6

Verifying biological disarmament: towards a protocol and organisation

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Biological weapons (BW) have seldom been used, but 'the history of biological warfare is obscured and complicated by false allegations, unfounded suspicions and the repeated difficulties of separating what is true from what is false'.[1] Casualty figures and military consequences are uncertain even for the largest and most reliably attested campaign of biological warfare: Japan against China between 1939 and 1942.[2] Nevertheless, BW occupies a special place in the history of warfare and disarmament diplomacy because of the exceptional revulsion that the prospect of 'germ warfare' has inspired. It has been excoriated as 'repugnant to the conscience of mankind'[3], since it offends ethical humanitarian values and a deep rooted social taboo. Furthermore it has been described as 'an arm discreditable to modern civilisation',[4] because it is peculiarly insidious in operation and, therefore, associated with ancient notions of unchivalrous behaviour, unworthy of the warrior. Conversely, one of the principal motivations for BW disarmament has been the drive towards the control, and, wherever possible, the prevention of disease. The highest ethical standards of the medical and scientific professions point to the moral responsibility of saving life, rather than destroying it through the deliberate infliction of disease, thereby betraying a high calling.[5]

In the last three decades of the twentieth century a new urgency was added to these eternal verities, as biological warfare assumed a renewed salience and acquired a new aura of invincibility through developments in science and technology. A much stronger perception of the threat from biological weapons—in the hands of terrorists and unfriendly governments—arose primarily as a result of the revolution in genetics from around 1973. The development opened up the prospect of mutated or gene-spliced 'super-germ' weapons, giving the offence a permanent advantage over the defence.[6] This novel threat was accompanied by disturbing evidence of

deception by one or two governments that professed to be in favour of disarmament. In 1992, for instance, Russian President Boris Yeltsin accused the former Soviet Union of having maintained an offensive BW programme, although doubts remained over whether the Russian Federation had succeeded in dismantling it completely. Furthermore, a small number of governments had an enduring military interest in the most feared, classic (bacterial and viral) agents of microbiological warfare, such as anthrax, smallpox and plague, as well as toxins like botulin.[7] The experience of the UN Special Commission (UNSCOM) on Iraq (1991–98) was a sobering reminder of how a regime intent on evasion and defence of its BW programme might continue to obstruct even the most determined inspectors.[8] Such phenomena were all the more alarming given that they persisted long after biological disarmament was formally accepted as a norm in international law through the treaty-governed prohibition of BW.

Interest in verifying governments' compliance with their obligations in this regard can be traced back a long way.[9] Although it intensified over the last 15 years of the twentieth century, verification remained elusive. If BW disarmament is ever to be subjected to systematic international verification—through an Organization for the Prohibition of Bacteriological (Biological) and Toxin Weapons (OPBW)—this will be a twenty-first century achievement, building on foundations laid principally in the 1990s.

This chapter examines the reasons for the historic reluctance to apply verification to BW disarmament, the movement of verification issues from marginality to centrality in the evolution of the treaty regime, the principal issues under debate, and the prospects for an OPBW.

Treaties

The Geneva Protocol of 1925 is the earliest example of the general prohibition of biological weapons by treaty, but this was only concerned with use. One could have assumed that possession and other activities that logically precede use would have soon been included in the wider restrictions of a general disarmament treaty, for which preparatory negotiations started in 1926 under the auspices of the League of Nations. The eventual failure of the Geneva Disarmament Conference of 1932–34 meant that this assumption did not hold.

The Geneva Protocol, which entered into force progressively from 1928, prohibited the use in war of bacteriological (as well as chemical) methods, but only

among parties to the accord. There were no restrictions regarding use against non-parties, except in so far as a norm of customary international law was evolving independently of treaty obligations. The existence and extent of such a legal standard against biological warfare was long contested. Its reliability, if put to the test, was as uncertain as the associated social, ethical or humanitarian taboo. It could also be debated whether bacteriological was to be construed as extending to everything microbial, including viruses.

Moreover the Protocol contained no provision for verification or enforcement of compliance, even of the limited prohibition on use. And it did not even attempt to constrain the development, production, stockpiling, acquisition, retention or transfer of biological weapons. These six constraints were instead negotiated in 1968–71 and enshrined in the Biological Weapons Convention (BWC) of 10 April 1972, which entered into force on 26 March 1975. The accord is at the heart of the disarmament treaty regime under which the renunciation of biological weapons is required. This regime is capable of evolution and reinforcement by an array of strengthening measures, which may eventually come to include verification.

There are currently 143 states parties to the BWC. Eighteen more have yet to ratify their signatures, and 30 have not even signed the Convention. As a result, the BWC is in force for some 75% of countries in the world. Participation has historically been lowest in Africa and the Middle East.

The principal obligations with which compliance might be susceptible to verification are: Article I, 'Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain: 1. microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes; 2. weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict. Article II, requiring disarmament within nine months, applies only to those states that possess biological weapons at the time the Convention enters into force for them. Article III prohibits their transfer. It should be emphasised that, like the 1992 Chemical Weapons Convention (CWC), the BWC contains a 'general purpose criterion' in Article I: prohibitions are not limited to named microbes or vectors, but are applied to all agents and toxins of types and in quantities not justifiable by the criterion of 'prophylactic, protective or other peaceful purposes'. This structure was necessary to ensure the comprehensive scope of the Convention.

Absence of verification

Verification was deliberately omitted from the BWC. The Treaty's origins lie in a 1968 British initiative tabled in Geneva,[10] which was followed in 1969 by the first UK draft Convention (revised in 1970 to include toxins) and by the unilateral US renunciations of biological and toxin weapons in 1969 and 1970 respectively. President Richard Nixon's decisions were unconditional and did much to generate momentum for a multilateral treaty without verification. This was to be concluded as soon as possible, so that the US would not be alone in its biological disarmament.

In 1968 the classic verification technique was on-site inspection, but this would have been unacceptably intrusive to the Soviet Union, even if it was acceptable to the US (which did not propose it for the BWC). A new technology for verification—remote sensing from space—was about to enter the realm of arms control. The US–Soviet Union Strategic Arms Limitation Talks (1969–72), resulted in agreement to use national photo-reconnaissance satellites to verify strategic nuclear arms control and a compact not to interfere with each other's so-called national technical means of verification, including such satellites. Such verification was only available to two states, though, and would have made no sense in the context of biological disarmament (even on a bilateral basis) because violations would not have been detectable and identifiable by remote monitoring.

In launching its initiative for what became the BWC, the United Kingdom thus concluded that:[11]

> No verification is possible in the sense of the term as we normally use it in disarmament discussions [so] we must make a choice—balance the risks of evasion if we go ahead with the formulation of new obligations, against the risks for the world if we do nothing and allow the fears of eventual use of microbiological methods of warfare to continue and intensify. My choice is emphatically to go ahead; we cannot afford to do nothing. While we cannot offer a fully effective system of verification and we believe it beyond the wit of man to devise one, we can provide arrangements which should satisfy States, given the intractable nature of the problem, that they will not be exposing themselves to unacceptable risks.

While the UK initiative gradually attracted support between 1969 and 1971, it was also criticised for omitting chemical weapons. The US praised it as 'a careful effort, in short compass, to deal with the major problems involved in eliminating

BW in a world composed of countries of many different kinds and sizes, with varying degrees of reluctance to submit to on-site verification'.[12] The US view that the treaty was acceptable without verification (a view opposed principally by France and Sweden) may have been based partly on a judgement that BW was unlikely to be militarily attractive to any state, but that any BW threats that did arise could be deterred by nuclear weapons, and partly on a technical assessment of the non-verifiability of the BWC prohibitions.

The arrangements proposed by the UK may be regarded as functional substitutes for verification. Some of the most important components were discarded in the US–Soviet negotiations in April–August 1971, which radically diluted the UK concept of a BWC. Nevertheless, enough survived to endow the Convention with the rudimentary elements of a compliance regime to support prohibitions in Articles I, II and III.

Functional substitutes for verification

There were four functional substitutes for verification that survived negotiation in 1971. They can be summarised as:

- national implementation (Article IV);
- consultation (Article V);
- complaints (Article VI); and
- assistance (Article VII).

Articles IV–VII have evolved through the declarations of BWC Review Conferences[13] into the first layer of a compliance regime. Article V, in particular, has generated a Consultative Meeting procedure as a contingency mechanism for handling compliance concerns multilaterally. Its foundations were laid in 1980,[14] and it was first invoked in 1997, when Cuba accused the US of violating the BWC by introducing an insect (*thrips palmi*), which caused crop infestation, into western Cuba. Although these consultation mechanisms are imperfect, even with an inconclusive outcome they may serve a useful purpose, if only in providing a channel for the multilateral ventilation of concerns.

New approaches

The appeal of new approaches grew insistent in the 1980s, though, as the credibility of the Convention was eroded by doubts over whether biological disarmament

had been achieved after all. Western concerns over Soviet BW activity, fuelled by defector testimony, were not allayed by unconvincing explanations of an anthrax outbreak at Sverdlovsk (now Yekaterinburg) in 1979. Rumours of incipient BW research and development programmes in the Middle East and elsewhere persisted. The Convention was weakened by the inability of its states parties to agree on baseline data, such as: how many possessors of BW stockpiles existed in 1975; whether or when they had destroyed these stockpiles; and whether any new possessors had emerged.

There was a pressing need to resolve ambiguities and suspicions, but the existing procedures for handling compliance concerns (under Articles V and VI) were seen as weak and long remained untried. Meanwhile unilateral accusations of non-compliance abounded, unrestrained by any multilateral process for testing their veracity. Reliance on defector testimony and competing national intelligence estimates—in the absence of authoritative international fact-finding procedures—encouraged sensationalist journalism and opportunist claims that the Convention was toothless and, therefore, useless.

Confidence-building measures

The first new approach was transparency in legitimate activity. A set of co-operative measures—soon to be given the then fashionable name of confidence-building measures (CBMs)—was introduced by the Second BWC Review Conference in 1986. From 1987 states parties were required to exchange information through the UN on: their biological research centres and laboratories with high-containment facilities; unusual outbreaks of disease; and publications and conferences relevant to the Convention. The idea was that greater transparency in respect of legitimate scientific activity with micro-organisms and toxins at high biosafety levels, and of naturally occurring diseases, would provide a background of 'normal' activity against which suspicious abnormalities would be more pronounced. The other CBMs would promote international co-operation in the peaceful applications of microbiology and scientific exchanges that would be helpful in the prevention of disease (Article X) and in providing reassurance of compliance (Article V). Openness, it was hoped, would prevail.[15]

New CBMs were added by the Third Review Conference in 1991. These encompassed BW defence research and development programmes and BW offensive activities back to 1946, so as to increase transparency in areas of greatest concern. To fill in

the picture of 'normal' activity, vaccine production facilities were also to be declared. The original CBMs of 1986 were maintained, with some modifications. A new, more user-friendly reporting format of initial declarations was mandated, to take effect from 1992, with annual declarations thereafter. Yet the programme of CBMs remained unenforceable, representing a political commitment, but not a legally binding obligation. By 1996 only 75 of the BWC states parties had taken part even once since 1987, and only 11 had made annual declarations as required.[16] Doubts remained over whether all declarations were full and credible, and also over whether the CBM items requested were sharply focused enough to generate well-founded confidence. The Fourth Review Conference left the CBM programme unchanged, since, by 1996, it seemed likely that CBMs would be subsumed under other 'measures to promote compliance' within a new BWC protocol that might extend to verification.

Verification

As a new approach to strengthening the Convention, verification only came to occupy the diplomatic centre stage in the late 1990s, after a series of false starts. The essential elements of a verification system were already in the public domain as a result of proposals made between the Second and Third Review Conferences by the Federation of American Scientists and individual authors.[17] Yet the US government insisted that the BWC was not susceptible to verification. It opposed verification as engendering a dangerous illusion of security. In 1986, a Soviet proposal for a verification protocol had been rebuffed; Soviet compliance with the BWC was already suspect, notably because of its failure to explain satisfactorily the 1979 anthrax outbreak. In 1991, French-led Western pressure for the BWC to be subject to verification was successfully diluted. As a result, the Third Review Conference mandated only a technical and scientific study of possible verification measures by an Ad Hoc Group of Verification Experts (VEREX).

The VEREX exercise (1992–93) was limited to identifying, examining and evaluating 21 measures. It concluded that some on-site and off-site measures in combination were worth pursuing. A majority of states parties convened a Special Conference in 1994 to consider the VEREX report. The Special Conference declared that effective verification could reinforce the Convention and it decided to elevate the issue from the scientific to the diplomatic agenda. A new Ad Hoc Group, open (like VEREX) to all BWC states parties, was set up and given a mandate to consider appro-

priate procedures, including possible verification measures, and to draft proposals for strengthening the BWC. These were to be included, as appropriate, in a legally binding instrument. Their purpose would be to strengthen the effectiveness and improve the implementation of the Convention. Attempts to secure a mandate more explicitly centred on verification failed in 1994 and 1996.

This new Ad Hoc Group started work in 1995 and moved into negotiating mode in 1997. By March 2000 it had held 19 sessions to draft a protocol to the BWC, but not necessarily a 'verification' protocol. In deference to the US and to take account of other sensitivities, the word verification is being avoided, even if much of the substance in respect of 'measures to promote compliance' resembles the verification sought by its proponents (Australia, Brazil, Canada, and South Africa, as well as the members of the European Union and those countries associated with its position—to name the most actively committed delegations).

Another large part (Article VII) of the protocol is likely to be devoted to the promotion of international co-operation in the peaceful application of microbiology, especially for the prevention of disease, and other measures for economic and technological development. Article X of the BWC requires that such development not be hampered; the protocol must give effect to that principle.[18]

When completed, this legally binding instrument is to be submitted to a second Special Conference for adoption not later than 2001. If a protocol is still not ready, the Fifth Review Conference in 2001 will presumably encourage the Ad Hoc Group to intensify its efforts, as the Fourth Review Conference did in 1996.

The protocol will probably include provision for:[19]

- mandatory declarations of certain facilities, such as those involved in BW defence, vaccine production and the handling of certain listed micro-organisms for other purposes;
- visits; and
- investigations.

Visits are designed to build confidence in the accuracy of declarations on a non-adversarial basis, unlike investigations, which would only be launched if one state party challenged another. It remains contested whether 'non-challenge' visits will be allowed in several categories for clarification of declarations and/or on a random basis for transparency, as well as for the wider purpose of compliance reassurance. Also among the issues to be resolved are the criteria for triggering mandatory

declarations of facilities, the modalities of investigations, decision-making procedures when challenges occur and the future of the CBM programme.[20] Investigations of alleged non-compliance and other regulatory and promotional functions will be undertaken by the OPBW.

Towards an OPBW

Proposals for an OPBW in Article IX of the draft protocol[21] envisage a structure similar to that of the Organization for the Prohibition of Chemical Weapons (OPCW):

- a Conference of States Parties;
- an Executive Council; and
- a Technical Secretariat.

Like the OPCW it would have a Scientific Advisory Board, a Confidentiality Commission and a Director-General would head its staff. Unlike the original OPCW it would probably have a Co-operation Committee from the outset. This would act as a dedicated forum for consultation, assisting the OPBW to develop a framework of activities to implement the 'promotional' aspects of Article VII of the protocol. This builds on the international co-operation content of Article X of the BWC, and is of the greatest interest to developing countries participating in the Ad Hoc Group, which wish to promote biotechnology and medical advances.

The seat of the OPBW has yet to be decided: Switzerland has proposed Geneva, and the Netherlands has put forward The Hague. The Organization would only come into being after the protocol entered into force, but it might be preceded by a Provisional Technical Secretariat. This would serve the Preparatory Commission of signatory states between the protocol's opening for signature and its entry into force (as happened in 1993–97 with the CWC).

The members of an OPBW would be the parties to the protocol, a subset of the total roster of parties to the BWC. Other parties to the BWC would have no place in the Organization or obligations under the protocol. It is desirable for the success of the protocol and the OPBW that the great majority of BWC parties are drawn into membership sooner rather than later. However the entry into force proposals under consideration in the Ad Hoc Group recognise that this will not happen straight away and that it should not be a prerequisite that holds back the protocol.[22]

Before committing themselves the more cautious BWC parties may wait and see whether the protocol proves successful and what compliance costs are involved

in its implementation. It follows that there will be a continuing need to promote the evolution of the BWC itself through the review process and to strengthen the commitment of all parties to implementing these politically binding measures and to improving the mechanisms already agreed. The BWC, as it stands, will continue to need sustained attention during at least the early years of the protocol.

Conclusion

Verifying BW disarmament will not be easy, but it is central to the next stage in reinforcing the compliance regime. A CBM programme has been introduced on top of the BWC's original elements (Articles IV–VII), and eventually the protocol's compliance measures will be an additional layer on the two-tier structure.

If the protocol includes verification in the new third layer, the procedure will have come very late in the BW disarmament process. Six factors made it thinkable in the late 1990s:

- awareness of the fragility of the existing (two layer) BWC compliance regime, given the reality of non-compliance by at least the Soviet Union and Iraq;
- concern over the military implications of biotechnology and the revolution in genetics and thus the relative ease of acquisition of BW by terrorists or governments unhindered by BWC constraints;
- growing international acceptance of on-site inspections, challenges and investigations as necessary components of compliance regimes for other arms control and disarmament treaties;
- familiarisation with potential verification techniques applicable to the BWC through practice inspections, visits organised by governments and through VEREX and the Ad Hoc Group;[23]
- acceptance (still far from complete) by the biotechnological and pharmaceutical industries of a necessary degree of intrusion by national authorities and OPBW inspectors, subject to safeguards for confidential proprietary information, in the higher interest of verifying BW disarmament;[24] and
- above all, the successful conclusion and entry into force of the CWC, with OPCW inspectors carrying out global verification tasks from 1997.[25]

The emergence of a CWC, let alone a CWC with a verification system of unparalleled dimensions, with deep ramifications for civil industry and research and extending to on-site challenge inspection, was almost inconceivable when the BWC was negotia-

ted. But now that it exists, it constitutes a model to be emulated. An OPBW will not be an exact, scaled-down imitation of the OPCW. However, verification of the CWC, accepted by most of the states that are also parties to the BWC, gives hope that many of the same elements can be put to use in the service of biological disarmament. The BW danger is at least as great as the CW threat: in principle, therefore, the means adopted to counter it should be at least as strong.

The challenge to all BWC parties is continually to demonstrate their compliance: to devise transparency and other measures which will persuade other parties that they are engaged in a coherent pattern of peaceful activity and that their compliance is full and genuine. It is hard to prove a negative, but that is essentially what the BWC (like the CWC) demands of its states parties. A verification system of declarations, visits and investigations, administered by an OPBW under a carefully integrated protocol,[26] should enable those BWC parties which ratify the document to demonstrate their own compliance with greater certainty and credibility and to learn more about the compliance of other states. Only then can the BWC fulfil its potential as more than merely the treaty expression of an international norm—by turning aspiration into achievement as an effective safeguard against the threat of biological weapons, in the common interest of all humanity.

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[8] See chapter by Clare Tenner (chapter 10) in this *Yearbook*.

[9] Julian Perry Robinson, 'The Impact of Pugwash on the Debates over Chemical and Biological Weapons', *Annals of the New York Academy of Sciences*, vol. 866, 30 December 1998, pp. 224–252. Traces, from 1958, the origins of what became in 1964 the Pugwash BW Study Group.

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[25] See chapter by Robert J. Mathews in this volume.

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