Difficulties facing the Chemical Weapons Convention

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The Organization for the Prohibition of Chemical Weapons (OPCW) has now existed for a decade, functioning largely as intended. A world free of chemical weapons (CW) no longer seems unattainable. This article is about the well-being of the treaty that established the OPCW—the 1993 Chemical Weapons Convention (CWC)—as the CW stockpiles and factories around the world pass into destruction or conversion. There are two themes. One is that, in the absence of effective measures of technology governance, resurgent chemical weapons born out of 'dual-use' technology will remain a possibility. Decisions are needed now on how the CWC should best be implemented so as to ensure that governance in the longer term. The second theme is the tension between principle and political expediency. This tension will continue to afflict the OPCW and may well increase once the elimination of stockpiles and factories that the treaty requires is complete. The due date for that is now 29 April 2012.[1]

People often point to the CWC as evidence that the problem of chemical weapons has been solved. It has not. Nor will it be unless the two themes outlined in the preceding paragraph are properly understood. Now is the time for stock-taking, while the impending Second CWC Review Conference (7–18 April 2008) is obliging the OPCW to lift its sights to see further into the future than the press of day-to-day business normally allows. The CWC was conceived during the Cold War, and today faces serious challenges, in part as a consequence of that tension between principle and practice and in part because of wider political and technological change. This article seeks to characterize the main challenges and suggest possible measures for alleviating them. Theory is not emphasized, but neither is it ignored: the central notion of 'technology governance regime', for example, comes from an emergent school of thought in which findings from technology studies are applied to arms control.[2]

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[1] This is the deadline approved by the OPCW conference of the states parties at its eleventh session, in December 2006. It extended an earlier deadline that was proving beyond the capacities of possessor states, as, indeed, may the new one also.

[2] See further Caitríona McLeish, 'From disarmament to technology governance: the changing function of the Chemical Weapons Convention', paper presented at the OPCW Academic Forum, The Hague, 18–19 Sept. 2007.

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Challenges to the treaty

Chemical weapons entered the agenda of the world's multilateral disarmament negotiating body in 1968 alongside biological weapons (BW)—to which they were, and remain, intimately related—impelled there by the Vietnam War. Quite quickly there came agreement to tackle BW first, in preference to the joint treatment of chemical and biological weapons (CBW) that had characterized the 1925 Geneva Protocol prohibiting first use of CBW in war. The result was the 1972 Biological Weapons Convention (BWC). A counterpart CWC, whose continued negotiation 'in good faith' was required under article IX of the BWC, took a further 20 years.

When, on 3 September 1992, Ambassador Adolf Ritter von Wagner of Germany presented a draft CWC for the approval of the Conference on Disarmament (CD) in Geneva, he reiterated a point he had made often during his chairmanship through its final year of the negotiating body, the CD Ad Hoc Committee on Chemical Weapons:

> There is no precedent for this global, comprehensive and verifiable multilateral disarmament agreement. The draft convention provides for a cooperative, non-discriminatory legal instrument to eliminate the spectre of chemical warfare once and for all. The unique character of its contents is strengthened by the consistent application of two principles: overall balance and adaptability to future needs. Future States parties are offered a balanced legal instrument providing clarity on the fundamental obligations and, at the same time, enough subtlety on matters of implementation so that, with the consent of States parties, the respective provisions may still mature and evolve in the course of future practice.[3]

The draft treaty, he was telling the CD, was a delicate structure in which compromises—on six central matters: the scope of obligations, verification of compliance, safeguards, disarmament, executive procedures, and international cooperation in chemistry—were balanced against one another without, however, precluding from their future implementation any adaptation, if all states parties agreed, to a changed environment. Potential parties were, in effect, being invited to decide, through their domestic political processes, whether they would be better off inside that package of compromises than outside it, with an assurance that the terms of their engagement were not necessarily immutable.

By the end of 2007, 188 states had signed up to this deal, 183 of them as full parties. The most conspicuous absentees from this group are Egypt, North Korea and Syria, which have not signed the treaty, and Israel, which has signed but not ratified it. The assumption has to be that all four of these states wish to maintain the option of arming themselves for chemical warfare. Of the 183 states parties, twelve have, as required by the treaty, declared that they possessed factories for making CW at some time after 1945.[4] Of those twelve, five have also declared that

[3] Conference on Disarmament document CD/PV.635, 3 Sept. 1992, p. 8.

[4] The twelve declared possessors of former chemical weapons production facilities are Bosnia and Herzegovina, China, France, India, Iran, Japan, Libya, Russia, Serbia and Montenegro, South Korea, the UK and the United States. The Japanese declaration concerned solely the facility that had been built by Aum Shinrikyo, the cult responsible for the terrorist releases of sarin nerve gas in Matsumoto in June 1994 and in the Tokyo subway in March 1995.

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they possessed stocks of the weapons at the time the CWC entered into force, as has one additional state party that must presumably have imported the weapons rather than making them for itself. The combined declared stocks amounted to 71,365 tonnes of chemicals at 30 April 2004—mostly CW agents but precursors as well.[5] Of that total, about 25,000 tonnes had been destroyed in accordance with the CWC by October 2007.

A working principle is this. Any development or change that causes a state to question its continuing adherence to the CWC would be a challenge to the treaty. If major or many states were to start such questioning, the challenge would be serious, requiring a collective response if the treaty were to remain in good order. For each state party the constant question would be whether benefits flowing from the CWC regime continued to outweigh the attendant costs and to compensate for any penalties there might be to the national interest: are we still better off inside the regime than outside it? In fact, there are few if any countries where the relevant decision-makers would address the matter in such abstract or holistic terms. Decisions would be driven, as always, by bureaucratic and domestic politics, in other words by the competing interests that such politics serve to accommodate. The cost–benefit framework, however, provides those involved with a convenient and respectable language in which they can debate and present the decision, and we can assess it. For this reason it is used here as a framing concept within which to specify the more important challenges to the CWC.

One set of challenges can be seen as primarily technological in character, arising mainly from change in relevant science and technology. A second set is more obviously political. All of these have the potential to harm the CWC if no special effort is made to counter them. They are now discussed in turn under five successive headings: new utilities for CW; proliferation of CW; accommodation of national interests; pernicious ignorance; and creeping legitimization.

New utilities for chemical weapons

Disarmament, especially where it concerns weapons of mass destruction (WMD), is an objective widely seen as beneficial; but armament also can bring benefit, by contributing to security. Under some circumstances that benefit could conceivably extend to armament for chemical warfare, even though such armament would incur discouraging penalties because of the present strength of the international norm against it. Military options forgone through renunciation of chemical weapons could then be significant on the cost side of remaining within the CWC

[5] The six declared possessors of chemical weapons stocks are Albania (declaring 16 tonnes of CW agents to the OPCW), India (1,044 agent-tonnes, maybe somewhat more), Libya (24 agent-tonnes), Russia (40,000 agent-tonnes), South Korea (1,056 agent-tonnes, maybe somewhat less) and the United States (27,800 agent-tonnes). Like the (China-supplied) Albanian holdings, whose destruction was completed in July 2007, the Libyan holdings appear far too small to have had much military significance, but Libya also declared that it possessed large tonnages of precursor chemicals—enough, it seems, to have made many hundreds of tonnes, even two or three thousand tonnes, of mustard and nerve gas. The amount of mustard and nerve gas used by Iraq during its 1980–88 war with Iran is believed to have totalled 2,540 agent-tonnes. The UK had destroyed its Cold War stockpile of some 62,000 agent-tonnes well before the CWC had been agreed, as had other erstwhile possessors.

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regime. Hitherto the taboo associated with chemical and other disease-causing weapons appears to have led to most states being content with the disarmament required by the CWC. However, circumstances may now be creating utilities for chemical weapons not previously considered or accessible.

At least three types of new utility can be discerned, and examples of all three seem evident in recent conflicts or in preparedness for them. The first is a consequence of wider changes in the nature of warfare, rather as the shift from 'massive retaliation' to 'limited war' doctrine towards the end of the 1950s elevated the status of chemical (and biological) weapons in western military thinking, causing new utilities to be seen for them, especially in Third World settings. Today, a new type of organized violence is taking the place of the confrontations between highly disciplined and technologically advanced armed forces that characterized the later Cold War. Conflicts these past two decades in the Balkans, the Caucasus, the Horn of Africa, Rwanda, Liberia, Sierra Leone, Angola, Sri Lanka, Afghanistan and post-invasion Iraq have eroded formerly clear distinctions between war, organized crime and large-scale violation of human rights. These new wars are fought by seeking political control through the displacement, or worse, of civilian populations and through the sowing of fear and hatred.[6] Because chemical weapons can lend themselves particularly effectively to such objectives, they may conceivably have a greater affinity to the new wars than they did to the old. So, notwithstanding the CWC, the weapons could have an expanding future. It is a future that seems already to have begun: instances of 'new' chemical warfare include episodes in Iraqi Kurdistan, in southern Africa, in Bosnia and perhaps in Chechnya.[7] This is why the most recent chemical warfare allegations, emanating from Sudanese, Israeli, Palestinian, Baluchi, Lebanese and US/Iraqi sources, should not remain uninvestigated and thus uncorroborated. Unresolved, a plethora of allegations could imply treaty failure.

The CWC provides for a compliance–verification system run by an intergovernmental organization (the OPCW) having an international inspectorate that ought in principle to countervail this new utility challenge. But the routines of that system were designed with reference to conceptions of utility dating from the Cold War period, meaning that the lists of chemicals and types of industrial facility that the OPCW now has under its immediate surveillance are dictated by the types of chemical weapon that fitted old war, not new war, requirements. Basically that meant focusing on toxic chemicals that were so intensely aggressive in their effects that weapons disseminating them would be competitive, in quantitative casualty-producing terms or other such measures of tactical efficacy, with modern conventional weapons. Not a great many such toxic agents exist,[8] so their coverage in the CWC schedules that govern routine OPCW verification allowed people to suppose that the main threats as then conceived had thereby been brought under control. In the new wars, however, it

[6] See esp. Mary Kaldor, *New and old wars: organized violence in a global era*, 2nd edn (Cambridge: Polity, 2006).

[7] UK House of Commons (session 1999–2000) Foreign Affairs Committee, *Eighth report: weapons of mass destruction* (London: Stationery Office, 25 July 2000), pp. 203–206, memo dated 17 Feb. 2000 submitted by J. P. Perry Robinson.

[8] For discussion of this point, see J. P. Perry Robinson, 'The chemical industry and chemical warfare disarmament: categorizing chemicals for the purposes of the projected Chemical Weapons Convention', *SIPRI Chemical and Biological Warfare Studies*, no. 4, 1986, pp. 55–104.

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is not so much relative aggressivity that determines the value of chemical weapons as other factors such as the accessibility or availability of the weapons and their terrorizing potential. A whole host of toxic industrial chemicals and other chemicals not hitherto regarded as CW agents might thus find application in new war contexts, as, most recently, chlorine—that long-obsolete, by old war standards, killer gas that was briefly weaponized during the First World War—has done in Iraq. The fact that most of these chemicals are not listed in the CWC control schedules does not mean that their use for CW purposes is permitted, nor that the CWC is unavailing against them. It means only that, except perhaps for the still-undeveloped regime for 'other chemical production facilities', the routine international verification procedures currently run by the OPCW with regard to industrial activities are not directed at them. In fact, any abuse of a toxic chemical for hostile purposes is totally outlawed by virtue of the comprehensive nature of the CWC's prohibitions as embodied in its so-called 'general purpose criterion'—those words in, for example, article VI.2 of the treaty that oblige the national authorities of states parties to ensure that no toxic chemical within their territories, or in any other place under their jurisdiction or control, falls within the illegal realm of purposes prohibited by the convention.[9] The challenge to the regime therefore lies in the degree to which such national controls may fail to exert a constraining effect. This, regrettably, is an area in which implementation of the CWC is weak. Only a small minority of CWC states parties have yet implemented the general purpose criterion into their domestic law.

A second major source of new utility for chemical weapons is the propensity of knowledge newly gained in the life sciences to suggest novel modes of attack that could be the basis for militarily or politically attractive new forms of weapon. For example, if a new molecule is discovered that can exert novel disabling effects on the human body at low dosage, attempts to weaponize it may well ensue. Albert Hofmann's discovery of LSD in 1943 is a case in point, although half a decade elapsed before weaponeers noticed. Or if a hitherto unknown molecular pathway serving a process of life comes to be identified, chemical agents capable of interfering with that pathway might also become identifiable and then form the basis for a novel weapon. Of course, many considerations other than novelty or intensity of effect determine the usefulness of a new weapon, so the new science is not itself the challenge to the regime that is here suggested. But it would be a step towards it; and many such discoveries can be envisaged.[10] This prospect is not necessarily remote. We should

[9] CWC article VI.2 opens thus: '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.' Known to some as the 'Molander chapeau', this obligation prefaces the main provisions of the CWC for its industry control regime. The general purpose criterion appears also in CWC article II.1(a), which states that all toxic chemicals and their precursors are chemical weapons within the meaning of the CWC's prohibitions 'except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes'.

[10] A particularly rich recent source of information on advances in technology that may be applicable to chemical as well as biological weapons is the Lemon–Relman report: Institute of Medicine and National Research Council of the US National Academies, Committee on Advances in Technology and the Prevention of their Application to Next Generation Biowarfare Threats (co-chairs Stanley M. Lemon and David A. Relman), *Globalization, biosecurity, and the future of the life sciences* (Washington DC: National Academies Press, 2006).

not, for example, disregard the statement reliably attributed to a 'former high-level Defense Department official' commenting on the feasibility of US attack on Iranian underground facilities: 'We can do things on the ground, too, but it's difficult and very dangerous—put bad stuff in ventilator shafts and put them to sleep.'[11] Again, it is the general purpose criterion as used in the CWC that is the international safeguard against this challenge. But it is a safeguard only if it can be activated, and this requires continual monitoring of scientific and technological change for any new development that might challenge the regime. This is a task, it should be noted here, that cannot reliably be left to security authorities or to international civil servants alone, simply because their surveillance of new science will always be insufficient. The scientific community at large must also be involved.[12]

A third type of novel utility now becoming manifest is the emerging role of chemical weapons, not in the hands of terrorists or other new war aggressors as discussed above, but for purposes of counterterrorism. This utility has demonstrably stimulated questioning of the CWC by rich countries.[13] It is rooted in past counterinsurgency applications of toxic chemicals, which reach back through the Vietnam War to British, French, Italian and Spanish use of toxic chemicals in colonial situations—a utility that the CWC was intended to suppress. Its re-emergence in counterterrorist guise is to be seen in the proliferation of weapons based on Agent CR, evident each year in that part of the OPCW annual report addressing the declarations of 'riot control agents' required under CWC article III.1(e), for the extreme aggressivity and other properties of CR have caused it to be widely rejected as suited to civil police use. Police forces in the UK, for example, are equipped either with Agent CS or with PAVA for law enforcement use, and, although the UK has also declared Agent CR to the OPCW as a 'riot control agent', it has issued the agent only to its military forces, for counterterrorism. The growing counterterrorist utility of chemical weapons is further evident in the vigorous advocacy to be heard in some quarters for the arming of counterterrorist forces with more advanced types of 'non-lethal' toxic weapon. The readiness with which the US Marine Corps has taken to toxin weapons of this type—specifically, devices disseminating Agent OC[14]—seems indication of a trend. So, perhaps, is the absence of any serious criticism of the Russian government for having authorized use of toxic chemicals other than riot-control agents by the special forces who, on 26 October 2002, liberated 634 of the people taken hostage by Chechen separatists

[11] Seymour M. Hersh, 'The Iran plans: would President Bush go to war to stop Tehran from getting the bomb?', *New Yorker*, 17 April 2006. It is not clear whether it was a literal or a euphemistic 'sleep' that was meant.

[12] This was a matter explored by the UK CWC National Authority Advisory Committee during the October 2001 Sussex workshop on the general purpose criterion. See *CBW Conventions Bulletin*, no. 55, March 2002, pp. 1–4.

[13] See e.g. the foreword by USAF Lt-Gen. Robert J Elder, Jr, Commandant of the US Air War College, to N. T. Whitbred IV (Commander, USN), 'Offensive use of chemical technologies by US special operations forces in the global war on terrorism: the nonlethal option', *The Maxwell Papers* (Maxwell Air Force Base, AL: Air War College), no. 37, July 2006, pp. iii–iv.

[14] See the entry for 22 March 1996 in the 'News chronology' section of *CBW Conventions Bulletin*, no. 32, June 1996, p. 27. Agent OC is a toxin in the sense of the 1972 Biological and Toxin Weapons Convention because it is a toxic substance produced by a living organism (chilli-pepper plants): see World Health Organization, *Public health response to biological and chemical weapons: WHO guidance* (Geneva, 2004), p. 216.

in a Moscow theatre. All but five of the other 129 hostages were killed by the toxic agent used, which is said to have been one 'based on derivatives of fentanyl' that had been developed by USSR special services.[15] Comparable in some respects, if very different in others, is a counterterrorist utility for toxic weapons demonstrated, for example, by Israel in its espousal, following the Munich Olympics outrage in August 1972, of assassination as a prominent tool in counterterrorism.[16]

Perhaps exacerbating the new utility challenge is the increasing dependence of some countries for law enforcement (including counterterrorism) not only on state forces but also on the private military contractors who have been providing security services at local, national and even global level. The potential value and, therefore, take-up of 'non-lethal' chemical weapons by such contractors, who may be regulated less stringently than military or police forces, is already starting to become a matter of expressed concern.[17]

Proliferation of chemical weapons

Nowadays, when people speak of the proliferation or non-proliferation of chemical weapons it is not always clear what they are talking about. In its normal usage, the word 'proliferation' conveys the sense that the weapons concerned continue to exist somewhere. This works for nuclear weapons, which are not wholly illegal; but since chemical weapons are outlawed by the CWC, 'CW proliferation' or 'CW non-proliferation' implies that the treaty is somehow ineffective or irrelevant or else that the destruction of chemical weapons required under the CWC has already been completed. Yet even friends of the CWC use the expression, so it would appear to have a special meaning.

Indeed it does. The special meaning applies 'proliferation' or 'non-proliferation' to chemical weapons *as the CWC defines them*, not to chemical weapons in the ordinary meaning of the term, which is different. The CWC means chemical weapons not only as tangible objects—special artefacts built for arsenals or military stockpiles—but also as holdings of 'toxic chemicals and their precursors' that do not satisfy the general purpose criterion mentioned above. This means chemicals held for purposes other than 'purposes not prohibited under this Convention', as the CWC puts it, and not of 'types and quantities that are consistent with such purposes'.[18] In other words, the CWC refers also to *intentions*, not just to weapons in

[15] A recent publication in the medical literature identifies the agent used—without, however, citing any authority for the information—as something called 'Kolokol-1 … containing carfentanil': see James Geoghegan and Jeffrey L. Tong, 'Chemical warfare agents', *Continuing Education in Anaesthesia, Critical Care and Pain* 6: 6, Dec. 2006, pp. 230–34.

[16] See Aaron J. Klein, *Striking back: the 1972 Munich Olympics massacre and Israel's deadly response* (New York: Random House, 2005) pp. 104–11 and, describing the assassination of Wadi Haddad in 1978 with 'a lethal biological poison … that attacked and debilitated his immune system', pp. 205–208. On the attempted CBW assassination of Khalid Mish'al, see the entries for 25 Sept. 1997 and 19 Feb. 1998 in the 'News chronology' sections of *CBW Conventions Bulletin*, nos 38, Dec. 1997, p. 29, and 40, June 1998, p. 23. The CBW agent used in this latter episode is said to have been fentanyl, administered through the ear.

[17] See e.g. Alan Pearson, 'Incapacitating biochemical weapons: science, technology, and policy for the 21st century', *Nonproliferation Review* 13: 2, July 2006, pp. 151–88.

[18] This CWC definition of chemical weapons is to be found in article II.1 (see note 9 above); article II.2 states that by 'toxic chemical' is meant 'Any chemical which through its chemical action on life processes can cause death,

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the concrete sense. Now that international chemical disarmament is far advanced, thanks to the OPCW, the term 'CW proliferation' refers to the spread of intangibles as well as things; and, above all, it refers to the diffusion of technologies that could be applied to CBW *if their possessors so chose*.

The challenge that CW proliferation poses to the CWC can be disaggregated into two main forms. One is failure to understand what constitutes dual-use technology and what drives its diffusion around the world. Without such understanding, governance of the technology, including the formulation and implementation of anti-proliferation measures, is bound to be inadequate. The second form of challenge resides in the existence of state or non-state entities that are ready to aid the exploitation of dual-use technology for purposes of weaponizing toxic chemicals, notwithstanding the nearly global norm against it. Such assistance in exploitation might possibly be unwitting. The states often considered as proliferators in this sense include those that have been characterized as 'rogue states' or 'failing states'. They may also include states that have deliberately chosen to maintain chemical weapons capability. This last, it needs to be observed, is a category that ought to exclude all OPCW member states. Yet, for all most of us can tell, it may not in fact do so. Challenge inspection and investigation of alleged use are the main mechanisms the CWC provides for coping with this problem of possible non-compliance, but states parties have shown themselves disinclined to use the mechanisms, leaving the OPCW technical secretariat able to see only the chemical weapons that have been declared to it by their possessors; and even then, the CWC confidentiality regime within which the OPCW is obliged to operate may well prove too opaque to furnish adequate assurance to people outside the need-to-know reaches of the secretariat.

As for proliferators among non-state entities, these could include business corporations heedlessly serving a lucrative marketplace, criminal organizations feeding a black market, and terrorist groups seeking new weapons. All of this is an especially shadowy area about which even less is known (outside, presumably, the world of policing and security intelligence) than about state-level proliferation. Such greedy businesspersons or opportunistic criminals as there may be rarely surface. Again, most of us just do not have knowledge enough to accept or to reject the received wisdom. As for proliferation among terrorists, this is probably myth. While it is known that certain terrorist groups have indeed looked at options for gaining access to CBW, such intent as they have had to acquire CBW does not seem to have been translated into significant capability. Thus far, other

temporary incapacitation or permanent harm to humans or animals'. The 'purposes not prohibited under this Convention' that the definition uses in order to exempt some applications of chemicals from the strictures of the CWC are themselves defined later in article II, in para. 9, thus: '(a) Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes; (b) Protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against chemical weapons; (c) Military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare; (d) Law enforcement including domestic riot control purposes.' The terms used in subparagraph (d) are not themselves defined, but article II.7 states that 'riot control agent' means 'Any 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'.

means for terrorist violence have generally proved more attractive or more accessible to them and, since the aberration of Aum Shinrikyo in the 1990s, only the most footling terrorist attempts to acquire CBW have been observed.[19] This is not to say that it could not happen: the reports of chlorine use from Iraq, and earlier from Chechnya, Bosnia and Sri Lanka, show that it can happen at the less destructive end of the scale, albeit as opportunistic rather than planned acquisition of CW (the chlorine initially having been readily to hand in water-treatment plant and similar facilities). And the lesson to draw from the still-unresolved 'anthrax letters' affair in the United States during late 2001 is that CBW can put potential for great harm into the hands of technically competent and skilled individuals.[20]

In measures that have been taken outside the CWC, such as the activities of the Australia Group and also UN Security Council Resolutions 1540 (2004) and 1673 (2006), parts of the international community have put in place CW anti-proliferation mechanisms that complement those of the CWC. But these mechanisms, which are chiefly dependent on import and export controls, have to function within a trade and technology-transfer environment that does not favour them, an environment in which globalization is impelling diffusion of industrial and other technologies around the world at what seems to be an accelerating rate. The capability of individual states to acquire chemical weapons, if they so choose, is thereby enhanced, and, if they still need specialized assistance, clandestine procurement networks (such as the so-called Q. C. Chen network) have now gained increasingly dense cover within which to operate. That networks of this type can indeed spring up to meet demand was clearly shown by the UNSCOM/UNMOVIC investigation of Iraqi CBW acquisition and by the Libyan CW programme. Even states that have no immediate wish to acquire CW may nevertheless move to take advantage of these various possibilities as a hedge against circumstances changing—by, for example, building what could serve as 'break-out capacity' into their industrial infrastructure, rather as the USSR created 'mobilization capability' for manufacturing BW within its biotech industry between 1973 and 1991. Iran, victim on a terrible scale to Iraqi chemical weapons during the years 1983–8, very probably falls into this category,[21] while at the same time being among the most vocal supporters of the CWC regime and, especially on the medical side, a proactive

[19] Sound risk assessment of CBW terrorism is scarce in the published literature. However, a recent seven-country study of the vulnerability of European society to radiological and CBW terrorism has concluded that any such acts of terrorism today or in the immediate future are unlikely to achieve more than localized nuisance. See the interim report from European Commission Framework 6 project 502476, 'Assessment of the vulnerabilities of modern societies to terrorist acts employing radiological, biological or chemical agents with the view to assist in developing preventive and suppressive crisis management strategies' (ASSRBCVUL), 17 Oct. 2006. Some particulars are posted on the EU website at http://ec.europa.eu/research/fp6/ssp/assrbcvul_en.htm, accessed 23 Jan. 2008. The final report, dated May 2007, in contrast to the unclassified interim report, has an EU security marking but the accompanying executive summary is unclassified.

[20] See further Martin Rees, *Our final century: will the human race survive the twenty-first century?* (London: Heinemann, 2003); Milton Leitenberg, *The problem of biological weapons* (Stockholm: Swedish National Defence College, 2004), pp. 137–55.

[21] See J. P. Perry Robinson, 'Dual technology and perceptions of Iranian chemical and biological weapons', 20 July 2005, posted at www.sussex.ac.uk/Units/spru/hsp/Papers/450.pdf, accessed 23 Jan. 2008; International Institute for Strategic Studies, *Iran's strategic weapons programmes: a net assessment*, IISS strategic dossier (London: Routledge, 2005).

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participant in its international procedures. Nor is there any clear impropriety in such a position, for all the industrial powers, including ones that menace Iran, have manufacturing industries to which they could turn at short notice for CBW agents (whose full weaponization would, however, be more demanding). The fact nevertheless remains that proliferation of this type is a threat to confidence in the regime and therefore a serious challenge to it for as long as the problem of 'dual use' remains unalleviated.

Nor should it be forgotten that duality exists in a variety of forms. The emphasis here has been on civil–military duality, exemplified by technology that may contribute to production both of pesticides, say, and of nerve gas. This duality has important variants, notably the applicability of law-enforcement technology based on toxic chemicals such as Agent CS (an applicability that expressly qualifies as a purpose not prohibited under the CWC) not only to the counterterrorist purposes addressed earlier but also to other military purposes, such as those pursued by these means during the Vietnam War. And beyond that there is the offence–defence duality, exemplified by the ready applicability to CBW of knowledge and other forms of intangible technology that have been acquired through the study and development of anti-CBW protection. This last form of duality may be especially likely to create a dangerous impression in other countries that it is concealing or dissembling CBW development. Proliferation may seem to be happening when in fact it is not.

Accommodation of national interests

Ambassador von Wagner proposed a treaty whose provisions could 'mature and evolve in the course of state practice'. That is the CWC we now have, room for evolution being established by language that had deliberately contained 'constructive ambiguities' or that had simply left some issues to be resolved later. The alternative model was a legal instrument free of all ambiguity and with its obligations unnuanced, setting out exactly what its states parties were and were not to do. Even if desirable, such a set-in-stone treaty could not have been negotiated within the deadline that the negotiators finally adopted. We have instead been given plenty of space for 'subtlety on matters of implementation', and this has been exploited by the policy organs of the OPCW, most notably during their annual negotiations on the organization's future programme and budget. Opportunity for augmenting the process is now presented by the Second CWC Review.

At one level this flexibility is much to be welcomed, for the international relationships within which operation of the CWC is embedded are in a constant state of flux, and this is bound to affect the character of the obligations imposed by the treaty. But at another level it may create serious difficulties for the CWC, for it encourages mere political expediency to oppose underlying principles of the treaty. Above all, it admits the ineluctable challenge of having to accommodate the interests of the more influential member states even, perhaps, where these may actually degrade the treaty. A pressing new need finally to resolve a 'constructive

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ambiguity' left over from the original CWC negotiations, or to deal with some unanticipated puzzle about interpretation, can become an opportunity to advance an interest. The accommodation of such an interest may perhaps make the regime more stable, but it may also make it increasingly unprincipled. The 'constructive ambiguity' may then have become a fault-line in the overall regime.

The proposition that the CWC must evolve if it is to survive changes in international relations clearly lends itself to abuse or, if not abuse, then to shortcomings in the way it is implemented. Disturbing examples of this phenomenon may be drawn from historical experience, responsibility for each one being attributable to the domestic or bureaucratic politics of this or that major state party. Here are just a few arising from such factors for one state party, the United States:

- Chemical weapons abandoned in Panama not declared;
- Production facilities not declared for certain toxic chemicals not satisfying the general purpose criterion, including the Agent CS with which tactical (as opposed to 'riot control') munitions were filled for use during the Vietnam War, such as 750-pound aircraft bombs, and including also Agents UC and XR—two toxins for which production capacity in 1970 was 600 and 280 pounds per month respectively,[22] greater in both cases than the one tonne per year threshold above which the CWC requires declaration;
- Industry declarations submitted to the OPCW so late—some three years after the deadline specified in the CWC—as to distort development of the industry verification regime;
- The removal of the first director general, thereby exposing the OPCW to a judgement by the ILO Administrative Tribunal stating that, in 'accordance with the established case law of all international administrative tribunals, the Tribunal reaffirms that the independence of international civil servants is an essential guarantee, not only for the civil servants themselves, but also for the proper functioning of international organizations';[23]
- The sustained assertion that riot control agents (RCAs), even ones failing to satisfy the general purpose criterion, cannot also be 'chemical weapons' within the meaning of the CWC;
- Repeated public accusations of CWC non-compliance levelled against particular states parties without activating the means provided in the convention for dealing with suspected non-compliance.

The point here is not to show that a special finger of blame can be pointed at the United States, for similar lists can be compiled for other influential OPCW member states. The point is simply to exemplify the tension that may arise

[22] These figures—for staphylococcal enterotoxin and botulinal toxin respectively—did not enter the public domain until after the United States had made its initial declaration to the OPCW. They are from a formerly classified inter-agency paper, 'US policy on toxins', dated 30 Jan. 1970, which is document 177 in US Department of State, Office of the Historian, *Foreign relations of the United States: Nixon–Ford administrations*, vol. E-2: *Documents on arms control and nonproliferation, 1969–1972* (Washington DC: US Government Printing Office, 2007).

[23] International Labour Organization, Administrative Tribunal, 95th session, judgment 2232 in Geneva on 16 July 2003.

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between principle and practice, the examples being ones of behaviour that clearly runs counter to the ethos of the CWC. Nor should we be surprised by this recurrent fact of international life. We may nevertheless point to two challenging consequences for the CWC. One is an OPCW secretariat that has to be exceedingly circumspect regarding great-power interests before it can take any sort of initiative.[24] The second and related consequence is an accumulating list of CWC implementation issues that are in the too-difficult-to-deal-with category.[25]

These two challenges could ultimately, if the worst came to the worst, prove fatal to the CWC regime. Can governments, collectively through the OPCW, be relied upon to address them? No: that is how governments behave, and that is the core of the problem. Does this mean, then, that concerned organs of civil society must attempt something? But what can they do other than observe, record, analyse and perhaps (it could do the career prospects of the individuals concerned no good at all) publicize? Insofar as there is any sort of remedy, it resides in the OPCW technical secretariat having a director general and other senior staff not only possessed of altogether exceptional ability and probity, but blessed also with long institutional memory.

Pernicious ignorance

There is another twist to this dependence of the CWC regime on the whims of the dominant actors. What happens when an influential state party seems not to care very much about the treaty, as when its representatives are inadequately informed about details or about what the treaty is meant to be doing? For example, was President Bush in sufficient possession of the facts when, at a press conference on 18 November 2002, he publicly praised President Putin for having authorized the use of an opiate to end the Moscow theatre siege during the previous month?[26] This is not to say, of course, that great-power representatives are likely to be any more or less well informed than other people. In fact, it is not at all easy for anyone to grasp CBW, or even just CW, issues adequately without prolonged immersion in the subject; and even this may not always work, given the secrecies and sensitivities concerning CBW that still abound. Maybe a part of the problem is that CBW is a subject that historians have largely ignored, meaning that people wanting or needing to know about it have little reliable and readily accessible literature available even for basic chronological information and broad-brush analysis. Different concepts of the same matter can coexist among groups even of specialists without their members appreciating that the concepts are different. In the absence of

[24] It is therefore to the great credit of the secretariat that it has been able, over the past decade, to take the lead on several matters of implementation. See Ralf Trapp, 'The first ten years', in Ian Kenyon and Daniel Feakes, eds, *The creation of the Organisation for the Prohibition of Chemical Weapons* (The Hague: T. M. C. Asser Press, 2007), pp. 261–89.

[25] On how this accumulation happens, including the propensity of the OPCW executive council for deferring decision, see Walter Krutzsch, 'Ensuring true implementation of the CWC', *CBW Conventions Bulletin*, nos 76–7, Oct. 2007, pp. 15–17.

[26] See the fifth entry for 18 Nov. 2002 in the 'News chronology' section of *CBW Conventions Bulletin*, no. 59, March 2003, p. 16.

good reference works of sufficient breadth and sufficiently independent of vested interest, both misapprehension and ignorance have become common in policy-shaping circles, perhaps including those people who might have advised President Bush ahead of that press conference.

A situation in which ignorance prevails can take on the appearance of heedlessness; and the converse may also be true. Here are some examples of where this has become pernicious, endangering the regime or options for strengthening it—examples of where ignorance itself may become a challenge to the CWC:

- It has become common over the years for representatives of a curiously large number of CWC states parties to assert that there is no such thing as a 'general purpose criterion' in the text of the CWC, and therefore that there is no foundation for the comprehensive nature of the prohibitions set out in the convention or for arguing that they extend to chemicals not included in the schedules. It is not at all clear how the representatives thinking this, or at any rate affecting to believe it, have managed to disregard article II.1(a) and article VI.2 of the treaty.
- The US imputation that riot control agents are not 'toxic chemicals' in the sense of CWC article II.2 (because the United States holds that RCAs can never be chemical weapons) resonates with people who equate 'toxicity' with 'lethality', regardless of the fact that toxicity may take forms other than life-threatening ones. That the CWC does not limit its concept of toxicity to lethal toxicity is clear from the words used in article II.2.[27] True, if properly used, RCAs rarely cause 'death or permanent harm to humans or animals'; but their whole *raison d'être* requires that they produce 'temporary incapacitation'. Ignorance of this point has led people to think that the CWC applies only to lethal chemical weapons. In fact, 'lethal' and 'lethality' are words and concepts that do not figure in the CWC at all.
- Presumably because the 1960s impetus to strengthen the international ban on use of CBW set out in the 1925 Geneva Protocol led to two separate CBW disarmament treaties, many people today regard BW and CW as necessarily separate categories, despite the many military, technical, legal, institutional and other characteristics shared by BW and CW. Such heedlessness has brought with it neglect of the special opportunities for strengthening CBW disarmament that now exist in the areas where the two treaties overlap. As the Lemon–Relman Report from the US National Academies observed in 2006, toxins and synthetic biological agents, including bioregulators, immunoregulators and small interfering RNAs, fall within the scope of both treaties, thus providing 'parallel or linkable features' that warrant careful attention during the 2008 CWC Review Conference (having failed to receive it during the 2006 BWC Review Conference).[28] Moreover, as more and more biology becomes understandable in terms of chemistry and chemicals, the distinction between BW and CW is bound to become increasingly narrow, verging on the worthless. Yet not only

[27] The text is quoted in note 18 above.
[28] The quotation here is from p. 246 of the report, which is cited in note 10 above.

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> are governments apparently passing up on this rich opportunity, a surprising number of officials even appear to believe that toxins and their ilk are covered only by the BWC, not by the CWC as well. They fail to see the possibilities presented by the routine verification regime of the CWC for enhancing transparency in a burgeoning area of dual-use biotechnology where misperception could prove extraordinarily dangerous.[29]

Ready explanations seem to be available for all the examples just cited. The same cannot be said for one other example, however, which it is therefore all the more important that we understand. South Korea insists on its identity as a declared CW-possessor state being withheld from all OPCW publications. The CWC gives it a right to do this, but why does Korea persist in asserting that right even when its officials have made statements to the press about their country's programme for destroying its chemical weapons?[30] It is hard to believe that this is simply another example of a state party abusing the privacy provisions of the CWC through mere heedlessness or ignorance. Is it some sort of consequence of the United States having stockpiled chemical weapons in South Korea?[31]

What is here being called the challenge of pernicious ignorance thus takes a variety of forms. Again, the remedy may seem to lie in part with civil society, especially if a mechanism can be found for promoting sound and comprehensive writing of history in the CBW field. Any such historians would need a great deal of help, not least in the form of enhanced access to types of documentation that antique sensitivities have kept out of the public domain. It is important that the OPCW, too, should have workable procedures for reviewing the security classification of the information its secretariat holds confidential at the request of the member states that submitted it originally; and for releasing declassified information. Now is definitely not the time for the OPCW to perpetuate its culture of secrecy. To do so would convey a message of disregard for the outside world, including the civil society on which, to a degree, the OPCW will depend for its future well-being.

Creeping legitimization

In the ability of CW agents to target themselves on particular life processes there is indeed, as the old advocates of the weapons used to claim,[32] growing scope

[29] For more detail on this idea, see A. P. Phillips and J. P. P. Robinson, 'The CWC and chemicals of biological origin', paper presented at the OPCW Academic Forum, The Hague, 18–19 Sept. 2007; J. P. Perry Robinson and A. P. Phillips, 'Addressing the toxin problem', paper presented at the 27th workshop of the Pugwash Study Group on Implementation of the CBW Conventions, Geneva, 8–9 Dec. 2007.

[30] See e.g. the entries for 8 May, 17 July and 4 Aug. 2000 in the 'News chronology' sections of *CBW Conventions Bulletin*, nos 49, Sept. 2000, pp. 26, 41, and 50, Dec. 2000, pp. 26–7.

[31] The fact of such stockpiling entered the public domain only with the recent declassification of a letter from U. Alexis Johnson (Deputy Under Secretary of State for Political Affairs) to William P. Bundy (Deputy Assistant Secretary of Defense for International Security Affairs), dated 14 Nov. 1963, copy in the Lyndon B. Johnson Presidential Library, Austin, Texas. There seems to be no public information on what has since happened to the stockpile in South Korea.

[32] See e.g. Brig.-Gen. J. H. Rothschild, *Tomorrow's weapons: chemical and biological* (New York: McGraw-Hill, 1964).

to 'tailor' the nature or severity of effects of an agent to a particular objective desired by its user. As the life sciences advance, that scope is likely to increase. Because such tailoring could also open the way to weapons suited to hugely malign purpose,[33] an effective governance regime is essential. The same tailoring can, however, provide weapons that, at first glance, appear to be of an altogether more acceptable character, including ones having effects gentler than most other means of violence. Examples include the 'tear gas' of police forces; the psychochemical weapons that, according to past US Army teaching, would cause the enemy to 'linger in overpowering reverie';[34] and the entirely mythical knock-out agents of 'war without death' that have figured in science fiction since the nineteenth century. Add to these chemicals the various infective agents that can induce highly debilitating diseases of low mortality, and a category of CBW is created whose features seem quite different from those of WMD, whose possession may therefore appear desirable, and whose constraint by treaty may thus come to seem a liability, notwithstanding the abyss into which the tailoring could also cast us.

A rather wide variety of commercial, political and military interests stand to benefit from exclusion of some or all of these non-WMD CBW from the governance regime. *Sub rosa* campaigning to that end has long been under way, most notably during the final months of the CWC negotiation in mid-1992, when the proponents of what were then starting to be called 'non-lethal weapons' (NLW) came up against governmental officials charged with securing consensus on those parts of the CWC text that dealt with RCAs.[35] The issue turned then on whether RCAs fell within the definition of 'toxic chemicals', thereby becoming subject to the general purpose criterion that would serve to regulate the duality of their application either in warfare (prohibited) or in law enforcement (permitted). For reasons that remain unclear to this day, the United States favoured exclusion but, finding itself isolated in this position within the western group, secured a compromise in which the CWC expressly prohibited use of RCAs 'as a method of warfare' but remained silent on the toxic character of RCAs, thus perpetuating a semblance of ambiguity on whether the CWC did or did not capture RCAs.[36] The way then became open for determined proponents of NLW to argue that, if tear gas was not proscribed by the CWC, then neither should the more modern varieties, for which they coined the category label 'Advanced RCA Technology' (ARCAT). Subsequent ARCAT development projects funded by the US govern-

[33] On which see esp. British Medical Association Board of Science and Science and Education Department, *The use of drugs as weapons: the concerns and responsibilities of healthcare professionals* (London, May 2007), p. 1, noting that the scope could include 'intentional manipulation of people's emotions, memories, immune response or even fertility'.

[34] US Army Chemical Center and School, Fort McClellan, 'New chemical agents and incapacitating agents', Lesson Plan LP6075, undated (*c.*1965).

[35] A close account of these and related events is to be found in J. P. Perry Robinson, 'Non lethal warfare and the Chemical Weapons Convention', 12 Oct. 2007, submission to the OPCW Open-Ended Working Group on Preparations for the Second CWC Review Conference, posted at www.sussex.ac.uk/Units/spru/hsp/Papers/421rev3.pdf, accessed 23 Jan. 2008.

[36] This compromise was in fact proposed not by the United States but by a group of eleven neutral and non-aligned states looking also, and in sharp contrast to the United States, for a CWC prohibition on herbicide warfare.

ment included work on the fentanyls and other intensely toxic chemicals.

The process that can be seen here is a surreptitious equation of toxicity with lethal toxicity. In this attempt to loosen the CWC constraint on the weaponization of other forms of toxicity we have started to see a creeping legitimization of non-WMD CBW. This is a most serious challenge to the regime. A situation in which some types of toxic weapon are tolerated but others are not is certain to be unstable.

The instruments of creeping legitimization include not only 'public diplomacy' and other more hidden pressures for exemption, but also national legislation. In the United States the 'Ensign Amendment' of the 2006 Defense Authorization Act asserts that 'riot control agents are not chemical weapons'.[37] Fortunately, no other state party to the CWC has adopted such a position, nor even commented publicly on what the United States has done. There are signs that the topic of NLW will largely escape the purview of the Second CWC Review Conference, within which it clearly ought to appear.

Conclusion: addressing the challenges

The several challenges to the CWC identified in this article suggest a rather wide variety of alleviating measures that might be considered by governments keen to maintain the OPCW as an effective international organization, and even by organs of civil society as well. The main points are as follows.

There needs to be wider recognition within civil society that, throughout the future of the CWC, there will inevitably be tension between political drivers of decision and principled implementation, between political expediency and the well-being of the treaty. These are tensions of which we are all aware but which, as challenges, we tend to disregard. Sound stewardship of the CWC must be based on reconciliation of divergent practice and principle, even, conceivably, to the point of adapting the terms of the treaty to the prevailing political climate. Amending or otherwise changing the treaty would be an extreme option, however, and no such adaptation should be contemplated that would endanger the heart of the CWC.

At that heart lies the general purpose criterion, which is the primary mechanism whereby the CWC provides protection against those as-yet-unknown chemical weapons that could include ones of unprecedented malignance, and a vital part of the machinery for governance of dual-use technology. Yet the criterion is not being implemented adequately. This is in part because it is not at all easy, as a matter of practical administration, to devise and execute effective policies for

[37] In its section 1232, the US National Defense Authorization Act for Fiscal Year 2006 states: 'It is the policy of the United States that riot control agents are not chemical weapons and that the President may authorize their use as legitimate, legal, and non-lethal alternatives to the use of force that, as provided in Executive Order 11850 (40 Fed. Reg. 16187) and consistent with the resolution of ratification of the Chemical Weapons Convention, may be employed by members of the Armed Forces in war in defensive military modes to save lives, including the illustrative purposes cited in Executive Order 11850.' On 27 Sept. 2006, in evidence to the Senate Armed Services Subcommittee on Readiness and Management Support, which is chaired by Senator John Ensign, the Defense Department in the person of Joseph Benkert, Acting Principal Deputy Assistant Secretary of Defense for International Security Policy, testified that the 'Administration agrees with [this] statement'.

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doing so. But in part also this failure is probably attributable to a mix of ignorance, lack of understanding, incompetence, heedlessness, short-termism and conflicting political interests, including those interests that are rooted in NLW technology. Action to improve this situation warrants the very highest priority.

Other issues, too, have disappeared into the too-difficult-to-deal-with category. A means has to be found for restoring them to active consultation among states parties. This is clearly a task for the Second CWC Review Conference as it looks towards a future in which the declared CW stockpiles and infrastructure no longer exist. If the conference does not mandate such consultations, it will have failed.

The OPCW itself ought to have been capable of such action as a matter of routine, but evidently it is not. The governments of some of its member states seem to have become an intransigent part of the problem, while the technical secretariat has been blighted by the seven-year tenure policy for staff and the consequent fading of its institutional memory—and hindered, too, by a fading of its technical competence in certain areas and the magnitude of the obstacles it must overcome before it can take any initiative. The initiatives that it has been able to take, however, for example on the National Implementation Action Plan, have successfully enhanced the overall regime. We may hope that the Second Review Conference will recognize this expressly when reaffirming the commitment of OPCW member states to the CWC.

Finally, we in civil society must not lose sight of the fact that the CWC is an engagement of states parties, of which governments are one element. Governments may represent states parties in the fora of the OPCW, but organs of civil society are also elements of those same states. They cannot shed their own responsibilities for the proper implementation of the CWC, especially in areas where our governments appear hamstrung, incapable of action—especially at the present juncture.

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