An *Arms Control Today* Reader

The 2008 Chemical Weapons Convention Review Conference:

A Collection of Articles, Essays, and Interviews on Tackling the Threats Posed by Chemical Weapons.

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Arms Control Today (ACT), published by the Arms Control Association (ACA), provides policymakers, the press, and the interested public with authoritative information, analysis, and commentary on arms control proposals, negotiations and agreements, and related national and international security issues. ACA is a national nonpartisan membership organization dedicated to promoting public understanding of and support for arms control policies. In addition to *ACT*, ACA provides additional information through its web site, regular press briefings, and commentary and analysis by its staff for journalists and scholars in the United States and abroad.

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Cover Photo: Japanese police participating in a chemical weapons drill Oct. 22, 2004, AFP/Getty Images

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INTRODUCTION

No Time for Complacency: Adapting the Chemical Weapons Convention for the Future

During April 7-18, state-party representatives of the 1993 Chemical Weapons Convention (CWC) will meet in The Hague for a second time to review the operation of the treaty and to find ways to adapt it for the future. The 183 states-parties will be able to look back on some extraordinary successes. As Rogelio Pfirter, director-general of the Organization for the Prohibition of Chemical Weapons (OPCW), stated in an April 2007 interview with Arms Control Today, "We have been able to prove that, through multilateral action, it is possible to address effectively the issues related to peace and security and, more concretely, issues that involve disarmament and non-proliferation. This is particularly important at a time when the multilateral system has been questioned in several areas, especially in the area of peace and security."

The contributions to this reader are a collection of articles and interviews published in *Arms Control Today* and on the Arms Control Association's website between January 2007 and March 2008. The authors, including many leading experts in the field, summarize the CWC's achievements but mainly look forward to the convention's future. Ambassador Lyn Parker, chair of the open-ended working group that has been preparing the review conference, captured the common theme of many contributions when he asked in a November 2007 *Arms Control Today* interview:

> [The] real question for the future is what more can we do and also how do the balances built into the convention change over time as we move towards the deadline for destruction of chemical weapons stocks and we start to look at what lies beyond the destruction of existing chemical weapons stocks. What kind of organization does this need to become? What are the balances between the traditional destruction and verification activities and some of the other activities such as cooperation, assistance, and protection, which are important to a lot of states-parties who are not themselves directly involved in the processes related to chemical weapons destruction?

The likely inability of the United States and Russia to complete the destruction of their chemical weapons stockpiles by the treaty's 2012 deadline is expected to be a major issue at the review conference and a potential stumbling block to a successful outcome. Donald A. Mahley, acting deputy assistant secretary for threat reduction, export controls, and negotiations, argued in a February 2008 interview with *Arms Control Today* that "it's too early to try to do something that will formally address that issue at this review conference," but others are likely to bring it up. Mahley suggested that the review conference may want to establish a working group that within a two- to three-year time frame could develop options for states-parties on how to deal with a possible violation of the 2012 deadline and establish a timeline for destruction of any remaining stocks. This proposal may run into opposition from other countries that want to highlight the potential noncompliance of Russia and the United States.

A related challenge, as John Hart points out, will be to safely remove and destroy old and abandoned chemical weapons, which still pose a safety risk and a threat to the environment. More than a dozen states have declared that such weapons have been found on their territory. Hart argues that the issue requires "continued cooperation and information sharing, including within the framework of the OPCW." He suggests that the review conference consider establishing a timeline for destruction

of these weapons.

The CWC comprehensively prohibits the hostile use of all chemical weapons, based on the "general purpose criterion." As Ralf Trapp contends, the complete ban on the development, production, acquisition, stockpiling, retention, and use of chemical weapons could be under threat if states "take advantage of the new discoveries in science and technology to develop a novel agent while asserting that they are technically complying with CWC obligations." The review conference needs to address the impact of advances in science and technology on the prohibitions contained in the convention by considering "how best to reinforce the 'general purpose criterion,'" Trapp argues.

In this context, Kyle Ballard proposes that the CWC states-parties consider an amendment or additional protocol in order to clarify the use of riot control agents (RCAs). The CWC does not prohibit the use of such chemical agents for law enforcement purposes. Ballard maintains that the CWC states-parties need to develop a clear and positive understanding of how the convention classifies RCAs and to define the concept of law enforcement. "The international community must address these issues, as the security environment is ever changing and technology evolves faster than legal regimes are able," Ballard writes.

Jonathan Tucker, who also examines the problems created for the CWC by technological advances, points out the substantial gaps that still exist in the OPCW's efforts to verify the nonproduction of chemical weapons. Tucker encourages representatives of states-parties at the review conference to think beyond the schedule-based approach to compliance monitoring that has so far determined the allocation and conduct of industry inspections. Tucker's proposals include strengthening provisions for routine inspections of "other chemical production facilities" that do not currently manufacture scheduled chemicals but may have the technical capability to do so, using sampling and analysis during on-site inspections of chemical industry, and making better use of the right of any member state to request a challenge inspection of a suspect facility, declared or undeclared, on the territory of another state-party.

Despite U.S. suspicion that a number of countries are not complying with the CWC, no challenge inspection has been requested to date. As Mahley explains, Washington is reluctant to demand such an inspection because it is worried about the political repercussions of a failed inspection. Tucker, by contrast, recommends that challenge inspections be used for clarification purposes "initially to resolve ambiguities, such as whether a particular facility should have been declared."

Achieving universality is another unfinished task that the review conference will need to tackle, according to Daniel Feakes. Only a dozen countries remain outside the CWC, but many of these are hard cases that have decided not to join for political reasons. "The Middle East is likely to remain the key sticking point, leaving total CWC universality dependent on a resolution of the wider political and security situation in the region," Feakes concludes, pointing to the need to decouple chemical and nuclear disarmament. He suggests that the review conference should strengthen the link between universality and national implementation.

Tucker supports the view that the review conference should address the patchy compliance with the treaty's provisions on national implementation. More than 100 states-parties have not yet notified the OPCW of the actions taken to implement Article VII. The review conference should renew the 2003 action plan to improve the national implementation of obligations under the CWC and expand it to ensure "that state-parties incorporate the general purpose criterion and the schedules of chemicals into their subsidiary regulations and empower their national authorities to collect all of the data needed to monitor domestic implementation effectively," Tucker suggests.

CWC states-parties can be proud of what has been achieved since the CWC entered into force 10 years ago. One-third of all chemical weapons stockpiles have been destroyed in the six declared possessor states; 3,000 inspections have been conducted in 80 member states; and the treaty's membership of 183 states is second only to the nuclear Nonproliferation Treaty. Most importantly, chemical weapons are no longer seen as a viable means of warfare. Nonetheless, as the contributions in this publication point out, implementing the treaty's provisions may not be sufficient to keep the taboo against chemical weapons as strong as it is today. Difficult challenges lie ahead, and the second review conference in most cases will not have the option of delaying decisions for another five years.

At the review conference, states-parties will need to urge possessor states, particularly Russia and the United States, to do their utmost to accelerate chemical weapons destruction in a safe and environmentally sound manner. States-parties also will need to agree on a number of difficult measures to adapt the treaty's verification regime to new realities, both scientific and political. Likewise, the meeting should make clear that allegations of noncompliance that are not pursued and resolved through challenge inspections will only damage the convention's credibility. Last but not least, the review conference must not shy away from the issue of nonlethal agents. Although the issue may not yet be ripe for political resolution, it must be explored on a priority basis. In another five years, when the third CWC review conference is scheduled to meet, facts may have been created that will make a consensus on the issue even more elusive than it appears today.

To implement the steps above, political leadership will be needed from all member states, particularly from those that have been champions of the CWC. Although the operation of the convention over the past five years has been relatively smooth, the risk of complacency is real. States-parties at the review conference must move beyond business as usual and tackle some of the difficult challenges that face the convention today and in the future.

We hope those attending the review conference, as well as those generally interested in chemical weapons control, will find this collection thought provoking and helpful.

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International Representative
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By Oliver Meier

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SECTION 1

News ANALYSIS

Chemical Weapons Parlay's Outcome Uncertain

During April 7-18, representatives of 183 states-parties of the 1993 Chemical Weapons Convention (CWC) will meet in The Hague for the second time to review the operation of the treaty and to find ways to adapt it for the future. Although there is likely to be broad agreement that the treaty has registered significant accomplishments in its first decade in operation, it is not clear if there is sufficient political will to tackle current diplomatic, technological, and economic challenges. Moreover, the meeting could be affected by tensions between developed and developing countries and between the United States and Iran that have hampered other multilateral talks.

Chemical Weapons Destruction

The biggest unfinished task for the convention's members is to complete destruction of declared chemical weapons stockpiles. A November 2007 report by the Technical Secretariat of the Organization for the Prohibition of Chemical Weapons (OPCW), the body charged with implementing the CWC, points out that, by then, only about one-third of the 70,000 metric tons of chemical weapons stockpiles declared by Albania, India, Libya, Russia, South Korea, and the United States had been destroyed.

The convention requires possessor states to have finished destruction by 2007, but Albania is so far the only country to have eliminated its entire chemical weapons stockpile. The CWC does allow extensions for as long as five years, and all chemical weapon-possessor states have taken advantage of the option to extend their destruction deadlines. (See *ACT*, January/February 2007.)

The two largest possessor states, Russia and the United States, have been granted the maximum extension, until April 29, 2012. It seems all but certain that they will not be able to meet that deadline. Destruction programs in each country have been affected by delays caused by a variety of political, technical, financial, and legal factors. Construction of major destruction facilities in Russia and the United States in some cases has just started or is still behind schedule.

U.S. Department of Defense officials have said that the United States will not be able to complete destruction of its stocks before 2023. In reaction, Congress in the 2008 defense appropriations bill has called on the Pentagon to speed up destruction and complete that task by Dec. 30, 2017. Achieving this goal would require increased funding for construction of the chemical agent neutralization facilities at the Pueblo Chemical Depot in Colorado and the Blue Grass Army Depot in Kentucky.

States-parties at the review conference will have to decide how to deal with the fact that Russia and the United States are likely to be in noncompliance with their obligations to destroy existing stockpiles before the next regular review conference meets in 2013.

Ambassador Donald A. Mahley, acting deputy assistant secretary of state for threat reduction, export controls, and negotiations, admitted to *Arms Control Today* Feb. 8 that the issue of chemical weapons destruction is a potential obstacle to a successful review conference. But in an interview, Mahley argued that "it's too early to try to do something that will formally address that issue at this review conference."

An Iranian diplomat told *Arms Control Today* Feb. 18 that Iran would like the review conference to describe any violation of the 2012 deadline "as a clear case of serious noncompliance," which would automatically trigger treaty procedures for dealing with noncompliance.

The CWC establishes a gradual approach to dealing with noncompliance. In the first instance, policymaking organs will try to resolve the situation together with the concerned state-party. Only if there is serious damage to the object and purpose of the treaty and the noncompliant party does not respond to proposals or deadlines can the states-parties collectively take punitive measures.

Mahley drew a contrast between a "technical violation" caused mainly by unforeseeable technical difficulties on chemical weapons destruction and an act of noncompliance with the object and purpose of the treaty. He warned of the possibility that "states that have a different agenda with the review conference" that is "more accusatory and more disruptive" might use the delays in destruction as a pretext for preventing agreement at the meeting.

Mahley proposed that the review conference "set the groundwork for a work program to be able to find constructive ways to address the 2012 question before we get to 2012" by establishing a working group.

Within a two- to three-year time frame, such a group could develop options for states-parties on how to deal with a possible violation of the 2012 deadline and establish a timeline for destruction of any remaining stocks, Mahley suggested.

The idea of postponing a discussion on the 2012 destruction deadline seems to find support in other quarters also. OPCW Director-General Rogelio Pfirter, in a Feb. 14 interview with *Arms Control Today*, echoed Mahley's point that the delays in chemical weapons destruction are not the result of a lack of political commitment by Russia and the United States. In the November 2007 report, Pfirter had proposed that states-parties at the review conference "consider the option of calling, at an appropriate date close to 2012," a special meeting of all states-parties "in order to review the status of destruction and agree on whatever action they might deem necessary." The Iranian diplomat also conceded that Iran believes "that there is still plenty of time ahead of us" and that "therefore the second review conference should call upon the possessor states, in particular the major possessors, to make all their efforts to ensure to meet the final deadlines."

Reforming the Verification Regime

The slow pace of destruction also has hindered the OPCW's ability to verify that states are not producing chemical weapons. Because the OPCW is spending most of its verification resources on monitoring the destruction of chemical weapons stockpiles, currently only 20 percent of inspectors' time is dedicated to industry verification, according to the November 2007 OPCW report.

The review conference likely will debate other reforms of the industry inspections regime, such as altering the balance between systematic and routine inspections of certain facilities and more random inspections of about 5,000 so-called Other Chemical Production Facilities (OCPFs). OPCW officials, some states-parties, and outside experts have expressed concern about the growing number of OCPFs, particularly because about 10-15 percent of these facilities are perceived as especially susceptible to manufacturing chemical weapons, that is, because they apply flexible production technologies that could be easily converted to the production of chemical weapon agents. (See *ACT*, January/February 2007.)

Pfirter told *Arms Control Today* he views OCPFs as a "risk category" and said that the OPCW's reform efforts have two goals: to increase the percentage of inspections at OCPFs and to ensure that "facilities that are most relevant to the convention" are inspected. In the November 2007 OPCW report, he urged the review conference to address the issue of OCPFs and described its resolution as "overdue."

Until recently, the allocation of industry inspections was biased toward equal selection of states-parties rather than the potential for misuse of certain types of facilities. In order to change the verification focus to inspect more OCPFs, the OPCW at the beginning of this year began using a revised selection mechanism for industry inspections that has "resulted in a proportional increase in the number of selected plant sites with advanced engineering features and process capabilities," according to the November 2007 OPCW report. This reformed algorithm, however, does not yet introduce any new criterion aimed at targeting those OCPFs considered most vulnerable to proliferation.

Such a change would require a political decision by states-parties. So far, there has not even been agreement among states-parties on whether declarations should be expanded to include additional information on OCPFs so that the OPCW might be better able to identify the most relevant facilities. There are also disagreements

Tania Makeeva/Getty Images

Russian special forces remove bodies Oct. 26, 2002 from a Moscow theater where Chechen rebels held hundreds captive. Russian authorities attempted to knock out the perpetrators of the siege with what most sources claim was weaponized fentanyl, an opioid analgesic. The chemical agent killed at least 100 hostages and as many as 50 rebels.

how such information might be factored into a new mechanism for allocating inspections.

Moreover, some developing countries are wary of shifting verification resources toward OCPFs. Because a significant share of chemical manufacturing is moving from traditional locations in North America, western Europe, and Japan to other regions of the world and many modern chemical production facilities are OCPFs, developing countries fear that, under such a plan, their relative share of inspections will increase. Some nonaligned countries also suspect that the discussion is less about their technical capabilities and potential for violating the CWC than it is an indication that developed countries want to paint them as less trustworthy than industrialized states. A Nov. 5, 2007, statement by Cuban Ambassador Oscar de los Reyes Ramos on behalf of Nonaligned Movement countries insisted that the OPCW's verification regime must "correspond to the hierarchy of risks inherent to the respective category of chemicals," implying that the current approach, which views OCPFs as less essential, does not need to be fundamentally reformed.

Mahley indirectly confirmed suspicions that the United States sees the discussion on OCPFs as a way to redirect verification resources and attention toward countries that are perceived as problem states. "We'd also like to see if we can't get some redirection in some of the efforts of the OPCW more into the idea of where the threat really occurs now and the unscheduled producers in some of the Third World countries," Mahley stated. He maintained that such a change in focus would be preferable to reinspection of certain facilities in Western countries where past verification efforts have given "a very clear indication that those aren't a potential proliferation threat for chemical weapons."

Addressing Nonlethal Incapacitants

On the other hand, Washington would like to avoid scrutiny of its controversial interpretation of treaty exceptions permitting the use of toxic chemicals for "law enforcement, including domestic riot control purposes."

For example, on Jan. 20, *The New York Times* reported that the private security firm Blackwater Worldwide in May 2005 had dropped CS (tear) gas from a helicopter in Baghdad to clear an intersection for a convoy. The Department of State has maintained that the use of the riot control agent, which also injured U.S. soldiers, did not

violate the CWC because under the circumstances it is "not considered a method of warfare."

Mahley said of the controversy, "If anything, in the review conference [there] needs to be a relatively brief discussion reminding people of what the convention itself says."

By contrast and in an apparent attempt to encourage an open exchange on the issue of novel, allegedly "nonlethal" weapons at the review conference, the European Union agreed in June 2007 that it was an "essential issue" for the review conference to reaffirm that the convention's prohibitions "apply to any toxic chemical," with a few specific exceptions.

Similarly, the Iranian diplomat also described the issue of nonlethal weapons as a very important one and stated that Iran "would like the conference to pay more attention to it so that it can take clear decision that we prevent the use of such weapons as a method of warfare."

Concern about the development of so-called chemical incapacitants and nonlethal weapons has grown after a 2002 Moscow theater hostage crisis, in which the use of a chemical incapacitant by Russian forces resulted in the deaths of more than 150 hostages and kidnappers. Subsequently, several countries, including the United States, have shown interest in the military application of such incapacitants. Technological advances in biochemistry have also made the development of more capable nonlethal agents more possible (see page 20). (See *ACT*, September 2007.)

Pfirter told *Arms Control Today* that there will be a need to address the impact of new nonlethal weapons on the convention in "due course" but argued that "there is not sufficient information" for the review conference to address the issue in depth. Given the divisions among states-parties, it seems uncertain whether expert proposals to launch an independent review of the potential consequence of using chemical incapacitants will gain support at the review conference.

Preventing Chemical Weapons Terrorism

When speaking to *Arms Control Today*, Pfirter pointed out that "the expectations of the international community are big and the expectations of individual member states are big" that the OPCW should cooperate in anti-terrorism efforts. As a positive example, Pfirter pointed toward ongoing cooperation between the OPCW and the committee implementing UN Security Council Resolution 1540, which requires all states to implement domestic measures to prevent nonstate actors from acquiring weapons of mass destruction. (See *ACT*, November 2007.) He highlighted assistance provided to smaller and developing states to translate CWC obligations into national law. These countries "are guided mainly by their concern about terrorists using chemical weapons on their territory," Pfirter stated.

Discussions at the review conference are likely to concentrate on measures to target national implementation assistance better, rather than additional steps to strengthen the convention's role in preventing chemical weapons terrorism. At the November 2007 conference of OPCW states-parties, U.S. Ambassador Eric M. Javits argued that states-parties should focus efforts to improve national implementation on those approximately 20 states "that lack effective implementing measures but have more activities relevant to the convention within their territories." Mahley, in the interview with *Arms Control Today*, refused to cite examples of those countries but emphasized that broader national implementation rests on more and better awareness raising, outreach, assistance, and training.

Another U.S.-Iran Fight?

The review conference, likely to be chaired by Saudi Arabia, is expected to adopt a brief political declaration and a longer final document that reviews the operation of the convention in detail, similar to the products of first review conference, in 2003. Achievement of these goals will depend largely on the political climate at the conference and particularly whether there will be another confrontation between Iran and the United States of the type witnessed at many similar meetings recently.

At the first review conference, the United States had provoked angry reactions by asserting that more than a dozen countries possess or are actively pursuing chemical weapons. In 2003 the United States voiced specific concerns about the compliance of Iran and Sudan, which are members of the CWC, as well as nonmembers Libya, North Korea, and Syria. Mahley says that Washington believes that the CWC "has been working reasonably well" but also stated that the administration still upholds the conclusions of a 2005 State Department report on noncompliance, which listed compliance concerns about China, Iran, Russia, and Sudan. Mahley said that the administration is "still debating whether or not the review conference is a forum at which we wish to make [compliance] a major issue." He cautioned that the United Stated would not ignore noncompliance concerns: "Certainly, we are going to note it."

An Iranian proposal to set up a "Chemical Weapons Victim's International Funding & Assistance Network" is another potential subject that could provoke controversy. (See *ACT*, December 2007.) Iraq used chemical weapons against Iran during their war in the 1980s.

Mahley rejected the Iranian proposal, which was first made in 2006 and repeated at the 2007 conference of states-parties. "There are other ways to try to address the question [of providing financial assistance to chemical weapons victims] rather than trying to turn that to being a function of a nonproliferation organization," he said. Mahley argued that humanitarian agencies might be better suited to address the issue of chemical weapons victims assistance.

The Iranian diplomat dismissed this argument and maintained that humanitarian organizations do not deal with victims of weapons of mass destruction. He said that Iran will pursue its proposal and wants to highlight that the CWC's provisions on assistance and protection against chemical weapons are "meant not only to address immediate humanitarian consequences resulting from the use of chemical weapons but also the long-term effects."

The scope and content of efforts to support peaceful use of chemistry is another traditional battleground between Western states and nonaligned countries. So far, however, developing countries appear not to have come up with specific demands to strengthen such cooperation, which is currently being discussed as part of a specific OPCW framework.

Technical issues, particularly those related to the operation of the OPCW, also appear to be noncontroversial. Unusual for the head of any international organization, Pfirter is happy with the states-parties continuing to maintain current funding levels. He told *Arms Control Today*, "I have been the first promoting a zero nominal growth in the budget because I believe that the organization has the financial resources necessary for it to address adequately program demands."

—OLIVER MEIER

For a complete transcript of the interview with Donald A. Mahley, please visit www.armscontrol.org or page 38 of this reader.

Interviewed by Oliver Meier

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SECTION 2

The Chemical Weapons Convention at 10: An Interview With OPCW Director-General Rogelio Pfirter

On April 29, 1997, the Chemical Weapons Convention (CWC) entered into force. Ten years on, the CWC has won support from nearly all UN member states: 182 states-parties have agreed to be bound by the convention, while an additional six states have signed but not ratified it. On March 16, 2007 *Arms Control Today* International Correspondent Oliver Meier spoke with Rogelio Pfirter, director-general of the Organization for the Prohibition of Chemical Weapons (OPCW), about the CWC's achievements and challenges that lie ahead. The OPCW is the international organization charged with implementing the CWC.

ACT: *On April 29, we mark the 10th anniversary of the entry into force of the Chemical Weapons Convention. What, from your perspective, are the biggest achievements of the convention and the biggest problems lying ahead with regard to banning chemical weapons?*

Pfirter: We have been successful in implementing the very concretely focused mandate of this convention. We have made progress in the actual destruction of chemical arsenals. Soon, 25 percent of the declared stockpile will have been destroyed under verification.[1] We have also achieved enormous progress in terms of national implementation. Although much, of course, remains to be achieved, we have already in place a good part of the required legislative and administrative measures. We have also been able to work in the area of assistance and protection and in developing the type of arrangements the convention foresees.[2]

Secondly, we have been able to prove that, through multilateral action, it is possible to address effectively the issues related to peace and security and, more concretely, issues that involve disarmament and nonproliferation. This is particularly important at a time when the multilateral system has been questioned in several areas, especially in the area of peace and security.

ACT: *Not all states have joined the convention yet. On universality, what in particular do you think can be done to improve the number of states-parties in the Middle East?[3] There have been expectations that Iraq and Lebanon might soon accede to the CWC.*

Pfirter: I think that universality is one of the biggest challenges facing the CWC because the convention is only as strong as its weakest link. The ban is weakened, of course, if any countries remain outside of it, particularly countries seen as potential possessors of chemical weapons. The Middle East is one such region where there have been allegations that a few of the countries might have chemical programs, so we definitely need to move forward with universality there. The problem is unique because, of course, the issue of chemical weapons in the region is part of the much larger problem of the Arab-Israeli conflict. However, I do believe there are states where the chemical issue can be addressed on its own merit and at a speed distinct from other issues, particularly those of weapons of mass destruction. It is quite clear that, today, the ban on chemical weapons is universal and it is mandatory for all states.

How to address it? I think that we have to look at the peculiarities of the area while not forgetting the overall context. We should work with each country there to try to renovate the dynamics by ensuring that the issue is reviewed, is revised, and remains topical, that [it] is not static or stagnant or condemned to follow the fate, for instance, of the nuclear issue or tied to the overall problem. This is what we are doing, and I myself am engaging with countries in the region. Of course, it will also require the collective effort of all members of the OPCW to ensure that this issue remains on the top of the agenda and that the countries realize that they need to join.

ACT: *Can you say something specific about Iraq and Lebanon, which are on the list of countries expected to join soon?*

Pfirter: In the case of Lebanon, it is our understanding that the parliament has recommended accession to the convention. In fact, only positive action by the executive power is pending,

which we hope will take place fairly soon. If Lebanon joins, of course, that would be an important step forward, not just for member states or for Lebanon itself but for the whole Middle East issue. So we look forward to that. We remain in contact with Lebanon in that respect. In the case of Iraq, the government has expressed its willingness to accede to the convention. We understand that steps are being taken and decisions are being made at the highest political level. Indeed, we have been engaged in helping to train Iraqi officials and to work with Iraq on the required documentation. We hope that this will take place before too long.

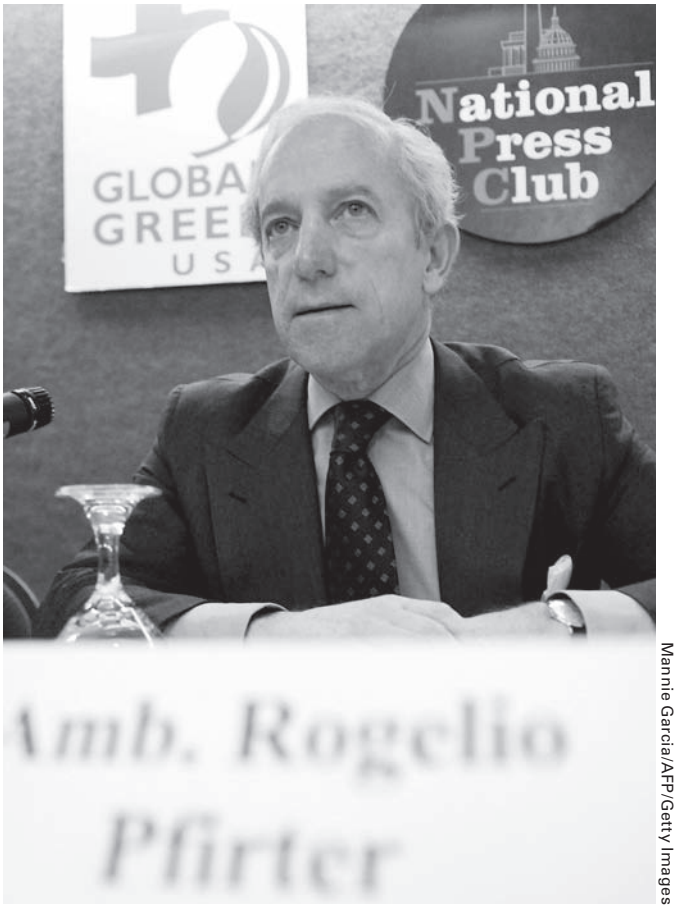
ACT: *You mentioned destruction efforts and achievements. In an interview with* ACT *in 2005, you said that it would have a "devastating effect" if Russia and the United States missed their 2012 destruction deadlines. Now, at least with regard to the United States, it seems all but certain that it will not make the 2012 deadline.[4] What would be the consequences for the convention if the United States would indeed take much longer to destroy its chemical weapons stockpile? And do you still expect Russia to fulfill its obligation to destroy its chemical weapons stocks by 2012?*

Pfirter: Officially, the position of the United States, repeated here [in The Hague] only 48 hours ago, is that it remains faithful to the convention and committed to its implementation and to the destruction [of its chemical weapons stockpile] at the earliest possible date. I will stick to that in the sense that I believe that there is a very strong political commitment on the part of the United States to support the convention and to comply with it. So, I am aware of the projections, I am aware of the current debate. Officially we have been told that the commitment remains, and I am convinced that the United States could comply with its obligation by 2012. So that's what I hope, and I think that's the hope of every member state in this organization.

In the case of Russia, destruction has taken on a new dynamic. Russia now has two destruction facilities in full operation, and one has already completed its task. Others are being built. I would hope that Russia picks up and maintains the momentum and will eventually in 2012 have a much better possibility of complying.

I think the issue of noncompliance is something that we should not prematurely address at this stage. It is an issue to be looked at later, as we come closer to the deadlines. For the time being, I think what remains is the commitment of the countries. None of them has in any way expressed any doubts about their obligations. The policy-making organs of the organization have granted both Russia and the United States an extension of the destruction deadlines to 2012. The OPCW has also created an additional reassurance mechanism in the sense that the policy-making organs maintain frequent contacts with the possessor states to ascertain their political will and the degree of progress. Again, I think that the general perception is that there is a strong commitment and determination from these states. That is where we stand at the moment, and I will not speculate beyond that.

ACT: *If I can turn toward verification more generally, you told* ACT *in 2005 that "of particular concern are Other Chemical Production Facilities (OCPF) where I believe our effort is still very low in proportional terms when one looks at the universe of the number of plants we have identified as potentially relevant to the convention." What has happened since then to address this issue, and generally*



Mannie Garcia/AFP/Getty Images

Rogelio Pfirter, director-general of the Organization for the Prohibition of Chemical Weapons, addresses the press March 30, 2007 in Washington, D.C.

what do you think can be done to improve the balance between inspections for OCPFs and other facilities that handle chemicals listed on the schedules?[5]

Pfirter: First of all, let me reaffirm that I maintain the concern that I expressed in 2005. And secondly, yes, there is an issue related to the balance of inspections in terms of how intensely they are applied to each and every country. Due to the present site selection methodology, the inspection effort is being applied unevenly. I would say it is applied with a degree of inequality. A country that has, for instance, seven facilities relevant to us is treated exactly like a country that has 1,000 facilities on its territory. This has meant that we end up inspecting 100 percent of the facilities in a country with seven or 10 facilities and less than one percent of the facilities in a country with a large number of facilities.

That needs to be addressed. Less than a week ago, I announced to member states that something needs to be done. I myself intend to have the secretariat look again into this formula and introduce those modifications that would allow for a greater sense of equality among member states. We will work on the factor of the algorithm that equalizes countries irrespective of the actual number of facilities they have and try to ensure that countries with a higher number of facilities stand a greater chance of being inspected than the countries with a lower number of facilities. This is very technical. It has

no political connotation in itself. When I made my announcement, there was an enormous sense of relief and support from the majority of countries. We will take it from there. There are other issues that are more political in nature that remain to be discussed. We will leave those issues to the member states to continue their discussions, and whenever they agree, we will add those modifications to the algorithm.

ACT: *When do you expect to table your proposal on this issue?*

Pfirter: We are working on it. It is a technical matter. [The OPCW] Verification Division is looking actively into the matter, and I hope that before too long I can offer a definite proposal.

ACT: *Ten years after entry into force, it still seems unlikely that a challenge inspection will be requested despite various allegations of noncompliance, for example, by the United States against Iran. How is the secretariat preparing for challenge inspections?*[6]

Pfirter: The secretariat continues to retain a high degree of readiness. Hopefully, if we are requested to conduct a challenge inspection, we will be able to do it as the convention foresees. As you very well said, triggering a challenge inspection remains in the hands of member states. So, we will be available, should they take those steps. I myself believe that the challenge inspection is a very important and fundamental instrument within the toolbox of verification for the Chemical Weapons Convention to expose violations and to deter potential violations. So, we need to make sure that this very important tool remains actual and available. And in that context, I am of course very aware of the fact that while we in the secretariat retain that readiness, there is still a need for countries at the political level to discuss these issues because there is no agreement on the matter. I hope, however, that challenge inspections are not in question at all, as countries have already agreed in the convention that the mechanism should exist.

In order to help countries understand challenge inspections, I also have thought that it would be good to offer member states and delegations, particularly here in The Hague, a better opportunity to see what challenge inspections are all about, in practical terms. So I am trying to organize with the generous contribution of the Netherlands, a mock challenge inspection exercise near The Hague, which would be available to member states for them to observe and participate. Challenge inspections are not a punishment mechanism. It is entirely a mechanism for reassurance, and we need to un-demonize it.

ACT: I*s there a date set already for this mock exercise?*

Pfirter: It is going to be later in the year or early next year.

ACT: *The Weapons of Mass Destruction Commission headed by Hans Blix warned in its report of "a dangerous erosion of the fundamental ban on chemical weapons" because they perceived "an increasing interest among some governments to adopt a more flexible interpretation of the CWC rules on the use of incapacitating chemical weapons, even as a method of warfare, in order to be able to use them in diverse situations." How do you expect states-parties to address this challenge to the convention?*[7]

Pfirter: First of all, I think that we do not know enough on this matter to say whether this is a challenge. We have a scientific advisory board, and we have policymaking organs that in due course may look into this matter. But more information is needed. Let me just start by saying that we expect all countries to be fulfilling their obligations in full and in good faith. There is no reason to suspect that this is not the case. Secondly, it is quite clear that the convention establishes unequivocally through the general purpose criterion what can and what cannot be done with these specific chemicals.[8] I am sure that countries understand that each and every development needs to be tested against that principle, and we take it from there. So I think that's the stage we are in.

ACT: *States-parties have still not banned transfers of Schedule 3 chemicals to non-states-parties.*[9] *Do you expect this issue to be addressed any time soon? Generally, what do you think can be done to improve national implementation and monitoring on restrictions of trade with relevant chemicals? In the long term, do you see the OPCW playing a stronger role in this regard, for example, by monitoring imports and exports?*

Pfirter: This is an area where action is required. It is an important component of the whole equation on what should be available to member states and what should not be available to nonmember states. I think this is a big inducement for formal involvement with the CWC. So I hope that this issue is not entirely finalized, although I do not expect that it will be reopened right away. Countries are required to make certain declarations, and sometimes we do find a lack of correlation between what a country declares and our own [data]. We are already aware of the need, and we have highlighted this many times, for better refinement in the way some things are declared. It's obviously part and parcel of a chemical ban, and we should make sure all of us, collectively, have in place mechanisms that account for any transfers [of scheduled chemicals] and that there is a way of following the chemicals as they move around the world.

ACT: *Now, on national implementation, in April 2006 the 1540 Committee reporting to the UN Security Council found that a total of only 69 states had enacted some prohibitions related to chemical weapons in their national legal framework.*[10] *What do you think can be done to improve this situation, and should the action plan on implementation agreed to by the CWC states-parties in 2003 be expanded?*

Pfirter: The action plan was quite successful, although not totally successful. Today 96 or 97 percent of states-parties already have a national authority in place.[11] Almost 50 percent of member states have comprehensive [implementing] legislation in place. This is very important because without adequate implementation the member states can not fully uphold the ban. We have to encourage and help some countries to not just implement, but implement in full. We will continue to work with any country. I hope we see the second review conference in 2008 approve a renewal of the action plan, which will still be necessary. I think that, again, we have not reached the finish line. The trend shows that countries are now much more aware

and willing to enact the legislation that is required and set up the administrative measures.

ACT: *You already mentioned the review conference coming up next year. From your perspective, which issues should member states address most urgently in 2008, and what is the status of preparations in the open-ended working group? Is there already agreement on whether the conference should review the convention on an article-by-article basis or on a thematic basis?*

Pfirter: The open-ended working group is still undergoing a more generic type of debate. I do not think that there is yet a decision whether it will go article by article or subject by subject. There is a possibility that in fact there will be a comprehensive approach to this issue from both angles. In the next session member states will begin to focus on more concrete issues. I think the open-ended working group is a good demonstration of how countries are determined to face these issues in a spirit of consensus, working together in a collegial fashion. I believe that it will be extremely successful in producing the basis for the sort of document and declaration that will be adopted on the occasion of the second review conference.

The issues of the second review conference are being defined at the moment in the three areas that I mentioned. First of all, in the area of disarmament. I am sure that the conference would reaffirm the commitments that are there as well as the obligations in the field of nonproliferation. I do hope that the second review conference will be able to reaffirm the need for these particular parts of the agenda, which are so important, to be addressed effectively. I also hope that the issue of Other Chemical Production Facilities will receive an adequate echo in the documents. I hope also that, although this is not an anti-terrorist organization, the contributions that this organization can make under UN Security Council Resolution 1540 will also be reaffirmed through full implementation and through universality. In the field of assistance and protection, where we receive considerable demand from member states requesting support in capacity building, which also have a lot to do with their concerns in the face of the terrorist threat, I hope that we will get a reaffirmation of the need for the OPCW to fully attend to this important dimension. [The issue of assistance] also includes international cooperation aimed at helping developing countries receive training for their experts in the industrialized world, and in general, the promotion of the peaceful uses of chemistry.

ACT: *You mentioned terrorism. On Feb. 23, you briefed the Security Council on the role of the OPCW in implementing UN Security Council Resolutions 1540 and 1673.[12] You stated there as well that the OPCW is not an anti-terrorist organization. Can you explain how the work you are doing in The Hague helps to prevent terrorist attacks with chemical weapons?*

Pfirter: The OPCW is not an anti-terrorist organization. It is not defined as such in the treaty, and therefore, it's a political organization. At the same time, after the events of September 11 in the United States, the member states did meet. They reached the conclusion that no organization of this nature can remain indifferent in the face of this new threat or increased threat. Secondly, the best way to make a contribution against terrorism is through the universality of the convention and full implementation of its program. And I think that this is where we made a commitment. As part of our program, countries are obligated to enact legislation and administrative measures so that they will be in a position to make the chemical weapons ban effective and to punish violations of the chemical ban on their own territories.

I would like to see that the destruction of chemical weapons arsenals in each and every country on this earth will have been completed and that we will have in place an effective means for monitoring and addressing their potential production in the future.

ACT: *Finally, since this is the 10th anniversary, if you were able to look ahead another 10 years, where would you like to see both the convention and the OPCW in 2017?*

Pfirter: Well, I would like to see that, of course, the destruction of chemical weapons arsenals in each and every country on this earth will have been completed and that we will have in place an effective means for monitoring and addressing their potential production in the future. In the long run, the nonproliferation regime will remain vital. In the field of cooperation and assistance, the organization will have ensured that countries develop the ability to face threats. I don't know whether the threat of terrorism will be as pertinent in 10 years time as it is today, but certainly security will remain a concern. We need also to make sure that the OPCW is capable of helping countries to acquire the means to face such a threat.

If you read Resolution 1540 and what it asks in order to prevent the access by terrorists to weapons of mass destruction, in particular chemical weapons, it calls upon countries to enact legislation and administrative measures in exactly the same manner as the CWC. There is a synergy there that demonstrates that the Chemical Weapons Convention, when

effectively implemented, is an effective contributor to the prevention of use of chemical weapons by terrorists.

So, in that conviction we continue to work toward full implementation by all countries. We have also cooperated with the 1540 committee by remaining available to them to exchange information that could be of use to the committee, of course within the very strict mandates and strict confidentiality regulations we have. I look forward to the chairman of the committee's visit here in the near future and addressing their goals and sharing their experience in implementing [the resolution]. **ACT**

ENDNOTES

1. Six states-parties (Albania, India, Libya, Russia, South Korea, and the United States) have declared that they possess a total of more than 71,000 metric tons of chemical agents and are in the process of destroying them.

2 Under the Chemical Weapons Convention (CWC), states-parties have pledged to provide assistance and protection to fellow member states when they are threatened with the use of chemical weapons or have suffered a chemical attack. If a state-party requests assistance, the Technical Secretariat is responsible for the effective coordination of assistance and protection measures provided by member states. These capabilities can include expertise in predicting hazards, in detecting and decontaminating chemical agents, in medical relief, and in on-site coordination with humanitarian and disaster response agencies. The Organization for the Prohibition of Chemical Weapons (OPCW) also relies on cooperation with other international organizations to assist it with dispatching and delivering assistance, managing on-site activities, and training.

3. Of the seven states remaining outside the CWC, four are in Middle East (Egypt, Iraq, Lebanon, and Syria). Israel has signed but not ratified the convention.

4. The convention requires states-parties to destroy their chemical weapons by 2007, 10 years after the CWC's entry into force. It is possible to request an extension of this destruction deadline by up to five years, until 2012. The conference of states-parties on December 8, 2006, approved requests for extensions of the final date for the destruction of the declared chemical weapons stockpiles. The following deadlines for complete destruction are now binding: India—April 28, 2009; Libya—December 31, 2010; Russia—April 29, 2012; South Korea—December, 31, 2008; the United States—April 29, 2012. Washington has recently admitted that complete destruction is unlikely to be completed before 2023, and it appears unlikely that Moscow can keep its promise to destroy its stocks by 2012. (See *ACT*, January/February 2007.)

5. The CWC verification system is based on three "schedules," or lists of toxic chemicals and their precursors that have been developed and manufactured in the past for military purposes. Schedule 1 consists of chemical warfare agents and precursors that have no significant commercial applications, although they may be synthesized in small quantities for scientific research, pharmaceutical development, or chemical defense. Schedule 2 lists toxic chemicals and precursors that have commercial applications in small quantities. Schedule 3 contains toxic chemicals and precursors that have commercial applications in large quantities. The primary focus of routine inspections of the chemical industry under the CWC is on declared production facilities that manufacture the dual-use chemicals listed on Schedules 2 or 3. In recent years, however, the advent of small, multipurpose chemical-production facilities has made the batch synthesis of organic (carbon-based) compounds more automated and flexible. Such multipurpose plants, which constitute a fraction of the category of Other Chemical Production Facilities (OCPFs), are potentially easier to divert to chemical weapons production than large, inflexible facilities that produce specific scheduled chemicals. As of November 2006, 77 member states had declared a total of 5,225 OCPFs, or more than five times the number of declared facilities that produce Schedule 1, 2, and 3 chemicals. (See *ACT*, January/February 2007.)

6. Article IX of the convention grants CWC states-parties the right to request a challenge inspection of any site, declared or undeclared, on the territory of another member state "for the sole purpose of clarifying and resolving any questions concerning possible non-compliance."

7. See: The Weapons of Mass Destruction Commission, "Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms," June 1, 2006. Article VI of the CWC gives states-parties the right to maintain toxic chemicals for purposes not prohibited under the convention, including "law enforcement, including domestic riot control." Whether the CWC permits the development and use for domestic law enforcement purposes of incapacitating agents with long-lasting effects, in addition to riot-control agents with transient effects, such as CS tear gas, is a matter of intense debate.

8. The "general purpose criterion" refers to the fact that the basic prohibitions of the CWC apply to all toxic chemicals and precursors that are acquired or used for hostile purposes, including those developed at any time in the future, and are not limited to the toxic chemicals and precursors listed in the three schedules of chemicals.

9. Article VI of the CWC specifies a number of restrictions on trade, keyed to the treaty's three schedules of chemicals. With the entry into force of the convention in April 1997, transfers to non-states-parties of the chemical warfare agents and precursors listed on Schedule 1 were banned immediately, and trade with non-states-parties in chemicals listed on Schedule 2 have been prohibited since April 2000. In 2003 the OPCW Conference of the States-Parties to the CWC considered a possible ban on exports to non-states-parties of Schedule 3 chemicals but could not agree by consensus. At present, the CWC allows exports of Schedule 3 chemicals to non-states-parties only if the recipient provides an end-use certificate clarifying the intended use and pledging not to make any further transfers.

10. On April 28, 2004, the UN Security Council unanimously adopted Resolution 1540 under Chapter VII of the UN Charter. The resolution mandates that all states establish domestic controls to prevent the proliferation of weapons of mass destruction and means of delivery, in particular for terrorist purposes, including by establishing appropriate controls over related materials, and adopt legislative measures in that respect. In that context, the council also established a committee comprising all council members (the 1540 Committee) that would report on the implementation of the resolution.

11. To make sure that the convention is implemented effectively, states-parties are obliged to designate or establish a "national authority." This body participates in and coordinates OPCW inspections of relevant industrial or military sites, makes initial and annual declarations, participates in assisting and protecting those states-parties that are threatened by or have indeed suffered a chemical attack, and fosters the peaceful uses of chemistry. In addition, the national authority acts as the focal point in the state-party's interaction with other member states and the OPCW's Technical Secretariat.

12. On April 27, 2006, the UN Security Council unanimously adopted Resolution 1673, which extends the mandate of the 1540 Committee for another two years, until April 27, 2008.

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SECTION 3

Getting Down to the Hard Cases: Prospects for CWC Universality

When states-parties to the 1993 Chemical Weapons Convention (CWC) gather next month in The Hague for their second review conference, the plenary sessions will be unusually full, and for good reason. Since the ban on developing, producing, stockpiling, transferring, or using chemical weapons entered into force in April 1997, the CWC has won support at an unprecedented rate for a multilateral arms control agreement.

The number of states-parties has increased from 87 at entry into force to 183 now with an additional five who have signed but not ratified the convention. The CWC is thus closing in on the goal of universal membership. Only seven states have neither signed nor ratified the pact. Still, bringing these remaining holdouts into the regime will be far from easy, particularly those countries that are in the Middle East.

Given this challenge, CWC states-parties and the treaty's implementing body, the Organization for the Prohibition of Chemical Weapons (OPCW), need to decide how much attention to devote to winning these states' full membership in the treaty regime as it moves into its second decade in force. After all, no international arms control treaty has ever attracted universal adherence; the nuclear Nonproliferation Treaty (NPT) is closest with only three nonmember states and a fourth state, North Korea, whose legal status is uncertain, not to mention that many CWC states-parties have yet to fully implement their commitments under the treaty. Plus, the organization faces new responsibilities and limited resources in coping with scientific and technological changes and new verification challenges (see page 17).

Nonetheless, universality has rightly been a key priority during the CWC's first decade and should be in the next. Many of the key holdouts lie in the Middle East and, given the region's tensions and history, are among those most likely to use chemical arms. The absence of even small states from the CWC could undermine the treaty by providing safe havens or transshipment points for nonstate actors and smuggling networks. Universal adherence would strengthen the norm against chemical weapons by demonstrating that this principle is accepted in many different political, cultural, religious, economic, and legal settings. Moreover, the number of states adhering to a treaty is one criterion used to judge whether it forms a rule of international customary law and thus is binding on all states whether or not they have joined.

Status of the CWC

The CWC was opened for signature in January 1993, and initial assumptions were that the 65 ratifications required for entry into force would be deposited quickly. These hopes proved optimistic as ratification slipped off the political agenda in many countries and the drafting of new regulations and primary legislation led to inevitable delay. Instead, it took until October 1996 to gather the required ratifications. These did not include Russia or the United States, the two then-admitted and -largest possessors of chemical weapons. Indeed, it was unclear whether either of the Cold War superpowers would ratify the treaty as original states-parties before it was slated to enter into force in April 1997. In the end, the United States ratified the CWC days before it entered into force, following a protracted Senate battle, and Russia ratified it in November 1997.

Since then, membership of the CWC has increased steadily and is now approaching universality (figure 1). In particular, the number of states-parties increased more rapidly after the treaty's first review conference in 2003 approved an action plan[1] to achieve this goal: the number of states outside the CWC has fallen from 40 in 2003 to 12 in 2007.

Each of the 12 remaining holdout states has its own unique reasons for remaining outside of the CWC. Bearing this in mind, they can be grouped into the following clusters.

Angola, Bahamas, Dominican Republic, and Guinea-Bissau

In theory these four states (one nonsignatory and three signatories) should be the easiest to persuade to join the CWC. They are mostly fairly small countries with no history of chemical weapons possession, no serious external threats to their security, and small chemical industries. Angola differs from the other three in that chemical weapons were allegedly used during the country's civil war, although no such use was ever confirmed. The main obstacles

in these countries are now logistical and resource constraints rather than political issues. An OPCW Technical Secretariat background paper for the treaty's first review conference identified a number of factors that have distracted attention from the CWC in such countries, including AIDS, desertification and drought, poverty, and debt.[2] OPCW Director-General Rogelio Pfirter told the 2007 Conference of the States Parties (CSP) that such countries "fully support" the CWC.[3] It is therefore likely that all four will join in the relatively near future.

Iraq

Iraq is a special case given its previous possession and use of chemical weapons, UN verification and destruction activities, and the 2003 invasion and subsequent fruitless search for that country's presumed chemical weapons and other weapons of mass destruction. Under Saddam Hussein, Iraq refused even to sign the CWC, but it is now very close to becoming a member state. In November 2007, the Iraqi Presidential Council endorsed a bill on Iraq's accession, and the Iraqi Foreign Ministry announced that accession would occur in the near future.[4] It will mark the culmination of a process that began in 2004 soon after sovereignty was returned to Iraq. Since then, Iraqi officials attended every session of the annual CSP and at least two sessions of the Executive Council (the OPCW's governing board) as observers and have participated in several OPCW regional seminars and workshops. In addition, the organization's Technical Secretariat has organized four training workshops for Iraqi officials. Iraq has also begun the process of preparing its initial declaration to the OPCW. Iraq's imminent accession is unlikely to lead to major shifts in the views of Egypt, Israel, or Syria on whether to join the CWC, although it will further isolate those Middle Eastern states still refusing to do so.[5]

Lebanon, Myanmar, and Somalia

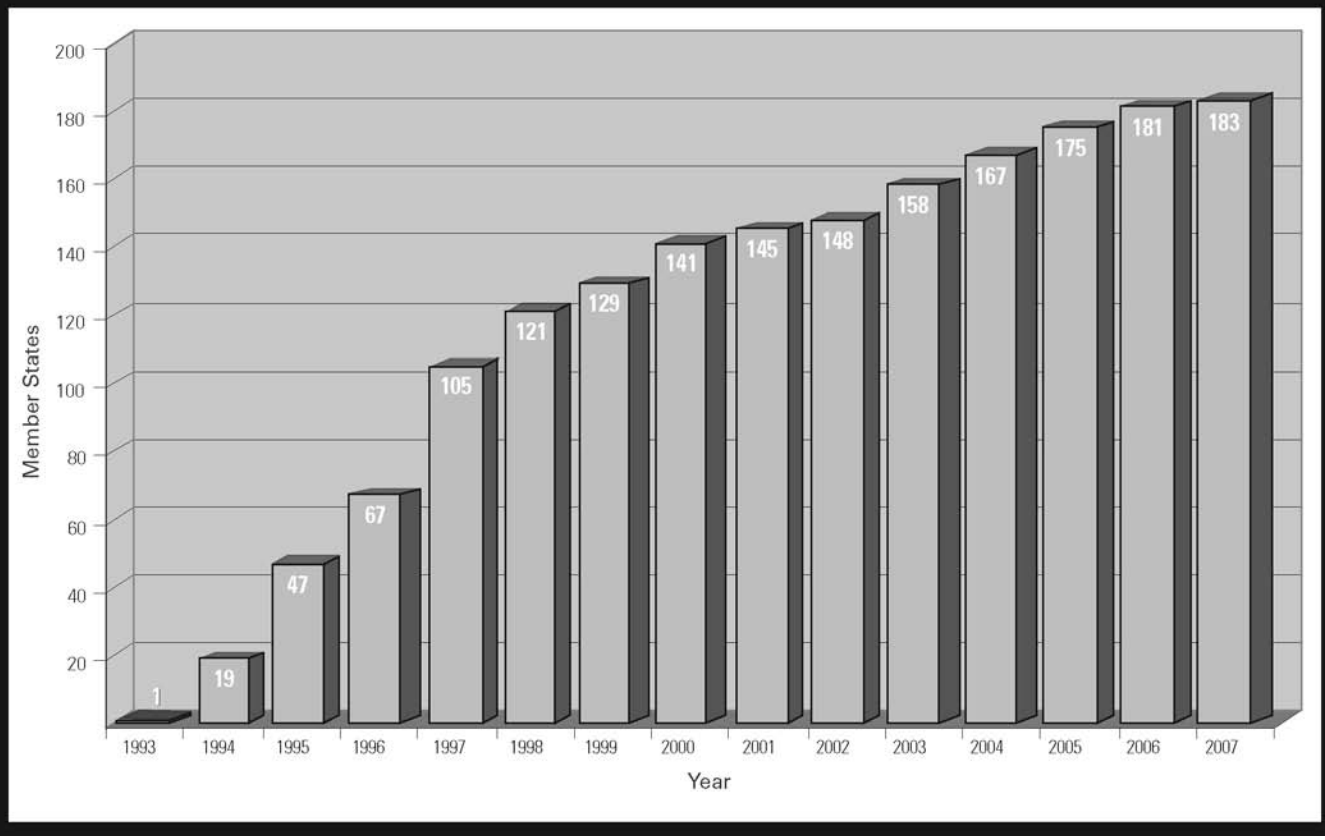
This group is slightly disparate, but all three share varying degrees of serious internal political tensions that have delayed CWC membership. Lebanon could accede in the very near future as it is at an advanced stage in the process of accession, having completed the necessary parliamentary procedures. The current inability of the Lebanese parliament to elect a new president has slowed the process. Myanmar had been proceeding well toward ratification, but its efforts "now seem to have paused," according to Pfirter. Allegations of chemical weapons possession and use by Myanmar have been made but remain unproven. The long-running lack of a functioning government in Somalia and the current humanitarian crisis mean that CWC accession by Somalia in the near future is probably unlikely.

Egypt, Israel, and Syria

The Middle East is the most serious obstacle to achieving CWC universality. Indeed, the situation seems unfavorable to any form of arms control.[6] The CWC's prohibitions should most rapidly be extended to the region, however, given that Egypt, Israel, and Syria are all widely identified as chemical weapons possessors and that the two most recent conflicts involving these arms (Egypt's intervention in Yemen in the 1960s and the Iran-Iraq War in the 1980s)

Figure 1: Chemical Weapons Convention Membership 1993-2007

The Chemical Weapons Convention has won support at an unprecedented rate for a multilateral arms control agreement. Membership jumped rapidly after the treaty entered into force in 1997 and after the convention's first review conference in 2003.



States Outside the Chemical Weapons Convention

Signatory States (5)

Bahamas
Dominican Republic
Guinea-Bissau
Israel
Myanmar

Nonsignatory States (7)

Angola
Egypt
Iraq
Lebanon
North Korea
Somalia
Syria

took place in the Middle East. These factors combined with the existing tensions in the region mean that the area could witness the use of such weapons. In addition, Iran, although a CWC member state, is suspected by some of possessing a chemical weapons capability, although this claim is unproven and Iran is subject to routine OPCW inspections.[7]

There have been past attempts to establish a regional arms control infrastructure. In April 1990, Egypt proposed a Weapons of Mass Destruction Free Zone (WMDFZ), and all states in the region have since committed themselves to this goal, at least in principle.[8] During the 1990s, the Arms Control and Regional Security (ACRS) Working Group met as part of the Middle East peace process. The ACRS collapsed in the mid-1990s mainly due to the dispute between Egypt and Israel regarding nuclear weapons.[9]

The main obstacle to breaking the CWC deadlock in the Middle East is the political linkage between chemical and nuclear weapons made by Arab states. Many refused to sign the CWC in 1993, although since then all Arab League states except Egypt, Lebanon, Somalia, and Syria have joined the convention, thus eroding this policy. Complicating the situation is the fact that the linkage works both ways, with some analysts citing the chemical weapons stockpiles of neighboring countries as justification for Israel's nuclear arsenal. As Pfirter put it, in the Middle East, chemical weapons are "hostage" to nuclear weapons. The OPCW has been trying to decouple nuclear and chemical weapons, hoping to make progress on chemical arms independently and thereby building confidence that could then contribute to progress in other areas.[10] One of the key issues is which country takes the first step toward decoupling. Israel is reluctant to make the first move after its decision to sign the CWC in 1993 was not reciprocated by key Arab states, despite U.S. diplomatic pressure. If this can be overcome, Libya's 2004 accession as a possessor state offers a possible model for others in the region to follow.

Little is known publicly about the chemical weapons programs of Egypt or Syria and the internal thinking behind either country's policy toward the CWC. Both are widely assumed to possess such capabilities,[11] and Egypt is alleged to have used chemical arms in the 1960s in Yemen and assisted Iraq's chemical weapons program in the 1980s.[12] Egypt was an active participant in the CWC negotiations and was widely expected to join the CWC. Egypt was instead the most vocal proponent of the linkage policy and, along with Syria, refused to sign the CWC in 1993. Neither state has officially confirmed that they possess chemical weapons, but both are likely to view such stockpiles as a strategic counterbalance to Israel's nuclear weapons. During the 1990s, Egypt held firmly to the linkage policy by not joining consensus on the annual CWC resolution in the UN General Assembly and preventing the Organization for African Unity from calling for CWC universality. Syria adopted a similarly standoffish approach to the CWC. Since 2003, however, both countries have become more engaged with the OPCW while maintaining their concerns about the regional security situation. Egypt and Syria have since sent participants to OPCW regional workshops and have participated in recent universality seminars. Egypt attended the 2006 CSP as an observer, and in April 2007, Pfirter visited Cairo. In October 2007, he told the UN First Committee that Egypt (and Israel) had kept the door open "for a constructive dialogue."[13]

Like Egypt and Syria, little is known publicly about Israel's chemical weapons capability and whether it still remains active.[14] Much more is known about the domestic debate surrounding Israel's policy toward the CWC. Unlike Egypt and Syria, Israel is a CWC signatory, binding it politically to the treaty's objectives and purposes. Its status also allowed Israel to participate in the meetings prior to the treaty's entry into force, which it did actively. Despite its participation, Israel decided in 1997 not to ratify, following a lengthy internal political debate. Israel's reluctance is based on its perception of the security situation in the Middle East and its requirement for verifiable arms control regimes and normalized relations with its neighbors. Unilateral ratification was considered in 1997 but rejected, despite the potential for damage to the Israeli chemical industry from the CWC's trade restrictions if Israel did not join. Instead, security concerns dominated the debate. Israel likely views such possession in terms of retaliation-in-kind for chemical weapons attacks by others and as an intermediate deterrent between its conventional and nuclear options.[15]

Israel also has concerns about the CWC's on-site verification regime, presumably due to fears of a challenge inspection at one of its nuclear facilities.[16] Indeed, during the preparatory meetings, Israel strived to water down the on-site inspection procedures. As a CWC signatory, Israel has remained engaged by sending observers to the CSPs and participating in regional workshops and seminars. Israel's engagement has increased since 2003, with a visit from the director-general in April 2006 and participation in recent universality seminars. Senior Israeli delegations have also twice visited OPCW headquarters in The Hague, most recently and most interestingly the day after Pfirter had visited Cairo.

North Korea

Even less is known publicly about the chemical weapons capability of North Korea, but it is widely suspected of possessing a substantial program.[17] Whereas the OPCW has been able to make contact with other nonmember states, North Korea has not responded to any OPCW overtures. This issue has been overshadowed by the ongoing negotiations over North Korea's nuclear weapons, especially since its nuclear test in 2006 and the ongoing disablement of its nuclear program. If the nuclear question is satisfactorily resolved, however, attention could turn to Pyongyang's chemical weapons program, although North Korean officials might oppose extending the process to such arms. Perhaps the fact that South Korea is a

Amit Magal/AFP/Getty Images

Israeli soldiers in chemical protection suits tend to a fellow soldier feigning injury during a July 11, 2007 civil defense training exercise in Haifa.

declared chemical weapons possessor and is destroying its stockpile in accordance with the CWC could have some influence on the North.[18] The adoption of UN Security Council Resolution 1718 in October 2006 may also have increased the likelihood of international attention, as it not only requires the North to abandon its nuclear program but also "all other existing weapons of mass destruction and ballistic missile programme in a complete, verifiable and irreversible manner." These other programs are not specified, but the best way for North Korea to abandon its suspected chemical weapons program in a complete, verifiable, and irreversible manner would be to join the CWC as a possessor state as Libya did in 2004. For that to happen, it would probably require a lengthy process of secret negotiations and diplomatic pressure from key countries, such as China and the United States.

The OPCW Approach to Universality

Even if a government is inclined to join the CWC, doing so is not a simple matter. In most countries, initial consideration of whether to join takes place within the foreign ministry. The foreign ministry then consults with other ministries and domestic stakeholders, such as the chemical industry, and recommends a course of action to the executive. In some countries, the executive can then deposit the instrument of ratification or accession; in others, prior parliamentary approval is required. This whole process can be extremely prolonged, with delay at any stage, whether due to interdepartmental opposition, crowded parliamentary agendas, national elections, changes in government, or bureaucratic politics. Of the 12 remaining nonmember states, some are at an advanced stage in this process, while others have not yet begun.

The OPCW Technical Secretariat and member states undertake a range of activities to encourage holdouts to complete this process, part of an innovative OPCW approach to universality that has since been imitated by other organizations. At the time that the treaty was signed, the conventional wisdom was that "a state's decision to join a security-related treaty is strictly an internal, sovereign matter."[19] The slow progress toward entry into force, however, led to a more proactive approach. Sergey Batsanov, who was deeply involved in the process, said the OPCW departed from "the experience of 'older' multilateral arms control regimes" and took "a hands-on role in persuading new states to join and helping them to develop domestic implementing legislation and regulations, while taking into account their specific political, legal, and economic conditions."[20]

Regional seminars were and still are an essential tool in raising awareness as well as providing information on CWC implementation requirements. The OPCW also uses bilateral meetings with officials from nonmember states, and when possible, Pfirter visits such states to press the case for CWC membership. On occasion, the OPCW has also been involved in behind-the-scenes negotiations with, for example, Afghanistan, Libya, Serbia and Montenegro, and Sudan, and it made a low-profile contribution to the successful ratification processes in the United States and Russia.[21] Consecutive CSPs since 1997 have urged full universality, particularly for those states believed to possess chemical weapons. The OPCW has also been able to count on the active support of the United Nations and its secretary-general, who acts as depositary of the CWC.

Alongside the Technical Secretariat, OPCW member states have been equally active in promoting universality through demarches, visits and meetings, and action within international and regional organizations. Individual member states have also made voluntary contributions supporting the OPCW's universality activities or have sponsored or hosted events such as regional seminars. The OPCW has developed strong working relationships with regional organizations that have in turn promoted CWC universality in their own

specific contexts. The European Union has provided significant financial and diplomatic support. Assistance from member states is most useful when they have historical, cultural, or linguistic links with a nonmember state or when they carry a significant influence due to economic or other relations. For example, the EU has drafted a nonproliferation clause for insertion into its bilateral trade agreements, including some that are not CWC member states. The clause commits its signatories to take "steps to sign, ratify, or accede to, as appropriate, and fully implement all other relevant international instruments."[22] The EU and Syria signed an association agreement containing the clause in 2004, but the EU has deemed that political circumstances so far are not good for ratification. By linking arms control and trade issues, the EU hopes to exert more leverage over nonmember states. Assistance from member states is likely to become more important as the number of nonmembers decreases and those remaining have serious political or security concerns.

Besides the activities of the Technical Secretariat and member states, the CWC itself also contains incentives for states to join, most explicitly the treaty's restrictions on chemical trade with nonmember states. These were first proposed by President George H. W. Bush in 1991 to "provide tangible benefits for those states that join the Convention and significant penalties for those that fail to support it."[23] Trade with nonmember states in two of the CWC's three categories of controlled chemicals is already banned, and trade in the third category could also be banned.[24]

The ability of states-parties to request assistance and protection in the event of a chemical weapons attack is the flip side of the universality coin. The CWC attempts to negate the risk that, in forgoing a chemical weapons option, states could put themselves at a strategic disadvantage vis-à-vis other states. The CWC does this by giving each state-party the right to request assistance and protection if it believes chemical weapons have been used against it or their use is being threatened. Another incentive is provided by the CWC's provisions aimed at economic and technological development under which member states are supposed to be able to participate in the fullest possible exchange of chemicals, equipment, and scientific and technical information. To meet this goal, the OPCW has supported internships, research projects, and laboratories in developing member states, although such programs do not go far enough for some developing countries

The Second Review Conference and Beyond

The not too distant future could see the CWC reach a stage similar to that of the NPT, with perhaps only four nonmember states—Egypt, Israel, North Korea, and Syria. However, achieving this status will require continued, intensive work by the OPCW and its member states. The upcoming review conference could usefully urge the remaining nonmember states to join as soon as possible and instruct the Technical Secretariat and member states to continue providing assistance. The conference should also commend the 2002 action plan and its achievements to date and renew its mandate for as long as required. Targeted pressure and bilateral assistance should be maintained on Angola, the Bahamas, Dominican Republic, Guinea-Bissau, Iraq, Lebanon, Myanmar, and Somalia until they complete their ratification or accession processes. Getting all of these states into the CWC will further isolate and highlight the remaining nonmembers. States remaining outside of the CWC by this stage will be leaving themselves open to serious suspicions that they possess chemical weapons at a time when, given the almost universal nature of the CWC, possession is seen as entirely illegitimate and in contravention of international customary law.

Universality has rightly been a key priority during the CWC's first decade and should be in the next. **Many of the key holdouts lie in the Middle East and, given the region's tensions and history, are among those most likely to use chemical arms.**

The Middle East is likely to remain the key sticking point, leaving total CWC universality dependent on a resolution of the wider political and security situation in the region. There are intermediate steps that the OPCW and its member states could encourage that might contribute to a wider political solution. These would depend on further progress in the OPCW's attempts to decouple consideration of chemical and nuclear weapons, which would likely require support from key actors, such as the United States or the EU. Arab efforts to link these issues have already largely eroded, and if Egypt and Syria remain its only adherents, enough diplomatic and economic pressure could be put on both states to encourage them to accede. In that situation, Israel would have little remaining justification in not ratifying. Israel could also be encouraged to join by OPCW member states agreeing to actively consider a trade ban on Schedule 3 chemicals. CWC adherence by all three states could be undertaken in a carefully stage-managed, reciprocal process modeled on Libya's accession in 2004 or the 1968 Syrian and 1969 Israeli accessions to the 1925 Geneva Protocol. Such a process would require high-level support and involvement from key states in cooperation with the OPCW, but it could make a significant contribution to confidence building in the region, as well as efforts to create a WMDFZ.

The second review conference may find it useful to strengthen the link between universality and national implementation. Many new member states find that they need advice and assistance to implement the treaty nationally while others draft their national implementing legislation prior to joining and therefore require assistance with ratification, accession, and national implementation before joining. Rather than maintaining a distinction, Batsanov suggests an integrated approach, perhaps through a combined task force.[25] There are also clear overlaps with UN Security Council Resolution 1540, which requires all states to implement a variety

of domestic measures to prevent nonstate actors from acquiring weapons of mass destruction, their means of delivery, and related materials. The conference should encourage continued collaboration between the OPCW and the 1540 Committee. It is important to remember that "universality comprises more than just numbers of states parties."[26] Getting a state to join the CWC is only the start of a long-term process. CWC adherence counts for little if states then do not follow through on their obligation to effectively implement the treaty domestically. Even in a world of universal CWC membership, the threat of safe havens will remain unless all states enact implementing legislation. So, although complete CWC universality would be a significant step on the road toward a world free of chemical weapons, even if that goal is achieved, much work will remain to be done. **ACT**

ENDNOTES

1. Organization for the Prohibition of Chemical Weapons (OPCW), "Action Plan for the Universality of the Chemical Weapons Convention," EC-M-23/DEC.3, October 24, 2003. As a document of the OPCW Executive Council, the action plan is not publicly available, but it has been reproduced. See Scott Spence, "Achieving Effective Action on Universality and National Implementation: The CWC Experience," in *Strengthening the Biological Weapons Convention, Review Conference Paper No. 13*, ed. Graham Pearson and Malcolm Dando, April 2005, annex II.

2. OPCW, "Background Paper on Universal Adherence to the Chemical Weapons Convention," RC-1/S/5, April 25, 2003, p. 6.

3. OPCW, "Opening Statement by the Director-General to the Conference of the States-Parties at Its Twelfth Session," C-12/DG.11, November 5, 2007, p. 14.

4. Iraqi Ministry of Foreign Affairs, "Chief of Organizations and International Cooperation Department at Foreign Ministry Stresses Presidency's Endorsement on Law of Iraq's Affiliation to Agreement of Prohibition, Storage and Using of Chemical Weapons," November 22, 2007.

5. Markus Binder, "Iraq Moves Toward CWC Accession," *WMD Insights*, December 2007-January 2008.

6. Dalia Dassa Kaye, "Time for Arms Talks? Iran, Israel, and Middle East Arms Control," *Arms Control Today*, November 2004, pp. 6-10.

7. Dany Shoham, "Image vs. Reality of Iranian Chemical and Biological Weapons," *International Journal of Intelligence and CounterIntelligence*, Vol. 18, No. 1 (Winter 2004), pp. 89-141.

8. The 1995 and 2000 NPT review conferences endorsed the idea of a Middle East WMDFZ. For more on a WMDFZ, see Jan Prawitz, "A Note on the Proposed Zone Free of Weapons of Mass Destruction in the Middle East," Paper presented at the Second Conference on the Middle East Weapons of Mass Destruction Free Zone, School of Oriental and African Studies, London, September 17-18, 2007.

9. Bruce W. Jentleson and Dalia Dassa Kaye, "Security Status: Explaining Regional Security Cooperation and Its Limits in the Middle East," *Security Studies*, Vol. 8, No. 1 (September 1998), p. 205.

10. "Steps Toward Universality: An Interview With Rogelio Pfirter, Director-General of the Organization for the Prohibition of Chemical Weapons," Arms Control Association, September 23, 2005, www.armscontrol.org/interviews/20050923_Pfirter.asp.

11. On Egypt, see Dany Shoham, "Chemical and Biological Weapons in Egypt," *Nonproliferation Review*, Vol. 5, No. 3 (Spring-Summer 1998). On Syria, see Magnus Normark et al., "Syria and WMD: Incentives and Capabilities," Swedish Defence Research Agency, FOI-R--1290—SE, June 2004.

12. On the Yemen allegations, see *The Prevention of CBW*: *The Problem of Chemical and Biological Warfare*, Vol. V (Stockholm: Almqvist and Wiksell, 1971), pp. 225-238. On Egyptian assistance to Iraq, see Central Intelligence Agency, "Comprehensive Report of the Special Adviser to the DCI on Iraq's WMD," Vol. III (September 30, 2004), p. 63.

13. OPCW, "Statement by HE Ambassador Rogelio Pfirter, Director-General of the Organisation for the Prohibition of Chemical Weapons," October 17, 2007.

14. See, for example, Magnus Normark et al., "Israel and WMD: Incentives and Capabilities," Swedish Defence Research Agency, FOI-R--1734—SE, December 2005.

15. Eitan Barak, "Israel, the CWC and the Universality Objective: The View From Jerusalem," *The CBW Conventions Bulletin*, June 2005, pp. 3-4.

16. Avner Cohen, "Israel and Chemical/Biological Weapons: History, Deterrence and Arms Control," *Nonproliferation Review*, Vol. 8, No. 3 (Fall-Winter 2001), pp. 46-47.

17. See Elisa D. Harris, "Threat Reduction and North Korea's CBW Programs," *Nonproliferation Review*, Vol. 11, No. 3 (Fall-Winter 2004); International Institute for Strategic Studies, "North Korea's Weapons Programmes: A Net Assessment," January 2004.

18. There are five remaining declared chemical weapons possessor states in the OPCW: India, Libya, Russia, the United States, and an unidentified country known in OPCW publications as "A State Party." This is widely acknowledged to be South Korea. A sixth possessor, Albania, completed destruction of its stockpile in July 2007.

19. Sergey Batsanov, "Approaching the Tenth Anniversary of the Chemical Weapons Convention: A Plan for Future Progress," *Nonproliferation Review*, Vol. 13, No. 2 (July 2006), p. 341.

20. Ibid.

21. Ibid.

22. Council of the European Union, "Fight Against the Proliferation of Weapons of Mass Destruction: Mainstreaming Non-proliferation Policies Into the EU's Wider Relations With Third Countries," 14997/03, November 19, 2003.

23. The White House, "Statement by the President on Chemical Weapons Initiative," May 13, 1991. The statement is accompanied by a fact sheet on the Chemical Weapons Initiative. The proposed restrictions were detailed in a subsequent U.S. working paper tabled in Geneva. See "Measures to Ensure Universality," CD/CW/WP.357, August 8, 1991.

24. Trade in Schedule 1 chemicals with nonmember states was banned starting with the entry into force of the CWC. These chemicals have been developed or used as chemical weapons, pose a high risk to the object and purpose of the CWC, and have little or no use for other purposes. A ban on trade in Schedule 2 chemicals came into force in 2000. These chemicals pose a significant risk to the object and purpose of the CWC, can be used as precursors for Schedule 1 chemicals, and are not produced in large commercial quantities. A ban on Schedule 3 trade has been possible since 2002, but member states have not reached consensus on this issue. Jonathan B. Tucker, "Strengthening the CWC Regime for Transfers of Dual-Use Chemicals," *The CBW Conventions Bulletin*, March 2007, p. 2.

25. Batsanov, "Approaching the Tenth Anniversary of the Chemical Weapons Convention," p. 352.

26. Jean-Pascal Zanders, "The Chemical Weapons Convention and Universality: A Question of Quality Over Quantity?" *Disarmament Forum*, No. 4 (2002), p. 23.

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By Ralf Trapp

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SECTION 4

Advances in Science and Technology and the Chemical Weapons Convention

With the second review conference of the Chemical Weapons Convention (CWC) approaching in April, a raft of studies have appeared making clear that fundamental changes in science and technology are affecting the implementation of the treaty and that it must be adapted to take account of them.[1]

The most significant development is the revolution in the life sciences and related technologies, including a growing overlap between chemistry and biology. There is a vastly increased understanding of the functioning of biological systems as a result of the mapping of the human and other genomes as well as of advances in structural biology and the study of proteins (proteomics). Information technology and engineering principles are increasingly integrated into biology. The intersection between chemistry and biology has further expanded thanks in part to the automation of synthesis and screening of chemical compounds enabling laboratories to assess vast numbers of new chemical structures and a much-enhanced understanding of how certain "chemicals of biological origin" act. Technological advances supplement these trends, for example, providing for more efficient means of delivering biologically active chemicals to target populations or targeting organs and receptors within an organism.

These developments are expected to bring many benefits, including new medical treatments and methods of pest control. At the same time, the capacity to discover or design new chemical structures that may have utility as chemical warfare agents has also increased significantly. Novel agents can be created far more quickly than ever before. In addition, advances in manufacturing technology have shortened other time requirements, enabling shortcuts in the progression from research and development to full-scale manufacturing. Changes in the chemical industry have dispersed technology and facilities, complicating verification and traditional nonproliferation strategies.

As a result, the time and effort needed to field a new chemical weapon has shrunk, particularly in the early stages, while the capability to detect such actions has not grown significantly. These trends and a recently increased interest in the use of incapacitants for law enforcement purposes raise at least the threat that states could skirt or quickly break out of the CWC prohibitions on developing and acquiring chemical weapons. It has also enlarged the overlap between the two otherwise quite separate treaties governing chemical and biological weapons, the CWC and the Biological Weapons Convention (BWC). States-parties need to adapt the implementation of the CWC to account for these changes or risk diminishing confidence in its effectiveness and endangering its viability.

Advances in Technology and Industry

To be sure, many traditional obstacles remain to the development of chemical weapons in a state-level program. Most importantly, any potential agents must meet tough requirements before they can be fielded. These include the possibility of industrial-scale production, tactical mixtures that can be effectively disseminated and are sufficiently stable for long-term storage, effective dissemination equipment/devices, and adequate means of ensuring that one's own forces are protected.

These constraints do not apply to the threats of terrorist chemical weapons use. The threat that terrorists may use toxic chemicals, however, correlates more closely with the accessibility of toxic materials than with the evolving scientific capability to develop novel agents in the laboratory. That is not to dismiss the concern, but the problem is less one of enforcing an international norm such as the CWC than of how states, companies, and research institutions can control access to chemical facilities and materials.

Technological change can also bring significant benefits to the fight against chemical weapons. For example, advances in nanotechnology are expected to help in developing more effective protections against agents, such as new detection devices (faster, cheaper, more sensitive, and more selective sensors), and improved filtration materials, means of decontamination, and medical countermeasures.

Still, these scientific and technological gains undoubtedly come with new concerns. Nanotechnology offers the possibility to engineer "smart" materials that respond to specific stimuli. It also promises a more efficient and targeted drug delivery via the respiratory system and other pathways. For example, it could facilitate the entry of toxic chemicals into the body or specific organs, in particular the brain, for selective reaction with specific gene patterns or proteins or for overcoming the immune reaction of the target organism. These developments may have significant applications as new medicines and treatments. They could, however, also be exploited for the development of new chemical warfare agents or the fine-tuning of existing ones. Any offensive

chemical weapons program begun today would surely take advantage of these new methods and concepts.

Technological advances continue to change the manufacturing processes in the chemical industry. New processes are being introduced to increase efficiency and yield, including a range of new catalytic processes. The use of multipurpose equipment and the adoption of on-demand principles has become a common feature. Manufacturers adjust to changing market demands and increasingly use technologies and equipment that allow them to switch production output on short notice. Although allowing chemical plants to be converted to the production of new products, this also means that there is a risk of standby capabilities appearing that could easily and quickly be switched to supplying an offensive chemical weapons program.

A more recent development is the use of microreactors, which have begun moving from the laboratory to (limited) industrial production. One of the driving factors is safety: chemicals that are otherwise hazardous to manufacture, handle, or store can be produced safely on-site when needed. In addition, capital costs for such facilities are low, and many chemical reactions show improved reactivity, product yield, and selectivity when performed in microreactors. Microreactors allow companies to scale up a chemical process from laboratory to industrial scale more quickly and easily. Production output can be increased by combining multiple reactors in batteries, a process also known as "numbering-up."

Of course, these advantages could also apply to new chemical warfare agents. The use of microreactors can significantly shorten the time required to synthesize new toxic chemicals for testing and development purposes. Microreactors can apply combinatorial principles to synthesize a series of related compounds for test purposes, or they can be used to make small quantities of toxic chemicals easily and quickly during the development of a new agent for weaponization. Worryingly, if states were to produce chemical weapons in such reactors, there would be fewer clues that might indicate to outsiders that such production was taking place. Traditional industrial-scale chemical weapons production facilities require heavy-duty ventilation systems, scrubbers, and high stacks. Because processing highly toxic or corrosive materials in microreactors produces fewer waste streams and reaction yields are much higher, there is less need for telltale pollution abatement systems.

In addition, structural change in the chemical industry could also pose risks to CWC implementation. Driven by market forces, the industry is moving from its traditional production locations (Japan, the United States, and western Europe) to new places in Asia, eastern Europe, Latin America, and the Middle East. Some of the countries involved in setting up new chemical operations have limited experience in regulating chemicals or weak implementation systems for the CWC. At the same time, international trade in chemicals is on the increase. These are challenges to the CWC's verification system as well as to traditional nonproliferation measures in the chemical field.

How States Might Skirt the Chemical Weapons Ban

It might be possible for states to carry out programs that could take advantage of new discoveries in science and technology to develop a novel agent while asserting that they are technically complying with Chemical Weapons Convention (CWC) obligations.

The CWC allows for the use of toxic chemicals for "law enforcement purposes including domestic riot control." The traditional interpretation of this clause has been that states-parties are clearly allowed to use riot control agents (RCAs) for domestic riot-control purposes subject to certain conditions in the CWC. Some have claimed that the provision has broader implications, for example, permitting occupying forces, such as those of the United States in Iraq, to use RCAs abroad.[1] Similarly, some states-parties have said that toxic chemicals other than RCAs could be used for law enforcement purposes. In particular, they have insisted that they consider the use of lethal chemicals for capital punishment consistent with the provisions of the CWC.

Internationally, the changing nature of armed conflict, with an increased focus on counterinsurgency and counterterrorism methods, has stimulated a renewed interest in so-called nonlethal weapons, including incapacitants. Advances in the life sciences could lead to the development of drugs that may match to an extent the pharmaceutical profile required of such weapons, and the very fact that progress in life science research may be seen to offer such opportunities could fuel further developments.

The implications are both legal and practical. On the legal side, the prohibition not to develop, produce, and stockpile (new generations of) chemical weapons could be seriously undermined. After all, there is no such thing as a nonlethal toxic chemical—lethality depends on such factors as the dosage, the vulnerabilities of the target population, and the methods and location of agent dispersal.[2] Moreover, in a military context, there is an additional factor: the agents would be used on a battlefield where other weapons are present (guns, artillery, aircraft, etc.), and incapacitants could increase the lethality of these conventional weapons if used in combined operations.

On the practical side, the remaining comfort that one could derive from the fact that it still may take considerable time to go from discovering a new agent to actually fielding an effective weapon would be gone. Inspectors might find chemical weapons at the stages of development, production, or stockpiling, and a state-party could claim that these arms were entirely legitimate as part of a program for law enforcement purposes.

To ensure transparency and promote confidence, some have proposed to make toxic chemicals intended for law enforcement purposes subject to declaration to the Organization for the Prohibition of Chemical Weapons. This step may be premature, but it will be important that states-parties recognize this issue and start discussing the implications of these developments so as to prevent the emergence of a new generation of chemical weapons. The review conference would be the appropriate forum to initiate such a discussion.

—RALF TRAPP

ENDNOTES

1. See, for example, Kyle M. Ballard, "Convention in Peril? Riot Control Agents and the Chemical Weapons Ban," *Arms Control Today*, September 2007, pp. 12-16.

2. British Medical Association, "The Use of Drugs as Weapons," May 2007, located at www.bma.org.uk/ap.nsf/Content/drugsasweapons.

Recommendations to the Review Conference

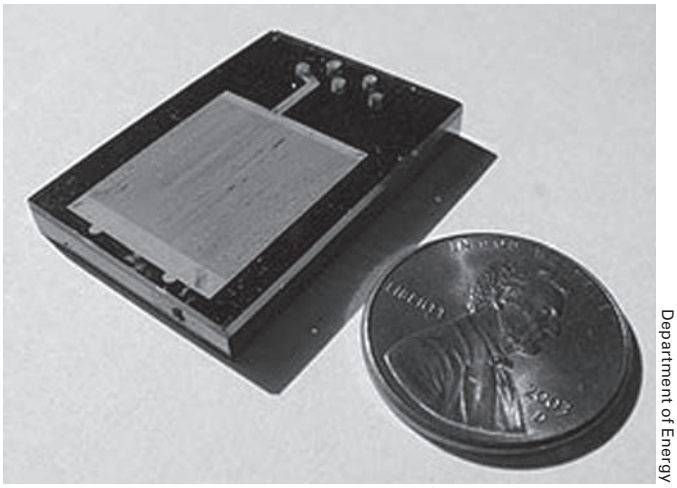
What, then, are the issues that the upcoming review conference ought to consider when it assesses the impact of advances in science and technology on the operation of the CWC?

A first is whether the CWC's schedules, which attempt to characterize agents and precursors by their risk based on past weaponization and other factors, need to be amended. Currently, the Organization for the Prohibition of Chemical Weapons (OPCW), the international body charged with implementing and verifying the CWC, and states-parties tightly control high-risk chemicals (Schedule 1). This is feasible because these agents and key precursors, as a rule, have very few legitimate uses. States and the OPCW less stringently control Schedule 2 and 3 chemicals, which have legitimate uses ranging from smaller-scale specialty chemicals to mass-produced chemicals and thus have much higher thresholds before such production triggers declarations and inspections. Should the growing overlap between chemistry and biology and the emergence of new biologically active compounds necessitate the inclusion of new chemicals into the schedules or are the schedules unfit to deal with these emerging risks? Including new chemicals with potential chemical weapons utility in Schedule 1 would severely hamper their legitimate uses. Listing them in Schedules 2 and 3 might be meaningless given the relatively high thresholds for declaration and inspection; many would simply fall through the net.

If the schedules were to remain as they are, there is a risk that the CWC verification system may get stuck in the past. One way to avoid this fate would be to step up the frequency and effectiveness of verification at other chemical production facilities (OCPFs) producing unscheduled discrete organic chemicals.[2] This relates to a number of issues: the overall number of OCPF inspections that is desirable, the amount of information available on these facilities to the OPCW Technical Secretariat, an improved site selection mechanism for inspections, the level of expertise at the OPCW to ensure that inspectors can adequately assess facility capabilities during an inspection, and the ability to use inspection methods such as sampling and on-site analysis. There is, however, a degree of reluctance to respond to the trends in chemicals manufacturing with a shift in verification focus. Some developing countries see suggestions to shift emphasis from verifying scheduled chemicals to OCPFs as an attempt to exercise control over the use of chemical technology and to shift the burden of verification to the developing world. They are therefore reluctant to accept that the OCPF verification regime needs to be further enhanced in response to trends in the chemical industry.

In a broader context, to adapt the CWC to the new challenges emanating from advances in the life sciences will require consideration of how best to reinforce the "general purpose criterion."[3] This includes national implementation (legislation, regulations, and enforcement); the recognition that the schedules must not limit the scope of the CWC; and the need to ensure effective (self-)governance of the life sciences as well as industry. One example of this is the Responsible Care program, a global voluntary chemical industry initiative to improve health, safety, and environmental performance; communicate with stakeholders; and apply self-regulatory measures to ensure compliance with regulations, including the CWC.

A second issue relates to how verification can make use of new opportunities created by science and technology, such as new or



Department of Energy

Microreactors, some roughly the size of a penny, can potentially be used to make small quantities of toxic chemicals easily and quickly during the development of a new agent for weaponization.

improved verification equipment and methods. The OPCW has identified gaps in its tool box, for example, with regard to analyzing biomedical samples. This capability gap affects the OPCW's ability to investigate allegations of chemical weapons use and should be closed swiftly. There are also efforts under way to improve further the OPCW's capability to conduct environmental sampling and analysis on-site and to use other inspection methods. The review conference should encourage the OPCW Technical Secretariat to make best use of technological advances so as to maintain a high standard with regard to its verification methods and equipment.

A third issue is whether technological and scientific advances might aid the destruction of chemical weapons, particularly old and abandoned chemical weapons and those dumped in the sea (see page 55).[4] This is an area where the review conference could encourage further cooperation between states-parties and the sharing of assessments, experience, and technological know-how.

A fourth issue is how advances in science and technology will help improve protection against chemical weapons. Many of these advances can help upgrade the protection against chemical agents, enhance decontamination capabilities, or lead to new medical countermeasures. This is important as states harden their structures against the menace of chemical terrorism. It will also have a deterrent effect against the use of chemical weapons by states that still remain outside the regime. The review conference should recognize the need to improve the protection against chemical weapons further, encourage cooperation and exchanges between the states-parties in this field, and call on the Technical Secretariat to help states-parties develop and improve their protective capabilities. For example, this could include exercises to simulate national and international response mechanisms to chemical incidents.

A fifth issue relates to the CWC objective to enhance international cooperation in the peaceful uses of chemistry. Recent scientific and technological advances will create many opportunities in this respect, but they must be pursued in recognition of the fact that international cooperation must be fully consistent with the CWC's disarmament and nonproliferation obligations. There is therefore good reason to maintain a strong link between international cooperation programs and OPCW efforts to pro-

mote national implementation and ensure effective verification. The review conference should recognize that the OPCW is not a development agency but that its efforts with regard to industry verification as well as helping states-parties adopt national regulations and controls in the chemical field will facilitate trade and investment into the emerging chemical sectors of developing countries.

Finally, the arms control community has over the past four decades kept a clear demarcation between chemical and biological weapons. The CWC and the BWC have taken different directions with regard to a number of implementation issues, most prominently verification. In the real world of research and, increasingly, industry, the borders between the two fields are getting blurred. What the implications will be for the two regimes has yet to be fully understood. At the national level, there are signs of what one might call "regime conversion," with some countries combining their national implementing agencies and mechanisms for the two conventions. There also is an overlap of efforts within the scientific and industrial communities to adopt governance mechanisms and ethical codes to prevent the misuse of chemical and biological sciences for hostile purposes.

The situation at the international level, however, is more complicated, particularly with regard to verification. It is difficult to understand how the CWC can successfully address the verification dimension of the increasing convergence between chemistry and biology without running into some of the same difficulties that prevented the adoption of a BWC verification protocol in 2001-2002.[5] There is thus a risk that the CWC review conference might set itself up for failure if it aimed too high. At the same time, it cannot ignore the advances in the life sciences and their effect on the CWC. The challenge will be to find the right balance in further developing the treaty's verification system while enhancing national implementation, developing self-governance mechanisms, and involving all stakeholders in the implementation process. **ACT**

The time and effort needed to field a new chemical weapon has shrunk, while the capability to detect such actions has not grown significantly. **These trends raise at least the threat that states could skirt or quickly break out of the CWC prohibitions on developing and acquiring chemical weapons.**

ENDNOTES

1. The International Union of Pure and Applied Chemistry (IUPAC) conducted an international workshop on the matter in April 2007 in Zagreb, Croatia, and submitted a report to the Organization for the Prohibition of Chemical Weapons (OPCW). The OPCW's Scientific Advisory Board prepared an interim report to the OPCW Working Group for the Preparation of the Second Review Conference. With the support of the Netherlands and the European Union, the OPCW held an Academic Forum and an Industry and Protection Forum, which looked at the strategic challenges for the CWC. Also, a number of national studies of these issues have been commissioned.

2. The CWC schedules focus on dual-use materials, the toxic chemicals and precursors that could be used for chemical weapons purposes. The OCPF regime attempts to capture chemical plants that may have an "intrinsic" technological capability to produce chemical warfare agents. This category encompasses a large part of the organic chemical industry with a wide array of chemical plants that pose varying degrees of risk to the CWC, ranging from highly-relevant multipurpose plants capable of switching production to a variety of chemicals on short notice to rather less-relevant, dedicated plants producing basic organic intermediates, fertilizers, and other mass products. For more detail, see Jonathan Tucker "Verifying the Chemical Weapons Ban: Missing Elements," *Arms Control Today*, January/February 2007, pp. 6-13.

3. This is shorthand for a concept built into the definition of chemical weapons as well as the requirements for national implementation of the CWC. Rather than relying on a list of prohibited chemicals, the CWC considers any toxic chemical or precursor a chemical weapon unless it was intended for purposes not prohibited, such as for peaceful uses or for chemical defense, and only as long as their types and quantities can be justified by such legitimate purposes. The schedules must therefore not be confused with a list of prohibited chemicals or a definition of chemical weapons. Their sole purpose is to guide routine verification measures.

4. Given that Russia and the United States, for example, have agreed to destroy their stockpiles by 2012, new technologies are unlikely to make a major contribution to destruction efforts related to stockpiled chemical weapons. The IUPAC report noted that "[t]echnologies for the destruction of stockpile[d] chemical weapons have matured to a point, and timelines for the completion of [chemical weapons] destruction operations are such, that there is little point in reviewing emerging technology options for these destruction operations. Although there remain [chemical weapons] destruction facilities that have yet to be commissioned, the technology choices are well-known and assessed. Issues that may influence outstanding decisions on technology choices are largely in the legal, policy, regulatory, public awareness/education, and economic domains." Mahdi Balali-Mood et al., "Impact of Scientific Developments on the Chemical Weapons Convention (IUPAC Technical Report)," *Pure and Applied Chemistry*, Vol. 80, No. 1 (2008), p. 189.

5. For a discussion of the reasons that led to the U.S. administration's refusal to complete negotiations of the BWC verification protocol and of the measures subsequently adopted by the BWC review conference instead of such a protocol, see, for example, "The BWC After the Protocol: Previewing the Review Conference," *Arms Control Today*, December 2001, pp. 13-18; Kerry Boyd, "BWC Review Conference Meets, Avoids Verification Issues," *Arms Control Today*, December 2002, p. 21.

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By John Hart

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SECTION 5

LOOKING BACK: The Continuing Legacy of Old and Abandoned Chemical Weapons

I hear a dull thud. A blue mist comes floating across the frosty fields. In the field behind the cemetery, the DOVO, the Belgian War Munition Demolition Service, has blown up another heap of First World War ammunition. They do it twice a day, one and a half tons a year. When the farmers find grenades, they leave them at the base of the utility masts, and the miners collect them. And so it goes on here. Generation after generation, this soil continues to vomit up grenades, buttons, buckles, knives, skulls, bottles, rifles, sometimes even a whole tank. The Great War never ends.[1]

Nearly 66 million artillery shells containing chemical weapons were fired during World War I. At least 40 different compounds were weaponized for use on the battlefield.[2] Now, nearly a century later, hundreds of World War I- and World War II-era shells are recovered annually from the European battlefields, mostly in Belgium and France.[3] Nor is the concrete legacy of chemical warfare confined to Europe. Such aged chemical weapons affect countries as far as China.

The 1993 Chemical Weapons Convention (CWC) requires that chemical-weapon possessors meet the treaty's overall deadline for destruction: April 29, 2012. However, the treaty established particular definitions for such "old" and "abandoned" chemical weapons as well as different destruction and financing requirements. With the treaty's second review conference scheduled to meet in The Hague in April, states-parties should assess how well the verification of the destruction of such obsolete chemical arms is proceeding.

Treaty Requirements

The CWC classifies as old chemical weapons (OCW) those produced before 1925 or those produced between 1925 and January 1, 1946, that have "deteriorated to such [an] extent that they can no longer be used as chemical weapons." The convention defines abandoned chemical weapons (ACW) as "chemical weapons, including old chemical weapons, abandoned by a State after 1 January 1925 on the territory of another State without the consent of the latter."[4]

A state-party is required to declare OCW or ACW found on its territory no later than 30 days after the CWC enters into force for it. States-parties are to submit "all available relevant" information, including, to the extent possible, their location, type, quantity, and present condition. States-parties that discover OCW after the CWC enters into force for them are required to provide the above information to the Organization for the Prohibition of Chemical Weapons (OPCW) Technical Secretariat no later than 180 days after such a discovery. OCW produced prior to 1925 are to be treated as "toxic waste" and as such are subject to the lowest level of verification.

A state-party that has ACW on the territory of another state-party is required to declare this to the OPCW within 30 days of the CWC's entering into force for it. The cost of the destruction of ACW is to be met by the abandoning state-party, if its identity is known.[5]

Who Has What

As of December 2007, three states declared that chemical weapons had been abandoned on their territory, and 13 declared possession of OCW.[6] Destruction operations are underway in most of these states. By comparison, six states said they possessed post-World War II chemical weapons stockpiles.[7]

Some of the OCW possessor states have been recovering and destroying OCW as they find them in the field. During 2005-2006, for example, Austria uncovered three such weapons, which posed no immediate danger to the environment. In 2007 the OPCW approved a proposal to destroy these munitions in Germany, at Münster, partly on the condition that they remain under the ownership and control of Austria.[8] During 2006-2007, Australia recovered a number of empty, corroded shells in New South Wales and Queensland. Australia considered the munitions to be already destroyed because of their deteriorated condition and declared them as OCW.[9] In March 2007, the United Kingdom completed the destruction of all its OCW, totalling 3,812 munitions, at a cost of approximately $20 million.[10] There is also periodic recovery of old munitions from the territory of the for-

mer Soviet Union. For example, in 2004 a number of World War I-era artillery shells, some of which were reportedly filled with chlorine, were uncovered in the village of Toporivka in the Chernovsti region of Ukraine.[11]

It is reasonable to assume that other successor states may face similar challenges. All told, as of December 31, 2006, countries had declared 50,700 OCW produced before 1925 and 66,700 OCW produced between 1925 and 1946. As of the same date, approximately 37,600 munitions had been declared as ACW.[12] Belgium, China, Germany, and Japan have significant destruction efforts.

Belgium

Following the end of World War I, it was common for scrap collectors to recover spent artillery shells and other scrap metal from the former battlefields, including those in Belgium. The copper driving bands on shells were of particular interest. In the 1920s, Belgian authorities let contracts to collect the war material systematically. The volume was so great that a decision was taken to dump the munitions or scuttle them on ships. Much of this dumping occurred in shallow water in an area called Horse Market (Paardenmarkt).[13] Belgium began to assess chemical weapons destruction technologies in the early 1980s, and a destruction facility at Poelkapelle, near Ypres, began operating in the late 1990s. Ypres is the site where German forces released approximately 160 tons of chlorine in April 1915. It was also where Germany first used sulfur mustard, also called Yperite, in July 1917. Key combatants in the war used chemical weapons.

More than 12,000 shells have been destroyed at the Poelkapelle facility, and as of 2007, close to 50,000 shells have been examined using X-rays and neutron activation analysis. This is carried out partly to determine whether the shell is a conventional explosive or is a chemical round. It also assists with determining where the shell should be drilled or cut to avoid touching the burster well. Some shells, particularly 7.7 cm artillery rounds, contain glass bottles to prevent the chemical fill (usually Clark I) from mixing with the explosive components of the munition. These bottles tend to break over time and contaminate the explosive components with chemical-weapon agent. In such cases, additional safety and environmental precautions must be taken because it is impossible to separate the agent from the explosives. Currently, the facility receives about 10,000 items (approximately 200 metric tons) per year. At least one-third are immediately identified as being conventional rounds. Typically, approximately 5-10 percent of the total have been found to be chemical weapons munitions.[14]

China

Japan's World War II-era occupation of China has left a large legacy of chemical weapons. In 1991 the first joint Chinese-Japanese investigation of a site containing chemical weapons was conducted in an effort to determine the scope of the problem. Since then, the two countries have jointly conducted approximately 75 fact-finding missions or site investigations of suspected ACW sites. Since 2000, they have executed 16 excavation and recovery operations.[15]

These activities provided evidence for the presence of approximately 350,000 chemical weapons munitions, 90 percent of which are located in Haerbaling in Jilin Province in northeast-

Courtesy of John Hart

World War I-era artillery shells await destruction at the Belgian chemical weapon dismantlement facility at Poelkapelle, May 16, 2007.

ern China. In 1992 the Chinese delegation to the Geneva-based Conference on Disarmament introduced a paper estimating that approximately two million chemical weapons had been abandoned on its territory. This initial estimate was revised downward as a result of subsequent joint Chinese-Japanese investigation and field visits.[16] In 1999 the two governments signed a memorandum of understanding in which Japan formally acknowledged the presence of large numbers of chemical weapons it abandoned on Chinese territory. In the agreement, Japan promised to provide "all necessary financial, technical, expert, facility as well as other resources" for the purposes of destroying the ACW.[17] In 2006, Japan sent four investigation teams and five excavation and recovery teams to China, where more than 1,700 projectiles were recovered.[18]

In 2007, Japan announced its intention to introduce a mobile destruction system (apparently a detonation chamber system) to complement the planned construction of a fixed, incineration-based chemical weapons destruction facility in Haerbaling. Approximately 38,000 of the estimated 300,000 or more ACW located in the region have been recovered and are awaiting destruction.

Although destruction operations of ACW in China have not yet begun, the country faces a number of challenges. These include the difficulty in locating all ACW sites, the presence in some cases of conventional munitions with fuses that might trigger the munitions while they are being handled or while in storage, and possible corruption. In 2007 a former president of a Japanese contractor and other parties were reported to have been arrested for illegally diverting destruction assistance funds. It is estimated that the total cost for Japanese destruction assistance could exceed 1 trillion yen (approximately $9 billion).[19]

Nonetheless, destruction operations in China should be simpler than for most other states because it only has two basic types of chemical fills, requiring only two different types of destruction methods. The fact that one of the technologies is expected to employ explosive charges does mean that there is some concern about how long this process will take. Generally, it is more difficult with this method to achieve the necessary throughput in order to destroy large numbers of munitions in a timely manner because attaching the charges lengthens the destruction process.

China and Japan are considering using different destruction technologies at the main destruction facility at Haerba-ling. For red munitions containing Clark I (diphenylchloroarsine) or Clark II (diphenylcyanoarsine), a destruction technology using donor charges is being debated. For the yellow munitions, a 50-50 mixture of lewisite and sulfur mustard, using a static detonation technology is being considered. For this, a temperature of approximately 550 degrees Celsius will be sufficient to destroy the munitions, including the chemical warfare agent. A mobile destruction plant is currently under consideration and should begin operation by late spring 2009. It will be used to destroy small caches of weapons, including some outside Jilin province.

Germany

Beginning in World War I, the military training ground at Münster was the principal experimental and training area for Germany's chemical weapons efforts. The site has hundreds of thousands of World War I- and World War II-era conventional and chemical weapon munitions. In 1919, approximately 1 million chemical weapon shells were scattered about the site when a train carrying munitions exploded, after which the area had the appearance of a moonscape. The British military also used Münster for some field testing of chemical weapons munitions after World War II. Most of the munitions at Münster are German, but it also houses significant quantities of munitions produced by other countries during both world wars. The soil is also contaminated with metals, most notably arsenic, and one can readily uncover munitions in almost any given area on the facility grounds.

Goh Chai Hin/AFP/Getty Images

Chinese and Japanese experts in abandoned chemical weapons examine a Japanese World War II-era bomb that was excavated from a site in China's Heilongjiang province, July 5, 2006.

Currently, the chemical weapons destruction facility consists of three different plants. Münster I is used primarily to treat material that results from the dismantling of old chemical weapons munitions. Münster II is primarily used to clean soil, and Münster III is a static detonation chamber into which munitions are directly fed without disassembly. In Münster II, arsenic is removed from the soil by a soil-washing process, and then the remaining material that has a high concentration of arsenic is placed into a plasma-furnace system, which operates at a temperature of 1,200-1,500 degrees Celsius. Some arsenic is trapped in a nonleaching crystalline structure of vitrified glass slag and the rest is precipitated as arsenate (a salt) from the off-gas scrubber system.

Japan

Japan continues to uncover and destroy OCW dating from the Second World War. At the end of the war, stocks of Japanese weapons included yellow and red munitions, green agent (chloroacetophenone), blue agent (phosgene), brown agent (hydrogen cyanide), and white agent (trichlorarsine). Japan produced 75-millimeter,

90-millimeter, 105-millimeter, and 150-millimeter artillery shells; 15-kilogram and 50-kilogram bombs; and various canisters and drum containers. One of the first authoritative public disclosures by Japan in the English language of the nature and type of their known or probable locations was published in 1980. It stated that, since the end of the war, 102 accidents had occurred during destruction operations, resulting in 127 casualties and four deaths.[21]

Nearly a century later, hundreds of World War I- and World War II-era shells are recovered annually from the European battlefields. **However, the legacy of chemical warfare is not confined to Europe. Such aged chemical weapons affect countries as far away as China.**

A national survey carried out by Japan of OCW in the country in 1973 identified 18 sites that were presumed to have OCW at the end of World War II. OCW were also known to have been dumped in eight locations in the waters off the coast of Japan. In 2002 and 2003, construction workers were exposed to OCW in Samukawa Town and Hiratsuka City. Authorities also found arsenic in organic form in groundwater at Kamisu City. In 2003, Japan's Ministry of the Environment undertook an effort to identify the scope of the problem and began recovery and destruction operations. The survey identified 114 sites on Japanese territory where the existence of OCW is known or suspected. Of these sites, the presence of OCW and their location are confirmed for four sites: Hiratsuka City, Kamisu City, Samukawa Town, and Narashino City. Narashino City is the site of a former school of the Japanese Imperial Army.[22]

A major recovery operation of munitions involving the use of magnetometers and divers has also been carried out since 2004 at Kanda Port in southwestern Japan, where dredging operations are underway to assist with the construction of an airport. Phase two of the operation involved the recovery of 100 50-kilogram yellow bombs and 500 15-kilogram red bombs. More than 1,200 chemical munitions have been destroyed since 2004, including 1,043 red bombs and 211 yellow bombs. The munitions are detonated in an explosive containment chamber that can be readily dismantled for use elsewhere. Particular attention has been devoted to ensuring the safe disposal of arsenic residues from the interior of the explosive containment chamber and the remnants of the munition bodies.[23]

CWC Requirements and Implementation Practice

The states-parties to the CWC have not been able to reach consensus on a number of implementation issues concerning OCW and ACW. None of these issues fundamentally undermine the efficacy of the CWC's verification regime, but some of them may be taken up at the review conference. In particular, the states-parties still need to agree on guidelines for determining the usability of chemical weapons produced between 1925 and 1946, appropriate formats for declaring OCW and ACW, and who should pay for the inspection costs of OCW.

There is a lack of consensus on what constitutes usability. Some contend that both the munition body and chemical need be usable for the weapon to be considered as such. Others say that only either the munition body or the chemical need be usable to meet this standard. Usability guidelines are currently implemented according to two secretariat papers from 2000 on a case-by-case basis.[24]

The principal difficulty associated with agreeing on the declaration format for OCW and ACW was that states-parties felt that a weapon's age and condition would make it difficult to provide detailed information because either it was not available or would be too dangerous for munition-disposal experts to try to obtain.[25] States-parties have periodically considered whether information is "available" or "relevant." Some of the parties have also expressed a reluctance to engage in "historical research" projects. They typically express the wish only to declare the weapons and destroy them, thereby keeping to a minimum the financial and administrative burden required for effective OPCW verification.

Finally, states-parties have never formally agreed on whether the CWC requires that possessors of OCW should bear the full "direct costs"[26] of verification of destruction, although in practice they do. Instances may also occur where it is unclear whether a chemical weapon was produced before or after January 1, 1946. It is politically more acceptable to declare OCW than to declare the possession of chemical weapons and thus be labeled publicly as a chemical weapons possessor.

Conclusions

OCW and ACW will continue to pose a potential danger to humans and the environment for the foreseeable future. The fate of the arsenic in the destruction by-products of some of the chemical warfare agents has been a long-standing concern and technical challenge. There is also great uncertainty in the case of ACW in China on the difficulties associated with longer-term storage of possibly unstable munitions under conditions that cannot be fully analyzed in the abstract. Meeting these and other challenges will require continued cooperation and information sharing, including within the framework of the OPCW.[27]

Moreover, given the fact that chemical weapons produced before January 1, 1946, will continue to be recovered, an OPCW working group has suggested that the second review conference might consider the practicality of setting a deadline for the destruction of such weapons as they are recovered over the coming decades.

Technical and political expertise on old and abandoned chemical weapons (OACW) issues will be affected also by generational changes as munitions specialists retire or change fields. Here too the OPCW could help to serve as a mechanism to facilitate the

transfer of relevant knowledge and expertise among the states-parties as they deal with this problem.

Finally, it is sometimes difficult to determine how the higher-level diplomatic statements of the states-parties relate to CWC implementation practice and what role the sending of signals to each other is playing within the broader political context. It is therefore important for outside observers to try to obtain a better understanding of the operational-level activities of CWC implementation and how they relate to the states-parties' broader political interests and concerns. Although not all OACW implementation issues have been formally resolved, they are dealt with on an interim but fair basis that poses no serious challenge to the fundamental object and purpose of the CWC. **ACT**

ENDNOTES

1. Geert Mak, *In Europe: Travels Through the Twentieth Century* (London: Harvill Secker, 2007), pp. 96-97.

2. Ron Manley, "The Problem of Old Chemical Weapons Which Contain 'Mustard Gas' or Organoarsenic Compounds: An Overview," in *Arsenic and Old Mustard: Chemical Problems in the Destruction of Old Arsenical and "Mustard" Munitions*, ed. Joseph F. Bunnett and Marian Mikolajczyk (Dordrecht: Kluwer Academic Publishers, 1998), p. 2; John Hart, "A Review of Sea-dumped Chemical Weapons," Paper presented at "The Environment and the Common Fisheries Policy, Threats to and Constraints on Sustainability (Greenwich Forum)," Royal Society, London, January 27, 2000.

3. Between 3,500 and 4,000 shells are recovered annually, of which approximately 10-20 percent are chemical weapons.

4. Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction (CWC), Article II, paras. 5-6.

5. CWC, "Annex on Implementation and Verification," Part IV (B), paras. 3, 4, 9, 10.

6. China, Italy, and Panama have declared ACW. Australia, Austria, Belgium, Canada, France, Germany, Italy, Japan, Russia, Slovenia, Solomon Islands, the United Kingdom, and the United States have declared OCW.

7. These six are Albania, India, Libya, Russia, South Korea, and the United States. South Korea is generally understood to be the sixth posesssor but has asked that it not be officially identified by the OPCW as such at the present time. Albania has completed the destruction of its stockpile.

8. OPCW, "Report of the Executive Council on the Performance of Its Activities in the Period From 8 July to 29 June 2007," C-12/3, September 26, 2007, para. 2.32, pp. 8-9.

9. Australian Safeguards and Non-Proliferation Office, "Annual Report 2006-2007," p. 54.

10. British Ministry of Defence, "Britain Completes Destruction of Old Chemical Weapons," *Defence News*, March 27, 2007.

11. "Workers Find Poison Gas Shells at Ukraine Construction Site," Deutsche Presse-Agentur, June 21, 2004. Munitions, mostly dating from World War II, are recovered every month in Ukraine. Daily reports on the recovery of old munitions is provided by the Ukrainian government at www.mns.gov.ua/daily/showdailyarchive.php.

12. OPCW, "Draft Report of the OPCW on the Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction in 2006," C-12/CRP.1, June 27, 2007, p. 8.

13. Tine Missiaen, Jean-Pierre Henriet et al., *Evaluation of the Paardenmarkt Site* (Ghent, Belgium: University of Ghent: 2001).

14. Presentations by Belgian officials at Chemical Weapons Demilitarization Conference (CWD2007), Brussels and Poelkapelle, Belgium, May 2007.

15. Masanori Nishi, "Abandoned Chemical Weapons in China: Efforts for Early Destruction," Presentation at CWD2007, Brussels, May 15, 2007.

16. Conference on Disarmament, "Some Information on Discovered Chemical Weapons Abandoned in China by a Foreign State," CD/1127, February 18, 1992.

17. See CWC, "Annex on Implementation and Verification," Part IV (B), para.15 (language agreed to by virtue of the fact that both governments are states-parties to the CWC).

18. "Statement by H. E. Mr. Takeshi Nakane, Ambassador, Director-General, Disarmament, Non-Proliferation and Science Department, Ministry of Foreign Affairs at the Eleventh Session of the Conference of the States Parties [to] the OPCW," The Hague, December 5, 2006. On the type and quantity of chemical weapons in China, see Shigeyuki Hanaoka, Koji Nomura and Takeharu Wada, "Determination of Mustard and Lewisite Related Compounds in Abandoned Chemical Weapons (Yellow Shells) From Sources in China and Japan," *Journal of Chromatography A*, Vol. 1101 (2006), pp. 268-277; Science Council of Japan, "Risk Assessment of Old and Abandoned Chemical Weapons and Development of Safe Advanced Destruction Technologies," March 23, 2005.

19. "Japan: Daily Calls for Suspending Chemical Weapons Disposal Project in PRC," FBIS-CHI-20071025, October 25, 2007 (from an original article in *Tokyo Sankei Shimun*).

20. Unnamed defense contractor, personal communication with author, February 2008.

21. H. Kurata, "Lessons Learned From the Destruction of the Chemical Weapons of the Japanese Imperial Forces," in *Chemical Weapons: Destruction and Conversion* (London: Taylor & Francis, 1980), pp. 77-93.

22. Gen'ichiro Tsukada, "National Statement on CW Issues: Measures Against the Potential Hazard of OCWs in Japan," Presentation to CWD2007, Brussels, May 15, 2007.

23. Takashi Washadi and Ryusuke Kitamura, "Destruction of Old Chemical Bombs Using DAVINCH™ at Kanda, Japan," Presentation at CWD2007, Brussels, May 14-18, 2007.

24. OPCW, "Note by the Secretariat: Proposed Verification Measures for Old Chemical Weapons Produced Between 1925 and 1946," S/166/2000, February 2000; OPCW, "Note by the Secretariat: Detailed Verification Measures for the Application of Usability Criteria for Chemical Weapons Produced Between 1925 and 1946," S/231/2000, December 2000.

25. Ron Manley, "Preparing for Disarmament: Articles III, IV and V," in *OPCW: The Creation of the Organization for the Prohibition of Chemical Weapons, A Case Study in the Birth of an Intergovernmental Organization*, ed. Ian R. Kenyon and Daniel Feakes (The Hague: T.M.C. Asser Press, 2007), pp. 150-151.

26. These costs are incurred as a result of the inspection, as opposed to other costs that are incurred regardless of whether the inspection has taken place. The parties agreed to this understanding in order to avoid having the membership as a whole effectively subsidize the cost of verification of destruction of weapons possessed by a relatively small number of the states.

27. Thomas Stock, "Old and Abandoned Chemical Weapons Under the CWC: Challenges and Reality," Paper presented at OPCW Academic Forum 2007, The Hague, September 18-19, 2007.

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SECTION 6

Verifying the Chemical Weapons Ban: Missing Elements

The Chemical Weapons Convention (CWC), which bans the development, production, stockpiling, transfer, and use of chemical arms, is the first treaty to prohibit an entire category of "weapons of mass destruction" under strict international verification. Serving the dual goals of disarmament and nonproliferation, the CWC aims to eliminate existing chemical weapons stockpiles and production capacities and to prevent their acquisition in the future.

Because many toxic chemicals and their precursors are dual use, meaning that they have both peaceful and hostile applications, the CWC verification regime covers not only military facilities but also a large number of commercial chemical plants.[1]

Since the CWC entered into force on April 29, 1997, it has racked up some important accomplishments. More than 180 states already have signed and ratified the convention, an unparalleled number for an arms control treaty in such a short period, although a few suspected chemical weapons possessors remain outside the regime.[2] Six member states—Albania, India, Libya, Russia, South Korea, and the United States—have declared stockpiles of chemical weapons and are in the process of destroying them. Because of technical and political delays, only Albania is likely to meet the original CWC destruction deadline of 2007. The United States and Russia, the two largest possessors, will probably not finish the task until after the extended treaty deadline of 2012. In addition, 12 parties have declared a total of 65 former chemical weapons production facilities, all of which must be dismantled or converted to peaceful purposes.[3]

Overall, the complex verification regime for the CWC has operated fairly well, but several important gaps and limitations have become apparent during the first decade of implementation. If not corrected, these problems could impede the treaty's ability to prevent the future proliferation of chemical weapons. The 10th anniversary of the CWC's entry into force in April provides an opportune moment to begin addressing the gaps in its verification regime, although devising effective solutions will require vision and leadership on the part of the United States and other member states.

The CWC Verification Regime

CWC verification involves the continuous monitoring of chemical weapons stockpile destruction, as well as on-site inspections of commercial chemical plants to ensure that no further production of warfare agents or precursors occurs in the guise of chemical manufacturing for peaceful purposes.[4] Monitoring compliance with the treaty at the international level is the responsibility of a permanent multilateral agency, the Organization for the Prohibition of Chemical Weapons (OPCW), based in The Hague. The OPCW's Technical Secretariat includes a verification division with an international corps of about 180 inspectors who travel to declared military and industrial sites around the world.

The fundamental challenge of CWC verification relates to the Janus-faced nature of chemical technology. When the negotiators of the CWC designed the treaty provisions prohibiting the development and production of chemical weapons, they had to find a way of dealing with the fact that many toxic chemicals and precursors used for military purposes also have legitimate peaceful applications. Moreover, because new synthetic compounds with toxic properties are continually being discovered, it was clear that any list of banned chemical warfare agents and precursors would rapidly become obsolete.

For this reason, the CWC negotiators decided to focus the basic prohibitions of the treaty on the *purpose* for which chemicals are developed and used. Article II of the treaty defines chemical weapons as "toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes." In addition, a toxic chemical is defined very broadly as "any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals."

As a result of these generic definitions, the basic prohibitions in Article I of the CWC apply to any toxic chemical whose development, production, stockpiling, or use is intended for hostile purposes, regardless of its origin or method of synthesis. This purpose-based approach, known in arms control literature as the "general purpose criterion," was adapted from similar language in the 1972

Biological Weapons Convention. In addition to being comprehensive, the general purpose criterion enables the CWC to cover future scientific and technological developments. In principle, as soon as a new toxic chemical is developed or applied for hostile purposes, it automatically falls under the purview of the general purpose criterion.

As a practical matter, however, the OPCW international inspectorate cannot possibly monitor the entire universe of chemicals that might be misused. Instead, the CWC negotiators agreed on a verification system based on three "schedules," or lists of toxic chemicals and their precursors that have been developed and manufactured in the past for military purposes. Schedule 1 consists of chemical warfare agents and precursors that have no significant commercial applications, although they may be synthesized in small quantities for scientific research, pharmaceutical development, or chemical defense. Schedule 2 lists toxic chemicals and precursors that have commercial applications in small quantities. Schedule 3 contains toxic chemicals and precursors that have commercial applications in large quantities. Facilities that manufacture "scheduled" chemicals at levels higher than specified quantitative thresholds must be declared and inspected on a routine basis. Moreover, the intrusiveness of the inspections is a function of the schedule on which a particular chemical is listed, so that facilities producing Schedule 1 chemicals receive the greatest scrutiny and those producing Schedule 3 chemicals the least.

The treaty negotiators decided to include in Schedule 1 only those toxic chemicals and precursors for which past weaponization or stockpiling was a known fact. For this reason, all of the listed agents, such as mustard, sarin, VX, and certain of their precursors, were already more than 20 years old when the CWC entered into force. Many of these "classical" agents are not obsolete and must continue to be monitored. Mustard gas, for example, was first synthesized in the nineteenth century but still remains a threat. Nevertheless, several next-generation agents and precursors not listed on the schedules pose significant risks to the treaty and hence warrant greater attention.

Chemicals of concern that remain outside the schedules include most members of the *novichok* family of binary nerve gases, which Soviet military chemists invented during the 1970s and 1980s.[5] Also unlisted in Schedule 1 are several chemicals designed to penetrate gas masks, as well as long-lasting incapacitants and "calmative" agents, such as the anesthetic fentanyl and related compounds, which both the United States and Russia have developed under the CWC's exemption for "law enforcement, including domestic riot control."[6] Another set of compounds of concern lies at the frontier of chemistry and biology, including toxins (toxic molecules produced by living organisms) and bioregulators (natural body chemicals that have potent effects on the nervous and immune systems). Only two such biochemical agents—the toxins ricin and saxitoxin—are listed on Schedule 1.

Because the CWC negotiators decided for practical reasons to use the schedules as the basis for determining which chemical industry facilities should be declared and routinely inspected, the prohibitions in the treaty are considerably broader than the mechanisms designed to verify them. Without this compromise, the monitoring regime would have been overly burdensome and costly to imple-

Table 1: Chemical Industry Facilities Declared and Routinely Inspected Under the Chemical Weapons Convention, as of December 2006

Routine verification of chemical industry facilities under the Chemical Weapons Convention (CWC) is guided by three schedules or lists of chemicals, ranked according to their potential for military as opposed to peaceful use. Facilities that produce scheduled chemicals must be declared if their annual output exceeds certain quantitative thresholds, and must be inspected on a routine basis if their annual production exceeds a higher set of quantitative thresholds. Other Chemical Production Facilities (OCPFs) are industrial plant sites that do not currently produce scheduled chemicals, but an increasing fraction of them are capable of doing so. Given the large number of such facilities that may pose a risk of misuse, a scientific advisory board has called for stepping up routine inspections at OCPFs.

Type of Chemical Production Facility	Types of Chemicals Produced	Number of States-Parties that Have Made Declarations	Number of Chemical Production Facilities Declared	Number of Routine Inspections Conducted in 2006	Number of Routine Inspections Planned for 2007
Schedule 1	Toxic chemicals and precursors with few or no legitimate uses (e.g., mustard, nerve agents)	21	27	16	11
Schedule 2	Toxic chemicals and precursors with small-scale legitimate uses (e.g., Amiton, thiodiglycol)	37	468	46	42
Schedule 3	Toxic chemicals and precursors with large-scale legitimate uses (e.g., phosgene, triethanolamine)	34	505	28	29
Other Chemical Production Facility (OCPF)	More than 200 metric tons per year of unscheduled discrete organic chemicals (DOCs) or 30 metric tons of an unscheduled DOC containing phosphorus, sulfur, or fluorine	77	5,225	90	118
			TOTAL:	**180**	**200**

Source: Organization for the Prohibition of Chemical Weapons

Tang Chhin Sothy/AFP/Getty Images

Japanese Ambassador Susumu Inoue, Cambodian Prime Minister and Co-Minister of National Defense Tea Banh, and Australian Ambassador Lisa Filipetto answer questions during a national awareness workshop on the Chemical Weapons Convention, December 13, 2005 in Phnom Penh, Cambodia.

ment. Although the CWC negotiators devised an expedited process for amending the schedules to incorporate new toxic chemicals and precursors, member states have so far declined to use it. One reason for not adding the *novichoks* and their precursors to the schedules is that the Russian government has refused to acknowledge their development. In addition, several Western countries worry that listing these compounds would disclose their molecular structure and thereby facilitate their acquisition by state proliferators and terrorist groups.

More generally, the negotiators of the CWC understood that the schedules alone do not provide an adequate basis for verifying the nonproduction of chemical weapons. Wherever one chooses to draw the line in compiling the schedules, there will always be some toxic chemicals or precursors left outside that, if misused for hostile purposes, could pose a risk to the CWC.

To compensate for the fact that the noncomprehensive nature of the schedules limits the scope of the routine inspection regime, the negotiators introduced four measures into the CWC to help verify the general purpose criterion and prevent the emergence of safe harbors exempt from monitoring, where violators could develop novel chemical warfare agents not listed on the schedules and manufacture them secretly at undeclared facilities. This verification "safety net" consists of (1) a provision for routine inspections of "other" chemical production facilities that do not currently manufacture scheduled chemicals but may have the technical capability to do so; (2) the use of sampling and analysis during on-site inspections of chemical industry; (3) the right of any member state to request a challenge inspection of a suspect facility, declared or undeclared, on the territory of another state-party; and (4) the obligation on each state-party to create a national authority and pass domestic implementing legislation to monitor the general purpose criterion at the national level.

Unfortunately, the member states of the CWC have so far failed to make effective use of these four measures, leaving large holes in the verification safety net. The prevailing assumption among states-parties seems to be that if a toxic chemical or precursor is not listed on one of the three schedules, it does not pose a security threat. Yet, given the large number of unscheduled chemicals that could lend themselves to effective weaponization, the narrow scope of the routine verification regime risks creating false confidence in compliance, especially when one considers the impact of recent advances in chemical science and technology (see sidebar). As the OPCW's Scientific Advisory Board noted in 2003, "[T]he number and types of unscheduled chemicals that could cause considerable harm, if they were misused for [chemical warfare] purposes, have expanded significantly. ... The inspection regime of the OPCW, perhaps with the exception of challenge inspection, would at this moment not be capable of detecting such a violation."[7]

Coverage of "Other" Production Facilities

The primary focus of routine inspections of the chemical industry under the CWC is on declared production facilities that manufacture the dual-use chemicals listed on Schedules 2 or 3. In recent years, however, the advent of small, multipurpose chemical-production facilities has made the batch synthesis of organic (carbon-based) compounds more automated and flexible. Such multipurpose plants are potentially easier to divert to chemical weapons production than large, inflexible facilities that produce specific scheduled chemicals.[8] Thus, if the CWC verification regime is to remain effective, it must adapt to these technological changes by covering a broader range of chemical industry facilities, including plants that do not currently manufacture scheduled chemicals but have the capability to do so on a large scale.[9]

Part IX of the CWC Verification Annex defines other chemical production facilities (OCPFs) as plant sites that produce by synthesis more than 200 metric tons per year of discrete organic chemicals (DOCs) not listed in the schedules. This definition also encompasses one or more plants that manufacture more than 30 metric tons of an unscheduled DOC containing phosphorus, sulfur, or fluorine (PSF), which are common constituents of blister and nerve agents. These facilities must be declared, after which the OPCW Technical Secretariat selects a small fraction of them for inspection each year, using specially designed computer software that seeks to balance such factors as geographical distribution and the characteristics of

the plant site and the activities performed there.

As of November 2006, 77 member states had declared a total of 5,225 OCPFs, or more than five times the number of declared facilities that produce Schedule 1, 2, and 3 chemicals.[10] Moreover, whereas most Schedule 2 facilities are unable to produce Schedule 1 chemicals, about 10 to 15 percent of OCPFs have flexible production equipment that is potentially capable of manufacturing chemical warfare agents or precursors, giving these plants a breakout potential that makes them highly relevant to the CWC.[11] In response, the OPCW Scientific Advisory Board has recommended increasing the number of inspections at OCPFs and improving the risk-assessment methodology to select those sites that pose the highest risk of misuse.[12] Of greatest concern are facilities that manufacture PSF chemicals, which may be structurally related to some well-known chemical warfare agents and precursors, as well as plants that incorporate multi-purpose production equipment and special ventilation systems to contain toxic fumes.

One way to increase the number of OCPF inspections with existing resources would be to reallocate more inspectors for this purpose. At present, the OPCW inspectorate devotes a disproportionate share of its efforts to monitoring the destruction of declared chemical weapons stockpiles. Because the CWC requires the continuous monitoring of the destruction process, inspectors must be stationed permanently at each destruction facility. In 2005, for example, the OPCW devoted a total of 15,519 inspector days to monitoring chemical weapons destruction at 13 sites, yet it spent only 1,379 days inspecting facilities that produce scheduled chemicals and 1,272 days inspecting OCPFs.[13] A better verification strategy would make greater use of remotely operated equipment, such as flow meters and closed-circuit television cameras, to monitor the destruction of chemical weapons while freeing up more trained personnel to inspect OCPFs.

Such a shift of human resources from monitoring chemical weapons destruction to inspecting OCPFs would offer several benefits for the effectiveness of the CWC as a nonproliferation tool. First, whereas facilities that manufacture scheduled chemicals are rare in developing countries, OCPFs exist throughout the developed and the developing world. Indeed, for reasons of market access, international chemical firms are increasingly building production plants in developing countries. For this reason, increasing the number of OCPF inspections would broaden the geographic scope of the CWC verification regime while reaffirming the key principle that the scope of the treaty is not limited to scheduled chemicals.

Nevertheless, the proposal to increase the number of OCPF inspections faces significant political obstacles. Some developing countries with chemical industries oppose the idea because they would have to bear a larger share of the verification burden. During the first CWC review conference in April 2003, Pakistan stated that an "[i]ncrease in emphasis on verification...of facilities producing relatively harmless [DOCs] should not be at the expense of higher risk Schedule 1, 2, and 3 chemicals listed in the Annex to the CWC."[14] Convincing Pakistan and other developing countries to accept and allocate more resources for OCPF inspections might require a deal with Western industrialized states. To date, Western countries have made little effort to implement Article XI of the CWC, which calls for international cooperation among member states in the peaceful uses of chemistry. Because this provision is popular with developing countries, Western states might offer to

Technological Advances Present Challenge to CWC Verification

Rapid advances in chemical science and technology pose major new challenges for Chemical Weapons Convention verification. Today, the chemical and pharmaceutical industries make extensive use of combinatorial chemistry and high-throughput screening to synthesize thousands of novel compounds and screen them for desired physiological effects. Other powerful techniques such as genomics, proteomics, and systems biology are also being applied to identify natural body chemicals with useful medicinal properties, vastly expanding the range of compounds being detected and screened for their effects on living systems. Most of the chemicals identified during the drug discovery process have no commercial value and are rejected, but some highly toxic compounds might be secretly adapted for military purposes. Indeed, over the past 80 years, a number of compounds originally developed in industrial laboratories as pesticides or medicinal drugs have subsequently been converted into chemical warfare agents, including tabun, sarin, VZ, and BZ.

Technological developments have also made it easier to conceal the manufacture of novel chemical warfare agents in the guise of legitimate industrial production. For example, some of the *novichok* nerve agents lack the carbon-phosphorus bond that is the hallmark of classical nerve agents such as sarin and soman, making the newer agents more difficult to identify. Several chemical warfare agents also come in binary formulations, in which two final precursor chemicals are mixed together inside a munition en route to the target and react to produce the lethal agent, which is then dispersed on impact. Because the binary components are relatively nontoxic, they can be manufactured in existing chemical plants for ostensibly legitimate purposes.

Paralleling these scientific and technological developments have been some dramatic changes in the structure of the international chemical industry. The production of synthetic chemicals by means of biologically mediated processes is increasingly blurring the line between the chemical and biotechnology industries. In addition, the advent of multipurpose manufacturing equipment has enabled chemical plants to switch rapidly from the production of one compound to another in response to shifts in market demand. Finally, hundreds of small "microreactors" could be operated in parallel to synthesize large volumes of chemicals in a small space, minimizing the traditional signatures associated with chemical warfare agent production. Microreactors also offer higher synthetic yields with fewer emissions of telltale by-products and may permit the use of unusual reaction pathways that are not feasible with conventional reactors.

All of these changes have made it possible for countries to acquire the capacity to manufacture large amounts of chemical warfare agents on short notice without having to stockpile them for long periods. Such a breakout capability is much more difficult to detect and monitor than a standing chemical weapons stockpile. The Organization for the Prohibition of Chemical Weapons will therefore have to adapt to these diverse technological developments by improving its verification strategies, a task that is easier said than done. —*JONATHAN B. TUCKER*

fund suitable Article XI projects in exchange for an agreement to redeploy human and financial resources from monitoring chemical weapons destruction to conducting more inspections of OCPFs.

Sampling and Analysis at Chemical Industry Facilities

A second major gap in the CWC verification regime has been the lack of sampling and analysis during routine inspections of chemical industry sites, even though the technique has been used on a regular basis at chemical weapons destruction facilities to confirm the declared contents of munitions and bulk containers. Part VII of the CWC Verification Annex states clearly that sampling and analysis "shall be undertaken" for spot checks during routine inspections of Schedule 2 production facilities to confirm the absence of undeclared scheduled chemicals, yet sampling at such sites has occurred only rarely in practice. Although the United Kingdom has allowed OPCW personnel to take samples during Schedule 2 inspections and actively encouraged other states-parties to follow suit, several member countries have claimed (with no legal basis) that sampling at Schedule 2 plants is voluntary or may be performed only to resolve an anomaly that arises during an inspection. In fact, the CWC states that although sampling and analysis is voluntary at Schedule 3 plants and OCPFs, in keeping with the less-intrusive nature of such inspections, it is mandatory at Schedule 2 sites. To correct this problem, in July 2006 the OPCW launched an 18-month trial program to increase the use of on-site sampling and analysis during routine inspections of Schedule 2 facilities.[15]

CWC member states have approved two types of analytical equipment for on-site analyses. The primary device in use is a portable gas chromatograph/mass spectrometer, or GC-MS, which identifies a compound by comparing its mass spectrum, or molecular fingerprint, against a library of spectra of known compounds stored in an electronic database. The portable GC-MS has a number of drawbacks that have limited its use during routine inspections of chemical industry sites. Together with the sample preparation kit, fume hood, and shipping container, the device weighs about 1,500 kilograms and occupies about one cubic meter of space. Because OPCW inspection teams often travel on a scheduled international flight to the point of entry and then by domestic airline to the inspection site, transporting the entire set of equipment is logistically complex and expensive.[16] Current sample preparation techniques for GC-MS are also difficult to carry out and require large volumes of solvents. Nevertheless, smaller, lighter GC-MS instruments are now available that are more easily transported and also have higher sensitivity. Indeed, it is time to review the entire set of approved equipment used by the OPCW inspectorate in light of the dramatic improvements in analytical science and technology that have occurred over the past decade.

Another reason for the limited use of sampling and analysis during routine inspections is that some representatives of the chemical industry believe that GC-MS is overly intrusive and could disclose proprietary information. For example, Garrity Baker, senior director for global affairs at the American Chemistry Council, a leading trade association, contends that the spectral analysis of a sample would reveal details of its composition and manufacturing process that could find their way into the hands of competitors. In fact, this fear appears to be exaggerated. The OPCW Technical Secretariat has processed vast amounts of confidential information without any significant breaches of its stringent classification procedures.[17] If the current trial period of sampling and analysis during routine inspections of Schedule 2 facilities proceeds smoothly, it should allay industry's fears about the possible compromise of proprietary data and set a useful precedent. Although violators of the CWC would be unlikely to produce chemical warfare agents at Schedule 2 plants, which receive a relatively high level of scrutiny, more frequent sampling and analysis at these sites could open the way to the future use of this measure during inspections of high-risk OCPFs, where its contribution to verification would be much greater.

At present, however, lingering concerns about the potential for compromising confidential proprietary information have constrained the nature of on-site analysis at chemical industry facilities. Detailed rules for CWC implementation developed prior to the treaty's entry into force and adopted in 1997 by the first conference of the states-parties limit the use of on-site analysis to verifying the presence or absence of undeclared scheduled chemicals, unless otherwise agreed in consultation with the facility representative.[18] To comply with these constraints, OPCW inspectors use a "blinded" software package called AMDIS[19] that prevents the GC-MS operator from seeing and recording the raw data generated by the machine. Instead of identifying all of the compounds present in a sample, the blinded software compares the sample's mass spectrum against the OPCW Central Analytical Database, which contains the spectra of some 2,000 scheduled chemicals and stable degradation products. The software package determines whether a match exists to a set probability. AMDIS can be run at four security levels. At the highest level, only the number of compounds matching a spectrum in the database is presented to the operator, and the identity of any detected compound is not revealed.

A major problem with restricting GC-MS analysis to scheduled chemicals and their stable degradation products is that a country that intended to violate the CWC would have a strong incentive to develop and produce an unscheduled agent in a bid to evade detection. In recognition of this gap in the verification regime, in 2003 the OPCW Scientific Advisory Board recommended expanding the spectral database for GC-MS to include data on certain unscheduled chemicals that have the potential to be used for warfare or terrorism, as well as other chemicals that are likely to be confused with scheduled chemicals.[20] Those spectra that are proliferation-sensitive could be classified as confidential and handled as such.

In addition to expanding the use of sampling and analysis during routine industry inspections, CWC member states should explore alternatives to the use of blinded analytical software for protecting commercial trade secrets. Conducting GC-MS analyses in the "unblinded," or "open," mode has always been an option, technically speaking, and may be to the advantage of the inspected state-party. In particular, analysis in open mode would permit the use of a larger database that contains the spectra of scheduled and unscheduled compounds, providing greater certainty in matching chemicals and avoiding inadvertent false-positive results that could implicate an innocent facility.[21]

Because the right of the inspected state-party to require the use of blinded analytical software during routine inspections is not stipulated in the CWC but was affirmed by the first conference of the states-parties, it should be possible to reverse this policy as part of the normal process of reviewing and refining treaty implementation in response to experience. Nevertheless, persuading states-parties to accept on-site analyses in open mode will be a political

Reagan Frey/Getty Images

The Deseret Chemical Depot in Tooele, Utah, March 9, 2005. The depot is the largest chemical weapons disposal facility in the world.

challenge. One way to reassure the chemical industry about the protection of trade secrets would be to require OPCW inspection teams to leave all samples and items containing sample residues, such as gas-chromatographic columns, at the inspected facility and to erase magnetic storage media before departing the site.

Sampling and analysis during inspections of chemical industry facilities is generally intended to take place on-site and to detect fairly high concentrations of the target compounds—raw materials, products, and intermediates—rather than trace quantities. Nevertheless, in cases where on-site analysis yields inconclusive results or an ambiguity that can be resolved only through the use of more sophisticated analytical techniques, the CWC provides that the sample should be split and sent to at least two reference laboratories for off-site analysis. Laboratories designated to serve this function must be certified by the OPCW and participate in regular proficiency tests.[22] Unfortunately, the use of off-site analysis has been seriously constrained by condition 18 of the U.S. Senate's 1997 Executive Resolution on Ratification of the CWC, which precludes OPCW inspectors from removing chemical samples from U.S. territory.[23] Other member states, including India, have emulated the U.S. condition by including in their national legislation the right not to allow samples to be analyzed outside their own territory.

Despite these limitations, however, off-site analysis should be considered for use in cases where on-site analysis is inconclusive. Off-site analysis typically involves the use of multiple techniques without blinded software, giving more reliable results with trace quantities. In addition, the confirmation of an analytical finding by laboratories in different countries would greatly enhance its credibility. To safeguard proprietary information during off-site analyses, the OPCW has developed standard operating procedures that ensure the chain of custody of samples and protect confidential data. The main drawback of off-site analysis is that reference laboratories generally expect to be paid for their services, increasing inspection costs.

Challenge Inspections of Suspect Facilities

The third gap in the CWC verification regime is the failure of member states to make effective use of the challenge inspection mechanism. Article IX grants CWC states-parties the right to request a challenge inspection of any site, declared or undeclared, on the territory of another member state "for the sole purpose of clarifying and resolving any questions concerning possible non-compliance." The CWC negotiators intended that challenge inspections would capture clandestine development and production facilities, chemical weapons stockpiles, and prohibited activities that a cheater has deliberately not declared and are hence not subject to routine inspection. For example, if a member state acquired a chemical weapons stockpile by producing an unscheduled toxic chemical at an undeclared facility, a challenge inspection would provide the only way of detecting this violation.

Given the dramatic scientific and technological changes that are transforming the global chemical industry, one would expect that challenge inspections would play an increasingly important role in CWC verification. Yet, despite the existence of compliance concerns and ambiguities, no state-party has made use of this key verification tool. For instance, the United States has publicly accused China, Iran, Russia, and Sudan of violating the CWC, yet it has not provided specific evidence nor pursued these allegations through challenge inspections, thereby weakening the treaty.[24]

Disincentives to launching a challenge inspection include the possible need to disclose sensitive intelligence information to justify the request; the risk that the inspection will not find "smoking gun" evidence of a treaty violation, particularly if the precise location of the prohibited activity is unknown; the ability of an accused state to retaliate by requesting a challenge inspection of a sensitive facility in the initiating country; and the possibility that the OPCW Executive Council will block a challenge request that it judges it to be frivilous or abusive.[25] Finally, because requesting a challenge inspection may be perceived as a confrontational act, increasing political tensions with the accused country, member states may prefer to pursue their compliance concerns through confidential bilateral channels. The longer the challenge mechanism remains unused, the higher the political hurdle to using it will become.

Despite its drawbacks, challenge inspection remains a key verification tool because it can potentially expose clandestine chemical weapons development and production and thereby help to deter such violations. If challenge inspections are to serve as a credible deterrent, however, there must be a real possibility that one can be launched at any time, including the use of sampling and analysis to check for unscheduled chemicals.[26] To make challenge inspections more palatable, CWC member states should use them initially to resolve ambiguities, such as whether a particular facility should have been declared. Employing challenge inspections for clarification purposes might be necessary if the relevant information is not

provided voluntarily. To prepare for future inspection requests and fine-tune its capabilities, the OPCW inspectorate should conduct more trial challenge inspections in various parts of the world, and member states should offer suitable military and industry facilities as targets for these exercises. For example, Germany hosted a mock challenge inspection in March 2006.[27]

Monitoring Role of National Authorities

The final element of the CWC safety net is the role in verification played by the states-parties themselves. Because the OPCW Technical Secretariat cannot monitor compliance with all of the obligations that the member states assume under the CWC, the treaty creates a division of labor between the verification activities of the OPCW Technical Secretariat at the international level and those of the states-parties at the national level.[28] According to Article VI, paragraph 2, the primary responsibility for monitoring compliance with the general purpose criterion rests with the member governments: "Each State Party shall adopt the necessary measures to ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred, or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention."

Article VII of the CWC also obligates member states to take "the necessary measures" to implement the treaty by adopting domestic implementing legislation that criminalizes the acquisition and use of chemical weapons by its citizens and restricts trade in related chemicals. This requirement has since been reinforced by UN Security Council Resolution 1540, which requires all UN members to adopt "appropriate" and "effective" national legislation to prevent the proliferation of nuclear, chemical, and biological weapons and related materials, especially for terrorist purposes. Article VII of the CWC also requires each member state to establish a "national authority" to oversee the domestic implementation of the treaty and serve as "the national focal point for effective liaison" with the OPCW and other states-parties. If implemented effectively, these measures should impede efforts by proliferators and terrorists to acquire a chemical warfare capability.

Surveys conducted by the OPCW Technical Secretariat suggest, however, that many member states have not yet adopted suitable domestic implementing legislation for the CWC.[29] In addition, an April 2006 report by the 1540 Committee to the UN Security Council stated that a total of only 69 states had enacted some prohibitions related to chemical weapons in their national legal framework.[30] To address the lack of implementing legislation and national authorities in many CWC member states, the first review conference in 2003 agreed to establish an action plan on national implementation. This effort should be expanded further to ensure that states-parties incorporate the general purpose criterion and the schedules of chemicals into their subsidiary regulations and empower their national authorities to collect all of the data needed to monitor domestic implementation effectively.

Conclusion

Nearly 10 years after its entry into force, the CWC has demonstrated its value as a disarmament vehicle and a nonproliferation tool for preventing the acquisition and use of chemical weapons by states and nonstate actors. Nevertheless, some major gaps in the verification regime threaten to undercut the treaty's ability to achieve its potential. Not only is the planned safety net full of holes, but little is known about how the national authorities are discharging their verification obligations.

The Chemical Weapons Convention will lack credibility **as long as member countries have the leeway to cheat on their basic obligations with little risk of being detected and held accountable.**

Another serious gap in the CWC is that it does not provide for the international monitoring of compliance with a number of important treaty obligations. These include the prohibition on providing technical or financial assistance to a chemical weapons program, the ban on exports to nonparties of Schedule 1 and 2 chemicals, and the requirement to obtain an end-use certificate for exports to nonparties of Schedule 3 chemicals. In the absence of formal verification tools, some states have developed ad hoc measures outside the CWC framework, such as the Proliferation Security Initiative. In principle, however, the treaty does not preclude the OPCW from developing additional monitoring procedures to cover these treaty obligations.[31]

More generally, the CWC will lack credibility as long as member countries have the leeway to cheat on their basic obligations with little risk of being detected and held accountable. To close the current gaps in the verification regime at the international and national levels, it is essential to reaffirm the central importance of the general purpose criterion, increase the number of OCPF inspections, expand the use of sampling and analysis during routine industry inspections, and start employing the challenge-inspection mechanism for clarification purposes, while taking additional steps to protect trade secrets and national security information unrelated to compliance. The 10th anniversary of the CWC in April 2007 provides a good opportunity to launch a serious discussion of these issues, including the drafting of an action plan to reverse the erosion of the verification regime. Ideally, this plan should be completed in time for consideration by the second review conference of the CWC, which will convene in The Hague in April 2008. **ACT**

ENDNOTES

1. The Chemical Weapons Convention (CWC) verification regime is set out in Articles III through VI and in the 209-page Verification Annex.

2. Nonparties to the CWC that are suspected of possessing chemical weapons stockpiles include Egypt, Israel, North Korea, and Syria.

3. The 12 CWC states-parties that have declared former chemical weapons production facilities are Bosnia and Herzegovina, China, France, India, Iran, Japan, Libya, the Russian Federation, Serbia, the United Kingdom, and the United States. Of 65 declared former production facilities, 57 have been certified as destroyed or converted to civilian use.

4. Verification Research, Training and Information Centre (VERTIC), *Getting Verification Right: Proposals for Enhancing Implementation of the Chemical Weapons Convention* (London: VERTIC, 2002), p. 4.

5. The Soviet development of the *novichok* nerve agents was revealed in 1991 by a Russian chemist, Vil Mirzayanov, who was subsequently arrested by the Russian Federal Security Service and put on trial in Moscow for disclosing state secrets. The charges against him were later dropped for lack of evidence.

6. Whether the CWC permits the development and use for domestic law enforcement purposes of incapacitating agents with long-lasting effects, in addition to riot-control agents with transient effects such as CS tear gas, is a matter of intense debate, particularly in the context of the international war on terrorism. In October 2002, Russian special forces used an incapacitating gas containing a powerful opiate anesthetic during a counterterrorism operation to rescue hostages seized by Chechen militants at the Dubrovka Theater in Moscow. More than 120 hostages died from the effects of the gas, making clear that it was not truly nonlethal. Arms control experts noted the pharmacological differences between incapacitants and riot-control agents and questioned the legality of the Moscow theater operation under the law enforcement exemption of the CWC. Others argued that the paramilitary operation was an extension of the war in Chechnya and thus violated the treaty's total ban on the use of toxic chemicals in combat.

7. Organization for the Prohibition of Chemical Weapons (OPCW) Technical Secretariat, "Note by the Director-General: Report of the Scientific Advisory Board on Developments in Science and Technology," RC-1/DG.2, April 23, 2003, p. 11, para. 3.3.

8. Kingdom of Sweden, "Technological Development and Industry Inspections," RC-1/NAT.28, May 8, 2003, p. 2.

9. U.S. General Accounting Office, "Delays in Implementing the Chemical Weapons Convention Raise Concerns About Proliferation," GAO-04-361, March 2004, pp. 17-18.

10. Jiri Matousek, "Chemical Weapons Convention: Status and Actual Problems of Implementation," 25th Workshop of the Pugwash Study Group on the Implementation of the CWC and BTWC, Geneva, November 18-19, 2006.

11. Ralf Trapp, "The Chemical Weapons Convention—Multilateral Instrument With a Future," in *The Chemical Weapons Convention: Implementation, Challenges and Opportunities*, eds. Ramesh Thakur and Ere Haru (New York: UN University Press, 2006), p. 29.

12. OPCW Technical Secretariat, "Note by the Director-General," p. 17, para. 4.4(a).

13. OPCW Executive Council, "Report of the OPCW for 2005," C-11/4, Dec. 6, 2006, p. 7.

14. Alexander Kelle, "The CWC After Its First Review Conference: Is the Glass Half Full or Half Empty?" *Disarmament Diplomacy*, No. 71 (June-July 2003) (citing Ambassador and Permanent Representative of Pakistan to the OPCW Mustafa Kamal Kazi, "Statement to the First Special Session of the Conference of States Parties to Review the Operation of the Chemical Weapons Convention," April 30, 2003).

15. OPCW Technical Secretariat, "Note by the Technical Secretariat: Support by Inspected States Parties for Sampling and Analysis Under Article VI of the Chemical Weapons Convention," S/548/2006, February 10, 2006.

16. Ron G. Manley, "Verification Under the Chemical Weapons Convention: A Reflective Review," *Pure and Applied Chemistry*, Vol. 74, No. 12 (December 2002), p. 2239.

17. Daniel Feakes, "Evaluating the CWC Verification System," *Disarmament Forum*, No. 4 (2002), p. 19.

18. Bureau of Industry and Security, U.S. Department of Commerce, "Chemical Weapons Convention: Sampling and Analysis," *Chemical Weapons Convention Bulletin* (2006).

19. AMDIS stands for Automated Mass Spectral Deconvolution and Identification System.

20. OPCW Technical Secretariat, "Note by the Director-General," p. 21, para. 5.10.

21. OPCW Technical Secretariat, "Background Paper on the Conduct of Inspections Under the Chemical Weapons Convention and Related Issues," RC-1/S/1, April 17, 2003, para. 10.11.

22. Similarly, the International Atomic Energy Agency uses outside reference laboratories to conduct blind checks to help determine the source of a particular sample of uranium.

23. Condition No. 18 of the Executive Resolution on Ratification of the CWC by the U.S. Senate, dated April 24, 1997, states that "[p]rior to the deposit of the United States instrument of ratification, the President shall certify to the Senate that no sample collected in the United States pursuant to the Convention will be transferred for analysis to any laboratory outside the territory of the United States."

24. For the U.S. chemical weapons allegations against Iran and Sudan, see Stephen G. Rademaker, "National Statement to the First Review Conference of the Chemical Weapons Convention," April 28, 2003. See also Bureau of Verification and Compliance, U.S. Department of State, "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," August 30, 2005.

25. OPCW, First Conference of the States Parties, Decision No. 45, "Illustrative List of Objective Indicators to Facilitate the Executive Council in Addressing Any Concern, in Accordance with Paragraph 22 of Article IX, Whether the Right to Request a Challenge Inspection Has Been Abused," C-I/DEC.45, May 16, 1997.

26. Blinded software was originally developed as a form of managed access that may be requested by the inspected state-party during a challenge inspection. Nevertheless, the use of managed access is conditioned by the requirement that the inspection team must be able to carry out its mandate. For example, if the challenge inspection request is based on suspicion that novel chemical weapons are being developed, produced, or stockpiled, the use of blinded software would not be appropriate, and the inspection team could insist on conducting analyses in open mode. If the request is denied, the inspection team would report that the inspected state-party had prevented it from fully implementing its inspection mandate, a finding that would influence the subsequent evaluation of the inspection outcome by the OPCW Executive Council. Ralf Trapp, personal communication with author, November 28, 2006.

27. OPCW, "Germany Hosts Challenge Inspection Exercise," April 6, 2006 (press release).

28. Julian Perry Robinson, personal communication with author, November 24, 2006.

29. Lisa Tabassi and Scott Spence, "Improving CWC Implementation: The OPCW Action Plan," *Verification Yearbook 2004* (London: VERTIC, 2004), pp. 45-64.

30. "Letter Dated 25 April 2006 From the Chairman of the Security Council Committee Established Pursuant to Resolution 1540 (2004) Addressed to the President of the Security Council," S/2006/257, April 25, 2006, p. 13.

31. Sergey Batsanov, "Approaching the 10th Anniversary of the Chemical Weapons Convention: A Plan for Future Progress," *The Nonproliferation Review*, Vol. 13, No. 2 (July 2006), p. 446.

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SECTION 7

Convention in Peril?

Riot Control Agents and the Chemical Weapons Ban

As the Chemical Weapons Convention (CWC) commemorates its 10th anniversary, states-parties have much to celebrate: the near universal status of the treaty, the destruction of major chemical-weapon stocks, and the establishment of an international organization dedicated to outlawing these weapons. Yet, an important loophole in the convention could threaten the gains made in attaining the convention's stated goal "to exclude completely the possibility of the use of chemical weapons."[1]

The exception pertains to riot control agents (RCAs), chemical agents used to disperse crowds, temporarily incapacitate human targets, or deny access to protected areas.

In drafting the convention, countries sought to protect their right to use chemical agents, such as those used in tear gas, for law enforcement purposes. Some countries have also sought to justify the use of RCAs overseas where civilians and combatant are intermixed in situations such as terrorist attacks, riots, attacks on peacekeepers, and hostage crises. Unfortunately, the treaty's legal language is sufficiently vague on the definitions of "riot control agents" and "law enforcement," that countries might believe they are legally permitted to use toxic chemical agents as battlefield weapons. Already U.S. officials have sought to evade restrictions as they planned for operations in Iraq and Russian officials did so in confronting Chechen rebels in Moscow.

In the short term, states-parties need to amend or add a protocol to the CWC in order to specify exactly what chemicals may be used for such purposes and under what circumstances. In the long run, the international community must uphold its commitment to completely eradicate chemical weapons by establishing a time frame under which states must research and deploy alternative nonlethal weapons.

The Changing Nature of Conflict

Since the end of the Cold War, conflicts have become increasingly intrastate, and civilians and combatants have been far more intermixed. Although wars fought between states are still a serious possibility, nonstate actors have risen to prominence in security circles and the public square alike, hence the "Global War on Terror" and the push to transform militaries to address more diffuse threats in an environment of "uncertainty and surprise."[2] In U.S. national security doctrine following the September 11 attacks, for example, the "military structured to deter massive Cold War-era armies must be transformed to focus more on how an adversary might fight rather than where and when a war might occur."[3] Thus, militaries and law enforcement communities have more often had to deal with relatively small-scale conflicts in civilian areas, including terrorist attacks, riots, attacks on peacekeepers, and hostage crises.

The development and use of nonlethal weapons is a legitimate approach to this new security environment and military structure. In order to be prepared for the full spectrum of conflict, soldiers and law enforcement officers must be equipped and trained to deal with nonstate actors and their tactics. The pressure to do this in a humane way leads logically to a desire for nonlethal weapons. Chemical-derived RCAs represent one type of nonlethal weapon, although not the type that should be preferred for the future.

What Constitutes a Riot Control Agent?

The CWC defines RCAs as "[a]ny chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure."[4] This definition consists of several operative clauses that are cumulative in their legal implications. The first point is that RCAs must be chemicals not included in the schedules published by the CWC and the Organization for the Prohibition of Chemical Weapons. These schedules essentially classify chemicals according to their toxicity and dual-use applicability in order to prevent their use as weapons. For example, a Schedule 1 chemical is toxic and has little to no industrial application, whereas a Schedule 3 chemical can be weaponized and also has a broad peaceful application.

The second major clause is that the effects of nonscheduled, weaponized chemicals must be temporary. A traditional RCA, such as tear gas, seems to fit well within this definition; but other, more lethal chemicals may also fall into this category under the CWC. Unfortunately, not only are the long-term effects debatable, but the decision

to use such nonscheduled chemicals as RCAs is left to the discretion of the state. Under these circumstances, states sometimes can and will make a decision to use chemical agents that do, in fact, cause significant, long-term harm.

One major example is the Russian theater siege in 2002, when Russian authorities weaponized fentanyl, an opioid analgesic, and attempted to knock out the perpetrators and siege the theater in which rebels had taken hostages. The chemical agent killed 50 rebels and more than 117 of the hostages the authorities were trying to free.[5] The claim was that the Russian authorities had weaponized a nonscheduled chemical and used the weapon in a law enforcement capacity. Seemingly, the Russians were within their legal authority and upheld their agreement under the CWC.

According to a report from the British Medical Association, which notes recent efforts by states to weaponize pharmaceuticals, the Russian case is not uncommon internationally: "As well as Russia, publicly available information provides evidence of interest" in some NATO member states and "in particular" the Czech Republic, Germany, the United Kingdom, and the United States.[6] Evidence suggests that government research programs have been using opiates, benzodiazepines such as Valium, antidepressants such as Zoloft and Prozac, and even club drugs such as ketamine (Special K) and the so-called date rape drug (GHB and rohypnol), just to name a few. Thus, new agents are being weaponized despite the CWC's explicit aim to ban all use of weaponized chemicals in warfare, including RCAs.

The convention also includes another loophole. Article I, paragraph 5 states that "[e]ach State Party undertakes not to use riot control agents as a method of warfare." The convention also says that RCAs can be used for "law enforcement including domestic riot control purposes." Note that domestic riot control is included and thus the term "law enforcement" is not necessarily limited to domestic riot control and could apply to international law enforcement. Yet, where does international law enforcement end, and where does warfare begin?

Different countries have drawn the line in different ways, as has been established by the divergent approaches of the United Kingdom and the United States in Iraq. The United Kingdom, the United States' largest coalition partner in Iraq, views the use of RCAs as a method of warfare and thus prohibited by the CWC.[7]

On August 3, 2007, however, the Multi-National Forces in Iraq used tear gas against rioting inmates at the Badoush detention center outside of Mosul. This should come as no surprise considering the U.S. stance prior to the invasion of Iraq. In 2003, Secretary of Defense Donald Rumsfeld testified before the House Armed Services Committee in defense of RCAs, asserting that "[w]e are doing our best to live within the straitjacket that has been imposed on us on this subject" and saying the CWC has made this issue "very complex."[8]

Rumsfeld then claimed that, under Executive Order No. 11850, the U.S. military would "fashion the rules of engagement in a way that we believe is appropriate. Where we can't, I go to the president and get a waiver."[9]

Although no such waiver has been sought, Rumsfeld was referring to an executive order issued by President Gerald Ford in the early 1970s as the Senate was considering the 1925 Geneva Protocol. At that time, objections to how the U.S. military had used defoliants, such as Agent Orange in the Vietnam War, threatened Senate approval of the protocol.[10] Agent Orange is a herbicide used by the United States against human targets rather than being used simply

Pedro Rey/AFP/Getty Images

A masked Venezuelan anti-government demonstrator throws back a tear gas grenade fired by riot police during a May 29 protest in Caracas, Venezuela.

to clear the dense jungle landscape.

In order to win Senate support for the protocol, Arms Control and Disarmament Agency Director Fred Ikle testified before the Foreign Relations Committee in December 1974, that the president, through an executive order, would "renounce as a matter of national policy" first use of herbicides and RCAs except in certain circumstances. In addition, Ikle testified that the president, "under an earlier directive still in force, must approve in advance any use of riot-control agents and chemical herbicides in war."[11]

Ford delivered on his promise with Executive Order 11850 on April 8, 1975. The order did renounce first use of herbicides and RCAs in war but went on to make a few exceptions:

> (a) Use of riot control agents in riot control situations in areas under direct and distinct U.S. military control, to include controlling rioting prisoners of war.
>
> (b) Use of riot control agents in situations in which civilians are used to mask or screen attacks and civilian casualties can be reduced or avoided.
>
> (c) Use of riot control agents in rescue missions in remotely isolated areas, of downed aircrews and passengers, and escaping prisoners.
>
> (d) Use of riot control agents in rear echelon areas outside the zone of immediate combat to protect convoys from civil disturbances, terrorists and paramilitary organizations.

In addition to these exceptions, the executive order had two additional sections. The first called on the secretary of defense "to take all necessary measures" to assure that the use of herbicides and RCAs in war was prohibited "unless such use has Presidential approval, in advance."[12] The second section tasked the secretary of defense with making the rules and regulations that assured the armed forces' adherence to this policy.

order was developed. As the face of conflict has changed, battlefields are no longer fought along front lines nor are they fought among traditional uniformed soldiers. Even though the executive order seeks to save the lives of civilians on the battlefield, it fails to consider that these may be the very citizens the armed forces are fighting. This in turn means that the battlefields of today are multidimensional—no longer are wars fought across a clear line. Using weaponized

The international community must uphold its commitment to completely eradicate chemical weapons **by establishing a time frame under which states must research and deploy alternative nonlethal weapons.**

The United States, the New Threat, and Its Use of RCAs

There are several problems with Rumsfeld's assertion that the executive order can effectively trump the CWC. First, in becoming a state-party to the convention, the United States understood that it would be subject to all provisions, especially considering that Article XXII states that the CWC is not subject to any reservations.

Another flaw in Rumsfeld's argument lies in his assumption that the president can issue a waiver for any reason in order to release the U.S. Armed Forces from any legal "straightjackets." A close reading of Executive Order 11850 suggests otherwise. The president has guidelines under which he can issue such waivers.

Furthermore, these guidelines are not all that helpful in themselves. The first guideline begs the question: What constitutes direct and distinct control? Particularly when it comes to wars in which insurgency and nonstate combatants are the defining characteristic, establishing who is in control is very difficult. The second guideline does not consider a situation in which the combatant is a civilian, much less the legally troubling classification of "enemy combatant." Under such circumstances, it is unclear whether the president can issue a waiver. The last guideline assumes an outdated battlefield model where the front lines and rear echelons are easily identifiable. All three of these guidelines highlight the executive order's age and show that these three guidelines must be re-examined.

More importantly, these guidelines do not explicitly answer the threshold question of when an action should be viewed as law enforcement rather than war. The answer to this question lies in one's interpretation of state sovereignty and conditions of authority within a country's borders. One thing is clear, however: if a state is a UN member, it enjoys some form of legally protected sovereignty. On June 28, 2004, Iraqi sovereignty was officially returned to an Iraqi government. However, its UN membership never ceased and thus, according to Article II of the UN Charter, Iraq should always have been afforded the full rights and benefits of membership. There is no legal basis for the United States to declare direct and distinct control in Iraq or any state in which it is engaged. Therefore, its legal authority and law enforcement power ends at its border unless the United Nations recognizes otherwise.[13]

The other two contentious guidelines in the executive order are intertwined and reflect the old paradigm under which the executive

chemicals "in rear echelons" is no longer a valid claim, nor is seeking to minimize civilian deaths when the distinction between combatant and civilian is blurred.

Why Does This Debate Matter?

The debate over RCAs and the weaponization of chemicals is very important not only for clarity's sake. If it was simply a matter of jurisprudence or an intellectual exercise, this debate would not be so contentious. The debate matters for several reasons. First, it goes to the spirit of the international arms control regime. Second, these weapons and the implications of their use and legal status have a real impact on real people.

The fact that chemical weapons were a major factor in World War I but were not even used on the battlefield in World War II suggests that a norm against their use had been developed. According to Richard M. Price:

> Restraint embodied in treaty prohibition, though imperfect, reinforced both public and military dislike and fear of chemical warfare and provided a ready excuse for lack of substantive preparation. These factors constituted a threshold for justifying CW [chemical weapons] that raised the ante high enough that, in combination with the timing of the historical course of events, chemical arms were not employed as a battlefield weapon in the major theaters of Allied-Axis confrontation.[14]

As mentioned, the Biological Weapons Convention and the CWC explicitly call for the elimination of both types of weapons, and it is in this spirit that all signatories agreed to the conventions. Furthermore, the remaining stockpiles of chemical weapons, in addition to aforementioned developments in the new generation of chemical weapons, suggest that some states seek to maintain their capacity to retaliate. Note Egypt's and Israel's failures to ratify the CWC, for example. Considering these two facts in conjunction, it is clear that chemical weapons have become a threshold weapon prone to escalation, much like the thresholds to which the world has been beholden as a result of nuclear weapons. In both cases, the taboo against use is strong due to the

destructive force and indiscriminate nature of such weapons and because some form of deterrence (if latent) exists.

Now consider the fact that it is not the weapons themselves that create danger, but rather the way in which states engage these weapons and each other that produces environments of danger or peace. Therefore, if the United States seeks to legally justify the use of weaponized chemicals in a way that is contrary to the international community's interpretation of the law and runs counter to the spirit of the agreements in question, it is not just the legal regime that is affected. More importantly, the security environment is affected. In regard to matters of threshold weapons, when the impact of these perceptions is compounded by legal ambiguity, the result can be disastrous.

Thus, allowing states to legally justify the weaponization of toxic chemicals and pharmaceuticals for the purpose of targeting civilians is a very unnerving notion. Considering that chemical arms are threshold weapons, it is difficult to justify an allowance for states to use such weapons, whether as a method of warfare or otherwise.

Conclusion

It is imperative that the international community works to change the CWC through an amendment or additional protocol in order to clarify the use of RCAs better. The first significant problem that must be addressed is the way in which the convention classifies RCAs. The CWC negatively defines RCAs by simply stating that schedulized agents cannot be used. This approach has left huge loopholes and has made it impossible for the convention to stay abreast of disruptive technologies. This is exemplified by the deadly incident at the Russian theater in 2002 and the analogous pursuits of many states in developing chemical-based nonlethal weapons.

Instead, the convention should seek to define positively what chemicals can be used as RCAs. The international community can begin with discussing the most commonly known agents, generally known as tear gas, such as chloroacetophenone (CN or mace), chlorobenzylidenemalononitrile (CS), chloropicrin (PS), bromobenzylcyanide (CA), and dibenzoxazepine (CR). These agents have proven to be effective in one way or another and are widely recognized as legitimate RCAs.[15] A list of acceptable agents as well as their doses and dispersal methods can be added as an amendment or protocol to the CWC.

This list should be limited to a specific time frame, however. The international community should discuss a time frame during which states can study and develop other nonlethal weapons. For the goal and spirit of the CWC to be fully recognized, all exploitation of chemical toxicity should be phased out completely over time. Other nonlethal technologies, such as anti-traction materials, rubber bullets, thermobaric weapons, and pulse-energy projectiles, should replace RCAs in the long run. Alternative technologies exist and have proven effective in minimizing civilian deaths. These alternatives must be developed and deployed within the confines of international law in order to uphold the spirit of the international arms control regime.

The second issue that the international community must address is the definition of law enforcement. The CWC states that use of RCAs is for law enforcement activities. The definition of law enforcement should mean domestic law enforcement within the recognized, sovereign borders of a country and activities undertaken in conjunction with a UN mandate. In other words, RCAs should only be used in a state's own jurisdiction unless otherwise deemed permissible by the United Nations. All other use must be deemed an act of warfare, which is specifically prohibited by the CWC.

The debate surrounding RCAs is very contentious and reflects not just a legal crisis but an issue that has a broad and deep impact. The international community must address these issues, as the security environment is ever changing and technology evolves faster than legal regimes are able. To move forward in a humane and effective way, international law must keep up with the latest developments lest it collapse under the burden of irrelevance. **ACT**

ENDNOTES

1. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, April 29, 1997 (hereinafter CWC).

2. "Secretary of Defense's Annual Report to the President and the Congress," 2002, p. 25.

3. "The National Security Strategy of the United States," September 17, 2002.

4. CWC, Article II, section 7.

5. Craig Gordon and Earl Lane, "Experts Name Deadly Gas," *Newsday*, October 29, 2002.

6. "The Use of Drugs as Weapons: The Concerns and Responsibilities of Healthcare Professionals," *British Medical Association Board of Science*, May 2007, p. 7.

7. Barbara Hatch Rosenberg, "Riot Control Agents and the Chemical Weapons Convention" "FAS Working Group on Biological and Chemical Weapons. Prepared for the Open Forum on Challenges to the Chemical Weapons Ban: The Peace Palace," The Hague, May 1, 2003).

8. David McGlinchey, "United States: Rumsfeld Says Pentagon Wants Use of Nonlethal Gas," *Global Security Newswire*, February 6, 2003.

9. Ibid.

10. Daniel P. Jones. "American Chemists and the Geneva Protocol," *Isis*, Vol. 71, No. 3 (September 1980), pp. 426-440.

11. U.S. State Department, "Narrative on the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare," September 25, 2002.

12. "Executive Order 11850--Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents," 40 FR 16187.

13. This is not to argue against any state's right to self-defense laid out in Article 51 of the UN Charter. Although the U.S. invasion of Iraq is itself disputed in international legal terms, that debate falls outside the scope of this paper. Admittedly, however, determining its authority to invade Iraq would add another dimension to the discussion here.

14. Richard M. Price, *The Chemical Weapons Taboo* (Ithaca, NY: Cornell University Press, 1997), p. 133.

15. Centers for Disease Control, "Facts About Riot Control Agents," February 22, 2006.

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Interviewed by Oliver Meier

Interview conducted February 8, 2008.

SECTION 8

An Interview with U.S. Ambassador Donald A. Mahley, Acting Deputy Assistant Secretary of State for Threat Reduction, Export Controls, and Negotiations

Representatives of states-parties to the 1993 Chemical Weapons Convention will gather April 7-18, 2008 in The Hague for the second review conference of the chemical weapons ban. Participants will have to take stock of developments since the last review conference in 2003 and will discuss measures to adapt the treaty to current and future scientific and political developments.

On February 8, 2008, Arms Control Today International Correspondent Oliver Meier interviewed Acting Deputy Assistant Secretary of State for Threat Reduction, Export Controls, and Negotiations Donald A. Mahley about U.S. priorities for that meeting. Ambassador Mahley is the managing director of the United States National Authority, which is responsible for implementation of the Chemical Weapons Convention (CWC).

ACT: *What are the key U.S. priorities for the forthcoming CWC review conference and what obstacles do you foresee to achieving those priorities?*

Mahley: We're still working on the details of what our specific objectives are for the review conference, but I think our priorities for the review conference are probably fairly straightforward. We want to make sure that the convention continues to work in as efficient and effective manner as it has up until now, that we avoid any kind of disputations or other kinds of things that are going to disrupt the conference, [and] that we maintain the idea that OPCW Director-General Rogelio Pfirter has done a lot of work to put in place a lean and mean organization. We are very pleased that we have been able to have for the last few years nominal zero-growth budgets. That's been a great strain in terms of trying to get as much done as you can, but we certainly want to make sure that we don't set in the review conference either a principle or a trend that we're going to start expanding the budget of the OPCW by a great deal.

We'd also like to see if we can't get some redirection in some of the efforts of the OPCW more into the idea of where the threat really occurs now and the unscheduled producers in some of the Third World countries. Quit trying to re-inspect so much all of the schedule 1 and schedule 2, particularly schedule 2 plants, in western countries where I think the size and the surveillance we've already done of those is a very clear indication that those aren't a potential proliferation threat for chemical weapons.[1]

And I think that's probably what our priority objectives are in terms of trying to get something out of this.

What do we see as potential obstacles to that? One, we think there are probably some states that have a different agenda with the review conference that is going to be both more accusatory and more disruptive. One of the things, for instance, is what do we think the review conference ought to do about 2012—the destruction deadline?[2] We don't think that this is the time to try to address 2012. 2012 is there. We've all taken a look at the enormous technical obstacles in terms of destruction that are between here and 2012 and what I think this review conference ought to do is to set the groundwork for a work program to be able to find constructive ways to address the 2012 question before we get to 2012, but it's too early to try to do something that will formally address that issue at this review conference. I think it's going to be a potential dispute and obstacle.

It's also the case that we continue to be against the idea of trying to turn the Chemical Weapons Convention and the OPCW into something other than a nonproliferation and arms control agreement, which is what it really is. If there are countries that are trying to push an agenda other than that then that will probably be an obstacle to the review conference.

ACT: *Iran at the last two conferences of states-parties has proposed to establish a "chemical weapons victims international funding and assistance network".[3] What's your view on this proposal and do you expect the review conference to address it?*

Mahley: I certainly expect the review conference to address it because it's been placed on the agenda. I would argue that while we are certainly sympathetic to victims of chemical weapons, that the review conference and the OPCW are not specifically designed to, nor are they necessarily the place to, try to do something like setting up funds or disbursing funds or doing anything along that line with respect to victims. There are humanitarian agencies that exist in the world which can take that issue up. There are other ways to try to address the question rather than trying to turn that to being a function of a nonproliferation organization.

ACT: *In 2005 the U.S. noncompliance report voiced concerns regarding compliance of China, Iran, Russia, and Sudan with regard to the CWC.[4] Does the United States still maintain that these states may be pursuing chemical weapons-related efforts or programs? Are there other countries you suspect of being interested in chemical weapons? Does the United States intend to name noncompliant CWC parties at the review conference?*

Mahley: I cannot address the last question because I don't think we've made a decision on that yet. That will be determined probably much closer to the review conference about whether or not we're going to try to address countries on it. Again, it is our view that the CWC has been working reasonably well.

We continue to have concerns about the fact that countries in many ways are not complying with all the responsibilities under the convention, are not complying with the responsibilities towards the objectives of the convention, and are certainly not transparent in some of the things they are doing nationally. Those remain concerns for the United States. I wouldn't want to try to go into a list of countries here, but let me say that we continue to uphold the same conclusions that we've reached and agreed on nationally in our noncompliance report. I think we're still debating whether or not the review conference is a forum at which we wish to make that a major issue. Certainly, we are going to note it. For the United States to go to this review conference and not note that we still have real concerns about the compliance of some states with their international obligations as put in the review conference; we're not going to ignore that. How we want to do that is something that I think we're still debating.

ACT: *If the United States still has concerns about compliance, why has the United States never requested a challenge inspection[5] to clarify such compliance concerns? Under what circumstances do you envisage that such an inspection could be requested by the United States?*

Mahley: I think I can answer the second half of that question quicker than I can answer the first half of that question. The second half of that question is that we still believe the challenge inspection is a very important deterrent element of the CWC. Certainly at any time that the United States believed it had actionable evidence that would be susceptible to demonstration by a challenge inspection we would be in the forefront of calling [for] such an inspection.

Now, what you have to worry about, however, is when you look at the international reactions of other countries to other areas of concern that we have about compliance with international obligations and some of the ways in which the countries have not reacted to what was fairly compelling evidence, then we have a question about whether or not a challenge inspection is likely to create the kind of reaction on the part of some of those other countries that would be indicative of doing anything effective about the noncompliance situation that was at hand.

When we talk about the compliance concerns that we have, one of the things you have to be fairly careful about in calling a challenge inspection is that those compliance concerns are things that would be competently reflected in the results of a challenge inspection. If you have a concern that a country has a stockpile of weapons or agents that they shouldn't have under the convention, then until you've got a location for that it doesn't do you any good to simply call challenge inspections willie-nillie. If you call a challenge inspection for the wrong place, then the country, even though it may still have that stockpile, is going to claim that it has been exonerated by the international community and therefore you can't list them as a concern anymore. That's again not a path that we are going to follow.


Department of State

Ambassador Donald A. Mahley

ACT: *You said it was too early for the review conference to address deadlines for chemical weapons stockpiles. Nevertheless, it seems likely that neither the United States nor Russia will be able to meet the 2012 deadline. The review conference somehow has to address this fact, particularly since it's likely to be the last review conference before the 2012 deadline expires. Two options have been mentioned, one is amending the CWC, the other is invoking Article 8, paragraph 36 which gives the executive council of the OPCW the power to adapt relevant provisions.[6] Are these options that you think might be relevant for addressing the 2012 deadline?*

Mahley: I don't think that anybody has coherently looked at how best to address the 2012 deadline other than to wring their hands about the fact that they think it is an impending crisis looming on the horizon. That's why I say that this review conference is too early to try to address that. I do not believe, frankly, that the appropriate groundwork has been laid to come up with a set of proposals or suggestions about how to effectively and rationally to address that.

I will put down one marker right now. The United States does not believe that an amendment conference for the Chemical Weapons Convention is either a suitable way to address that issue nor is it something that we would support. Amendment conferences get to be very tricky and take a chance of doing a couple of things that are very bad. [They] either undercut the regime that you have now or put in place a two-tiered regime depending on who's ratified the amendment to the convention. We are simply not of the view that that would be an effective answer to any of the problems that we've currently seen listed.

I think the review conference ought to address the 2012 question in the fashion of setting down a work program and perhaps even establishing a working group to look specifically at the 2012 question as it gets nearer. I recognize that on the five-year schedule the next review conference would not occur until after 2012. But, number one, there is nothing in the convention that restricts review conferences to every five years. So there's nothing that says you couldn't call an extraordinary review conference, or any other conference of states-parties which has full vested power in terms of acting on the treaty. At some point before 2012 when you had for that conference an agenda for proposals, you could then rationally discuss how to address the 2012 question.[7]

The second thing is that I really want to make the point that 2012 is a date which was set in a time when the best minds looking at the best technologies thought was extraordinarily long in terms of destroying chemical weapons. What we have discovered since that was set in print and agreed to in 1992 is that destroying chemical weapons is a much more complicated event, particularly if you're going to do it an ecologically safe and secure fashion. So, one of the questions you have to ask is whether or not those stockpiles that may remain after 2012 [are a threat.] Assuming that all of

the possessor states that still have stockpiles in 2012 maintain their commitment, as they currently express it, toward the rapid and complete destruction of those chemicals in a verified and ecologically safe fashion. and if those stockpiles are identified, secured and under constant supervision for the OPCW, it's not clear to me that that constitutes a particularly acute threat with respect to chemical weapons proliferation.

ACT: *The purpose of such a work program or working group that you have proposed would be to set the parameters for dealing with a stockpile remaining after 2012?*

Mahley: It could address a number of issues. It could address, first of all, the question about what is the compliance penalty. Given [the] statutory nature of the treaty, after the 28th of April 2012, the possession of chemical weapons is going to be [a] violation of your obligations. Now, that in some ways is a technical violation. I don't want to get into a legal argument here. Assuming that [the chemical weapons] are all secured and that they are all under observation and rapidly moving their way toward destruction facilities, it's not clear that that's as bad as having an illicit program in terms of compliance. So, is there something that the states-parties ought to agree on in terms of what kind of a status that places those countries [in] that are still possessing chemical weapons under a destruction program as opposed to flat out noncompliance in the most rigorous sense of the word? Is there some recognizable program to which you could get a commitment from the possessor states that would give a very clear line about the rapid completion of the destruction program after 2012? Could [that] then become a supplemental commitment?

Now, I don't know the answer to any of those questions. I don't know what is legally feasible. I don't know what is politically feasible, but that's the kind of thing that I think that you ought to set up. Have a group to study very carefully—with probably a two- or three-year limit in terms of their study—to come back to the executive council and the regular conference of states-parties with proposals.

ACT: *There have been statements by U.S. officials that the destruction of chemical weapons stockpiles will probably not be completed before 2023. Congress, in the context of the 2008 defense appropriations bill, requested the Department of Defense to complete destruction by 2017. Do you think that's a realistic goal and what do you think it would take to make that 2017 deadline?*

Mahley: I think that's something that you would have to ask the Department of Defense who have the responsibility for it and are doing the technical studies to try to determine the feasibility of that deadline.

ACT: *The United States has appropriated more than a billion dollars for chemical weapons destruction in Russia, primarily for the construction of the nerve agent destruction facility at Shchuch'ye. That project is only half finished and the administration wanted to turn over responsibility for the second half of construction to Russia. What do you believe are the main reasons for the delays in Russia's chemical weapons destruction? To what extent do you think Russia still needs international financial support to fulfill its treaty commitments? What can the review conference do in this context to address Russia's delays in chemical weapons destruction?*

Mahley: To go to the last question about Russia's delays, I think that one of the things [the] review conference can do is to make [it] unequivocally clear to the Russian Federation that they are going to continue to be held to the same standards as everyone else in the world in terms of the destruction of their chemical weapons and that they must continue to view and operate on that as a real priority in terms of the Russian government's actions.

Now, what do I think are the reasons for the delays? Without knowing all the details of Russian destruction and Russian management, I suspect that they have run into some of the same kinds of difficulties that the United States has run into. In the sense that these are technically complex machines and systems that have to do the destruction of chemical weapons, you can't always just build [them the] first time out and just put them down on the ground and [think that] they're going to run forever without requiring maintenance and shutdown and various things. Those are always the kinds of delays that get involved with it.

I also think that in the Russian case, for a number of years, destruction of chemical weapons simply was not a priority for the Russian government. While recently it appears that they have indeed made chemical weapons destruction a priority requirement and have been moving out smartly in terms of trying to get some real work done on it, they nonetheless have a much later start than the United States had. They are in some respects playing catch-up.

ACT: *What steps should be taken by the review conference to convince more hold-out states to join the CWC and what is the United States specifically doing to persuade allies such as Israel, Egypt, and Iraq to accede?[8]*

Mahley: Iraq is I think a fairly straightforward case. Iraq has pledged to accede and that's simply a matter of getting the various documentation and other requirements done so that they can effectively accede to the convention. I would expect that to happen in the not too distant future.

With other allies we continue to place that on the agenda when we have nonproliferation discussions with those countries. [We] try to convince them that in reality having a chemical weapons capability is not a particularly effective instrument of national policy. It doesn't necessarily act as a deterrent to other action because there is increasing doubt in the mind of the world about whether or not you would ever employ it. Therefore by joining the CWC they are not, in reality, going to be forfeiting any national security objectives and national security options.

Now, making that argument in a region [that] is as complex and interconnected as the Middle East obviously is not always particularly persuasive or effective, but the United States continues to push that point.

The OPCW has done a number of things in terms of laying out in seminars to various countries that are not now members all the ways in which the OPCW operates, all of the procedures that they follow, all of the qualifications that they have in terms of executing their job, a full description of what their job is. That's about all you can do to try to convince these folks that there is an effective and competent organization that they would be joining. The rest of it then becomes a matter of political will. How you create that political will, I don't have any great secrets for. If I did, I'd probably be making more money than as a United States government employee.

ACT: *Do you think that today OPCW inspectors would be able to detect a clandestine chemical weapons program run by a state-party?*

Mahley: I think I'd have to ask that that question be clarified. Do I think that the OPCW inspectors would be able to detect a clandestine program run by a state-party? If by that you mean, are they going to go out and find the intelligence information that says that we believe there is a clandestine program in that party, no, because that's not their job. Their job is to go conduct inspections.

Do I believe that they are capable of detecting a clandestine program if one were being conducted, for example, at a facility that they were inspecting on a routine inspection because it's a dual-capable facility? I think there's a very good chance of that.

Would they be able to detect a clandestine program were there one present if this were the result of the challenge inspection? I think that's a variable answer. It's a variable answer that's not a question of the competence of the OPCW. It's a question of the entire issue of how one in a confrontational, as opposed to cooperative, fashion might be able to conceal from any set of inspectors the presence of a clandestine program. Certainly there is a chance that one could do that, even under a challenge inspection. In that case, I don't think the OPCW inspectors would be at any greater advantage or disadvantage than any other team of inspectors.

ACT: *At last year's conference of states-parties Paula de Sutter said "We have to make sound recommendations that will ensure that verification keeps pace with changes in both the industry and the chemical weapons threat."[9] What measures specifically would the United States like to see adopted by the review conference to increase the likelihood of detecting prohibited chemical weapons-related activities?*

Mahley: That's not necessarily an issue of what are you going to be able to adopt. Do we want to make sure that OPCW inspectors continue to receive training even during the time that they're inspectors so that they remain abreast of the kind of changes that take place in the chemical industry? Certainly we do. Certainly we encourage the OPCW to do this. Certainly we believe that the OPCW does this to the extent that they can. We want to keep that up and we certainly think that there need to be budgetary provisions to do it.

The executive council needs to remain aware as much as the OPCW technical staff needs to remain aware of the changing nature of the chemical weapons threat. By that we mean not only the technological changes that make it possible to produce chemical weapons in a much smaller and more covert environment than the traditional manufacture of thousands and tons [of weapons and material] at large plants with specialized equipment. The threat now involves not only rogue states, but the nonstate actor. [For the] nonstate actor the quantity, for example, of chemical agent that a terrorist group would need in order to have something to effectively fulfill its objectives is considerably less and potentially of lower quality than the chemical agent that a state would want as part of a program that was going to be an adjunct to their military forces.

ACT: *Do you think the overly narrow focus of many states on the schedules of chemicals that cover only a fraction of toxic chemicals and precursors of potential chemical weapons concern has reduced the effectiveness of the CWC? How can this problem be addressed without actually amending the schedules?*

Mahley: Remember that the schedules have nothing to do with what's defined as a chemical weapon. Schedules are matters of defining what facilities are subject to verification inspections and certainly all of the chemicals that are on the schedule are and remain toxic chemicals and potential precursors to chemical weapons or chemical agents. And therefore, they should indeed remain subject to inspection.

It's also the case that you have the discrete organic chemicals which are a larger group and which have some greater flexibility in them already. One of the reasons that the United States believes that we ought to be shifting focus to that group as part of the inspection program under the OPCW is that that provides you with the flexibility to get out into facilities that are capable [of producing], and in some cases have possession of, stockpiles of other chemicals that go off the schedules. Therefore [they] are part of the potential threat in the expanded realm of chemical agents.

ACT: *Many nongovernmental organizations and some states-parties argue that scientific and technological developments makes it necessary that the review conference address the increased interest in so-called nonlethal chemical agents. How should the review conference address this topic and what action should be taken to ensure that the norm against the hostile use of chemical agents is not undermined by the development of novel incapacitating agents?[10]*

Mahley: I'm not sure that this is a problem that the Chemical Weapons Convention is deaf, dumb, and blind about. Certainly the issue of incapacitants is different than the issue of riot control agents. Riot control agents, as an exception to the Chemical Weapons Convention, are very carefully defined. Most of the incapacitants, in terms of human effects that you talk about technology now developing, do not fall in the realm of riot control agents. They fall in the realm of nonlethals. Nonlethals are still in the Chemical Weapons Convention [considered] chemical weapons. The only exception is the law-enforcement exception. So it's not clear to me that this is something in which you say "oh my, the convention needs to be changed." I don't think the convention needs to be changed at all.

If anything, in the review conference [there] needs to be a relatively brief discussion reminding people of what the convention itself says. [It] says that those kind of nonlethals are not legitimate chemicals to be had for military purposes.

ACT: *Do you think there's a necessity to talk about what military purposes means today because the context has changed to some degree? We have international police operations, if you like, where such agents may be used. That is a development that may not have been foreseen at the time when the convention was negotiated.*

Mahley: I think that would be a discussion that is likely to [cause] the review conference [to] become less focused, rather than more.

ACT: *Is the United States ready to discuss the issue of restricting trade in schedule 3 chemicals with non-states-parties and if the United States isn't, why not?[11]*

Mahley: Well, I don't think I'm in a position to discuss that because I don't think we've made up our minds yet.

ACT: *Do you believe the OPCW's ability to monitor trade and dual-use chemicals needs to be increased and how could this be achieved?*

Mahley: The OPCW is not designed to be a trade monitoring organization. Trying to create a bureaucracy, which would then also create an enormously larger set of declarations that countries would have to do, is not necessarily in our view either an efficient or effective way to try to exercise that kind of control of trade. We think there are responsibilities that are very clearly laid out in the convention about trade and chemicals. Those responsibilities that are clearly laid out are a matter of national enforcement. We would therefore turn to national authorities to do the things that they need to do, which is a part of the convention responsibility, to implement the right legal framework to give them both the data set and the enforcement capability to go out and control that kind of trade as they see fit to fulfill their obligations.

the CWC and assumed its obligations. So therefore, that's not a question in which the OPCW is the appropriate enforcement mechanism. The OPCW is not an enforcement body at all, as a matter of fact. It's not the case [that] the convention, acting as a convention, is going to take action against the terrorists. The sovereign countries in whose territory the terrorists are operating are going to take action against the terrorists.

ACT: *Ambassador Eric Javits, the head of the United States delegation to last year's conference of states-parties, suggested that CWC member states should prioritize national implementation assistance efforts on those 20 states-parties "that lack effective implementing measures, but have more activities relevant to the convention within their territories".[14] Can you cite some examples of states that you believe to be particularly important in this regard and what kind of obstacles do you foresee for putting this proposal into practice?*

We'd also like to see some redirection of efforts into where the threat really occurs now…the unscheduled producers in some of the Third World countries. Quit trying to re-inspect so much all of the schedule 1 and schedule 2 plants in western countries that aren't a potential proliferation threat for chemical weapons.

ACT: *The administration continues to highlight the importance of the Proliferation Security Initiative[12] in preventing the spread of weapons of mass destruction, but all publicly known cases of PSI interdictions relate to nuclear technology. Have there been any successful cases in which the PSI has sought to prevent the proliferation of chemical and biological weapons to your knowledge?*

Mahley: No comment.

ACT: *Regarding national implementation, what role is there for the CWC in reducing the threat from chemical weapons terrorism? How can this role be strengthened from your perspective?*

Mahley: I think the Chemical Weapons Convention's role in preventing [the] spread of chemical terrorism is embodied in the Chemical Weapons Convention obligation to each state-party that they do all the things necessary in terms of national implementation to prevent any person within their jurisdiction or control from developing, producing, stockpiling, and [breaking] all the other prohibitions [related to] chemical weapons. That means that each country that is a member of the Chemical Weapons Convention has not only an obligation under UN Security Council Resolution 1540[13], but also a requirement under the Chemical Weapons Convention, to have in place an effective legislative package and enforcement capability to prevent terrorists from being able to do chemical weapons things within their territory or jurisdiction of control. That's the way in which you get at terrorism.

The problem with the convention and using the OPCW for terrorists directly, is (as I have said in other fora at other times) that no terrorist group, to the best of my knowledge and belief, has signed

Mahley: I'm not going to try to cite countries because I'm not going to get into a list of countries. I will simply say that the obstacles to that are getting national implementing legislation and effective enforcement in place in all the countries [that] I believe have a pretty thorough understanding of what their obligations are. Now, if there are those who don't [understand their obligations], then the first priority has got to be education to try and educate them. [For] those that understand it and haven't done so yet, it is really a question that they either lack the resources or they lack the training.

What we can do, and what the United States for example bilaterally has done with a fair amount of effectiveness in a number of countries, is we send out teams that sit down with people in their executive branch. [The teams] suggest to them ways in which they might formulate national laws if they don't have national laws, talk to them about how they can convince their parliaments to enact those kind of laws, and then what kind of organizational structures and training programs they need to set up in order to get enforcers that are competent to go out and enforce those laws once they're on the books.

The second part is we have training programs. Once we have the organizational structure set up, we are prepared to send resources and actually conduct training programs to make the officials [who] are going to be enforcing the laws more effective in their understanding of what constitutes a chemical weapon and how that works.

Those are the kinds of things that we think we can ask other countries to join us in doing. Frankly, we've had some favorable response from countries in the European Union in those kind of outreach programs to try to set up those kind of assistance activities.

ACT: *How can the 1540 committee help states live up to their CWC obligations? How can the committee be strengthened so that it can fulfill its mandate better?*

Mahley: I'm not an expert on the 1540 committee, I want to emphasize, but I think that the way that can work is to simply point out that the chemical weapons arena is an integral part of what they, as the 1540 committee, are trying to get countries to do. Because they've got the UN umbrella over them, they have the ability to appeal to countries on a completely different plane—or to a completely different set of bureaucrats, at least—to offer assistance [to other countries] and to put some emphasis within their own juridical systems on trying to get these kinds of laws and regulations and enforcement mechanisms in place. In that sense, I see the 1540 committee as a complement to the efforts that the Chemical Weapons Convention takes on. The 1540 committee obviously has a much broader mandate in terms of all the weapons of mass destruction and terrorism, as opposed to just chemical weapons.

ACT: *If you look ahead to the review conference what would be the three specific recommendations coming out of that meeting that you would like to see to strengthen the CWC?*

Mahley: I really don't have that down to a focus yet where I'm prepared to say which ones we want and which ones we don't want out of that. So, I'm going to have to pass on that one.

ACT: *Thank you very much.*

ENDNOTES

1. The CWC verification system is based on three "schedules," or lists of toxic chemicals and their precursors that have been developed and manufactured in the past for military purposes. Schedule 1 consists of chemical warfare agents and precursors that have no significant commercial applications, although they may be synthesized in small quantities for scientific research, pharmaceutical development, or chemical defense. Schedule 2 lists toxic chemicals and precursors that have commercial applications in small quantities. Schedule 3 contains toxic chemicals and precursors that have commercial applications in large quantities. The primary focus of routine inspections of the chemical industry under the CWC is on declared production facilities that manufacture the dual-use chemicals listed on Schedules 2 or 3. Several Western states, including the United States, would like industry verification to focus more closely on other chemical weapons facilities (OCPFs), some of which in their assessment are easier to misuse for chemical weapons production facilities. Such a shift would result in an increase in the relative share of inspections in non-Western countries.

2. The convention requires states-parties to destroy their chemical weapons by 2007, 10 years after the CWC's entry into force. It is possible to request an extension of this destruction deadline by up to five years, until 2012. The conference of states-parties on December 8, 2006, approved requests for extensions of the final date for the destruction of the declared chemical weapons stockpiles. The following deadlines for complete destruction are now binding: India—April 28, 2009; Libya—December 31, 2010; Russia—April 29, 2012; South Korea—December, 31, 2008; the United States—April 29, 2012.

3. At the 12th conference of states-parties to the CWC, held in November 2007, Iran proposed that states parties establish a "Chemical Weapons Victim's International Funding & Assistance Network", a proposal first mentioned by Iranian Foreign Minister Manouchehr Mottaki at the 2006 conference of states-parties. See *ACT*, December 2007.

4. At the first review conference, the United States asserted that more than a dozen countries possess or are actively pursuing chemical weapons. It voiced specific concerns about the compliance of Iran and Sudan, which are members of the CWC, as well as nonmembers Libya, North Korea and Syria. The 2005 State Department report on "Adherence to and Compliance with Arms Control, Nonproliferation and Disarmament Agreements and Commitments" raises compliance concerns regarding China, Iran, Russia, North Korea and Syria. Libya acceded to the CWC in 2004, North Korea and Syria are nonsignatories.

5. Article IX of the convention grants CWC states-parties the right to request a challenge inspection of any site, declared or undeclared, on the territory of another member state "for the sole purpose of clarifying and resolving any questions concerning possible non-compliance."

6. The relevant paragraph states that when considering "doubts or concerns regarding compliance and cases of non-compliance... the Executive Council shall consult with the States-Parties involved and, as appropriate, request the State-Party to take measures to redress the situation within a specified time."

7. Article VIII.12 of the CWC provides for the possibility of a special session of the conference of states-parties to be convened, outside the regular annual cycle of such meetings.

8. Of the seven states that have not signed the CWC, four are in Middle East (Egypt, Iraq, Lebanon, and Syria). Israel has signed but not ratified the convention.

9. Statement by Assistant Secretary of State for Verification, Compliance and Implementation Paula A. DeSutter, United States Delegation to the 12th Conference of States Parties of the Organization for the Prohibition of Chemical Weapons, November 6, 2007.

10. Article VI of the CWC gives states-parties the right to maintain toxic chemicals for purposes not prohibited under the convention, including "law enforcement, including domestic riot control." Whether the CWC permits the development and use for domestic law enforcement purposes of incapacitating agents with long-lasting effects, in addition to riot-control agents with transient effects, such as CS tear gas, is a matter of intense debate. See Kyle M. Ballard: "Convention in Peril? Riot Control Agents and the Chemical Weapons Ban", *Arms Control Today*, September 2007.

11. Article VI of the CWC specifies a number of restrictions on trade, keyed to the treaty's three schedules of chemicals (see endnote 12). With the entry into force of the convention in April 1997, transfers to non-states-parties of the chemical warfare agents and precursors listed on Schedule 1 were banned immediately, and trade with non-states-parties in chemicals listed on Schedule 2 have been prohibited since April 2000. In 2003 the OPCW Conference of the States-Parties to the CWC considered a possible ban on exports to non-states-parties of Schedule 3 chemicals but could not agree by consensus. At present, the CWC allows exports of Schedule 3 chemicals to non-states-parties only if the recipient provides an end-use certificate clarifying the intended use and pledging not to make any further transfers. See Jonathan B. Tucker, "Strengthening the CWC Regime for Transfers of Dual-Use Chemicals," The CBW Conventions Bulletin, Vol. 75, March 2007, pp. 1-7.

12. President George W. Bush announced May 31, 2003 that the United States would lead a new effort, the Proliferation Security Initiative , to interdict shipments of weapons of mass destruction and related goods to terrorists and countries of proliferation concern. See Mark J. Valencia, "The Proliferation Security Initiative: A Glass Half-Full," Arms Control Today, June 2007, p. 17.

13. On April 28, 2004, the UN Security Council unanimously adopted Resolution 1540 under Chapter VII of the UN Charter. The resolution mandates that all states establish domestic controls to prevent the proliferation of weapons of mass destruction and means of delivery, in particular for terrorist purposes, including by establishing appropriate controls over related materials, and adopt legislative measures in that respect. In that context, the council also established a committee comprising all council members (the 1540 Committee) that would report on the implementation of the resolution.

14. Statement by Ambassador Eric M. Javits, United States Delegation to the 12th Conference of States Parties of the Organization for the Prohibition of Chemical Weapons, November 5, 2007.

Interviewed by Oliver Meier

Interview conducted November 20, 2007.

SECTION 9

An Interview with British Ambassador Lyn Parker, Chair of Open-ended Working Group Preparing for The 2008 Chemical Weapons Convention Review Conference

Representatives of states-parties to 1997 Chemical Weapons Convention will gather April 7-18, 2008 in The Hague for the second review conference of the chemical weapons ban. The conference will have to take stock of developments since the last review in 2003 and will discuss measures to adapt the treaty to current and future scientific and political developments.

On Nov. 20, Arms Control Today International Correspondent Oliver Meier interviewed British Ambassador Lyn Parker who is chairing the open-ended working group (OEWG) that is charged with preparing the review conference. About 40 states-parties have participated in the group, which has been meeting since July 2006. Among other things, the working group aims to develop a draft of the chairman's report document that will provide the basis for discussions on the final report of the review conference.

ACT: *What has the working group achieved so far? What issues have been discussed and on what topics is there still disagreement among working group members?*

Parker: The working group has been operating for just over a year now, working its way systematically through the main issues that arise from the convention. The group has been basing itself partially on the outcome of the last review conference, because that's the starting point in terms of assessing what's happened since then, but also looking at new issues which have arisen since then. The sort of things that we have covered include universality, general obligations under the convention, verification, chemical weapons and production facilities for them, activities that aren't prohibited under the convention, national implementation, consultation, cooperation, fact-finding and related issues, assistance and protection, economic and technological development, scientific progress, the final articles of the convention related to procedural and structural issues, protection of confidential information, and the overall functioning of the Organization for the Prohibition of Chemical Weapons (OPCW). So, it's quite a long shopping list. Basically we have been covering the main areas in which the convention operates in a fairly systematic manner.

You asked if we have consensus on these issues. We've collected a wide range of views from delegations, we've also had inputs from industry, from non-governmental organizations, both written and at the meeting on Nov. 19 at the OPCW[1], and from the Scientific Advisory Board[2], and we are awaiting and will receive shortly a substantial paper from the director-general and the [OPCW's] secretariat, summing up their view of developments since 2003. I expect Director-General Rogelio Pfirter's views on the sort of issues on which we should be focusing when we come to the conference itself. So there has been a wide range of inputs to the OEWG.

We're not at the stage yet of seeking consensus in fine detail on exactly what might be said at the review conference. But it is fair to say that there is a high degree of common purpose, I think, among delegations on these issues. Inevitably, we have debates about the relative importance of different aspects of the convention, the different weight to attach to them, and in some areas there are long-running debates about exactly how we should tackle some of the trickier issues. These are reflected equally in our discussions in the working group. But overall, it's a very positive atmosphere and a strong sense of common purpose.

ACT: *At the first review conference, the atmosphere was somewhat charged because the director-general had been ousted the previous year.[3] Based on your discussions in the working group so far, what do you expect the atmosphere to be like in April next year?*

Parker: Obviously I wasn't around at the time of the previous review conference, so I have no benchmark for comparison personally, but I think it's fair to say that the last few years have been ones of steady progress in the organization. Whatever may have been the case in 2003, there's now a high degree of confidence in the leadership of the organization by the Director-General Rogelio Pfirter and in the quality and performance of the secretariat. Therefore, I think the atmosphere is a good one for the review conference and will enable us to focus on the issues of substance, which we should be focusing on.

ACT: *Have states-parties already begun discussions on the final document?*

Parker: Not yet. We're at the end, if you like, of the information-gathering and views-gathering stage. We're just a week or two away from the end of that rather protracted initial stage. But we should have all our major inputs by the middle of December and the drafting process will then begin and will run particularly intensively in January and February of 2008. So we hope that there will be a text available for states-parties to consider several weeks before we come to the review conference itself.

ACT: *And what kind of products do you expect to come out of the review conference? The same type of document that the last review conference approved, or will it be different?*

Parker: Well, we're in the hands of delegations as far as this is concerned, but we have put around a draft outline for the main report, which we've had some comments on. But basically I think there's broad support for this document, which would produce, if you like, the main detailed report in a rather similar way to last time. Like last time I envisage that there would be on top of this a political declaration which would be shorter and more sharply focused. So, a combination document, a two-part document, which would have the main messages up front in a political declaration, and then a more detailed document with more substance in it, but perhaps would take a bit longer to read.

ACT: *Has there been a decision yet on how the review conference will operate? Will states-parties review the convention based on a thematic approach or article-by-article?*

Parker: It's kind of hybrid. The list I gave of issues more or less follows the sequence that we have followed and it is a hybrid of following the broad structure of the treaty, but not being tied down exactly to an article-by-article approach. It makes sense to pull together themes like verification, or like national implementation, or assistance and protection, and deal with them in groups. I leave it to the academics to decide whether we're operating on an article-by-article or thematic approach. It's really a hybrid of the two.

ACT: *Turning toward the substance of discussions. Are there any issues that you expect to be more important during discussions than others? Will the conference be more backward-looking or more forward-looking? What's your feeling based on discussions in the working group?*

Parker: I think the assessment of performance and that the review conference does this part of its job thoroughly is important, but I don't think that there will be a tremendous amount of argument about the record in the sense of what we have achieved.

The real question for the future is what more can we do and also how do the balances built into the convention change over time as we move towards the deadline for destruction of chemical weapons stocks and we start to look at what lies beyond the destruction of existing chemical weapons stocks. What kind of organization does this need to become? What are the balances between the traditional destruction and verification activities and some of the other activities such as cooperation, assistance, and protection, which are important to a lot of states-parties who are not themselves directly involved in the processes related to chemical weapons destruction?

ACT: *But before we get to that stage, of course, destruction has to be completed and there is the problem that it seems unlikely that all states-parties will be able to meet their commitments related to chemical weapons destruction.[4] Given that this will be the last review conference before the extended deadlines expire, what is your sense how this question will be discussed at the review conference? Do you think that member states should already discuss this question or should they wait until 2012 when the deadlines expire?*


UK Trade & Investment

British Ambassador Lyn Parker

Parker: We'll have see what happens in the discussions themselves. Clearly this issue is in the mind of quite a few delegations. On the other hand, we are still some years out from 2012. Whether this will actually be the last conference, either a formal review conference or a special conference before that date, we don't at this stage know. You're right that on the five-year cycle the next one would actually come in 2013, but the convention provides for other possibilities, so it's not impossible there could be discussion before 2012.[5]

Actually, in terms of performance at the moment the possessor states, particularly the two big possessor states, are actually doing well against their existing destruction targets. We're not at this moment in difficulty. We'll have to see what states-parties want to do in the discussion of this. But I think there's a general feeling on the part of many delegations that although these are issues that we will need to confront and look at very seriously when we get nearer to the time, it is a little bit premature to try to work out now how they may be handled if and when the time comes, if there turns out to be a problem in 2012, because so much can happen between now and then. But, undoubtedly it's an issue that will come up in the discussions and I'm sure it will be referred to in the conference when we get there.

ACT: *At the last review conference, the United States in their opening statement accused a number of states-parties of being in violation of the CWC. Do you again expect similar accusations of noncompliance and how do you think the review conference can actually deal with the question of compliance?[6]*

Parker: Well I can't speak for the states-parties and what they may or may not do when we come to the conference. What we have in the convention is a set of procedures, which can be used in cases of doubt, starting with the possibility of consultations and then leading all the way, if necessary, to challenge inspection. The way in which these procedures might be used has been the subject of quite a lot of discussion, including in the review conference work so far. I'm sure that one element, for example, in the final outcome of the review conference will be a reflection of further discussion on challenge inspections. This year has been interesting. The Dutch government staged a mock challenge inspection so that everyone could see how it would work, and fortunately, did it close enough to The Hague for people actually to go along and be able to observe what happened if a challenge inspection was conducted. So these issues are live ones and under discussion, but for me at least, I think that it's premature to judge

what might happen when we get to the review conference itself.

ACT: *You mentioned earlier that some of the real challenges lie in the future and lie in adapting the convention to some of the changing circumstances. One of the issues that a lot of nongovernmental organizations (NGOs) have highlighted is the threat coming from so-called non-lethal or incapacitating agents. At the last review conference, states-parties did not get into a debate on this issue.[7] Now, since 2003, a number of states have increased their efforts to develop and deploy such agents and many hope that this review conference will pick up the issue. Do you think this issue will be on the agenda and what kind of decisions could we expect from the review conference? Could the conference, for example, agree on a technical working group to discuss nonlethal or incapacitating agents?[8]*

Parker: Again, I'm afraid it's a bit early to say what the conference might ultimately discuss or agree. The issue has come up. It has been raised by one or two states-parties in the discussion and it is very much a live issue in the NGO community, where a number of NGOs have raised this in the inputs which they've made into the review conference process so far. What will happen when we get to next April, I hesitate to predict. It's, of course, not a new issue. It's an issue that's been around for some time and this question of where the border, where the limits of the convention lie is a complex one, both in terms of what are called nonlethal weapons (not necessarily an ideal title for the kind of agents that people are talking about) and also the role of riot control agents (which are specifically covered in the convention). I think we'll have to see how this debate plays out, and particularly how far states-parties pick up what is undoubtedly a very lively debate out in the NGO community.

ACT: *You also already mentioned that there is a debate about the balance of the different components of the convention. Many observers expect discussions on international cooperation to be a potentially divisive issue. What's your sense of how the review conference can address that issue and do you expect there again to be direct criticism of the Australia Group[9], for example?*

Parker: The convention reflects a balance between the interests of the countries who at the time the convention was put together had major chemical industries. Some of whom were or had been chemical weapon-possessor states, and a wide range of other countries where chemical industries were less developed There's a set of issues which were very much focused on promoting mutual trust and confidence and stability through the destruction of chemical weapons, and also the verification elements which were necessary to go alongside that. Then there are the states-parties'interests which have developed increasingly as we have pursued universality, very successfully I have to say. We now have a very large number of states-parties whose priorities are a bit different to those with traditionally strong chemical sectors. Obviously they attach importance to delivering the core original

CWC Conference Boosts Treaty, Exposes Rifts

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A Nov. 5-9 annual meeting of Chemical Weapons Convention (CWC) states-parties approved a number of decisions to strengthen the treaty but also exposed some differing views among the 116 participating states. Those differences on issues related to the future of the 10-year-old global ban on chemical weapons also indicate that next year's CWC review conference might proceed less than smoothly.

British ambassador Lyn Parker is heading an open-ended working group preparing the review conference, which is charged with drafting the final declaration. He told *Arms Control Today* in an interview Nov. 20 that there was "a high degree of common purpose" among participating state representatives, but warned that differences persist on some major issues, such as defining the balance between activities related to disarmament and nonproliferation of chemical weapons on the one side and civil cooperation, assistance, and protection on the other. Parker welcomed the positive atmosphere in the working group, but pointed out that only a limited number of states-parties are represented there, and that it remained to be seen how discussions might develop when all states-parties come together at the review conference itself.

No Growth in OPCW Budget

The annual conference, the 12th such conference of CWC states-parties, approved the 2008 budget for the Organization for the Prohibition of Chemical Weapons (OPCW), which implements the chemical weapons ban. For the third year in a row, the organization must cope with zero nominal growth in funds and was allocated 75 million euros ($111 million).

OPCW Director-General Rogelio Pfirter in his Nov. 5 statement to the conference talked of consolidating the budget and informed states-parties that the OPCW had so far received only 80 percent of 2007 contributions assessed against the 182 CWC member states. Pfirter warned that "our ability to meet our core objectives in 2007, particularly in light of the fact that the 2007 program and budget was a nominal zero-growth budget, still depends on our receiving states-parties contributions in full and on time."

National Implementation Urged

The annual conference also decided to continue to press countries to do more to implement the convention through national legislation. U.S. Ambassador Eric M. Javits in his Nov. 5 statement argued that states-parties should focus efforts to improve national implementation in those approximately 20 states "that lack effective implementing measures, but have more activities relevant to the convention within their territories."

In the end, the conference adopted a decision "on sustaining follow-up to the plan of action" on national implementation, including measures to contact and offer implementation support to those 10 states that have not designated a national authority and the 107 states-parties that had not informed the OPCW that they had enacted the comprehensive implementing legislation required by Article VII of the convention.

Iran Proposes to Establish Victims Fund

Agreement on a report of the meeting was held up by an Iranian demand that states-parties establish a "Chemical Weapons

purpose of the convention, but aspects like cooperation, assistance, protection, and so on, are also particularly important for them. The question therefore for the organization is what is the right balance between these two aspects in terms of the activities of the organization and the secretariat and the resources we've got. How does that shift over time?

The real question for the future is what are the balances between the **traditional destruction and verification activities, and cooperation, assistance and protection?**

Your question about the Australia Group: there is, of course, a long-standing debate about the role of cooperative controls on trade in chemicals, just as there is in other areas of proliferation-sensitive materials. We will see what happens in the discussions. I can't, at the moment, predict what conclusion might be reached about activities such as the Australia Group. It's important to remember that those who are involved in these particular forms of cooperation see it as an important way of supporting the convention and supporting the disciplines which the convention tries to exercise on proliferation.

ACT: *Do you think there will be a debate on provisions in the convention related to trade and dual-use? Do you expect, for example, that the conference will be debating measures to improve the capability of the technical secretariat to monitor such trade and also the issue of trade and Schedule 3 chemicals with non-states-parties?*[10]

Parker: All these issues will come up, like the ones you just mentioned. With such a wide pool of states-parties, we have a number of very different interests operating simultaneously. The idea that the convention should be used to facilitate greater chemical development and, if you like, knowledge of the chemical industry in countries where this is not so strong at the moment, is one point of view. The questions about how you regulate trade are quite sensitive for a number of states-parties in both directions. There are those who regard this as an unreasonable restriction on their ability to trade. There are others who regard it as very important for nonproliferation reasons that, for example, trade in dual-use chemicals should be tightly controlled. It's worth adding that the quality of the information we have about some of this trading is not as good as it, perhaps, could or should be. And there is another debate running about

Victim's International Funding & Assistance Network," a proposal first mentioned by Iranian Foreign Minister Manouchehr Mottaki at the 2006 conference of states-parties.

An Iranian diplomat argued in a Nov. 20 interview with *Arms Control Today* that because victims can suffer for a long time from the consequences of a chemical weapons attack, some "emergency measures of assistance as detailed in Article X" of the CWC should not necessarily be limited in time. The diplomat explained that, under its proposal, Iran would like to see improved coordination between the OPCW and relevant nongovernmental organizations regarding victims assistance, the creation of a voluntary fund to support such measures, and the establishment of medical centers in certain regions, so that victims could receive assistance more rapidly.

Others believe that the Iranian proposal is an attempt to divert attention away from its nuclear file and focus attention on an issue where it is a victim rather than a suspect. These observers wonder why the proposal is pushed now, some 20 years after the chemical weapons attacks on Iran. (See *ACT*, July/August 2007.)

Late on the last day, states agreed to task the OPCW's executive council to conduct "intensive deliberations to develop measures for emergency assistance to Member States, including with regard to the victims of chemical weapons," and report to the next conference of states-parties in 2008. Iranian negotiators see this as the beginning of negotiations on their proposal, while others point to the fact that discussions on how to implement Article X have been going on for a long time.

Looking Toward the Review Conference

States-parties left it to the review conference, which will take place April 7-18 of next year, to sort out other contentious issues, such as how to deal with the fact that the United States and Russia are unlikely to meet their 2012 final deadlines for destroying chemical weapons stockpiles. (See *ACT*, May 2007.)

The Iranian diplomat told *Arms Control Today* that the review conference "should send a clear message that chemical weapons possessors should adhere to destruction deadlines and that any failure to meet these deadlines would constitute serious noncompliance." The diplomat conceded, however, that given that the 2012 deadline is still four years away, 2008 might be "too soon" to discuss possible noncompliance by Russia and the United States.

In a Nov. 6 statement, Paula DeSutter, U.S. assistant secretary of state for verification, compliance and implementation, shied away from mentioning U.S. problems in meeting destruction deadlines and instead emphasized the need to destroy chemical weapons stockpiles in a safe, secure, and irreversible manner.

Parker agreed that "we are not at this moment in difficulty" because the United States and Russia are meeting their current destruction targets. He said that the general mood in the working group is that it would be "a little bit premature to try to work out now how [noncompliance with destruction deadlines] may be handled if and when the time comes."

Parker argued that the real questions for the viability of the CWC lie in the future. He asked, "What kind of organization does this need to become? What are the balances between the traditional destruction and verification activities and some of the other activities such as cooperation, assistance, and protection, which are important to a lot of states-parties who are not themselves directly involved in the processes related to chemical weapons destruction?" He stated that he hopes the 2008 review conference "will come out with a positive balance sheet about the past and a number of…conclusions which will help move the organization forward over the next few years." —*OLIVER MEIER*

Henghameh Fahimi/AFP/Getty Images

Iranian Foreign Minister Manouchehr Mottaki visits a chemical weapons victim from the 1980-1988 Iran-Iraq war in Dec. 2005 at a hospital in Tehran.

the range of information now available to the organization and how that can be improved.

ACT: *There are a number of questions related to verification and adapting the verification regime to new challenges. These relate to rebalancing the inspection resources between monitoring destruction and proliferation[11] and then also within the industry verification regime, focusing more on other chemical production facilities (OCPFs).[12] What's your sense of discussion on these issues in the open-ended working group? Do you expect substantive readjustments and what kind of guidance can be given to the technical secretariat on these questions?*

Parker: Well, there is a debate on this with different points of view. Those who are concerned about the burdens of inspections on their chemical industries, and those who regard the main priority of the organization as being looking at the areas of highest traditional chemical weapons risk, have one point of view. On the other hand, other states-parties point to the very large scale now of OCPF plants around the world and the relatively small proportion of inspection resources which are devoted to them, and argue that we ought to be shifting the balance slowly but steadily to provide better assurance of what's going on in OCPF sites. The director-general has made some moves in the direction of trying to make it possible for there to be better coverage incrementally of OCPFs in terms of site selection and so on.[13] It is within the normal business of the organization and a lively issue, which is subject to a lot of discussion. I'm sure it will be reflected in the review conference as well. We'll have to see what emerges. But in logical terms, with the size of the global chemical industry, which is mostly not necessarily producing Schedule 1, 2 and 3 chemicals, there is a big disproportion at the moment between the inspection efforts devoted specifically to scheduled chemicals and the inspection effort devoted to OCPFs. We'll have to see how this balance eventually comes out.

ACT: *If you're really optimistic, what actions do you think states-parties would be able to take at the review conference to strengthen the Chemical Weapons Convention? What's your best-case assumption for the meeting? What would you like to see coming out of this?*

Parker: Again, I hesitate to try and predict what a large number of states-parties will do. You have to also remember that the discussion so far in the open-ended working group are among a relatively limited number of states-parties, the ones who are routinely involved in the work of the convention. But when we come to the review conference itself, we have a much larger number of states-parties present, and certainly I lack the personal experience to judge what an influence that may have on the final outcome.

I hope that we will have, first of all, a relatively positive assessment of what has been achieved over the last five years. I think a lot of good work has been done. I think the extent to which we have moved toward universality over that period is quite remarkable and that although there is work still to be done there, we can see where the end of the road leads us, so to speak, and there will be further action in that area.

There is much still to be done in terms of national implementation, we're all aware of that, but there too the record of the last few years has been one of steady improvement.[14] There is more to be done and perhaps more that can be done there to assist states-parties that need help with national implementation, either from the technical secretariat or bilateral assistance from other states-parties. We will need to look at some of the issues which relate to scientific and technical progress. I think there will be a lively debate about areas of cooperation, assistance and protection and those kinds of things. For the reasons we talked about when we discussed what might happen about 2012, I think that it would be easier to reach conclusions about managing 2012, however it turns out, nearer the time than now. We'll have to see, obviously, what states-parties wish to do when we come to the conference itself.

I hope that we will also be able to look beyond whenever destruction takes place, hopefully by 2012, and look a little toward the lon-

ger-term future of the organization. We haven't mentioned some other aspects like the part the organization can play in relation to the risks of terrorist and other uses of toxic chemicals, but that's also a subject that's under discussion and will definitely come up in the review conference. I hope that we will come out with a positive balance sheet about the past, and a number of forward-looking conclusions which will help move the organization forward over the next few years. There is a lot to be done in the next few years and it's important that we have the focus and the resources to do it, and the commitment to do it. I don't doubt, as I said at the beginning, the strong sense of common purpose there is in this organization to achieve what the treaty requires of us.

ACT: *Thank you very much.*

ENDNOTES

1. On Nov. 19, at a meeting hosted by OPCW, NGO representatives were able to present their recommendations for the second review conference to CWC states-parties. ACA's presentation to that meeting can be found on page 53 of this reader.

2. The Scientific Advisory Board (SAB) consists of 25 scientists, appointed by the director-general in consultation with states-parties. The SAB gives advice to states-parties and the OPCW on scientific and technologic developments relevant to the CWC.

3. In April 2002, OPCW Director-General José Bustani was voted out of office by CWC parties. The United States' push for Bustani's removal was based on mismanagement charges but the decision proved to politically divisive among CWC members. (See *ACT*, May 2002.)

4. The convention requires states-parties to destroy their chemical weapons by 2007, 10 years after the CWC's entry into force. It is possible to request an extension of this destruction deadline by up to five years, until 2012. The conference of states-parties on December 8, 2006, approved requests for extensions of the final date for the destruction of the declared chemical weapons stockpiles. The following deadlines for complete destruction are now binding: India—April 28, 2009; Libya—December 31, 2010; Russia—April 29, 2012; South Korea—December, 31, 2008; the United States—April 29, 2012. Washington has recently admitted that complete destruction is unlikely to be completed before 2023, and it appears unlikely that Moscow can keep its promise to destroy its stocks by 2012. (See *ACT*, January/February 2007.)

5. Article VIII.12 of the CWC provides for the possibility of a special session of the conference of states-parties to be convened, outside the regular annual cycle of such meetings.

6. At the the first review conference, the United States asserted that more than a dozen countries possess or are actively pursuing chemical weapons. It voiced specific concerns about the compliance of Iran and Sudan, which are members of the CWC as well as non-members Libya, North Korea and Syria. The 2005 State Department report on "Adherence to and Compliance with Arms Control, Nonproliferation and Disarmament Agreements and Commitments" raises compliance concerns regarding China, Iran, Russia, North Korea and Syria. Libya acceeded to the CWC in 2004, North Korea and Syria are non-signatories.

7. Article VI of the CWC gives states-parties the right to maintain toxic chemicals for purposes not prohibited under the convention, including "law enforcement, including domestic riot control." Whether the CWC permits the development and use for domestic law enforcement purposes of incapacitating agents with long-lasting effects, in addition to riot-control agents with transient effects, such as CS tear gas, is a matter of intense debate (see next endnote).

8. Such a proposal for a working group that would report back to states-parties on the issue of non-lethal and incapacitating agents is made by Oliver Thränert and Jonathan B. Tucker, "Freeing the World of Chemical Weapons. The Chemical Weapons Convention at the Ten-Year Mark," SWP-Studie RP 8, Berlin: Stiftung Wissenschaft und Politik, July 2007. Others have proposed to change the CWC through an amendment or additional protocol in order to clarify which incapacitating agents are prohibited as riot control agents. See Kyle M. Ballard: "Convention in Peril? Riot Control Agents and the Chemical Weapons Ban", *Arms Control Today*, September 2007.

9. Established in 1985, the Australia Group is a voluntary, informal, export-control arrangement through which 40 countries, as well as the European Commission, coordinate their national export controls to limit the supply of chemicals and biological agents as well as related equipment, technologies, and knowledge-to countries and nonstate entities suspected of pursuing chemical or biological weapons (CBW) capabilities.

10. Article VI of the CWC specifies a number of restrictions on trade, keyed to the treaty's three schedules of chemicals (see endnote 12). With the entry into force of the convention in April 1997, transfers to non-states-parties of the chemical warfare agents and precursors listed on Schedule 1 were banned immediately, and trade with non-states-parties in chemicals listed on Schedule 2 have been prohibited since April 2000. In 2003 the OPCW Conference of the States-Parties to the CWC considered a possible ban on exports to non-states-parties of Schedule 3 chemicals but could not agree by consensus. At present, the CWC allows exports of Schedule 3 chemicals to non-states-parties only if the recipient provides an end-use certificate clarifying the intended use and pledging not to make any further transfers. See Jonathan B. Tucker, "Strengthening the CWC Regime for Transfers of Dual-Use Chemicals," The CBW Conventions Bulletin, Vol. 75, March 2007, pp. 1-7.

11. In 2006, 57% of all inspections were related to chemical weapons destruction, the other 43% were industry inspections to confirm non-production of chemical weapons. "Report of the OPCW on the Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction in 2006", OPCW, Conference of States Parties, Twelfth Session, C-12/6, 5 – 9 November 2007, The Hague: 6 November 2007, p. 8.

12. The CWC verification system is based on three "schedules," or lists of toxic chemicals and their precursors that have been developed and manufactured in the past for military purposes. Schedule 1 consists of chemical warfare agents and precursors that have no significant commercial applications, although they may be synthesized in small quantities for scientific research, pharmaceutical development, or chemical defense. Schedule 2 lists toxic chemicals and precursors that have commercial applications in small quantities. Schedule 3 contains toxic chemicals and precursors that have commercial applications in large quantities. The primary focus of routine inspections of the chemical industry under the CWC is on declared production facilities that manufacture the dual-use chemicals listed on Schedules 2 or 3. In recent years, however, the advent of small, multipurpose chemical-production facilities has made the batch synthesis of organic (carbon-based) compounds more automated and flexible. Such multipurpose plants, which constitute a fraction of the category of Other Chemical Production Facilities (OCPFs), are potentially easier to divert to chemical weapons production than large, inflexible facilities that produce specific scheduled chemicals. As of November 2006, 77 member states had declared a total of 5,225 OCPFs, or more than five times the number of declared facilities that produce Schedule 1, 2, and 3 chemicals. (See *ACT*, January/February 2007.)

13. The OPCW's Technical Secretariat has recently modified the OCPF site-selection algorithm. The revised methodology will be applied as of January 1, 2008, in order to increase the number of inspections at OCPF's.

14. More than 100 states-parties have not yet notified the OPCW of the actions taken to implement Article VII in order to incorporate the CWC prohibitions into national law.

Appendix I

Fact Sheet: The Chemical Weapons Convention at a Glance

March 2008. Press contacts: Daryl G. Kimball, Executive Director, (202) 463-8270 x107 and Oliver Meier, International Representative and Correspondent, +49 171 359 2410

The Chemical Weapons Convention (CWC) is a multilateral treaty that bans chemical weapons and requires their destruction within a specified period of time. The treaty is of unlimited duration and is far more comprehensive than any prior international agreement on chemical weapons. (The 1925 Geneva Protocol, for instance, only outlaws the use of chemical weapons.)

CWC negotiations started in 1980 in the UN Conference on Disarmament.[1] The convention opened for signature on January 13, 1993, and entered into force on April 29, 1997.

The CWC is implemented by the Organization for the Prohibition of Chemical Weapons (OPCW), which is headquartered in The Hague with about 500 employees. The OPCW receives states-parties' declarations, which detail chemical weapons-related activities or materials and relevant industrial activities. After receiving declarations, the OPCW inspects and monitors states-parties' facilities and activities that are relevant to the convention, aiming to ensure compliance.

The CWC is open to any country and currently has 183 states-parties. Five signatories—Bahamas, Dominican Republic, Guinea-Bissau, Israel, and Myanmar—have yet to ratify the convention. Key nonsignatories include North Korea and Syria, both whom the United States suspect have chemical weapons programs. Egypt also has not signed the accord. For a complete listing of states-parties and signatories, please see the Association's fact sheet at http://www.armscontrol.org/factsheets/cwcsig.asp.

PROHIBITIONS

- The Chemical Weapons Convention bans:
- Developing, producing, acquiring, stockpiling, or retaining chemical weapons.
- The direct or indirect transfer of chemical weapons.
- Chemical weapons use or military preparation for use.
- Assisting, encouraging, or inducing other states to engage in CWC-prohibited activity.
- The use of riot control agents "as a method of warfare."

DECLARATION REQUIREMENTS

The CWC requires states-parties to declare in writing to the OPCW their chemical weapons stockpiles, chemical weapons production facilities (CWPFs), relevant chemical industry facilities, and other weapons-related information. This must be done within 30 days of the convention's entry into force for the states-parties.

Chemical Weapons Stockpiles—States-parties must declare all their chemical weapons. Chemical weapons stockpiles are broken down into three "categories":

- Category 1 chemical weapons, which are based on Schedule 1 chemicals. Examples include VX and sarin. (See below for an explanation of "scheduled" chemicals.)
- Category 2 chemical weapons, which are based on non-Schedule 1 chemicals. An example is phosgene.
- Category 3 chemical weapons, which include unfilled munitions and devices and equipment designed specifically to employ chemical weapons.

Other weapons-related declarations states-parties must make include:

- Chemical weapons production facilities on their territories since January 1, 1946.
- Facilities (such as laboratories and test sites) designed, constructed, or used primarily for chemical weapons development since January 1, 1946.
- "Old" chemical weapons on their territories (chemical weapons manufactured before 1925 or those produced between 1925 and 1946 that have deteriorated to such an extent that they are no longer useable).
- "Abandoned" chemical weapons (those abandoned without consent on their territories after January 1, 1925, by another state).
- Chemical weapons they have abandoned on other states' territories.

- Plans for destroying weapons and facilities.

- All transfers or receipts of chemical weapons or chemical weapons-production equipment since January 1, 1946.

- All riot control agents in their possession.

Chemical Industry—The CWC requires states-parties to declare chemical industry facilities that produce or use chemicals of concern to the convention. These chemicals are grouped into "schedules," based on the risk they pose to the convention. A facility producing a Schedule 1 chemical is considered a Schedule 1 facility.

- Schedule 1 chemicals and precursors pose a "high risk" to the convention and are rarely used for peaceful purposes. States-parties may not retain these chemicals except in small, limited quantities for research, medical, pharmaceutical, or defensive use. Many Schedule 1 chemicals have been stockpiled as chemical weapons.

- Schedule 2 chemicals are toxic chemicals that pose a "significant risk" to the convention and precursors important in the production of Schedule 1 or toxic Schedule 2 chemicals. These chemicals are not produced in large quantities for commercial or other peaceful purposes.

- Schedule 3 chemicals are usually produced in large quantities for purposes not prohibited by the CWC but still pose a risk to the convention. Some of these chemicals have been stockpiled as chemical weapons.

The CWC also requires the declaration of facilities that produce certain nonscheduled chemicals.

DESTRUCTION REQUIREMENTS

The convention requires states-parties to destroy:

- All chemical weapons under their jurisdiction or control.

  i) Category 1 chemical weapons destruction must start within two years after the CWC enters into force for a state-party. States-parties must destroy 1 percent within three years of the CWC's entry into force, 20 percent within five years, 45 percent within seven years, and 100 percent within 10 years (by April 29, 2007). The OPCW may extend these deadlines due to "exceptional circumstances," but states-parties are supposed to destroy their entire stockpiles by April 29, 2012. Except for Albania, which is the sole state-party to have completed destruction of its stockpile, the OPCW Executive Council in December 2006 granted all possessors extensions. (A chart at the end of this fact sheet shows the status of each possessor state's destruction activities.)

  ii) Category 2 and 3 chemical weapons destruction must start within one year after the CWC enters into force for a state-party.

- All chemical weapons production facilities under their jurisdiction or control.

  i) Destruction of CWPFs capable of producing Schedule 1 chemicals must start within one year after the CWC enters into force for a state-party. States-parties must complete destruction by April 29, 2007.

  ii) Destruction of other CWPFs must start within one year after the CWC enters into force for a state-party. States-parties must complete destruction by April 29, 2002.

  iii) States-parties may request to convert CWPFs to facilities that they can use for nonprohibited purposes. Once their requests are approved, states-parties must complete conversion by April 29, 2003.

- Chemical weapons abandoned on other states' territories.

- Old chemical weapons.

On-Site Activity

- The convention establishes three types of on-site activities that aim to generate confidence in states-parties' CWC compliance. These include:

- "Routine inspections" of chemical weapons-related facilities and chemical industry facilities to verify the content of declarations and to confirm that activities are consistent with CWC obligations.

- "Challenge inspections," which can be conducted at any facility or location in states-parties to clarify questions of possible noncompliance. (To prevent abuse of this measure, the OPCW's executive body can vote by a three-quarters majority to stop a challenge inspection from going forward.)

Investigations of alleged use of chemical weapons.

Trade

- The convention restricts trade with non-states-parties, outlawing the transfer of Schedule 1 and 2 chemicals.

- To ensure that Schedule 3 transfers to non-states-parties are not used for purposes prohibited by the convention, it requires exporting states-parties to obtain an end-use certificate from importing states.

• The convention encourages trade among states-parties. It calls upon them not to maintain restrictions on one another that would hamper the trade of chemical-related items to be used for peaceful purposes.

Penalties for Noncompliance

• If states-parties took prohibited actions that could result in "serious damage" to the convention, the OPCW could recommend collective punitive measures to other states-parties. In cases of "particular gravity," the OPCW should bring the issue before the UN Security Council and General Assembly.

• States-parties must take measures to address questions raised about their compliance with the CWC. If they do not, the OPCW may, inter alia, restrict or suspend their CWC-related rights and privileges (such as voting and trade rights).

ENDNOTE

1. The UN Conference on Disarmament was known as the Committee on Disarmament until 1984.

Sources: Arms Control Association, OPCW

Possessor States' Category I Destruction Implementation

	Declared Category 1 Stockpile[1]	Revised Destruction Deadline	Agents	Remaining Stockpile	Projection
Albania	16 metric tons	4/29/2007	Mustard	None	Completed destruction on July 11, 2007.
India	1,055 metric tons	4/28/2009	Unknown	274 metric tons on 12/31/2006	Will meet deadline.[2]
Libya	23.6 metric tons	12/31/2010	Lewisite, Mustard, Phosgene, Sarin, Tabun	23.6 metric tons	Uncertain because of dispute with the United States about destruction funding.
Russia	40,000 metric tons	4/29/2012	Lewisite, Mustard, Phosgene, Sarin, Soman, VX[3]	About 30,000 metric tons as of November 2007, according to the OPCW.	Will not meet deadline; U.S. Government Accountability Office estimates 2007.[4]
South Korea	605 metric tons	12/31/2008	Unknown	103 tons on 12/31/2006	Uncertain.
United States	27,771 metric tons	4/29/2012	Binary nerve agents, Lewisite, Mustard, Sarin, Soman, VX	16,317 tons on 3/11/2007	Will not meet deadline; U.S. Department of Defense estimates 2023.

ENDNOTES

1. These figures are inferences from the Organization for the Prohibition of Chemical Weapons (OPCW) annual implementation reports of 2006 and 2007. Another source of information is the OPCW Note by the Technical Secretariat Review of the Operation of the Chemical Weapons Convention Since the First Review Conference, WGRC-2/S/1, The Hague, Nov. 27, 2007.

2. Australian Safeguards and Nonproliferation Office's Annual Report 2005-2006.

3. The Soviet Union is suspected of developing novichok binary nerve agents, which are not listed in the CWC schedules.

4. Russia maintains it will meet the 2012 deadline.

Appendix II

Statement of ACA to the Meeting with Non-Governmental Organizations at the OPCW, The Hague

November 19, 2007. Press contacts: Oliver Meier, International Representative and Correspondent, +49 171 359 2410

At the second review conference of the Chemical Weapons Convention (CWC), to take place on April 7-18, 2008, member states face the dual tasks of ensuring that treaty obligations are fully implemented and adapting the convention to new challenges.

First, the review conference needs to address the fact that ten years after entry into force, some member states are still not fully implementing their obligations under the convention.

Destruction of chemical weapon stockpiles

Russia and the United States will almost certainly be unable to destroy their stocks of chemical weapons before the extended treaty deadline of April 29, 2012. Moscow's and Washington's failure to devote the necessary resources to meeting the destruction deadline has wide-ranging implications for the convention, including the allocation of scarce verification resources to monitoring chemical weapons (CW) destruction even after 2012, weakening other verification-related tasks.

Given that the 2012 deadline is still four years away, the review conference should urge both states to do their utmost to accelerate CW destruction in a safe and environmentally sound manner. It is to be hoped that other states will renew their commitment to assist Russia in meeting its treaty obligations through financial and other assistance, for example in the context of the Global Partnership.

Because this will be the last review conference before treaty-mandated CW destruction deadlines expire, delegates should consider how to respond to the likely non-compliance of the United States and Russia. Any decision to extend destruction deadlines – whether through a risky amendment of the CWC or by invoking Article VIII, paragraph 36, which gives the Executive Council the power to adapt the relevant provisions – should be coupled with a tight and realistic schedule for final destruction of all CW stockpiles.[1]

Trade in dual-use chemicals

Provisions for restricting trade in dual-use chemicals have also been implemented half-heartedly.[2] Thus, states parties at the review conference should consider banning trade in Schedule 3 chemicals with CWC non-states parties, in order to provide another incentive to join the convention. Such a step, mentioned in the treaty and previously considered by states parties in 2002, would have the additional benefit of limiting the ability of non-states parties to develop and produce chemical weapons.

Proliferation concerns

Concern about chemical weapons proliferation remains an urgent issue. The United States has been most vocal in accusing other states parties of pursuing clandestine CW-related activities. In this regard, it has voiced concerns regarding China, Iran, Russia, and Sudan.[3] Whenever specific information regarding non-compliance is available, such concerns must be clarified using the treaty's mechanisms, including the provision for on-site challenge inspections. The review conference should make clear that allegations of non-compliance that are not followed up and resolved through challenge inspection will only damage the convention's credibility. At the same time, states parties should ensure that the Technical Secretariat has the necessary resources to mount a challenge inspection, anytime, anywhere, as foreseen in the treaty.

National implementation

Finally, the review conference should address the patchy compliance with the treaty's provisions on national implementation. More than 100 states parties have not yet notified the OPCW of the actions taken to implement Article VII. The review conference should renew the Action Plan on National Implementation and expand it to ensure "that states parties incorporate the general purpose criterion and the schedules of chemicals into their subsidiary regulations and empower their national authorities to collect all of the data needed to monitor domestic implementation effectively."[4]

"Non-lethal" chemical agents

Implementing the treaty's provisions may not be sufficient to keep the taboo against chemical weapons as strong as it is today. Since the CWC has entered into force, a number of political, scientific, technological and economic developments have made it urgent to adapt key provisions at next year's review conference. Efforts by a number of states, including Russia and the United States, to develop and deploy so-called "non-lethal" chemical agents pose a serious threat to the convention. If the acquisition and use of these weapons for overseas counterterrorism and peacekeeping operations becomes accepted state practice, the norm against the hostile use of toxic chemicals will be seriously eroded. The United States, as the world's greatest military power, bears a large burden of responsibility because U.S. military practice is emulated by other nations.

There is currently no clear line in the treaty between what is

permitted and what is prohibited with regard to the use of non-lethal agents, creating ambiguities and potential loopholes. Accordingly, the review conference must not shy away from this issue. As a first step, states parties should establish a technical working group that will report within one year on key questions such as what types of non-lethal agents are prohibited by the convention, who may use them, and under what conditions such agents may be used. Although the issue is not yet ripe for political resolution, it must be explored on a priority basis. In another five years, facts may have been created that will make a consensus on the issue even more elusive than it appears today.

Verification

The CWC verification regime also needs to be adapted to new realities. First, it is essential to match verification resources to CW proliferation challenges. More than half of all OPCW inspections are still related to disarmament, limiting the ability of the organization to detect and deter proliferation. Further, industry inspections are skewed toward facilities that produce Schedule 2 and 3 chemicals. There is a growing consensus that increasing the number of inspections at Other Chemical Production Facilities that pose proliferation risks, such as flexible, multipurpose production plants, would improve the overall effectiveness of the industry verification regime and have a positive effect on the geographic balance of inspections. The review conference should mandate the Technical Secretariat to take further steps in this direction, and to make greater use during routine industry inspections of modern verification technologies such as sampling and analysis. Ironically, concerns over the potential loss of proprietary information through sampling and analysis are often greater at the political level than among companies that are the objects of on-site inspections.

To implement the steps above, political leadership will be needed from all member states, particularly from those that have been champions of the CWC. Although the operation of the convention over the past five years has been relatively smooth, there is a real risk of complacency. States parties at the review conference must move beyond business as usual and tackle some of the difficult challenges that face the convention, both today and in the future.

ENDNOTES

1. See Oliver Thränert/ Jonathan B. Tucker, "Freeing the World of Chemical Weapons. The Chemical Weapons Convention at the Ten-Year Mark," SWP-Studie RP 8, Berlin: Stiftung Wissenschaft und Politik, July 2007, p. 18.

2. See Jonathan B. Tucker, "Strengthening the CWC Regime for Transfers of Dual-Use Chemicals," *The CBW Conventions Bulletin*, Vol. 75, March 2007, pp. 1-7.

3. Department of State, "Adherence to and Compliance with Arms Control, Nonproliferation and Disarmament Agreements and Commitments," Washington, D.C.: August 2005, pp. 50-62.

4. Jonathan B. Tucker, "Verifying the Chemical Weapons Ban: Missing Elements," *Arms Control Today*, Vol. 37, No. 1, January/February 2007, pp. 6-13.

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