

Reducing chemical and biological threats through international governance

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Abstract

International governance of materials and technologies that could be used to create biological or chemical weapons is a key element in reducing the possibility that such materials and technologies could be used for hostile purposes -- whether by governments, or as terrorist or criminal acts. The relevant international conventions, the 1972 Biological Weapons Convention (BWC) and the 1993 Chemical Weapons Convention (CWC), have a number of common themes such as the "general purpose criterion" which can be summarised as everything is prohibited except where expressly allowed for under the Conventions. However, there are essential differences which must be noted. The first is the difference in level of detail contained within the Convention texts; the second is the considerable differences in the nature of what must be controlled so that control measures for one do not necessarily apply to the other. There are many challenges of implementation for these Conventions, including encouraging universal membership and the creation of effective national control measures. Issues of wider engagement of practitioners involved in relevant scientific and technical activities, many of whom are not aware of the international governance background, also arise.

Keywords: biological weapons, chemical weapons, dual-use, international law

1 Introduction

In the past decade or so, widely-held assumptions about threats from biological and chemical weapons have undergone significant changes. For many, the threat had been assumed to come primarily from military programmes; more recently a widespread belief developed that the threat of use of these weapons in terrorist or criminal acts was now significantly greater. These assumptions are not universally held and are disputed by many experts in relevant fields. However, what is beyond dispute is the realization by governments and civil authorities around the world that modern societies are more vulnerable to disruption from biological and chemical weapons than had been previously comprehended. International governance of materials and technologies that could be used to create biological or chemical weapons is a key element in reducing the possibility that such materials and technologies could be used for hostile purposes -- whether by governments, or as terrorist or criminal acts.

2 The Dual-Use Nature of the Problem

Many of the materials and technologies required for chemical and biological weapons development also have peaceful uses. This 'dual-use' nature can refer to both tangible and intangible features of materials and technologies which enable them to be applied to both hostile and peaceful purposes. An example of a dual-use material is thiodiglycol -- a chemical in widespread use in industry, but also a close precursor to sulphur mustard (mustard gas). Dual-use technologies include fermenters and aerosolizers. An example of something intangible is the laboratory skill set a postgraduate microbiology student might acquire.

When the potential to manufacture biological or chemical weapons was limited to military programmes run by governments, international controls had to focus on the activities of governments. Once peaceful civilian activities had advanced, both in scale and in technological development, to the extent that non-state actors could utilize them for hostile purposes, the nature of the problem changed fundamentally. This dual-use nature creates a new frame of reference to the security problems connected to biological and chemical weapons -- the issue is no longer just about weapons controlled by states, but about the control of technologies outside of the ownership of governments that have not only peaceful purposes, but also economically significant purposes.

3 The International Perspective

The global trade in dual-use materials and technologies means that controls cannot be implemented on an *ad hoc* basis. Without basic agreement on what should be controlled, there is no chance of harmonization of controls. This is a fundamental lesson from the activities of Iraq in the 1980s, when that country was able to procure a range of significant inputs into its chemical weapons programmes by selecting exporting countries which had not implemented comprehensive controls. Concerns that dual-use materials may be used for hostile purposes by non-state actors have highlighted needs for controls *within* as well as *between* states.

3.1 Key international instruments

The four international instruments of most relevance to this paper are discussed below. Each of these has particular strengths and weaknesses. It should be noted that as well as these formal legal instruments there are additional less formal measures, such as the Australia Group which coordinates the export control policies of its members in relation to biological and chemical materials and technologies.

3.1.1 1925 Geneva Protocol

The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare was signed at Geneva on 17 June 1925 and entered into force three years later. The Protocol contains a simple prohibition on the use of chemical weapons, defined as ‘asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices’. The Contracting Parties also agreed ‘to extend this prohibition to the use of bacteriological methods of warfare’. However a number of states, on becoming parties, stated reservations along the lines that they considered the Protocol binding only in conflict with other parties and reserving the right to use the otherwise prohibited weapons in response to an attack with such weapons against them. As time has gone by, many of these reservations have been withdrawn — most notably when the states in question have become parties to the conventions outlined below.

3.1.2 1972 Biological [and Toxin] Weapons Convention

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and their Destruction was opened for signature on 10 April 1972 and entered into force on 26 March 1975. The Convention is commonly known by two names: the Biological Weapons Convention (BWC) or the Biological and Toxin Weapons Convention (BTWC).

3.1.3 1993 Chemical Weapons Convention

The text of the Convention on the Prohibition of the Development, Production, Stockpiling and use of Chemical Weapons and on Their Destruction, commonly known as the Chemical Weapons Convention or CWC, was agreed at the end of 1992. The CWC signing conference was held in

Paris on 13–15 January 1993. The Convention entered into force on 29 April 1997.[b] The prohibits the manufacture and stockpiling of chemical weapons and regulates certain chemicals used in their manufacture (precursors).

3.1.4 United Nations Security Council resolution 1540

On 28 April 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 ‘prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery, in particular for terrorist purposes’. At the time that the resolution was adopted, some concerns were raised as to whether it was the correct role for the Security Council to act as a legislative body – by virtue of the UN Charter, resolutions made under Chapter VII are legally binding upon all states. Some states, notably Pakistan, raised questions as to whether it would be better to negotiate international obligations rather than have them imposed by the Security Council. Further questions were raised as to whether non-compliance with this resolution would be met with the use of force, as is also allowed under Chapter VII resolutions.

3.2 Some common themes

The BWC and CWC have a number of common themes. Each of these conventions contain a bargain – the renunciation of hostile uses of the relevant materials and technologies (embodied in Article I of each of the Conventions) in return for freedom to gain the benefits of the peaceful uses of chemistry (embodied in Article XI – entitled Economic and Technological Development – of the CWC) and of the life sciences (embodied in Article X of the BWC). Security, economic and geographical considerations influence how individual countries see the balance between the two sides of the bargain. While most western states have consistently put emphasis on the security aspects of the bargain, they have also had a long-term recognition that the other considerations have to be taken into account in order to encourage universality, national implementation and on-going active engagement with the CWC.

In order to make a distinction between those things that are prohibited and permitted under the Conventions, a formulation known as the ‘general purpose criterion’ is used which can be summarised as everything is prohibited except where expressly allowed for under the Conventions. Where something is permitted, the biological or chemical materials can only be held in ‘types and quantities’ consistent with that purpose. Security Council resolution 1540 also implicitly recognises that materials and technologies to be regulated also have non-hostile uses and therefore cannot simply be completely prohibited.

Five-yearly Review Conferences are held for both Conventions, which allow the states parties to examine the functioning of each Convention, in the light of political, scientific and technological developments. The CWC has annual meetings in the form of the ‘Conference of the States Parties’. The BWC has annual meetings in a different form, known as the ‘inter-sessional process’ as the meetings are held between the sessions of the Review Conferences. Each year a different set of topics are discussed in a one-week ‘Meeting of Experts’ in the middle of the year followed by a one-week ‘Meeting of States Parties’ towards the end of the year.

3.3 Key differences

However, there are essential differences which must be noted. The first is the difference in level of detail in the texts; the second is the considerable differences in the nature of what must be controlled so that control measures for one do not necessarily apply to the other.

Each of the four international instruments is a product of its time. The first three are treaties. The Geneva Protocol merely outlaws the use of certain classes of weapons without including any prohibition on possession and reservations attached to it essentially transformed it into a no-first-use treaty. While the Geneva Protocol is simply a few paragraphs long, the BWC runs to four pages. It specifies little in the way of detail, with no provision for formal compliance measures or for any central institutional arrangements. It was agreed at a time where it was thought that such things would not be necessary as most of the leading states had assumed that government biological weapons programmes were likely to be rare. The CWC is some 200 pages long and the Convention regime is institutionalized through the establishment of the Organization for the Prohibition of Chemical Weapons (OPCW) and its subsidiary organs. The OPCW collates declarations passed to it by the National Authority of each state and has the power to confirm these through routine on-site inspections. The OPCW also has the authority to mount challenge on-site inspections at declared and undeclared sites and to investigate allegations of use of chemical weapons. The CWC also includes provisions for assistance and protection against chemical weapons to states parties and for the provision of technical co-operation on peaceful uses. This Convention was concluded shortly after the Iran-Iraq War (1980-88) and the Kuwait War (1990-91) when many political leaders were focused on the implications of their troops potentially having to fight a chemically-armed opponent.

Security Council resolution 1540 was adopted three months after the extent of the AQ Khan nuclear network was revealed and at a time when fears of terror attacks were heightened.

There is an overlap between biological and chemical weapons in the form of toxins – poisonous substances produced by living things. Toxins are covered by the prohibitions in both the BWC and CWC. However, key differences have to be noted. Chemical processes can be regulated through forms of material accountancy – the materials used as inputs to a system and the products can be recorded. Such accountancy systems can be scaled up or scaled down depending on the purpose that the records may be put to and can provide high levels of confidence that the materials can be accounted for. Some biological processes, on the other hand, have characteristics which mean that they cannot be understood simply by material accountancy. Microbes can reproduce and they can die if not handled correctly. This therefore requires other forms of records to be kept, such as which items of equipment were used for what purpose, for how long and by whom. It also requires the practitioners to be much more aware of the implications of their actions.

4 Challenges

4.1 Universality

The most basic challenge to the treaty-based instruments is increasing their membership so that all countries have joined them. As of 1 April 2009, the CWC has 187 States Parties[1] and the BWC has 163. Recent efforts to increase membership have included an ‘Action Plan’ on universality for the CWC adopted at that Convention’s First Review Conference in 2003 and a decision on ‘Promotion of Universalization’ for the BWC agreed at that Convention’s Sixth Review Conference in 2006. The Geneva Protocol has 133 ‘High Contracting Parties’ and there are a number of international lawyers who claim that this treaty has now reached the status of ‘customary international law’, although this claim is disputed.

4.2 National Implementation

Membership of the BWC and the CWC brings with it a number of obligations such as adoption of national implementing legislation – although these obligations are more clearly elaborated in the CWC.[2] UN Security Council resolution 1540 also obliges countries to introduce relevant implementation measures. One of the lessons of the extent of the AQ Khan network was that

countries can be host to companies that are contributing to proliferation activities without the relevant governmental authorities being aware. Effective national implementation therefore includes much more than simply the enactment of legislation but extends into areas such as licencing and customs controls.

National implementation is far from complete. The OPCW Technical Secretariat now publishes summary details of national implementation measures that CWC States Parties have put into place.[3] The 1540 Committee has been creating a national implementation 'matrix' for each UN Member State although these are not routinely published. It is clear that many countries have a lot of work to do in this area. As with universality, promotion of national implementation has been the subject of action plans and Review Conference decisions.

4.3 Outreach / engagement with practitioners

In dealing with technologies becoming as diffuse as those in chemistry and the life sciences, national and international measures can only go so far. It has become clear that wider engagement of practitioners involved in relevant scientific and technical activities, many of whom are not aware of the international governance background, is going to be required.

The 2005 and 2008 BWC meetings of the inter-sessional process were dedicated to codes of conduct and other ethical issues. The International Union of Pure and Applied Chemistry (IUPAC) has been working on outreach in this area for some years. National Academies have also been particularly active. There is still much more that can be done, however.

5 Conclusions

International governance of materials and technologies that could be used to create biological or chemical weapons is a key tool in reducing possible biological and chemical threats. However, it is not the only possible tool and the use of international measures has to be done appropriately. While multilateral controls have been subject to a harsh political climate for some years, recent changes may lead to greater levels of activity in some of these issue areas. Universal adherence and comprehensive implementation will be vital for international governance measures to reach their greatest effectiveness.

References

- [1] The remaining states that have signed but not yet ratified the CWC are: Bahamas (signed 2 March 1994); Israel (signed 13 January 1993); and Myanmar (signed 14 January 1993). The states that have neither signed nor ratified the CWC are: Angola; Democratic People's Republic of Korea; Egypt; Somalia; and Syrian Arab Republic.
- [2] For a summary of national implementation obligations, see 'General Obligations Under the Chemical Weapons Convention and Related Tasks: Prioritised checklist for non-possessor States Parties', OPCW document S/396/2004, dated 22 January 2004, available from the OPCW website.
- [3] OPCW, 'Report to the Conference of the States Parties at its Thirteenth Session on the Status of Implementation of Article VII of the Chemical Weapons Convention as at 15 September 2008', OPCW document C-13/DG.6, dated 11 November 2008, available from the OPCW website.

Some useful websites

Organization for the Prohibition of Chemical Weapons <<<http://www.opcw.org>>>
Biological Weapons Convention Implementation Support Unit <<<http://www.unog.ch/bwc>>>
UN Security Council 1540 Committee <<<http://www.un.org/sc/1540/>>>