



**28th Workshop of the Pugwash Study Group
on the
Implementation of the Chemical and
Biological Weapons Conventions:
The Second CWC Review and After**

Noordwijk, The Netherlands, 5-6 April 2008

Report

Katie Smallwood (Harvard Sussex Program, University of Sussex)

This was the fourteenth of the current Pugwash CBW workshop series to be hosted by Pugwash Netherlands. The Dutch ministry of foreign affairs provided financial assistance for this meeting. Attending the workshop were 35 participants from 13 countries (Argentina, Australia, Canada, the Czech Republic, France, Germany, Ireland, the Netherlands, New Zealand, Russia, Sweden, the United Kingdom and the United States), all by invitation and in their personal capacities. This report of the workshop is the sole responsibility of its author, who was asked by the meeting to prepare a brief report in consultation with the Steering Committee. It does not necessarily reflect a consensus of the workshop as a whole, or of the Study Group, nor does it follow the order in which topics were discussed. Attached to this report are the workshop agenda, a list of papers and the list of participants.

Report – The BWC Intersessional Programme

The workshop, which took place the weekend before the Chemical Weapons Convention's Second Review Conference (7 – 18 April 2008), opened with a customary presentation on developments in the Biological Weapons Convention's (BWC) intersessional programme. The BWC currently holds a one week meeting of states parties every year which is prepared by a one week meeting of experts. The 2007 intersessional programme was chaired by Ambassador Khan of Pakistan; the meeting of experts closed with a list prepared by the Chairman of proposals covering implementation, international cooperation and export controls. NGO participation involved the suspension of the formal meetings to allow each NGO to deliver a brief presentation

which was also distributed on paper. The two 2008 meetings will be chaired this time by the Eastern European Group and will cover measures to improve biosafety and biosecurity, and oversight/education/awareness-raising/codes-of-conduct. It is expected that NGO participation will again be high. The Chairman of the 2008 programme, submitted a written statement to the Pugwash Study Group. In this statement, the Chair wrote of his wish to cast his net wider to achieve broader participation, he encouraged scientists to contact their foreign ministries to assist in state party preparation, and he encouraged states to include scientific experts in their own delegations.

The subsequent discussion picked-up on a number of issues, amongst these was the notion that some states receiving assistance from multiple sources or donors for the implementation of various international agreements had begun displaying what was termed “implementation support fatigue”. Caution was expressed in applying such a term, as some workshop participants felt there was a danger it could become a self-fulfilling prophecy; smaller states were currently building up momentum as a result of implementation being encouraged and, in general, government officials were grateful for any implementation support offered. In this context the importance of highlighting the role of implementation in attaining development goals was stressed^[1]. However, it was noted by some, that difficulties in implementation might result from insufficient coordination and excessive aggressiveness resulting in diminished synergies between separate regimes. The clash in timing of the BWC’s Meeting of States Parties and the CWC’s Conference of the States Parties at the end of this year was mentioned as an example of this.

CWC Status

A presentation was given on the status of the Convention at the eve of the Second CWC Review Conference. The presentation noted that with 183 states parties, the Convention’s key elements of success were in the destruction of 35% of all declared stockpiles, one state party having completed its destruction activities and two others (India and South Korea) are nearing completion. Russia has destroyed 26% of its stockpile and new destruction facilities were due to begin operating. The United States has destroyed over 50% of its stockpile including its youngest weapons.

Although a term whose usage certain member states had recently criticized, non-proliferation was highlighted as a core success of the Convention that has been demonstrated by over 1,300

inspections in the chemical industry over the period of the past ten years. All requests from states parties for assistance and protection have been addressed by the Organization and, equally, programmes for international cooperation under Article XI were continuing apace to benefit those states parties involved. However there still remained significant gaps in the fulfilment of state party obligations under Article X. Considerable progress has been made in the implementation of Article VII since the first Review Conference; for instance, all states parties have designated a National Authority, and the percentage of states parties with “comprehensive legislation” has increased from 25% to 50%. In this respect, the presentation noted that the implementation of the general purpose criterion could act as a useful benchmark for legislation. Outreach to a wide range of stakeholders was stressed as equally important and should be addressed at the Review Conference, particularly in terms of maintaining and building on regular contact with the chemical industry, academia and non-governmental organisations.

Still twelve UN member-states short of full universality, the Convention was expecting ratifications from at least a further two states in the near future, Iraq and Lebanon. The presentation also noted the continued relevance of terrorism as the Iraq chlorine attacks have demonstrated, and although the full implementation of the Convention will contribute to the prevention of chemical terrorism, continued interaction between the OPCW and the UNSCR 1540 is also necessary.

The group heard that the challenges to the CWC are not insignificant. There remain 65% of declared chemical weapons still to be destroyed and in many cases the small-sized munitions that remain are the most difficult to destroy both safely and expeditiously. On the other hand, political commitment to destruction is strong and confidence building visits have been initiated to build transparency and trust in the determination of possessor states to vigorously pursue CW destruction. If the situation so warrants, a Special Session of the Conference could be held closer to 2012 (the final extended deadline for destruction) to discuss the status of destruction. This proposal could be considered by the Review Conference, without prejudice to the reaffirmation of the deadlines for destruction.

In contrast, non-proliferation will remain a perpetual objective of the Convention. The overall verification regime will have to adapt to address this change, although the actual obligations of the treaty will remain the same. As science and technology continue to evolve and the chemical industry continues to reshape, verification will have to prove its flexibility. Currently, facilities

and plant sites handling the three schedules of chemicals are being adequately inspected but the same could not be said for Other Chemical Production Facilities (OCPFs). Although a number of improvements have been made for the inspection of OCPFs (for example through the Director-General's own interim decision on the site-selection algorithm), the presentation stressed that further improvements will be required. Increasing the frequency of OCPF inspections has also come against political hurdles, and efforts have been made by the Technical Secretariat in an attempt to persuade some states parties that the policy to increase OCPF inspections is not of a malign nature.

Noting that continuous attention by states parties to changes in science and technology is a legal obligation, the presenter maintained that the second Review Conference should recognise this obligation. Importance should also be assigned to the work of the Scientific Advisory Board (SAB) at the Review Conference: its financial support increased and its meetings more frequent. Substantial work has taken place to implement Article X and Article XI even though there have been signals from some states parties that both Articles are only in their first stages of implementation and will require further efforts. The Secretariat's International Cooperation and Assistance branch has also, in the past years, received a growing share of the core funding whereas in the future the presentation asserted that there should be a focus on programme improvement.

On 'non-lethal' chemical weapons, the presentation held that a discussion at within the context of the Review Conference (and with the current levels of understanding) would be fruitless as the issue was so politically charged. In essence, the Review Conference would largely be focused on the same old issues: definitions; the 2012 deadline for destruction; non-proliferation; OCPFs; terrorism; and Article VII. New issues will be in the rebalancing of core objectives of the Convention with a parallel discussion taking place on the approach for the budget. None of the issues would be insurmountable, but ambiguous language on some might be required.

There was a general feeling of concern and surprise amongst the workshop participants at the scepticism about non-proliferation, and it was noted that the Non Aligned Movement (NAM) had a very different view of non-proliferation in its statements in Geneva. It was evident however, that the opposition to the term non-proliferation had been led by a small number of states and not broadly discussed within the NAM. On the other hand, feelings on the subject ran high and there would be resistance to stating what some states parties viewed as a change in the CWC's agenda.

It was argued by some that non-proliferation was a useful term and that its use should be encouraged as much as possible, especially in the sense of inhibiting abuse of dual-use technologies that are diffusing around the world. Throughout this debate there was a notion of ‘rebalancing’, and some sought to characterise the second Review Conference as a ‘transitional’ conference given that destruction was scheduled to have been completed by the time of the next Review Conference.

The Second CWC Review Conference

Setting the workshop’s theme, the workshop was given an outline of the general context of the Second CWC Review Conference; the conference was to take place five years after the first Review Conference, eleven years after Entry into Force of the CWC and four years before the final, extended deadline of 2012 for current possessor states. During the first eleven years of implementation of the Convention, valuable experience has been gathered but there has been no steady state. This lack of steady state is due to a number of changes, for example, ten to fifteen years of significant developments in the chemical industry since the CWC was negotiated and a shifting security environment with a higher emphasis on terrorism and less emphasis on state programmes. Therefore it was argued that it is of utmost importance that the Second Review Conference consolidates the existing processes and does not rock the boat.

It was noted that the Open-Ended Working Group, chaired by Ambassador Parker of the United Kingdom and established to prepare for the Review Conference a year and a half ago, has resulted in a ‘Chairman’s text’ to form the basis for negotiations for the Review Conference’s Report. Although developments in science and technology, part of the mandate of the Conference, would affect some of the Conference’s agenda items it would only be to colour the discussion.

On destruction, it was thought that there would be agreement on the urgency of the matter and on the need to reaffirm possessor states’ obligations, and the Conference might also consider the Director-General’s proposal for a special session of the CSP closer to the deadline itself. Some discussion would take place on how the industry verification regime could evolve but there were huge differences in the understanding of certain issues, particularly in the determination of ‘risk’. OCPFs would also receive a good amount of attention on the following areas: the intensity of inspections at OCPFs; the shift in the balance of inspections; how effectively the Technical

Secretariat worked from state party declarations; and, recognition of the need for further work. Although the Review Conference would probably not endorse proposals on how the OCPF regime could develop further (for example to cover peptides or other manifestations of convergent chemistry and biology), the presentation asserted that this longer-term issue needs further attention.

Little practical discussion would take place on topics such as alleged use or on optimisation, and some discussion on national implementation – particularly on deepening links with the chemical industry – could come against conceptual problems originating from the wider ‘North-South’ debate over barriers to development. Attention to assistance and protection (Article X) could result in a shift towards regional capacity building.

There has so-far been no enthusiasm to discuss the tenure policy of the OPCW, and there has been reluctance to discuss terrorism and even more reluctance to link into UN Security Council resolution 1540 (2004). However, the Industry and Protection Forum held last year in conjunction with the OPCW’s Tenth Anniversary celebrations, strongly linked assistance and protection to the subject of terrorism and has thus far kept the door open for further discussion.

The Open-Ended Working Group (OEWG)

A short presentation then followed which focused more generally on the character of the OEWG discussions. The debate had so far been of a consolidating, but also of a rebalancing nature generally between the NAM and the Western Group. There was a feeling amongst many delegations, that the ‘original owners’ of the Convention will have to accommodate the national interests of the newer members, one political example of this is in the relatively broad opposition to the use of the term “non-proliferation”.

The position of China was noted, particularly with respect to its national papers submitted to the Review Conference which signal a departure from its usual position associated with the NAM: for example, referring to national implementation China endorses voluntary reporting; awareness-raising amongst various stakeholders; industrial management; and, commits itself to non-proliferation measures. The discussion observed that the evolution of China’s position was also consistent with other domains, where the same could be observed.

The position of Iran is also noteworthy, and it was largely assumed that Iran would be working towards a positive outcome.

Regarding the broader political context of the Second Review Conference, the workshop heard that there were several political players who are reluctant to jump into new things; in this respect, it was of utmost importance that the Second Review Conference keep the door open for further discussion of certain areas by the policy making organs of the Convention. A case in point here is on so-called ‘non-lethal’ chemical weapons. Although Switzerland has submitted a national paper on the topic, there was little confidence that the issue would be discussed at the Review Conference itself, such a discussion is seen as a bridge too far by the United States for whom a more subtle mechanism might be required to bring the subject of ‘non-lethals’ to the agenda.

National Implementation

Legislation: from quantitative to qualitative

Many workshop participants drew attention to the crucial necessity for the Review Conference to contribute to improving the qualitative dimension of national implementation of the Convention. Although since the First Review Conference, much success has been achieved on the legal front through the Action Plan on National Implementation, there still remains a vast body of work on improving the effectiveness of national legislation. At the moment, work on Article VII was continuing apace towards achieving a qualitative shift albeit with less visibility.

The workshop considered possible means for adding greater weight to the already heavy investment made by the Technical Secretariat on national implementation. Although the premise of bilateral assistance had been a core objective of the Action Plan, in reality the multilateral route was politically neutral and therefore more workable on a practical level. However, a number of participants highlighted the benefits in raising awareness amongst other practitioners, in particular parliamentarians and law enforcement agencies, and to sound out champions to spearhead implementation efforts. Exploiting linkages with other, higher resonance issues could also reinforce enthusiasm for national implementation: chemical safety and Article XI were cited as two examples of these.

Outreach, Education and Codes of Conduct

Two presentations were given on this subject. The first dealt with the involvement of the SAB in discussions relating to education, outreach and codes of conduct. In this regard, the primary obligation of states parties is the dissemination of correct information to various levels of

society. A number of participants believed that further activities in education and outreach should be developed by the OPCW as a formal project. The workshop also discussed the useful role that media can play in education and outreach, but noted that the level of interest assigned to the Convention by the media was rapidly decreasing.

The second presentation on this subject took into account the various activities that have been undertaken to discuss the use of codes of conduct in both the chemical and biological weapons regimes. For example, a joint OPCW/IUPAC meeting held in Oxford (June 2005) concluded that codes of conduct would complement national legislation and recommended the adoption of a three tier systems to include universal, society and workplace codes. Further activities have since been conducted by IUPAC, through its Committee on Chemistry Education, and other special projects, and the Director-General of the OPCW has recognised the positive role that codes can play in promoting compliance. Placing the issue in the wider context of other safety and environmental concerns and regulatory systems (such as UNESCO/COMEST Codes of Ethics for Science, the Strategic Approach to International Chemicals Management (SAICM), UNEP Chemicals, and Responsible Care®) it was argued that a comprehensive and integrated approach applicable to all those working in the chemical sector is needed.

During the discussion of this paper, many felt that the advantage of a code of conduct was that it both expresses and reinforces a pre-existing norm. There was some discomfort on the part of some participants about where the line would be drawn between issues that were relevant and issues not relevant to the Convention. In addition, the effectiveness of universal codes was put into question when applied to government personnel.

Destruction of chemical weapons

Under this topic, a detailed presentation covered developments in the destruction of declared chemical weapon stockpiles in possessor states, focusing largely on destruction in the two main possessor states; Russia and the United States. According to the presentation, at the time of the workshop destruction had progressed to: 6,200 to 10,600 tonnes (or 15% – 26%) in Russia; 15,430 tonnes (or 54%) in the US; >1002 tonnes (or >96%) in India; 388 – 970 tonnes (or 97%) in South Korea; 16 tonnes (or 100%) in Albania; and Libya was yet to begin its destruction activities.

Albania, the first state party to complete the destruction of its chemical weapon stockpile under CWC verification, overshot its April 2007 deadline by two months.

In the United States (which like Russia has its final deadline set for 2012) current government projections have set complete destruction to be achieved no earlier than 2017, however military projections set the date at 2023. Reasons for the US delay include the abandonment of an accelerated programme as resources were diverted to Iraq. Law suits have also resulted from instances where public concerns were overlooked (in this regard the case of Newport, Indiana, and the resulting secret shipment of chemical weapons across eight states to Port Arthur in Texas is most pertinent). In Russia, concentration on first stage neutralisation and the forgoing of any second stage treatment has resulted in huge volumes of toxic neutralisate being stored at the destruction facilities. Further to this, the health and safety standards under which the Russian facilities are operating (Kambarka) and being constructed (Schuch'ye) are troubling, particularly as a number of sites are located very close to extremely poor communities. The funding of the Russian programme which is heavily dependent on foreign funds through the Global Partnership has also suffered in the past year, as the US have withdrawn their contribution in the 2008 financial year. Taking these factors into account, the political will is there but the chances of Russia completing its destruction activities by 2012 remain very slim.

At the review conference, the presentation stressed that emphasis should be placed on the following issues: the critical importance of the full funding and full implementation of destruction programmes; possessor states should not underestimate political and public concerns and should certainly not become tangled up in law suits; states should recognise the tensions that arise between cost, schedule, transparency and safety; and, relations between the main possessor states, Russia and the US, must be improved. Another issue highlighted under this session, was the technical difference between the destruction of bulk chemical weapons and the destruction of individual munitions (a much more time consuming and difficult process).

From its discussion, the sense in the workshop was that careless destruction could have disastrous consequences, and, in dealing with any non-compliance resulting from possessor states overshooting their final extended deadlines, the OPCW should refer to Article XII on redressing and ensuring compliance.

The changing emphasis of the OPCW verification and compliance regime

Chemical industry and the OCPF regime

The presentation of a paper under this agenda item addressed the question: after destruction, what for the chemical industry? A functional shift would be seen, whereby the OPCW's inspection system would shift from verifying destruction to verifying against the misuse of chemicals through technology governance. As the destruction phase of the Convention nears its end, appropriate accommodation of the chemical industry by the chemical weapon convention regime will be of increased importance: resources freed-up from destruction could be diverted to activities not prohibited by the Convention and a rethinking of the dual-use issue will be required to take into account intangibles and technological systems. The relationship with the chemical industry will need further nurturing so that it may be further integrated into the implementation of the CWC, particularly in order to ensure the full effectiveness of the general purpose criterion, to create governance networks that extend beyond the industry, and awareness raising. This sustained interaction will have to occur at both the national and the international level, making full use of advisory systems to both the Technical Secretariat and National Authorities.

The discussion of this paper focused mainly on the nature of the transition from destruction to non-proliferation. In this regard, there was a strong feeling that the shift would be seen in specific terms; no assumption should be made that all resources previously devoted to destruction would be channelled to industry verification, it was much more likely that a smaller organisation will result. The concentration of activities on non-proliferation will be an evolutionary process developing out of the current inspection regime for OCPFs (bearing in mind the Conventions boundaries for inspections at these sites). There was scope, however, for the Organisation to build on its use of open-source material, even though this will come up against opposition from some states parties; broader declaration information; and for enhancing the overlap between non-proliferation and development goals. One of the pertinent challenges here was the current scepticism associated with the term "non-proliferation" by a significant number of states parties in the NAM – this will need to be overcome before the OPCW can delve effectively into the future shape of the Organisation.

The General Purpose Criterion (including the issue of disabling chemicals)

The next presentation under this section addressed the nature of the risks posed to the Convention after the second Review Conference. Or in other words: is the definition of a chemical weapon, as set out by the treaty text, fit for purpose? Resulting from the foresight of the

treaty negotiators, the CWC provides protection against the risk of proliferation and addresses the problem of resurging or emerging chemical weapons through its comprehensive provisions and definitions. However factors such as new utilities for chemical weapons (such as the relatively new ‘counter-terrorist’ use), new actors, and changes in science and technology could all have the potential to undermine the carefully worded definition of a chemical weapon unless care is taken at successive Review Conferences to reaffirm that such developments are embraced by the provisions of the Convention. The definition in the Convention uses the broad scientific concept of toxicity alongside the categorising notion of intent to generate the commonly termed General Purpose Criterion. Where theory and practice differ is in the ‘operationalizing’ of the General Purpose Criterion. The opening of the second paragraph of Article VI, otherwise known as the ‘Molander Chapeau’, states the positive obligation of states parties to adopt necessary measures to ensure that toxic chemicals are only used for permitted purposes, however, this paragraph is read in many different ways: some are ignorant of the comprehensiveness of the powers for implementation and many ignore the issue altogether. In this context, an international study of how the General Purpose Criterion should be implemented is due.

Hand in hand with the General Purpose Criterion is the definition of toxicity. However, a number of phrases within this definition are deliberately broad and are poorly understood by some member states; therefore a clearer understanding of terms such as “chemical action” as well as “life processes” could be helpful. Does butyric acid, a foul smelling compound, for example class as a toxic chemical under the CWC? And do riot control agents fall under the same category? In considering these questions, it is important to note that there are no qualitative or quantitative limitations on toxicity in the Chemical Weapons Convention and this was a product of design rather than accident. Discussing the paper, participants agreed that conceptual topics should be raised but that it might provide ammunition for states parties to claim that the definitions were unclear and that they should be revisited. A general feeling was that it would be a huge mistake to change or alter the Convention’s definitions; the need was instead for shared understanding of their meaning.

Drawing from a paper written before the CWC had entered into force, a brief presentation was made on proposed guidelines for the use of riot control agents under the Chemical Weapons Convention. Such guidelines should be designed to avoid the existence of a dedicated culture of use of toxic chemicals against people, and must be clearly stated and agreed. The complexity of

the term “law enforcement” was explored in terms of national jurisdiction and its distinction from warfare (itself a difficult term to define).

Another presentation maintained that the correct interpretation of Article II, paragraph 9, on law enforcement was to be taken in good faith and in the light of the object and purpose of the Convention, as mandated by the 1969 Vienna Convention on the Law of Treaties.

Chemical terrorism, chemical security and Article X

The first presentation under this agenda item concentrated on how barriers to chemical terrorism can be raised using a variety of tools such as increased international cooperation, accurate intelligence, effective law enforcement, and efficient chemical regulation. Although the CWC is not a treaty specifically designed to address terrorism, the presentation demonstrated that a number of its provisions are relevant to the issue and that its resonance with other UN initiatives was clear. In addressing terrorism, lessons can be drawn from the use of three elements of terrorism prevention – legislation, regulation, and outreach – in the nuclear and biological weapon regimes. Such lessons include the current limits of chemical security as compared to biosecurity, and recognition of the various ‘levels of implementation’ for codes of conduct including the relative roles of different codes. The potential benefit of combining efforts against terrorism with chemical security in developing countries under Article XI was highlighted. It was concluded that the most effective approach would follow high levels of international cooperation between governments as well as between organizations.

The second presentation on this topic identified three separate features of the threat from terrorism: the theft of chemicals; the illicit and ‘homemade manufacture of chemical weapons; and, attacks against chemical infrastructures. Even though the OPCW could never operate on a first-responder basis, it was said that the Organisation has a large role to play. Activities under Article X were not only limited to traditional, large scale, state uses of chemical weapons but to *any* instance of chemical weapon use by any person, state or individual. In this respect, the presentation highlighted the measures undertaken in the Czech Republic through its heavy investment in defensive research and development against chemical weapons.

The subsequent discussion addressed a number of items relating to chemical terrorism, including a necessity to increase the institutional linkages between the OPCW and other relevant organizations (particularly within the UN framework). The workshop briefly discussed the ways

in which a soft approach from initiatives such as codes of conduct in the chemical field could also lend support to other measures.

Case study – Taiwan

Taiwan, a huge chemical user for the electronics trade^[2], is a so-called “adherent” but not a state party to the CWC as it is bound by the constraints of the One-China policy. In the context of the Second Review Conference, a paper was presented highlighting the concern arising from Taiwan on the possibility of strengthening the Convention’s regulations on transfers of Schedule 3 chemicals. In 2000, the CWC put into effect a ban on the transfer of Schedule 2 chemicals to states not party to the Convention which, according to Taiwanese sources, has had significant effects on its industry: a decrease in quality resulting from forced sourcing from mainland China; changes in production routes; and several industry closures. Any changes in the Schedule 3 transfer provisions would be likely to have more severe repercussions in Taiwan due to the importance of some Schedule 3 chemicals in the production of integrated circuits.

During the subsequent discussion, it was highlighted that the subject of transfers of Schedule 3 chemicals was discussed by the OPCW in 1999, and many states parties had concluded that there was no ban mandate (for Schedule 3 chemicals) set out in the Convention.

Proposed group of independent experts

The workshop was presented with a conceptual proposal for an independent group of experts to meet (in their personal capacities) to discuss difficult issues facing the CWC, and so pave the way for solutions that could be fed into the OPCW’s Technical Secretariat. This group would work in close collaboration with the Technical Secretariat and the Scientific Advisory Board.

Reactions from workshop participants were varied; some found that the description was similar to the work of this very Study Group, others supported the proposal but saw merit in the fora already set up such as the Academic Forum and the Industry and Protection Forum. There was a general feeling, however, that there was a need for a safe environment for the discussion of politically sensitive issues and that the proposal warranted further consideration. This concluded the proceedings of the meeting.

List of Participants

[6 April 2008]

Amb. Sergey **Batsanov**, Director, Geneva Office, Pugwash Conferences on Science and World Affairs; Member, Pugwash Council; Member, International Advisory Board, Geneva Centre for the Democratic Control of Armed Forces (DCAF) [formerly: Director, Special Projects, Organization for the Prohibition of Chemical Weapons (OPCW), The Hague, The Netherlands; Director for External Relations, OPCW Preparatory Commission (1993-97); Representative of the USSR/Russian Federation to the Conference on Disarmament, Geneva (1989-93)]

Dr. Vladimir S. **Bundin**, Senior Counselor, Department of Security & Disarmament Affairs, Ministry of Foreign Affairs of the **Russian** Federation, Moscow [formerly: Head of the BTWC Department of the Russian Munition Agency, Moscow; Member, National Academy for Biotechnology of Russia; Chief Scientific Secretary, Academy of Biotechnology of Russia, and of the Academy of Sciences of the USSR]

Ms. Cécile **Chauvallon**, PhD Student, Ecole Supérieure de Commerce Extérieur (ESCE), Paris, **France**

Mr. Michael **Crowley**, Project Coordinator, Bradford Non-lethal Weapons Research Project, Department of Peace Studies, Bradford University, **UK**

Mr. Richard **Ekwall**, OPCW DG Chef de Cabinet, The Hague, The Netherlands

Prof. Georg **Frerks**, Professor of Conflict Prevention and Conflict Management, Centre for Conflict Studies, Utrecht University, **The Netherlands**; Professor of Disaster Studies, Wageningen University; Chairman, Pugwash Nederland [formerly: Senior Policy Advisor, Dutch Ministry of Foreign Affairs; Head, Conflict Research Unit, Netherlands Institute of International Relations]

Mr. Richard **Guthrie (UK)**, Co-ordinating Editor, CBW Events -- <http://www.cbw-events.org.uk> [formerly: Project Leader, CBW Project, Stockholm International Peace Research Institute (SIPRI), Solna, Sweden; Producer, CBW Conventions Bulletin, Harvard Sussex Program]

Mr. John **Hart (US)**, Researcher, Stockholm International Peace Research Institute (SIPRI), Solna, Sweden [formerly: VERTIC (London); Monterey Institute of International Studies, Monterey, California]

Dr. Alexander **Kelle (Germany)**, Lecturer in Politics and International Relations, Department of European Studies and Modern Languages, University of Bath, UK [formerly: Lecturer in International Politics, Queen's University Belfast]

Dr. Walter **Krutzsch**, formerly: Deputy Head of delegation of DDR to the Conference on Disarmament; Chairman of working groups of the ad hoc Committee on Chemical Weapons; Senior legal officer under short-term contracts in the Provisional Technical Secretariat / Technical Secretariat of the OPCW

Amb. Maarten **Lak**, Dutch Permanent Representative to the OPCW, The Hague [formerly: Director, Strategic Policy Planning, Ministry of Foreign Affairs; Deputy Director, Regional European Affairs; Counsellor, Political and Consular Affairs, Netherlands Embassy Bonn; Team Netherlands' EU Presidency team for Yugoslavia Conference; CSCW Vienna Deputy Head of Delegation; Deputy Director, Asia/Pacific, MFA]

Mr. Lee **Litman**, First Secretary, **British** Embassy The Hague, The Netherlands

Mr. Michael **Luhan**, Head Media & Public Affairs, Media and Public Affairs Branch, Organization for the Prohibition of Chemical Weapons (OPCW), The Hague, The Netherlands

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

Prof. DSc. Jiří **Matoušek**, Professor of Toxicology, Masaryk University Brno, Faculty of Science, EU Research Centre of Excellence for Environmental Chemistry and Ecotoxicology, Brno, **Czech Republic**; Chairman, OPCW Scientific Advisory Board; Member, Research Advisory Board, American Biographical Institute; Member, Research Council, International Biographical Centre, Cambridge, UK; Accredited Representative of the WFSW to the UN Office, Vienna; Member, INES Executive Council; Head, Czech Pugwash Group [formerly: Director, Institute of Environmental Chemistry and Technology, Brno University of Technology; Director, Czechoslovak NBC-Defence R&D Establishment; Member, Czechoslovak Delegation to the Conference on Disarmament, Geneva; Visiting Professor, International Institute for Peace, Vienna]

Dr. Caitriona **McLeish (Ireland)**, Research Fellow, Science & Technology Policy Research (SPRU), The Freeman Centre, University of Sussex., Brighton BN1 9QE, UK

Home: Flat 5 Fairways, Dyke Road, Brighton BN1 5AD, UK, Tel.: (+44-1273) 873556

Dr. Jan **Medema**, retired (2002) from TNO and currently part time Consultant in Biological and Chemical Defence [formerly: Head, Chemical and Biological Defence Research, TNO; Study Director (until 1999), NATO Long-Term Scientific Study for Chemical and Biological Defence (1999-2002)]

Amb. Arend **Meerburg**, retired Ambassador, Ministry of Foreign Affairs, The Netherlands;
Member: International Panel on Fissile Materials, IPFM, International Group on Global Security, Pugwash Netherlands

Dr. Oliver **Meier**, International Representative and Correspondent, Arms Control Association, Berlin, Germany; Research Fellow, Institute for Peace Research and Security Policy at the University of Hamburg [formerly: Staff person and advisor to Uta Zapf (member of German Bundestag); Senior Arms Control and Disarmament Researcher, Verification Research, Training and Information Centre (VERTIC); Senior Analyst, Berlin Information Center for Transatlantic Security (BITS); Visiting Fellow, Center for International Security and Arms Control, Stanford University]

Prof. Matthew S. **Meselson**, Thomas Dudley Cabot Professor of the Natural Sciences, Department of Molecular and Cellular Biology, Harvard University, Cambridge, Massachusetts, **USA**; Member, Pugwash CBW Steering Committee

Dr. Robert P. **Mikulak**, Director, Chemical and Biological Weapons Threat Reduction, Bureau of International Security and Nonproliferation, Washington, DC, **USA**

Mr. Patrice **Palanque**, Senior Planning Officer, OPCW, The Hague, The Netherlands

Amb. Lyn **Parker**, **UK** Permanent Representative to OPCW and Ambassador to the Netherlands [formerly: British High Commissioner to the Republic of Cyprus; previous overseas postings in Greece, India and Brussels (EU) as well as working in the Foreign and Commonwealth Office and Cabinet Office, London]

Dr. Graham S. **Pearson**, Visiting Professor of International Security, Department of Peace Studies, University of Bradford, Bradford, West Yorkshire, **UK**; Member, HSP Advisory Board; Member, Pugwash CBW Steering Committee [formerly: Director General and Chief Executive, Chemical and Biological Defence Establishment (CBDE), Ministry of Defence, Porton Down, Salisbury, Wilts]

Amb. Rogelio **Pfirter**, Director-General of the Technical Secretariat of the OPCW, The Hague, The Netherlands

**Office:* OPCW, Johan de Wittlaan 32, 2517 JR The Hague, The Netherlands.

Prof. Julian **Robinson**, Sussex Director, Harvard-Sussex Program, Science & Technology Policy Research (SPRU), University of Sussex, Brighton, **UK**; Member, Pugwash CBW Steering Committee

Mr. Martin **Rudduck**, Head of CWC National Authority, London, **UK**

Miss Katie **Smallwood**, Research Student, Harvard Sussex Program, University of Sussex, **UK** [formerly: Intern / HSP Researcher, Organisation for the Prohibition of Chemical Weapons]

Dr. Thomas **Stock**, Sales Manager, Dynasafe Germany GmbH, Mülheim, **Germany** [formerly: SIPRI CBW Programme, Stockholm International Peace Research Institute, SIPRI (1988-1996); Sales Manager, Technip Germany GmbH and Mannesmann Demag, Düsseldorf, (1998-2002); Lobbe Munex GmbH (1996-1997)]

Ms. Lisa **Tabassi**, Legal Officer, Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Provisional Technical Secretariat, Vienna, Austria [formerly: 1997-2007: Legal Officer . OPCW Technical Secretariat; 1993-1997: Senior Research Assistant, Legal Division, Provisional Technical Secretariat, Preparatory Commission for the OPCW]

Dr. Ralf **Trapp (Germany)**, Consultant, CBW, Arms Control and Disarmament, Chessenaz, France [former positions at the OPCW: Senior Planning Officer, Office of the Deputy Director-General; Secretary, Review Conference Steering Group; Branch Head, Government Relations & Political Affairs; Branch Head, International Cooperation; Branch Head, Policy & Review; also former Member of the German as well as GDR CD delegations]

Mr. Gordon **Vachon**, Head, Inspection Review Branch, Inspectorate Division, OPCW, The Hague, **The Netherlands**[formerly: 2001-2002: Special Assistant to the Director-General, OPCW; 1998-2001: Canadian Alternate Permanent Representative to the OPCW; 1998 (May-Aug): Acting Director, Non-Proliferation, Arms Control and Disarmament Division (NACD), Department of Foreign Affairs and International Trade (DFAIT), Canada; 1994-1998: Deputy-Director and Head of Verification Research, NACD/DFAIT; Senior Verification Research Officer; Assistant Professor of Strategic Studies, Collège Militaire Royal de Saint-Jean; Strategic

Analyst at Operational Research and Analysis Establishment, Defence Research Board; and serving military officer (R22eR)]

Dr. Paul **Walker**, Legacy Program Director, Global Green USA (the US affiliate of Green Cross International, Mikhail Gorbachev, Chairman), Washington, DC, USA [formerly: Professional Staff Member, Armed Services Committee, US House of Representatives; Acting Director, Peace & Conflict Studies, College of the Holy Cross, Worcester, MA; Co-director, Institute for Peace & International Security, Cambridge, MA; National Education Director, Physicians for Social Responsibility, Cambridge; Research Director, Union of Concerned Scientists, Cambridge]

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

Ms. Angela **Woodward (New Zealand/UK)**, Executive Director, Verification Research, Training and Information Centre (VERTIC), London; UK Teacher, Law Department, London School of Economics [formerly: Programme Assistant, Mountbatten Centre for International Studies, University of Southampton, UK (1998-99)]

***Pugwash Staff:* Claudia Vaughn**, Pugwash Conferences, Accademia Nazionale dei Lincei, via della Lungara 10, I-00165 Rome, Italy, Tel. (+39-06) 6872 606, Fax: (+39-06) 6878 376, Mobile: (+39) 333 456 6661, E-mail: pugwash@iol.it