for security and oversight of pathogenic microorganisms and toxins, enhancing international capabilities to respond to alleged use or suspicious outbreaks, strengthening national and international efforts for surveillance and combating infectious diseases, codes of conduct for scientists, and the Sixth Review Conference and beyond. Participants also addressed themselves to emerging challenges to the CBW Conventions.

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<sup>1</sup> A list of participants and papers is included below in this document.

## REPORTS

### *The Chemical Weapons Convention: Progress in Implementation*

There was a discussion of the activities associated with the First Review Conference (the FRC) of the Chemical Weapons Convention (the CWC), which took place in The Hague, from 28 April through 9 May 2003. Preparations began for the FRC in September 2001 with the establishment of an open-ended Working Group for the Preparation of the Review Conference (the WGRC). The WGRC met approximately twenty times between September 2001 and the beginning of the FRC. Between twenty to thirty States Parties and the Technical Secretariat were very actively involved with this work. Simultaneously, there were national reviews in capitals which led to the production of working papers. There were also reviews of various aspects of the CWC undertaken by the Scientific Advisory Board and workshops sponsored by IUPAC, NATO, and Pugwash.

It was noted that there were several distractions which occupied some of the time that might have been devoted to preparing for the FRC, including replacement of the Director-General, the OPCW financial crisis and budgetary issues, terrorism post-11 September, and the preparations by States Parties for the reconvened BWC Review Conference. By the time the formal session commenced, preparations for the FRC were not as far along as had been hoped. Several participants commented that most documents, including the Director-General's report, various background reports, and other documents, were only made available 10-15 days before the start of the formal FRC session, which meant that there was little time for review of these documents in capitals.

It was observed that the FRC officially opened with general debate the morning of 28 April. Several national statements were made and one, in particular, contained an accusation of non-compliance by another State Party. The focus of the FRC then turned to drafting. Two major documents were produced: a political declaration with 23 paragraphs and general language; and a larger review document containing 134 paragraphs and more specific, required actions. The review document was described as a roadmap for the progress of the CWC for the next five years, that is, until the next Review Conference.

Participants discussed the Open Forum in very positive terms. It was suggested by one participant that this gathering of non-governmental organisations, international organisations and other bodies was the only opportunity for actual review of the elements of the Convention during the formal two-week session of the FRC.

Workshop participants then discussed the major elements considered during the FRC. Universality of the CWC was recognised as a concern, especially in respect of those States in the Middle East that have yet to join the CWC. National implementation legislation was observed to be an area of serious concern, especially because only a quarter of States Parties had comprehensive implementing legislation as of the FRC. Industry issues and verification were noted to be going well despite unresolved issues dating back to the Preparatory Commission. The key roles of 'other chemical production facilities' and 'discrete organic chemicals' were also discussed and it was noted that these elements were an important part of the Article VI regime, particularly because of the changing nature of the chemical industry, including changing production technologies. International cooperation and free trade in chemicals were discussed, including what appears to be the decreased divisiveness of national export controls. Although non-lethal weapons were a major issue during the Open Forum

discussion and were mentioned in informal discussions at the FRC, non-lethal weapons were not a feature in the documents emerging from the Conference. Finally, other issues that were considered included the functioning of the OPCW, chemical weapons destruction, consultations and fact-finding, protection and assistance, and terrorism.

Several participants expressed interest in how the FRC dealt with non-lethal weapons, and whether non-lethal weapons would be discussed before the next Review Conference by the Conference of the States Parties. One participant suggested that there will be upcoming national papers on non-lethal weapons, and suggested that NGOs could play a role in this process and put pressure on the OPCW to act. Participants also queried as to efforts being made in national legislation implementation. A description of the new legal module on the OPCW public website, including a new online national legislation implementation 'kit', was also provided.

It was observed in conclusion that there was a sense of relief that the FRC finished on time, that it took place in an environment of goodwill, and that there were agreed FRC documents. There remained a question, in some participants' minds, however, as to whether the Convention was properly reviewed, particularly regarding Articles VI and XI and non-lethal weapons. It was suggested that the Review Document would provide a useful roadmap, but only if States Parties demonstrated sufficient maturity.

### **The Biological Weapons Convention: Outcome of the Meeting of Experts, August 2003**

A report was given on the BWC Meeting of Experts (the Meeting), which took place in August. A large number of experts were said to have participated in this meeting to discuss the 'new process' and 66 working papers were distributed. The report from the Meeting (the Report) was said to contain two parts, including a procedural report (Part I) and a part containing an attachment with "statements, presentations and contributions made available to the Chairman by the States Parties" (Part II). It was observed, however, that the Report is not easy to analyse because, for instance, Annex II does not show how "statements, presentations and contributions fit into the agreed detailed programme of work" for the BWC. It was added that this would make States Parties' work during the November Meeting of States Parties particularly challenging.

It was observed that some States made comments about the BWC at the annual UN General Assembly First Committee meeting in October in New York, in the context of their national general statements and Explanations of Vote (EOV) on the BWC Resolution. The United States said that it had led efforts to use alternative methods of implementing the BWC and that it looks forward to the November meeting. The European Union stated that it would like to see an agreement on legislation implementation and that a legislation package should be put into place. South Africa added that it was disappointed that States Parties could not complete work on legislation implementation and that a multilateral approach using legal measures would surpass ad hoc or non-binding measures. Ambassador Tóth of Hungary had introduced a draft resolution on the BWC regarding the new process and the operative paragraph of the BWC regarding its implementation was noted.

On operative paragraph 3 (OP3) of the BWC First Committee Resolution put forward by Hungary, which was adopted by consensus, New Zealand and Canada issued a joint EOV. This EOV, offered specifically with a view to the August Expert Meeting, noted that "agreement reached at the Fifth Review Conference stated that States parties would "discuss and promote common understanding and effective action on two topics" - the topics for this year being

national implementation of the BWC and security and oversight of pathogenic microorganisms and toxins. In other words, the task is not only for States Parties to participate in its implementation as set out in OP3, but also to "promote common understandings and effective action". That requires some stated outcome, either by the Chair or otherwise for the information of States Parties. The fact that OP3 does not quote the mandate in its entirety does not diminish the task lying ahead of States Parties at the upcoming Meeting of States parties in November."

Participants emphasised the importance of national legislation implementation. Several participants noted that implementation under the CWC in particular was a disgrace, even though it is a legal obligation. It was queried whether implementation of the BWC would be any more successful under the 'new process', especially because such implementation was not a legal obligation under the BWC. In response, it was noted that chemical and biological weapons proliferation are different matters and that States with a biotechnology infrastructure usually have appropriate legislation in place.

### **The ICRC: Biotechnology, Weapons and Humanity**

The International Committee of the Red Cross (ICRC) outlined its activities following-on from a new public appeal on Biotechnology, Weapons and Humanity launched in Montreux on 25 September 2002. The appeal calls on all political and military authorities to strengthen their commitment to the international humanitarian law norms prohibiting the hostile uses of biological agents and to work together to subject potentially dangerous biotechnology to effective controls. Moreover, it calls on the scientific and medical communities, industry and civil society in general to ensure that potentially dangerous biological knowledge and agents be subject to effective controls.

It was noted that there are two tracks to ICRC activities stemming from the appeal. Track One is a "political track". It includes a proposed ministerial declaration, which is in the process of being discussed with States. It was observed that reaction to the prospect of such a declaration, designed to build political momentum to take specific, practical action to minimize the risk of poisoning and deliberate spreading of disease had been largely positive. Additionally, every four years the ICRC, Red Cross and Geneva Convention parties hold a conference in Geneva. It was stated that, at the upcoming 28th International Conference of the Red Cross and Red Crescent Movement, there would be a particular emphasis on the appeal, including a section in the Conference's agreed Agenda for Humanitarian Action. In the margins of the conference there would be a workshop on Biotechnology, Weapons and Humanity sponsored by the Canadian and Norwegian governments and their respective Red Cross Societies.

As part of its "bottom-up" Track Two activities with non-governmental stakeholders in the life sciences, it was stated that the ICRC has been undertaking bilateral discussions with representatives from industry, science, academia and medicine. These have been designed to encourage stakeholders to think about their legal and ethical responsibilities and to move themselves to close any existing loopholes, rather than the ICRC prescribing what should be done to address the dangers of misuse of biotechnology.

A number of other activities being undertaken as part of Track Two were noted, including the development of an electronic working group to develop principles of practice, various publications about the appeal to promote awareness amongst target audiences, and creation of an educational module aimed at tertiary educational institutions because of the low understanding of the CBW Conventions at that level. It was observed that there appears to be

a generational divide in some cases in terms of attitudes toward the CBW norms. Younger people in the life sciences seem to tend to take the attitude that "I need to know about these norms", whereas many of their older colleagues are more of the view that "I should have known about these much earlier". Accordingly, education is a significant component of the appeal. The goal is to create a web of prevention at the individual and collective levels based on principles of individual as well as collective risk assessment, designed to minimize risk of diversion of advances in the life sciences for hostile purposes.

Participants raised the issue of the ICRC's speaking rights at multilateral meetings relevant to CBW. Whereas representatives of the ICRC had been allowed to speak at the Fourth and Fifth BWC Review Conferences, it had been denied the opportunity to make statements at the CWC First Review Conference and at the BWC Meeting of the Experts in August. Some participants wondered whether the ICRC would be allowed to speak at the November Meeting of BWC States Parties. It was suggested that the ICRC is not being allowed to speak because the Conventions have not been successful and, accordingly, States Parties would rather address problems associated with the Conventions in private and subject to the least possible public scrutiny. It was the view of many participants that this was an invidious situation, and should be prevented from occurring again if possible. Another participant noted that this problem is not unique to the ICRC: the OPCW and WHO were not invited to speak at the plenary Meeting of the Experts in August, nor were they able to participate in that Meeting in closed session.

It was the view of at least one participant that the ICRC would not be doing its job properly if there were not points of disagreement between it and certain States from time to time, especially vis-à-vis military powers. It was observed that the ICRC's focus on so-called "non-lethal" weapons (a term one participant noted is misleading because there are no pharmaceutical agents at present that can incapacitate without lethality) is particularly sensitive for some governments. But it was noted that there is a presumption that in a few years the rapid increase in understanding of the receptors in the body's central nervous system could lead to an increase in non-lethal chemical agents. Accordingly, their use as weapons may become more attractive and pose a serious threat to both the Biological and the Chemical Weapons Conventions.

Other participants asked whether the ICRC would be in a position to help victims of a biological weapons attack. This led to some discussion, in which it was noted that it would likely be difficult in the days and weeks following such an attack before it would be possible to ascertain whether an unusual outbreak of disease was natural or deliberate. It was recognised that such a scenario would put the ICRC and other humanitarian agencies in a difficult quandary in terms of the safety of their personnel and the measures necessary to tackle the humanitarian impacts of such an event. It was also noted that security and safety were the primary responsibilities of governments and that the ICRC could only be reasonably expected to come in when there was some level of security for its people. The situation in Iraq was mentioned as one prominent example.

### **OPCW Preparatory Commission History Project**

A report was given on the OPCW Preparatory Commission History Project which has the objective of looking at how the OPCW Preparatory Commission (PrepCom) process unfolded from its very start to the establishment of the Organisation. The project includes creating an archive of PrepCom material, including interviews with former PTS staff, Member State negotiators, etc., which will be stored at SPRU-Science and Technology Policy Research,

University of Sussex, UK (the home of Harvard Sussex Program archives). The material will then be analysed so that lessons may be drawn from it and papers prepared for learned journals. A book is also planned. In order to begin creating an archive, the project is being publicised (for instance, through articles in the March 2003 Bulletin produced by HSP and in the OPCW's in-house journal Chemical Disarmament) and appropriate people to interview are being identified. The OPCW Director-General has offered the support of the Organisation to the project. Initially, the Media and Public Affairs Branch is publishing quarterly updates in Chemical Disarmament. The project team has been given access to the OPCW's PrepCom archives. HSP has played a helpful role in getting the project started and has underwritten its work thus far. However, additional funding is now being sought. The team expressed their gratitude to the Governments of The Netherlands and the United Kingdom for their financial contributions.

It was stated that the project will open with two areas of research in order to get a grasp of the PrepCom process and the issues related thereto. The first area will be an examination of how the PrepCom came to be convened with specific tasks set before it. The issues that will be looked at under this rubric will include the CWC drafting process including papers from delegations describing what the Organisation should look like; the role of the group under Australian leadership that prepared the Proposals for a first budget; the role of the 1992 UN General Assembly resolution which commended the Convention for signature; and the decision of the Signatory States at the signing ceremony in January 1993, which became known as the Paris resolution.

It was stated that the second area to be addressed would be how The Hague became the seat of the OPCW. Issues to be taken up include the Dutch government's efforts at locating the OPCW in The Hague and the unsuccessful efforts by Vienna and Geneva. The project will also address the role of the OPCW Foundation in establishing the logistic base for the PrepCom. It was added that the Dutch government has agreed to review its files regarding the PrepCom stage of the OPCW and has appointed an official liaison for project researchers.

It was stated in conclusion that more money will be necessary and that the project must move quickly. In other words, emphasis was placed on the need to complete the project within three years or potential witnesses may be lost. It was added that some key players, sadly, have already died.

### **International CBW Criminalization**

A report was given on the latest measures taken with regard to a draft convention which would hold individuals responsible for violations of the Chemical and Biological Weapons Conventions. It was noted that consultations have been held within the structures of the European Community and within a context that has been changing since 11 September and the recent Iraq war. Further to this, it was noted that the Netherlands had introduced the draft convention in the EU Council's Public International Law Committee for review in capitals. It was stated that there have also been lateral consultations and constructive contact with such organisations as the International Criminal Court and its chief prosecutor, Luis Moreno-Ocampo. In short, there is now movement from discussions of the draft convention in the academic world to the world of public affairs.

Participants raised the question of whether the principles in the draft convention could be grafted onto existing instruments. In response, it was stated that the draft convention would

create a uniform basis for jurisdiction whereas a state-by-state approach might not work as well. It was added that this draft convention is based on seven model treaties which establish universal jurisdiction, including treaties on torture and aircraft sabotage and hijacking.

Participants also raised the question of whether there would be a need for implementation of the draft convention in individual countries and how internal law would relate to the Convention. In response, it was stated that the convention would obligate States Parties to define certain crimes in the convention in their internal law and to have jurisdiction over such crimes even if they were not committed in their territory or by one of their nationals. Whether States would require statutory implementation would depend on each State's constitutional regime.

It was stated in conclusion that bio-terrorism may give impetus to the draft convention because, without it, there may not be jurisdiction to prosecute violations of the BWC in the absence of a territorial or nationality connection.

## **THE BWC INTERSESSIONAL PROCESS**

### *First Meeting of States Parties, 10-14 November 2003*

A report was given on how the intersessional process between the 5th and 6th BWC Review Conferences, including the Meeting of States Parties in November 2003, might feed into the 6th Review Conference which should itself build upon previous efforts. It was stated that the report from the August meeting was difficult to analyse and that despite the emergence of common understandings among States Parties with regard to national implementation and to security and oversight of pathogenic microorganisms and toxins, it is difficult to lift these understandings out of that report. Accordingly, a set of suggested language was provided for use at the November Meeting of States Parties in light of the recognition that there will not be enough time at the meeting for drafting.

It was stated that all State Parties must review their national implementing legislation and security and oversight of pathogenic microorganisms and toxins measures in light of other States Parties' measures between now and the 6th Review Conference. National developments in such legislation and measures could be reported under the existing confidence-building measures, thereby serving as a start to building up a body of information for the 6th Review Conference.

### *National measures to implement the BWC prohibitions*

Under the same report and with regard to national measures to implement the BWC prohibitions, attention was drawn to paragraph 1 of the suggested language for the November meeting outcome which picks up prohibition and prevention under the BWC. The ultimate goal of the November meeting was stated as being a contribution to the "recovery and strengthening of the BTWC through a return to the cumulative development of extended understandings leading to effective action at the Sixth Review Conference". In short, emphasis was placed on the need to make good use of the proposed outcome to the November meeting. It was added that States should compare their experiences in implementing the BWC, reinforce State Party actions under Article IV, and report the outcome in the existing confidence-building measures.

Another report was given on the status of national legislation implementation of the BWC. It was first noted that a survey had been done on implementation of Article I prohibitions in order to raise awareness of the need to implement the BWC prohibitions, to bring attention to the status of such implementation, and to identify good statutory models. Some States Parties did not provide any information while others only provided a little. Some States Parties indicated that they were drafting legislation while other States' legislation was not available. Several other issues were identified. For instance, 24 States Parties had provisions for extraterritorial application of the BWC's prohibitions and universal jurisdiction. On the other hand, many States Parties were not aware of their treaty obligations at all. Wide variation in State Parties' penal legislation was also identified, for instance, some States have effective enforcement of the BWC whereas others rely on related legislation.

Several recommendations were proposed, including creation of a 'toolbox' much like the online national legislation implementation 'kit' created at the OPCW. It was added that most of the necessary measures are relatively simple to implement and, in some cases, can be added to existing measures. It was stated that States must now move forward bilaterally and regionally and that, ideally, there should be an international focal point for implementation of the BWC, such as an OPBW. It was observed that there had hitherto been little support for such an organisation. Other alternatives were suggested including an informal international clearing house for discussion and dissemination of information or a national legislation implementation support unit.

Participants observed that the analysis in this report was necessary and useful. In response, it was stated that more analysis needs to be done but that it can be difficult tracking down information from States Parties. It was also observed that Spanish and French legislation models need to be prepared. Other participants queried why States were having difficulties with their implementing legislation. In response, it was noted that some States are reviewing their legislation to see what they already have in place and other States have limited personnel devoted to BWC implementation. It was added that some States do not have proper penal legislation in place or they include BWC prohibitions under their firearms control statutes. Finally, one participant noted that Canada now has a national authority to oversee the actual functioning of the BWC.

#### *National measures for security and oversight of pathogenic microorganisms and toxins*

A report was given on how two agencies in the United States-the US Department of Agriculture (the USDA) and the Department of Health and Human Services (the DHHS)-regulate select agents. It was noted that both agencies have issued new regulations further to laws enacted to secure pathogenic organisms against misuse. The DHHS regulates human and overlap pathogens, under the auspices of the Center for Disease Control (the CDC), whereas the USDA regulates plant, livestock and overlap pathogens through the Animal and Plant Health Inspection Service (APHIS).

It was observed that both sets of regulations require detailed registration of entities that possess, use or transfer regulated pathogens and, in the case of APHIS, registration of individuals as well. Both sets of regulations require safety plans and prescribe the requirements to be followed in the transfer of agents. It was argued that some differences lie, inter alia, in what is excluded from each of the four agent groups. For instance, the USDA has exclusions for "non-viable select agents or non-functional toxins" and genetic elements not capable of causing disease, whereas the DHHS only excludes the former. There are also differences in the two agencies'



record-keeping requirements and provisions for reporting theft, losses and release. It was stated in conclusion that the regulations were rapidly written and have different wording for similar results, except for some areas such as genetic engineering activity.

It was queried whether the US model would be useful elsewhere. One participant responded that the United Kingdom and several Eastern European countries also have useful regulations that could serve as models. Participants raised the questions of whether the regulatory process was becoming unnecessarily complex and was based on a false threat scenario versus being based on the likelihood of harm and prevention of such harm. It was queried whether there was a way to have risk models without elaborate definitions to which one participant responded that the general purpose criterion in two US laws does just this. Participants also raised the question of whether the information collected under the US regulations was secure; they were assured that it is.

There was some concern about the impact these regulations are having. It was observed that, in addition to changes in the export control regime for agents and restrictions on who can work with such agents, biologists who ignore or neglect to properly follow the new regulations do so at their own peril. One participant responded that the lists of toxins and genetic agents to which access is restricted are short and that plenty of research is still taking place.

Other problems with the regulations were raised including their impact on the international surveillance of diseases such as, for instance, SARS. It was observed that each country has different threats, priorities and diseases and, therefore, it would be constraining for each country to control certain diseases. It was added that what may be an unusual disease in one country may be quite common in another.

Concerns about the impact of the regulations on legitimate research were raised. It was observed that regulators are faced with the choice of preventing misuse which will have an impact on some legitimate research or not having a system in place which, though having less or no impact on legitimate research, would not prevent misuse of biological agents and toxins. It was suggested that the US is on the side of overreaction with regulations based on a misappreciation of the threat from biological agents and toxins. The key is to get a maximum security benefit while doing the least amount of harm to legitimate research. For instance, with respect to the US regulations, the first iteration of the human select agent list would have been mostly sufficient to prevent their misuse.

Another report was given concerning biosafety and biosecurity. It was stated that a key issue here is distinguishing between the two, which would be difficult because of the terms' different meanings in different countries. In some countries the same word was used for both 'biosafety' and for 'biosecurity'. It was added that it is necessary to create a unified framework of biosecurity and biosafety, which would include practical measures for both. At a practical level, there would be overlap between the two, that is, controlling potentially dangerous organisms contains elements of biosecurity and biosafety. Organisationally, the same authorities and government entities would implement biosecurity and biosafety.

It was noted that the UN Food and Agriculture Organisation (the FAO) along with other international organisations was creating a framework for biosecurity and biosafety which clearly defines these terms, but that it lacked a disarmament element which the BWC could provide. It was added that the FAO's strategy is to identify mutual interests in these areas without raising red flags. It was also observed that the Cartagena Biosafety Protocol was an

excellent window of opportunity for facilitating implementation of the BWC, especially through its capacity-building elements.

Participants queried what the impact was of the United States not having ratified the Convention on Biological Diversity or the Cartagena Biosafety Protocol. In response, it was stated that the US remains an important and constructive player in the areas of biosafety and biosecurity.

## **Second Meeting of Experts and of States Parties, 2004**

### *Enhancing international capabilities to respond to alleged use or suspicious outbreaks*

A report was given on the role of science in responding to alleged use of biological weapons or suspicious outbreaks. It was observed, for instance, that in the investigation of alleged biological weapons use during the Korean War, the scenario was not ideal because of the war and the secrecy associated with the investigation. In the Yellow Rain case, on the other hand, the science was very good but it required an enormous investment of time and research. It was observed that, nevertheless, there is a role for the independent scientist in these matters. Working under the assumption that there will be such instances in future, there could be a disinterested group of scientists that does field trials, reviews its methodology and is ready for, not reactive towards, an investigation. It was noted that UNSCOM and UNMOVIC, for example, could serve as possible models despite the problems associated with having team members from many different nationalities whose nations may have different agendas.

Participants observed that there would have to be three levels of credibility for the independent investigator model to work: political, scientific and forensic credibility. It was added that political credibility means the outside observer would have little reason to impugn the science, whereas forensic credibility suggests that evidence would have to be collected in such a way that it could stand up to challenges. It was noted that in the Korean War investigation scientific credibility had been high but political credibility was not. In response, it was stated that credibility issues will always be raised.

Participants also queried as to where such an investigatory body would be located; the response was that this remained an open issue. The issue was also raised of whether verification might lead to identification of State involvement to which it was stated that this was probable.

Another report was given on moving beyond treaty regimes for controlling biological weapons. It was observed that there is little chance of an investigation occurring under the BWC but that there is already an inspectorate with biological weapons expertise. The UN inspections in Iraq were performed by teams with field experience and little political baggage but they were withdrawn before they finished only to be replaced with US groups. It was argued that, nevertheless, Security Council sanctions against Iraq and the UN inspections had been effective because nothing has yet been found by the US. It was added that UNMOVIC risks deteriorating because of attrition and loss, even though they have a corps of trained inspectors, methods and means of training, and a modus operandi. It was stated that it is, therefore, important to have a permanent body based on the UNMOVIC/UNSCOM model which could, inter alia, advise the Security Council, maintain a corps of experts, maintain a database on inspections and techniques and technologies, and monitor sites of potential concern. Guidelines for degrees of intrusiveness could also be developed. It was stated that efforts would have to be coordinated with the OPCW and IAEA.

Participants queried what sort of role such an inspection team would have. It was stated in response that they could investigate an allegation of an illicit program. The Security Council could also play a role by suggesting that the State submit itself to an inspection. Other participants argued that States would generally not accept such intrusive inspections and that the Iraq case was exceptional. It was added that nuclear inspections could be performed by IAEA inspectors and chemical weapons inspections by the OPCW. With regard to biological weapons, it was observed that the negotiations towards the BWC Protocol had failed and, thus, in the absence of a BWC organisation a UN body might be necessary. It was queried whether the Security Council would authorise investigations by such a body.

Participants also queried whether such a permanent inspections body could fall under the control of the UN Secretary-General rather than the Security Council. It was stated in response that the Secretary-General can only currently authorise investigations when there is alleged use. Additionally, there is no standing body under the control of the Secretary-General and, in the past, such investigations have been "too little, too late". The issue was also raised of whether a State would have to give permission in order for an inspection to occur on its territory. It was stated in response that simply having such an inspection team available could serve as a deterrent. Other participants raised questions about the following issues: what this group's mandate would be, especially with regard to the duration of the inspections; how to maintain a permanent group when there are no investigations taking place; and the expense involved with maintaining such a permanent group. It was stated in response that ad hoc groups under the Secretary-General would lack the extensive training which a permanent group would have. It was added that such a group's mandate and the duration of the inspection would depend on the event.

Further to this subtopic, a few words were said about a new mechanism that could be developed for verifying compliance with the BWC. It was noted that it will take into account other models, including UNSCOM and UNMOVIC. Among the issues that will be examined are why the Article V mechanism under the BWC is not being used, that is, why States are refraining from using bilateral discussions or approaching the Security Council with regard to alleged biological weapons use. Accordingly, the goal of the mechanism is to create a model that will ensure compliance with the BWC.

Other participants observed that in the event of alleged biological weapons use, an investigation must work backwards and that it may be difficult to determine what such an investigation will look like. It was added that it would also be difficult to present definitive proof of alleged biological weapons use to the Security Council. In response, it was stated that investigations have worked backwards by looking at the strain of agent involved.

There was some disagreement regarding caring for biological weapons victims and determining the source of an alleged outbreak. Some participants observed that victims' medical records may be confidential and that this could impede investigation efforts. In response, it was noted that health care personnel must undertake an analysis of the outbreak, which is an epidemiological matter. It must then be determined whether the outbreak was deliberate, but it was noted that most health care personnel would not be able to make this distinction. Another participant added that this is what happens in the US all the time—a shooting victim is treated by medical personnel and the source of the attack becomes a criminal matter. In response, it was noted that there are differences between shootings and anthrax attacks, for instance, the lag time might be much greater between sickness and locating the perpetrator. It was added that in some countries anthrax is a common disease and it would be more difficult

to determine whether an outbreak was deliberate or not. It was thus proposed that several political models for addressing an outbreak may be necessary depending on the jurisdiction in question.

A further comment was made noting that investigation of outbreaks of disease entails two steps: minimizing harm and protecting people and then making a quasi-legal determination as to who is responsible, both of which can influence the other negatively. An example was given of the tension between the FBI and those treating the victims of the anthrax attacks in the US, that is between forensic experts and medical care providers. It was observed that if these problems are difficult enough to address at the national level, they will be even more so internationally because of geopolitical considerations.

#### *Strengthening national and international efforts for surveillance and combating infectious diseases*

A report was given on the surveillance of unusual cases of infectious disease. It was stated that it should be possible to carry out such surveillance through an early-warning monitoring system using alternative methods, rather than solely relying on official channels. Such alternative methods could include televised breaking news reports. It was observed that a reporter can only interview a couple of people at a time, however. The Internet is another possibility because thousands of people can submit reports of unusual cases of disease. Examples were provided of meningitis outbreaks in the Russian Federation and the SARS outbreak in China being reported by e-mail, despite official denials of a problem. It was added that, whereas WHO had to go through official channels in China, information reached others unofficially using the Internet. It was argued in conclusion that for government agencies such as the US Department of Homeland Security to pour millions of dollars into monitoring software is useless when cell phones (especially text messaging) and Internet reporting can serve the same function.

Participants queried whether the Internet could be used to spread terror through false reports, in other words, whether such a system could be abused. An example was given of the panic that SARS caused. It was argued that slow, official channels do work and can help prevent panic.

### **Third Meeting of Experts and of States Parties, 2005**

#### *Codes of conduct for scientists*

A report was given on codes of conduct, the final topic to be addressed in 2005 arising out of the Fifth Review Conference of the BWC. It was first stated that there are a wide range of actors involved in prescribing codes of conduct for scientists involved in biotechnology: representatives of NGOs (scientific, professional societies, traditional NGOs, etc.), industry, commerce and academia.

It was also stated that such codes should not just extend to biologists and microbiologists and others involved in the natural sciences, but to social scientists as well. For example, such codes could apply to commentators active in arms control who publish articles on biological warfare.

It was stated that there might be secondary benefits to formalizing a code of conduct without the primary benefit of stopping a biological weapons project altogether. For instance, such a code could serve as a precedent for regulating conduct in such a way that does not impinge on

the right to publish and do research. Such a code would also raise awareness of biological weapons, especially among a traditional set of people who claim not to be aware of guidelines and norms in respect of biological weaponry.

Several proposals for codes of conduct were mentioned including ones from the ICRC, the Royal Society of the United Kingdom, and a consortium of NGOs working on biodefense matters. The ICRC's proposal identified several elements that should be considered when drafting codes of conduct, including "technical, legal and public health measures; ethical responsibility within the scientific community; contentious research; and education". The ICRC proposal also raised the following considerations, inter alia, how effective such codes will be if people are motivated by fear or money to do questionable work in repressive regimes, whether codes will be mandatory or voluntary, whether there will be sanctions for non-compliance, and whether they will be enforceable.

It was noted that the Royal Society's comments on the UK Green Paper focused on two areas: the possibility of a Scientific Advisory Panel and codes of conduct for professional bodies. It was observed that the Royal Society assumes that codes of conduct are desirable at an international level and that a wide range of activities could be covered to reinforce such codes, including practical actions such as penalties for non-compliance and 'whistle-blowing'. The Royal Society's proposal also identifies two trends for codes of conduct to be effective: education at the national level and support mechanisms for researchers to report ethical concerns.

Another proposal prepared by a consortium of NGOs was discussed. It was observed that the proposal is detailed because it is targeted to a group focussed on work possibly pertinent to the BWC. It was also noted that such a code would improve compliance through direct or primary awareness-raising for those people working in the grey area of defensive/offensive biodefense work.

The final proposal that was discussed was prepared by the Australian Society for Microbiology. Its code is focussed on broader awareness raising and only contains a single provision prohibiting the production or promotion of biological warfare agents. It was queried whether this language was sufficient.

Finally, a survey only applicable to the UK was discussed in which it was observed that there is an awareness of ethical concerns in the scientific community and that this has prompted some actions to be taken.

It was stated in conclusion that there are several points that should be kept in mind with respect to codes of conduct: first, the development of such codes should be encouraged; second, they should cover a wide range of actors; and, third, the development of such codes should be a consolidated effort involving, inter alia, professional commentators and societies, and international organisations.

A vigorous debate on this topic took place among the participants. It was observed that the report highlights the internationalization of ethics but it was noted that, when national security is compromised and a scientist must come to a country's defence, the individual(s) in question might lower their ethical threshold. It was also observed that in closed communities it is easier to reinforce the need for questionable work because it is not challenged from the outside. The need for education in order to raise awareness was accordingly emphasised. Another

participant added that research into what has motivated scientists in the past had led to the finding that they could always find good reasons for the work they were doing. It was added that educating scientists to behave ethically could be useful but that the ethical standards of society may be more influential.

In response to the comments about the need for education, one participant noted that a State only needs a small number of weapons for a biological weapons program, accordingly, there must be a place where a scientist can go to report a problem. Another participant added that codes of conduct are not enough by themselves, rather there must be a local review process and follow-up to determine whether certain questionable activities are acceptable or not. In other words, the codes need to be put into practical operation. It was also observed that transparency can play a major role in ensuring that scientists are acting ethically and that codes should not detract from the need for research transparency. It was also observed that the need for transparency could be incorporated into a code of conduct.

One participant noted that there are five issues that need to be addressed in respect of implementing codes of conduct for scientists. First, there is the possibility that by 2005 there will be a melange of codes based on self-interest with no way to sift out those elements that reduce risk. Second, there is an arrogance in the scientific community to the effect that scientists do not believe that they need to be subject to oversight. Third, there is a spectrum of codes, from voluntary to binding codes, with professional or legal sanctions. It was added that if scientists do not adopt a voluntary code, a code may become legally enforceable on them. Fourth, the scope of applicability of a code must be determined. That is, will the code in question only apply to scientists or to their employers as well. Fifth, there must be a triad approach to the implementation of a code based on principles of practice, registration and education.

Another report was given on the proposed adoption of publishing guidelines in light of the threat that some publications might aid biological weapons development. It was stated that the report was based on the belief that scientific journal editors have adopted a biological weapons threat model which is in turn based on two assumptions. These assumptions are that "advances in biology equal enhancements to BW agents and that increased availability of dual use technologies is increasing the likelihood of their use". It was added that self-censorship does not have to be a problem but that it might be here because it is in response to media and political attention. It was noted that, in the US for example, a Congressman claimed that a paper on overcoming genetic resistance to mousepox was a blueprint for terrorism.

It was stated that, in modelling a threat, the model builder tries to facilitate an understanding of a complex and abstract environment and anticipate harm. Here, that model is based on increased availability of dual use technologies and increased capability through advances in biology. It was observed that this model is well-accepted in the political community and has led to certain actions. This is not a new model, however, and examples were given of export control arrangements under the auspices of CoCom, the Wassenaar Arrangement and the Australian Group, which were established to control the transfer of sensitive technologies. It was stated that the biological weapons threat model is third generation but that it is based on the same course of threat assessment and action.

It was observed that this model is being adopted by journal editors who may in turn require scientists to self-censor. It was observed that this would interfere with scientists' need for information for "critical examination of the validity of new assumptions". This is to say,

adoption of the model could lead to a crisis of identity for scientists if they are prohibited in some cases from using the scientific method.

It was noted that the journal editors in question only met for one day and that, accordingly, they should examine the threat model more rigorously. It was suggested that some issues to be addressed in doing so are as follows: criteria to identify research pieces that exceed an acceptable level of risk; who will set these criteria; and why this is being done now.

It was stated in conclusion that "deconstruction and examination of evidence supporting a model's embedded assumptions" needs to be undertaken in order to create a code of conduct, otherwise there could be a crisis of identity within the scientific community.

A participant stated that the restriction of publications is the wrong level at which to start, rather it is the process that should be reviewed. This is to say, there should be a critical review of the types of experiments that are to be carried out, and the precautionary principle and an audit of the risks involved should apply thereto. There should also be a willingness to stop research if need be.

Other participants observed that restriction of publications would be approaching the US model for restricting export of military technology, or that such restrictions would only highlight certain work. It was added that, at the very least, there should be clear publication guidelines. With regard to the media's role, it was noted that there is a relationship between the media and the threat assessment model but that the relationship is unclear. In response, it was stated that it has sometimes been the media's interpretation of matters that causes nervousness in the wider community. It was added that it remains a problem that journalists reporting on science matters often lack a science degree.

It was stated in conclusion that publication is the end side of science and is based on the assumption that the science that preceded it has been good.

### **Towards the Sixth Review Conference and Beyond**

A report was given on a proposal for putting the 2005 anniversary of entry into force of the BWC to best use. It was observed that there were two elements driving this proposal. First, the Review Conference in 2006 could be looked at as an opportunity for recovery of the review process proper. Convergent elements for recovery would include participation by NGOs, the ICRC, and like-minded States. Another element was a proposal put to the August Meeting of Experts-"the adoption of necessary, national measures to implement the prohibitions set forth in the Convention, including the enactment of penal legislation"- and which called for States Parties to the BWC to complete the national legislation implementation process by 26 March 2005.

It was stated that national implementing legislation under Article IV of the BWC has been called for in Final Declarations of the Review Conferences since 1980. It was noted that sharing any adopted legislation through the UN has also been called for. It was observed that two delegations at the First Review Conference, in particular, Belgium and the UK, had even circulated their legislation to other delegations before ratifying the BWC. It was added that, at this point, there is a certain level of impatience with the lack of implementation and that it is clear action is now needed.

Another item that was agreed to in the Final Declaration in 1980 was accession to the Geneva Protocol. It was observed that 31 out of 151 BWC States Parties are still not party to the protocol. It was also stated that there was a definite commitment in 1991 and 1996 to States Parties withdrawing their remaining reservations on retaliation if they had not done so. It was noted that, with regard to confidence-building measures (CBMs), these are a matter also requiring completion even though they were only agreed by the States Parties at the Second and Third Review Conferences.

It was observed that completion of the matters above would have a positive effect by creating a common platform for States Parties to move forward. There would be greater confidence that the BWC was being taken seriously and that there was compliance with Articles I and IV. It was also observed that the BWC would be in better shape if States Parties had completed their implementing legislation and shared relevant texts with the UN, made up to date returns under each CBM and joined the Geneva Protocol, and withdrawn any remaining reservations, by 26 March 2005.

It was stated that in order to take matters forward, the following should be done. First, 26 March 2005 should be made a target date for recovery of the BWC. Second, there should be targets, including the agreed items identified in the early 1980s and later, as well as joining the CWC. The issue of annual declarations under the agreed CBMs should be used as an important index of the seriousness with which States treat the Convention. There should also be an overall strategy in preparation for the Review Conference in 2006 of seeing if States Parties will have finally committed to what they agreed to. In other words, there should be consolidation before advancement. This will also get States Parties into shape for proper review processes and so that the BWC can be taken forward in 2006.

Finally, it was stated that the issue of who will organise this drive must be addressed. It was noted that just as important as who organises a proposed conference in March 2005 to mark the completion of States Parties' commitments is to identify the convergent elements, including governmental, ICRC and NGO elements. It was stated in conclusion that this would not be a test for the Sixth Review Conference, but rather for the political effectiveness of the convergent elements in March 2005 before that review conference.

Participants raised several issues including the importance of not missing yet another opportunity to move the BWC forward, the possibility of posting the status of achievement of States Parties' commitments online (in regional groupings), and the need to get political attention focussed on these matters.

The poor quality and return rate of CBMs was also discussed. It was noted that in many cases it is a technical matter and involves overstretched personnel, limited resources, the difficulty of completing the CBMs, etc. It was indicated that, nevertheless, CBMs are important because they increase transparency, allow States to see what other States are doing and increase confidence. It was added that if they are not done, this can lead to suspicions and undermine confidence. It was noted that CBMs do not have to be difficult and that, for instance, they can be prepared by a coalition of individuals, each of whom is responsible for a certain section. Another participant noted that CBMs can be extremely useful guides, especially because States really do indicate what they have been up to, and that it is unfortunate that they are not more widely circulated. It was added that requiring CBMs to be completed creates a risk for those who do not declare what they should have and, to that extent, they ensure compliance. Their



preparation also fosters interdepartmental cooperation, which ventilates any activity prescribed by the BWC.

Queries were raised with regard to the UN's ability to handle great quantities of CBM submissions, to the lack of access by the general public to CBMs, and to whether submissions of CBMs should be made a mandatory matter. With regard in particular to the UN, it was queried what its role could be, that is, whether there should be translation of the submissions, if verification should follow from the submissions, and what would happen in the event of inaccuracies. In response, it was stated that problems with CBMs are not the fault of the UN, rather the lack of translation and analysis is the fault of States Parties because they have not established a processing unit. With regard to public availability of CBMs, it was added that Australia's CBM declarations are online. In respect of submissions being made mandatory, it was stated in response that States Parties must be convinced of the benefits of this. Other issues that were identified with respect to CBMs were the need for civil society to follow up on any available CBM reports and for CBM requirements to be explicit.

Another report was given on preparatory assistance and background activities for the Sixth Review Conference of the BWC. It was indicated that, first and foremost, the first Meeting of Experts in August under the 'new process' was a step in the right direction but that its achievements were limited. It was noted, however, that preparing for 2006 is a good opportunity to put things back on track.

It was observed that a 'silver bullet' approach with single treaties is not going to work, in other words, there needs to be implementation at several levels including individual, sub-national, national, regional and international, with the BWC being a part of the solution. It was added that the three-week session in 2006 for review of the BWC will require a significant amount of preparatory work for consideration of all of the issues. Further to this, it was noted that 1991 was the last time a full review occurred and that at that time there was a full spectrum of activities, including NGO activities. Accordingly, NGOs could play an important role in 2006 as well.

It was observed that the agenda for the 2006 Review Conference should be relatively uncontroversial. It was added that there would be five other issues to think about, including scientific and technological developments; CWC issues vis-à-vis the BWC, including universality; the role of CBMs, including electronic submissions and procedures for analysis and clarification; the scope of CBMs, including CBMs under Article V, X, and miscellaneous CBMs; and the role of the BWC Secretariat.

It was stated in conclusion that it is clear that, based on past and current activities, States Parties are not up to the task of preparing for the Sixth Review Conference on their own and that it will be necessary to bring other actors into play in a much more forthright way. These actors will be less willing to accept States Party answers, however. It was added that NGOs will need to help create a full and proper review agenda in order to take the BWC review process forward.

There was some disagreement regarding annual review of the BWC and CWC. A participant raised the issue of whether there should be an annual review process for the BWC, including a theme for each year, an agenda set out for the next four years, and a review of smaller chunks of CBMs. In response, it was stated that it would be a burden for delegations to attend conferences for the nuclear, biological and chemical weapons treaties on an annual basis.

Another participant, on the other hand, stated that it was unfortunate that the CWC and BWC issues had to be separated-such as national implementing legislation, assistance, Article X, free trade-because in some countries the same officials are in charge of both treaties. He noted that for some officials this would mean one trip to Europe.

A participant also addressed the CBM issue and stated that miscellaneous CBMs, for instance, can be used to demonstrate transparency. It was added that what is needed is regular compliance reports or CBMs that are given by each State Party and which are based on what they need to say in order to be transparent.

It was stated that there are several important issues ahead with respect to the BWC, but that universality should not be pushed aside. It was observed that this is especially true because there remain regions of concern, including the Middle East and Central and North Asia, in which there are countries that have not yet joined the BWC. Accordingly, a robust approach to this matter was called for. On a related note, it was observed that some "lead" countries are starting to act.

Finally, the importance of personality in the review process, including at the administrative and organisational levels, was discussed.

## **EMERGING CHALLENGES TO THE CBW CONVENTIONS**

### *Working outside the CBW regime*

A general discussion was held on challenges facing the BWC and CWC regimes. It was noted, for example, that the CWC regime may be at a 'crisis' point because, inter alia, there is little Article IX activity and little assistance under Article X from the OPCW.

In response, one participant stated that he did not understand what appeared to be resignation about the treaty regimes. He stated that he was impressed by efforts regarding the use of biological weapons and biodefense and that, from the discussions, it appeared that there was no immediate threat of biological weapon use because there was a focus on long-term issues such as preparing codes of conduct, getting States to engage in the CBM process, etc. He indicated, however, that he did not completely agree with this assessment. For example, he noted that there are misguided scientists and lonely terrorists who might use biological weapons but added that the responses to deal with such people have been different, including criminal prosecution and methods under the auspices of a war on terrorism. As far as the treaty regimes go, on the other hand, one of their first objectives is to deal with threats posed by States and with States preparing for war, which should not be confused with threats posed by individuals. He added that programs sponsored by States are more easily identifiable.

The participant observed that the list of States accused of having biological weapons is stable and that there have been no major additions recently to this list. It was indicated that it may be time to address this issue outside of the BWC regime because States may be reluctant to admit their violations or permit investigations thereof. It was added that, indeed, similar problems have historically been solved through trilateral negotiations rather than through Article V of the Convention, because States have resisted application of the Convention. In short, it was argued that it might be useful to offer States solutions that are not related to compliance with the BWC.

The participant also added that a lot has been learned, with regard to verification inspections and procedures, through UNSCOM and UNMOVIC. A lot has been learned, for instance, about biological weapons and inspections have become more intrusive. It was also observed that States appear more willing now to admit their misbehaviour, especially in the area of chemical weapons. This willingness, however, may be tied to verification devices outside of the BWC. UNSCOM and UNMOVIC were given as examples.

The participant made final comments regarding the credibility of biological weapons inspections. He noted that inspectors must be trained, have experience, and be able to assess the results of their inspections. Nevertheless, some States may say the results are meaningless, which again brings in the need for movement outside the BWC process.

Participants noted that they appreciated this flexible approach to addressing issues related to biotechnology and biological weapons and that talking about these matters needed to move beyond Pugwash to wider fora. In response, it was stated that there already is movement outside of the BWC regime, including at the government level in one country. It was emphasised that there should be renewed focus on education and perhaps creating a small standing group of inspectors who can respond to alleged biological weapons use. On a related note, a participant noted that any future discussions need to throw out the idea that lethality is a constraint on such discussions because lethality is a matter of context, not weapon design.

### **Disabling weapons**

A report was given on non-lethal weapons and the threat they pose to the CBW regime. It was observed that it was unlikely that there would be a massive use of chemical or biological weapons by a State because there would be enormous consequences for doing so, and such use would ultimately only strengthen the regimes. It was stated that one near-term threat, however, included the introduction of disabling (or 'non-lethal') chemical weapons into the military context. It was noted that the CWC and the Geneva Protocol could be rewritten to integrate these weapons but that this would ultimately damage them.

With regard to riot control agents, it was noted that their use is prohibited in war and it was queried, therefore, why some States want to introduce them as a possibility. It was added that chemical weapons use in World War I, Manchuria, Ethiopia, Yemen, and Iran was preceded by the use of non-lethal chemical weapons. In Viet Nam, tear gas was not expected to be used in ordinary military operations but eventually was, and the reduction of lethality there only applied to friendly troops, not to non-combatant lives. It was observed that the ICRC has already stated that non-lethal weapons are not a way to make war more humane and that their benefit of saving lives is questionable.

It was stated that the risks associated with the use of non-lethal weapons are three-fold: battlefield escalation, the "fostering of the growth and influence of institutions that are dependent upon the development and weaponization of chemical agents", and loss of confidence in the CWC regime, including the possibility of cheating and subsequent verification disputes. It was stated that, therefore, there is only one clear line to follow: "no poisons in war".

It was noted in conclusion that we are entering into a period where biology will be able to influence the life processes including "cognition, development, reproduction and heredity".

Thus, avoiding their use was stated to be more important than their marginal utility for hostile purposes.

A report was also given on the consequences of the militarization of biology. It was first observed that biology has the potential for both good as well as for misuse. Biology has traditionally looked at agents but now targets are being looked at to see how they can be affected by such agents.

It was noted that great advances are being made in treating mental illness and that particular attention is being paid to treatment for dementias, schizophrenia, and mood and anxiety disorders. It is clear, however, that there is potential for misuse of neuropharmacological substances for these mental illnesses. For example, they could be used to manipulate individuals in order to enhance their performance as soldiers or they could be used to arm soldiers along with the standard range of lethal weapons. They could also be used by interrogators or torturers. It was stated that solutions to these dangers include doing nothing or ending this research. It was concluded that the best approach, however, would be regulation so as to permit research for peaceful purposes while maximising global transparency and regulating applications of the technology.

Another participant added that it is important to recognize that hostile use of biology and chemicals falls under the CBW regime. It was noted, however, that non-lethal weapons may be developed to the point where they have a high margin of safety. In response to proponents of these weapons who say that they are more humane, however, the participant stated that historically non-lethal weapons have been an adjunct to the use of lethal weapons.

There was some disagreement among the participants regarding the previous comments. In response to the scenarios above, a participant observed that they assume that targets, for example, terrorists, will not have defensive capabilities. Further, terrorists may get access to non-lethal weapons and use them in a way that makes their attacks easier. It was also stated that the time to address these issues is now because some States may be testing such non-lethal weapons already with an eye to military use.

In response to a comment about the use of 'knockout' chemicals by a soldier, a participant observed that there is no such thing. Rather, pain relief takes five to ten minutes and then there is incapacitation, but not brain 'knockout' per se. This point was made to emphasise that the disadvantages of non-lethal weapons should be pointed out and the claimed advantages refuted.

It was stated by another participant that armed forces are always authorised to use deadly force in the context of military operations and that non-lethal weapons also have the potential to be deadly in certain circumstances. Beyond military applications, it was observed that terrorists and dictators are not worried about non-lethal weapons, rather they may simply kill with less sophisticated means.

It was stated that it was clear that the US did not accept the Geneva Protocol applying to the use of tear gas and that a causal relationship could not be established between its use and battlefield escalation. It was argued that tear gas was used in Viet Nam, for instance, to save lives and to good effect with lethal weapons, and that in other contexts, battlefield escalation was due to the actions of one party. It was stated that the US signature did not mean, however,

that tear gas could be used as a traditional method of warfare and, indeed, its use is limited to four situations.

It was stated that, with regard to cheating under the CWC's verification regime, there is no militarily effective way to use CWs because military operations are 'move and shoot'. It was added that the same is true for biological weapons and that it is more likely that terrorists would use these weapons against civilian targets.

It was observed that the types of non-lethal weapons available have expanded exponentially, especially anti-materiel weapons. It was added that there are promising technologies, including biological agents for intelligence and communication. The conundrum, however, is a treaty designed to prohibit the use of deadly biological weapons as weapons of mass destruction against people, animals and plants despite a category of biological agents that can be used in other ways. For instance, there are biological agents that can eat chemical weapons and that are environmentally safe, less lethal to humans, cause less collateral damage and have other practical benefits. It was observed that this problem was not foreseen by the treaty's drafters and that a strict interpretation of the BWC would not allow States to capitalise on new biotechnologies.

The participant added that the US is faced with criticism from human rights and environmental groups regarding use of non-lethals. It was argued that chemical and biological based technologies are the wave of the future but that the CBW regime prohibits these even if they are more humane and do less damage.

In response to these comments, participants observed that anti-materiel weapons are not illegitimate, even if their use is considered hostile. It was added that they could be seen as protective if used behind a front line. Another participant noted that the problem with less than lethal technology lies in asymmetrical situations. For example, in Northern Ireland, the use of weapons escalated from rocks to lethal weapons, because protesters could never win otherwise, and the authorities responded in kind. In response, it was noted that these types of situations are difficult because soldiers, if equipped with lethal and non-lethal weapons, will need to make quick decisions about which weapons to use in certain scenarios.

Participants argued that society is not prepared to contain the introduction of non-lethal biological weapons and that, therefore, the line must be held against them. It was added that such weapons may offer a humane alternative in some scenarios but that, ultimately, society will be going down a slippery slope if they are introduced. In response, it was noted that society has absorbed new weapons systems. It was pointed out that biological weapons are a different matter, however, because they assault the essence of what it means to be a human being. It was stated in conclusion that the point of the CBW regime is to give up and totally prohibit these weapons, their pros or cons notwithstanding, and that this may include giving up some benign uses.

### **The General Purpose Criterion**

A report was given on the role of the General Purpose Criterion (the GPC) and how to make it a more useful instrument. It was observed that the GPC is a future-oriented tool and, accordingly, could take the CBW regime forward and generate transparency. However, some consider it to be too abstract and others worry about its impact on industry and science. It is

also viewed by some as a catch-all provision, such as those for export control policies, as its use is not understood outside of the CBW regime.

It was argued that there can be a future role for the GPC for verification under the BWC. It was observed that such use of the GPC would be based on a deeper understanding of the concept of 'dual use', looking at actors other than States, and increased transparency. For instance, with regard to the concept of 'dual use', it is an intrinsic property of the technology in question or is an attribute, "whose potential is realized depending on its context". In other words, its use as well as its lethality depends on context. Accordingly, the key is to control purposes, not the technology in question.

It was observed that, in respect of biology, the set of actors includes researchers, institutes, consumers, transnational units and States. It was added that if a whole mechanism for future verification of biology is based on transparency, then the first step is to create an accreditation system for economic units with criteria set up by an international body. The second step would be the creation of national authorities with the authority to report aggregate data on transfers to the appropriate international organisation. This organisation would be tasked with analysing transfer patterns and would have a small inspectorate.

It was indicated that there would be three possible scenarios for transfer patterns: between two accredited economic units in which case there would not need to be an elaborate licensing regime and there would be clarity of purpose for such transfers. The second scenario would be transfers in which one unit is not accredited, in which case national controls would apply with responsibility for non-diversion falling on the supplier. The third scenario would be where the recipient country is not a State Party, in which case the most stringent controls would apply. There could also be emergency transfers to such countries.

It was stated in conclusion that the regime described above would put Article X of the BWC into a new light and the GPC would be at the centre of the model. It was added that there would be benefits to joining the system, which would be voluntary, and that the system would match economic interests with security needs and encourage economic units to be active participants in creating transparency. In theory, most transfers would not be prohibited. The problems with the system lie in those actors who act outside of it or in secret defence work, which would need to be verified under a separate regime.

Participants noted that dual use is not only about context but also about threat assessment. Accordingly, transfers would not just be context-driven but threat assessment-driven as well. In response, it was noted that the accreditation system puts into place, for example, codes of conduct so that it is clear to outsiders what is happening with each economic unit. Context and perception of threat are therefore part of the generation of transparency. It was also indicated that there would be no denial of legitimate transfers under this system, which would undercut the denial of access arguments.

Participants were in disagreement over how this system would work in practice. One participant noted that a large number of economic units is conceivable, accordingly, an enormous regulatory structure might have to be put in place. In response, it was stated that a researcher would not be able to get certain pathogens if he was not accredited. It was also observed that such a system would undermine twenty years of Australia group work. Another participant added that the system appears to provide supply-side remedies to a threat which has not yet been measured; for instance, the level of intent for misuse has not been measured. It

was also observed that a supply of anything can be obtained if necessary. Accordingly, a measure of the threat in question is necessary along with the effect of the supply-side measures, that is how much of the supply will be cut off for misuse. In response, a participant indicated that there is such a project underway. Another participant added that there is an immediate threat out there. Accordingly, an international team is needed to assess these threats and a surveillance system is necessary to monitor any outbreaks.

The meeting was concluded with an expression of thanks to all the participants, to Swiss Pugwash for hosting the meeting, and to the secretariat.

#### **Participant List**

Dr. Jan Van Aken, Director, Sunshine Project, Hamburg, Germany.

Dr. Maurizio Barbeschi, Scientist, Preparedness for Deliberate Epidemics, Department of Communicable Disease Surveillance and Response (CSR), World Health Organization (WHO), Geneva, Switzerland.

.Mr. John Borrie, ICRC Coordinator for Biotechnology, Weapons & Humanity, International Committee of the Red Cross, Geneva, Switzerland.

Dr. Vladimir S. Bundin, Head of the BTWC Department of the Russian Munition Agency, Moscow; Member, National Academy for Biotechnology of Russia.

Mr. Richard H. Burgess, Consultant in Trade and Treaty Compliance, Newark, Delaware, USA

Dr. Ottorino Cosivi (Italy), Project Leader, Preparedness for Deliberate Epidemics, Global Alert and Response, Department of Communicable Disease Surveillance and Response (CSR), World Health Organization (WHO), Geneva, Switzerland

Dr. Robin Coupland (UK), Medical Advisor, Legal Division, International Committee of the Red Cross (ICRC), Geneva, Switzerland

Prof. Malcolm Dando, Professor of International Security, Department of Peace Studies, University of Bradford, Bradford, UK

Mr. Nelson Erickson, Defense Fellow, U.S. Department of Defense, OSD Nonproliferation Policy, Washington, DC, USA

Dr. Jozef Goldblat (Sweden/Switzerland), Vice President, Geneva International Peace Research Institute (GIPRI), Geneva, Switzerland; Consultant, United Nations, Geneva

Ms. Chandre Gould, Senior Researcher, Centre for Conflict Resolution, Cape Town, South Africa

Prof. Jeanne Guillemin, Senior Advisor, Massachusetts Institute of Technology (MIT) Security Studies Program, Cambridge, MA, USA, Professor of Sociology, Boston College Institution

Mr. Richard Guthrie (UK), Project Leader, CBW Project,. Stockholm International Peace Research Institute (SIPRI), Solna, Sweden

Dr. Gert Günter Harigel, Senior Physicist (Emeritus), European Laboratory for Particle Physics (CERN), Geneva, Switzerland (1995- ); Secretary and Treasurer, Geneva International Peace Research Institute (GIPRI)

Dr. René Haug, Counsellor/Military Advisor, Permanent Mission of Switzerland to the UN Office and other international organizations in Geneva

Mr. Peter Herby (USA), Coordinator, Mines-Arms Unit, International Committee of the Red Cross (ICRC), Geneva, Switzerland

Ms. Melissa Hersh, Member, Biological and Toxin Weapons Convention Secretariat to the 2003 Meeting of Experts and Meeting of States Parties, Geneva, Switzerland

Mr. Ian Kenyon, Visiting Senior Research Fellow, Mountbatten Centre for International Studies, University of Southampton, Highfield, Southampton, UK

Mr. Jong Yup Lee (So. Korea), Researcher, Science & Technology Policy Research (SPRU), University of Sussex, Brighton, UK

Dr. Patricia Lewis (UK), Director, UNIDIR, Geneva, Switzerland

Dr. Jez Littlewood, Research Fellow, Mountbatten Centre for International Studies, Department of Politics, University of Southampton, Southampton, UK

Prof. Robert Mathews, Principal Research Scientist, Defence Science and Technology Organisation, Australia ; Associate Professor, Asia Pacific Centre for Military Law, University of Melbourne

Ms. Kathryn McLaughlin, Research Fellow, Landau Network-Centro Volta (LNCV), Como, Italy

Dr. Caitriona McLeish (Ireland), Research Fellow, Science & Technology Policy Research (SPRU), University of Sussex, Brighton, UK

Dr. Kay Mereish, Chief, Biological Planning and Operations, UNMOVIC, New York, NY, USA

Prof. Matthew S. Meselson, Thomas Dudley Cabot Professor of the Natural Sciences, Department of Molecular and Cellular Biology, Harvard University, Cambridge, Massachusetts, USA

Mr. Piers D. Millett, Project to Strengthen the Biological Weapons Convention, University of Bradford, Bradford, West Yorkshire, UK

Prof. Kathryn Nixdorff (USA/Germany), Dept. of Microbiology and Genetics, Darmstadt University of Technology, Darmstadt, Germany

Prof. Graham S. Pearson, Visiting Professor of International Security, Department of Peace Studies, University of Bradford, Bradford, West Yorkshire, UK; Member, HSP Advisory Board

Dr. Peter Prosser, UNMOVIC Analyst, UNMOVIC, United Nations, New York, NY, USA

Mr. Francesco Quattrini, Federal Department of Foreign Affairs, Center for the Politics of International Security, Weapons and Disarmament Section, Berne, Switzerland



Mr. Guy Roberts, Principal Director, Negotiations Policy. Department of Defense. Washington, DC, USA

Prof. Julian Perry Robinson, Sussex Director, Harvard-Sussex Program, Science & Technology Policy Research (SPRU), University of Sussex, Brighton, UK

Dr. Barbara Hatch Rosenberg, Division of Natural Sciences, State University of New York (SUNY), Purchase, New York, USA; Chair, Federation of American Scientists Working Group on BW Verification

Mr. Andreas C. Schröder, Deputy Head of BW/CW Section, Department for Disarmament and Arms Control, Foreign Office, Berlin, Germany

Mr. Nicholas Sims, Reader in International Relations, London School of Economics and Political Science (LSE), University of London, London, UK

Mr. Nikita Smidovich (Russia), UNMOVIC, New York, NY, USA

Mr. Scott Spence (USA), Harvard Sussex Program Hague Researcher at the OPCW, The Hague, The Netherlands

Mr. David Steuerman, Implementation Officer for the Biological and Toxin Weapons Convention, Department of Foreign Affairs and International Trade, Non-Proliferation, Arms Control and Disarmament Division (IDA), Ottawa, Ontario, Canada

Prof. Jean-Pierre Stroot (Belgium/Switzerland), retired Physicist ; Geneva Pugwash Office ; President of the Board of the Geneva International Peace Research Institute (GIPRI), Geneva, Switzerland

Mrs. Sabine Taufmann, Deputy Permanent Representative of the Federal Republic of Germany to the Conference on Disarmament, Geneva, Switzerland

Dr. Mark Wheelis, Senior Lecturer, Section of Microbiology, University of California, Davis, California, USA

Dr. Jack P. Woodall (USA), Director, Nucleus for the Investigation of Emerging Infectious Diseases, Federal University of Rio de Janeiro, Brazil; Associate Editor, ProMED-mai

Ms. Angela Woodward (New Zealand), Legal Researcher, Verification Research, Training and Information Centre (VERTIC), London, UK

Mrs. Yang Yi, Third Secretary, Permanent Mission of China, Geneva, Switzerland

Dr. Jean Pascal Zanders, Director, BioWeapons Prevention Project (BWPP), Geneva, Switzerland; CBW Project Leader, SIPRI, Solna, Sweden

Mr. Joshua Zarka, Counsellor, Israeli Mission, Geneva, Switzerland

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Pugwash Staff: Rome Office: Claudia Vaughn and Mimma de Santis, Pugwash Conferences, Accademia Nazionale dei Lincei, via della Lungara 227, I-00165 Rome, Italy, Tel. (+39-06) 6872 606, Fax: (+39-06) 6878 376, E-mail: pugwash@iol.i

## Papers

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