

3D BIO: DECLARE, DOCUMENT AND DEMONSTRATE

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THE BIOLOGICAL WEAPONS CONVENTION AND VERIFIABILITY

Unusually for an arms control treaty, the Biological Weapons Convention (BWC) was agreed without routine on-site verification mechanisms to enhance assurance of compliance. Some states maintain that the nature of biological weapons is such that they are inherently impossible to verify: not only can significant quantities of biological agents be produced in small and readily concealable facilities, but most of the equipment required (e.g. fermenters, centrifuges and freeze-dryers) is ubiquitous in public, private and commercial laboratories. Others argue that, while the same level of accuracy and reliability as the verification of, for example, nuclear arms control treaties is unattainable, it is possible to build a satisfactory level of confidence that biology is only used for peaceful purposes. They use the term ‘verification’ as the description of a set of activities—declarations, visits and investigations—without making a value judgment about the level of assurance of compliance that could be achieved by this set of activities.

These conflicting views on the verifiability of the BWC have endured through the decades since the treaty was first negotiated, and remain one of the fundamental challenges in the field of biological arms control and non-proliferation. This paper sets out a vision for how to take the verification debate forward. It briefly reviews past proposals to strengthen the treaty through a top-down legally binding mechanism, before it details more recent bottom-up initiatives to enhance assurance of compliance with the BWC.

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SUMMARY

This policy paper addresses verification, one of the enduring and fundamental challenges in the field of biological arms control and non-proliferation. Verification is a qualitatively different and more difficult matter for the Biological Weapons Convention (BWC) than for other regimes, and therefore requires a different approach. Centred on the premise that trust is enhanced through openness, and building on recent compliance initiatives in the BWC, this paper presents a new vision for strengthening the treaty.

The vision is limited to the relatively small number of ‘high-risk’ states parties with biological defence programmes and biosafety level 4 (or equivalent) laboratories. It is bound together by the shared commitment and common political will of the participating states to: (a) strengthen the BWC and the Geneva Protocol; (b) increase transparency about their programmes and facilities; and (c) develop common modes and mechanisms to ‘declare, document and demonstrate’ adherence to and compliance with the BWC through reciprocal peer visits (3D BIO).

These 3D BIO states form a complementary element to the core, multilateral regime that allows states to address shortcomings in the BWC and go beyond its undertakings, all the while supporting and reinforcing its normative structure. The longer-term goal is to use 3D BIO as a stepping stone towards a legally binding mechanism for the BWC: to provide a portfolio of contemporary experience in on-site visits and to start developing a biological inspection capacity, before bringing the initiative within the framework of the convention.

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Building on both approaches, the paper then argues for an informal, voluntary grouping of ‘high-risk’ states parties with biological defence (biodefence) programmes and biosafety level (BSL) 4 (or equivalent) laboratories that are bound together by a shared commitment and common political will to:

(a) strengthen the BWC and the Geneva Protocol; (b) increase transparency about their programmes and facilities; and (c) develop common modes and mechanisms to ‘declare, document and demonstrate’ adherence to and compliance with the BWC through reciprocal peer visits (3D BIO).

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LEGALLY BINDING MECHANISM PROPOSALS

Since the first negotiations of the BWC in the late 1960s, there have been a number of proposals to strengthen it through a legally binding mechanism. Most of these have been very general; a few have gone into detail. Nicholas Sims has grouped the proposals into six analytical categories.¹

1. Adding procedures for implementing Articles V and VI. For example, introducing (a) a veto-free fact-finding stage into United Nations Security Council investigations under Article VI; (b) automatic reference of compliance complaints to a powerful BWC committee of experts under Article V; or (c) a new ‘flexible, objective and non-discriminatory’ BWC procedure dealing with compliance issues, to be negotiated in a Special Conference. These three procedures were proposed by Sweden in 1971, 1980 and 1982 respectively, with the last one supported by UN General Assembly Resolution 37/98C.

2. Adding mechanisms specific to Article X. This was proposed by Cuba in 2009 and supported by the Non-Aligned Movement (NAM) with the argument that, without a specific mechanism, Article X will not be fully implemented. Iran also proposed a committee to review disputed export restrictions when a breach of Article X is alleged.

3. Adding a verification system (presumably as a legally binding mechanism). In principle, this was separately proposed by the Soviet Union in 1986 and by France in 1991. It is also noteworthy that France and China, in their statements on accession in 1984, separately committed themselves to remedying what they saw as the verification defects of the BWC (‘lamentable weaknesses’ as France called them in 1982); this was also a point made in ratification debates in the West German Parliament in 1981.

4. Making confidence-building measures (CBMs) mandatory (presumably as a legally binding mechanism). This has been suggested from time to time by those who see voluntary CBMs as ineffective because they are ‘only’ politically binding.

5. Agreeing future measures for verifying compliance. This is well established in European Union (EU) policy as a long-term goal, leading to an eventual legally binding verification mechanism.

6. Drafting a protocol, additional and supplementary to the BWC, with articles intended to strengthen the articles of the treaty itself. This was mandated by the 1994 Special Conference and taken forward by the Ad Hoc Group (AHG) from 1995 (see appendix A).

The advantage of a draft protocol was its approach to the BWC as a whole and how it avoided valuing one article above another; it favoured wide-scope coverage of the whole convention and a well-balanced outcome to any negotiations on a legally binding mechanism. Nevertheless, the AHG negotiations showed how difficult it was to agree on how much attention each part of the BWC should receive. Even within one part, Article X, it was hard to get the balance right between the so-called regulatory and promotional aspects. Different groups of states parties had different priorities. At the outset, in 1995, the UK and like-minded Western states obtained 50 per cent of AHG agenda time for ‘compliance measures’. However, they failed in repeated attempts, as did South Africa, to get ‘verification’ upgraded in the mandate (1994, 1996).

Arguments about balance persisted in and after the AHG negotiations, being raised repeatedly in the

¹ Sims, N., ‘What would a legally binding mechanism look like today?’ in F. Lentzos, *Workshop Report: Confidence and Compliance with the Biological Weapons Convention* (2014), pp. 26–28.

intersessional meetings and at review conferences. Was there too much emphasis on one article? Was there too little on another? It is easier to reaffirm that the BWC is a single integrated treaty text—which of course it is—than to distribute agenda time across its articles in allocations that everyone will find acceptable. Any proposal for a legally binding mechanism faces the same problem of balance.

THE ALTERNATIVE: AN INCREMENTAL STRENGTHENING APPROACH

The position of a number of states parties, particularly within NAM, is that the BWC as it stands is so defective that nothing short of a legally binding mechanism will suffice to make it work. However, there are others who maintain that a legally binding mechanism is not necessary and that giving the treaty wholehearted support would suffice. They believe that it is only the conduct of the states parties in practice that really matters; they just need to comply wholeheartedly with their existing obligations, not add new ones, in order to make the BWC work.

A middle approach is held by a third grouping of states parties, particularly (but not only) within the Western Group. These states parties acknowledge that there are imperfections in the BWC, but argue that the treaty is still workable. While verification is a long-term goal for many of these states—the EU included—they attempt to identify options yielding similar results in the meantime. In other words, they propose to leave the BWC as it stands without amendment or addition, but to strengthen it incrementally through extended understandings, agreed procedures and politically binding commitments, all accumulated through successive review conferences and recorded in their final documents.

Historically, creative use has been made of this third, incremental strengthening approach. For example, decisions: on CBMs in 1986 and 1991; on intersessional work programmes in 2002, 2006 and 2011; on the Implementation Support Unit (ISU) in 2006 and 2011; on adding vice-chairmen for the intersessionals of 2012–15; and on steadily accumulated understandings as review conferences examine individual articles and record consensus on their interpretation and their implications, building on foundations laid in 1980. These CBMs, procedural decisions and extended understandings all have the formal status of politically binding commitments, not legally binding mechanisms.

The question is: does this matter? They do not distract attention from a legally binding mechanism as a future option—‘early’ or more distant—that many favour; still less do they rule it out. This last point is particularly significant and often underrated.

The strengthening process has the advantage that it can be supported by the EU, the United States and the advocates of an early legally binding mechanism, wherever consensus can be found on common understandings and effective action. The EU—and others—can support it as a practical way forward that does not rule out the long-term goal of agreeing measures to verify compliance. The USA can support the idea as a practical way forward that does not commit it to what it would regard as an unrealistic goal of verification. The advocates of an early legally binding mechanism can support it as an interim approach that emphasises moving forward towards consensus among states parties and a steadily widening readiness to work together—an essential precondition of any negotiation for a legally binding mechanism.

It is worth bearing in mind that CBMs were enhanced and extended in 1991, and other politically binding commitments were recorded in 1991 and 1996, alongside the 1991–2001 quest for a legally binding mechanism: neither process precluded the other. This strengthening approach excludes no options. Some will see it as preferable to having a legally binding mechanism, others as preparing the ground for early negotiation, and yet others for the eventual negotiation of a desirable legally binding mechanism. Meanwhile, it does take the BWC forward.

RECENT COMPLIANCE INITIATIVES

Discussions on ways to enhance assurance of compliance with the BWC gradually restarted in the third intersessional cycle (2012–15). In 2012, Australia, Canada, Japan, New Zealand and Switzerland launched a process to develop a common understanding of what compliance with the BWC means and to identify ways states parties can better demonstrate their compliance with, and national implementation of, the treaty.² Reinforcing this process were parallel developments of a compliance assessment initiative by Canada, Switzerland and the Czech Republic, a peer

² ‘We need to talk about compliance’, Working Paper submitted by Australia, Canada, Japan, New Zealand and Switzerland to BWC Meeting of States Parties 2012, BWC/MSP/2012/WP.11.

review mechanism by France to reinforce assurance of compliance, and a bio-transparency and openness initiative by the USA. Most recently, Russia launched a process to gauge interest in negotiating a legally binding mechanism afresh on the basis of the 1994 Ad Hoc Group mandate.

Compliance assessment

The compliance assessment initiative was first proposed by Canada in the lead up to the Seventh Review Conference in 2011.³ The initiative aims to move the verification and compliance monitoring debate on from the failed 2001 negotiations, by demonstrating that options to evaluate compliance and implementation exist outside of a legally binding mechanism. The initiative approaches the concept of compliance verification from the broad perspective of examining national implementation programmes, rather than from the more traditional and focused perspective of inspecting facilities.

National implementation programmes are understood to include both the implementation measures a state party has taken, as well as its efforts to administer and enforce those measures on an ongoing basis. Submissions under the compliance assessment initiative are therefore comprised of two sections.

1. A detailed description of national legislation and regulations supporting the national implementation of the BWC. For example, with very specific section-by-section analysis of how the statutory measures work, the scope of the statutory measures (e.g. any exceptions or exemptions from the law, whether the legislation is based on lists of organisms or broader categories of risk groups, etc.) and the penalties associated with contraventions.

2. A detailed description of how the programme is implemented on a national level. For example, containing process flow diagrams and organizational charts of the implementing programme, showing clear lines of reporting, process and standard operating procedures, as well as clear indications of the inspection programme, frequency of inspections, the number of announced versus unannounced inspections, how major and minor non-compliances

are handled, and so on. The submission could also include the yearly budget associated with running the programme.

The compliance assessment submissions are envisaged to initially function alongside the CBMs and the quinquennial review conference compliance reports. In future, however, there is scope to consider combining elements from the different reporting mechanisms into a single, more streamlined, arrangement enabling states parties to continually demonstrate their compliance with the BWC. Canada offered to act as a test case for the compliance assessment initiative, and made an initial submission in 2011. Throughout the initiative, Canada has invited any interested states parties to join in developing initial declarations as a pilot project. Switzerland joined the project in 2011, the Czech Republic in 2012 and France in 2013.⁴

The difference in the nature of the countries involved demonstrates that this approach can be adapted according to the country that is carrying it out. The Canadian submission was built to resemble a compliance report, and involved an article-by-article review of Canada's implementation measures. Canada has a large and centralized oversight system where the Public Health Agency of Canada is responsible for almost all aspects of BWC implementation in the country, which means that the federal oversight programmes they have developed can be easily described and scrutinized in detail. The Swiss and Czech submissions more closely resemble a very detailed CBM Form E, with concise descriptions of the legal authorities and programmes arranged by ministry. In Switzerland, where implementation of the BWC is more decentralized and many measures are implemented at the cantonal level, a smaller, though broader, submission was more manageable and effective. The submission by the Czech Republic was designed to reflect a smaller centralized system.

Preparation of the initial submissions requires significant effort, but this level of detail only needs to be

³ 'National implementation of the BTWC: Compliance assessment: A concept paper', Working Paper submitted by Canada to BWC Meeting of States Parties 2010, BWC/MSP/2010/WP.3/Rev.1.

⁴ 'National implementation of the BTWC: Compliance assessment', Working Paper submitted by Canada and Switzerland to BWC Meeting of Experts 2012, BWC/MSP/2012/MX/WP.17; 'National implementation of the BTWC: Compliance assessment: Update', Working Paper submitted by Canada, the Czech Republic and Switzerland to BWC Meeting of States Parties 2012, BWC/MSP/2012/WP.6; and 'National implementation assessment report of the Biological Weapons Convention', Working Paper submitted by France to BWC Meeting of Experts 2013, BWC/MSP/2013/MX/WP.16.

submitted once. Subsequent submissions only require updating of the ‘tombstone’ (initial) information with annual compliance and enforcement metrics and any new policy initiatives. In 2012, Canada and Switzerland submitted sample annual declarations to demonstrate the ease of subsequent submissions.

The usefulness of compliance assessment and its viability as a global approach remains to be seen. However, there has been some interest from other states, a number of which have agreed to trial it in the future, and the countries that are already involved hope to develop a larger cross-regional group to demonstrate the effectiveness of compliance assessment as a tool.

Peer review

Concurrent with the introduction of the compliance assessment initiative was the promotion of a peer review mechanism for the BWC, put forward by France at the Seventh Review Conference in 2011.⁵ Its aim is to build confidence in the convention, improve national implementation and provide an opportunity to share experience and best practices. It does this by providing mutual assessments of the implementation of standards, based on the common understandings reached during the intersessional process.

The mechanism is voluntary, with all assessments being initiated at the request of the state concerned. The state itself decides on the publication of the assessment mission’s report, as well as on the nature of the follow-up process. Enhancing national implementation, improving confidence among states parties through increased transparency, sharing good practices, and providing the opportunity to develop international cooperation, while fully respecting national sovereignty, are the main advantages identified of the peer review mechanism. Since the 2011 paper, the concept has been refined based on consultations with states parties and it now emphasizes greater flexibility of purpose and parameters.

To demonstrate the mechanism in practice, France organized a pilot exercise on 4–6 December 2013 in Paris.⁶ National experts from nine states parties—

Canada, China, Germany, India, Mexico, Morocco, Switzerland, the United Kingdom and the USA—took part in the exercise, as did a representative from the ISU as an observer. The exercise focused on three topics: (a) national biosafety and biosecurity measures regulating highly pathogenic microorganisms; (b) the national export control system; and (c) the French awareness-raising policy. Presentations were made by the administrations and entities involved, and two laboratory visits were organized that included exchanges with personnel involved in research activities (Maisons-Alfort Laboratory for Animal Health and the Pasteur Institute). France encourages other BWC states parties to organize similar exercises to offer their own approaches to a peer review mechanism. This would broaden understanding of the concept and facilitate its adaptation to the needs and realities of the BWC membership.

The peer review mechanism will be taken further forward by Belgium, Luxembourg and the Netherlands, who intend to conduct a Benelux peer review exercise. The CBMs will form the basis of the national implementation evaluation as they ‘represent a unique instrument to help increase mutual trust, generate transparency and help demonstrate compliance’. In the near term, the aim is to consider establishing a peer review mechanism at the Eighth Review Conference in 2016 within the BWC framework and that, in the long term, the mechanism would apply to all states parties.

Bio-transparency and openness

At the Seventh Review Conference in 2011, the USA emphasized its commitment to building an environment of openness and collaboration in its biodefence enterprise, and outlined a set of unilateral, voluntary activities for a bio-transparency and openness initiative. In 2012 it reported on the planned activities.⁷

A cross section of Geneva-based ambassadors, including the BWC chair, visited the National Interagency Biodefense Campus at Fort Detrick, Maryland earlier in 2012. The ambassadors toured the US Army Medical Research Institute of Infectious Diseases and the National Biodefense Analysis and Countermeasures Center of the US Department of

⁵ ‘A peer review mechanism for the Biological Weapons Convention: Enhancing confidence in national implementation and international cooperation’, Working Paper submitted by France to BWC Review Conference 2011, BWC/CONF.VII/WP.28.

⁶ ‘Peer review pilot exercise held from 4 to 6 December 2013 in Paris’, Working Paper submitted by France to BWC Meeting of States Parties 2014, BWC/MSP/2014/WP.3.

⁷ ‘The United States Government’s Bio-transparency and Openness Initiative’, Working Paper submitted by the United States to the BWC Meeting of States Parties 2012, BWC/MSP/2012/WP.3.

Homeland Security. They received briefings from senior representatives from the Departments of Defense, Homeland Security, Health and Human Services, and Agriculture, as well as the Federal Bureau of Investigation. The visit provided insights into US programmes and facilitated greater understanding of the nature and scope of US biodefence activities. It also demonstrated the ‘whole-of-government’ approach that the USA follows for biodefence and provided an opportunity to share ongoing international cooperation and assistance.

Another key part of the initiative was the International Conference on Health and Security held in Washington, DC, on 5–6 September 2012, which attracted participants from 30 countries. The conference highlighted the value of collaboration on biological threat prevention, preparedness and response. Similar initiatives to host visits to high containment laboratories and to organize international conferences on BWC topics have also been carried out by other states parties, such as Switzerland, to encourage transparency and foster the exchange of views.

Renegotiating a legally binding mechanism

Most recently, Russia has expressed interest in renegotiating a legally binding mechanism—a protocol with the same ‘whole-convention’ scope—on the basis of the 1994 mandate (but not from the point the AHG had reached in 2001). In May 2014, Russia surveyed states parties about their views on resuming negotiations on a legally binding instrument to strengthen the BWC and improve its implementation. The survey asked one question:

Are you in favour of strengthening the Convention based on a legally binding instrument to be developed and adopted by States Parties pursuant to the mandate agreed by consensus at the Special Conference in 1994, if not all States Parties to the Convention shall become Parties to the Protocol:

1. Yes

2. Yes, but there are conditions (please specify, if possible)

3. No, but this may change depending on circumstances (please specify, if possible)

4. No

Structurally, the Russian vision is of an implementing agency—the Organisation for the Prohibition of Biological Weapons (OPBW)—with a professional technical secretariat to deal with the tasks assigned to it and policy-making organs (an executive council and a conference) to supervise the implementation of the protocol. The OPBW would be responsible for: (a) investigations of alleged use of biological and toxin weapons; (b) investigation of suspicious outbreaks of disease; (c) assistance and protection against biological and toxin weapons; (d) promoting international cooperation for peaceful purposes; (e) confidence-building measures (existing or potentially enhanced formats); (f) national implementation; and (g) monitoring science and technology developments.

A number of advantages of the proposal were outlined by Russia at the Meeting of Experts in August 2014, including the provision of a permanent forum for cooperation among states parties; an institutional, non-discriminatory and inclusive institutional structure; and the pooling of resources for agreed and mutually beneficial purposes without requiring universal membership (states parties may join if and when they decide to do so). Disadvantages identified were that routine compliance promotion measures (declarations and inspections/visits to dual use facilities) and challenge inspection procedures (field and facility investigations) initiated by one state party against another are not implemented.

At the Meeting of States Parties in December 2014, the Russian delegation reported that 40 states had responded to the question, either verbally or in writing: Belarus, India, Brazil, Iraq, Cuba, Pakistan, China, New Zealand, Algeria, Cyprus, Rwanda, Switzerland, Saint Lucia, Latvia, South Africa, Peru, Malaysia, South Korea, Lebanon, Mexico, Cambodia, Estonia, Columbia, Sweden, the UK, Lithuania, Germany, France, Tajikistan, Italy, Romania, Armenia, Montenegro, Australia, Spain, Portugal, Mauritius, Finland, Malawi and Kazakhstan. The conclusion drawn from these responses was that:

The majority of the states supported strengthening the Convention on the basis

of a legally binding document that could be developed at relevant multilateral negotiations. At the same time, a number of states doubted that necessary political conditions existed for this work. On the whole, the survey results testify to the dissatisfaction of the states parties with the current situation within the BWC and their aspiration to address the existing flaws on a sustainable and long-term basis.⁸

ENHANCING TRUST THROUGH OPENNESS

As Russia pointed out in December 2014, there are a large number of states parties that are dissatisfied with the current situation in the BWC and there are many who support strengthening the convention on the basis of a legally binding document. Yet there are few who believe that a return to the 1994 Ad Hoc Group negotiating mandate is the way forward.

The draft protocol, however, was actually a package of measures, only part of which involved verification. The fact that the protocol as a package is 'dead' does not, as Richard Lennane has pointed out, necessarily mean that all the constituent parts, including verification, are also dead.⁹ Indeed, as the recent initiatives show, there is a growing appetite among BWC states parties to have meaningful dialogue on enhancing compliance procedures in the regime. It is possible to extract and develop useful components from the draft protocol that could conceivably operate (at least initially) without a legally binding framework and without the support of an organization of the style of the Organisation for the Prohibition of Chemical Weapons. A bottom-up approach could develop and implement individual components on a small scale, refine and improve them in operation, gradually expanding participation and scope, and then—once everyone knows what is involved and is confident the measures work in practice—bring them together in a legally binding instrument.

Two of the protocol components, declarations and investigations, are similar to two mechanisms that

currently exist: the CBMs (see below) and the UN Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons. As highlighted at the September 2014 meeting on BWC compliance in Wilton Park, UK, options exist for a better capacity to investigate use of biological weapons, and the case of chemical weapons use in Syria may provide some instructive lessons. The consultation and clarification provisions of the protocol can be reproduced independently, and to some extent already exist in the form of the procedures agreed at the Second and Third Review Conferences of the BWC for consultations under Article V of the convention.

The last issue is visits or, more generally, regular on-site monitoring or inspection measures not triggered by a particular accusation or event. Political differences aside, on a purely logistical level, such activities are difficult to imagine without the support of a suitable international organization and legal framework. Further, the problem of determining and specifying a relevant set of facilities to visit, and visiting them often enough to have any effect, has only become more intractable with the explosive growth in the number of facilities worldwide that—thanks to cheaper, smaller, faster and better technology—are in some sense potentially capable of producing a biological weapon. Given these formidable challenges, the principal role for visits of the kind envisaged in the draft protocol is in a limited, ad hoc programme focusing only on biodefence facilities and BSL 4 (or equivalent) laboratories.

Biodefence is the area where the line between permitted and prohibited activities is finest, and where there is most potential for legal activities to be converted to illegal ones, literally overnight. For all the concern and attention given over the last decade to the risks posed by bioterrorism, biodefence is one area where concerns and suspicions are still directed solely at governments. Biodefence work often has to be classified to some extent and so there tends to be little information available from open sources. A good case can therefore be made for a higher level of scrutiny, and higher standards of transparency and communication, including some level of on-site access by external monitors.

Due to the fact that only a relatively small number of states parties have biodefence programmes, and because such programmes involve only a small number of facilities in most cases, a programme of on-site visits would be both technically feasible and not prohibitively

⁸ Uliyanov, M., Statement by the Director General of the Department for Non-proliferation and Arms Control, Head of the Russian Delegation, at the Biological Weapons Convention Meeting of States Parties, 1 Dec. 2014, <[http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/D81B7C24E98FAD21C1257DA300658988/\\$file/Russia_English.pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/D81B7C24E98FAD21C1257DA300658988/$file/Russia_English.pdf)>.

⁹ Lennane, R., 'Verification for the BTWC: If not the protocol, then what?', Disarmament Forum no. 1, 2011, pp. 39–50.

expensive. The question is, of course, how to do it in the absence of a legal framework and an independent monitoring organization. The most immediately tractable approach would be an informal, voluntary arrangement of peer review among states parties with declared biodefence programmes and BSL 4 (or equivalent) laboratories. These governments could take turns to visit each other's facilities, in accordance with a mutually agreed schedule and procedures, and compare what they see and hear with what has been declared. The results of such visits could be shared only among the participating countries (which would create an incentive to participate), or with all states parties (which would do much more to build confidence in compliance), or with those states parties that engage at least in some form of verification activity (such as submitting a CBM or declaration).

3D BIO: DECLARE, DOCUMENT AND DEMONSTRATE

3D BIO is a multi-stage vision for operationalizing a bottom up approach to strengthening the BWC, centred on the premise that trust is enhanced through openness. The aim of 3D BIO is to demonstrate the participating states' strong commitment to banning biological weapons; reinforcing the norm against use; enhancing national implementation; improving confidence amongst states parties through increased transparency on the nature and scope of biodefence activities; sharing good practices; and providing the opportunity to develop international cooperation and collaboration. The longer-term goal is to use 3D BIO as a stepping stone towards a legally binding mechanism for the BWC: to provide a portfolio of contemporary experience in on-site visits and to start developing a biological inspection capacity, before bringing the initiative within the framework of the convention.

3D BIO would complement, reinforce and strengthen the permanent prohibition of biological weapons enshrined in the 1925 Geneva Protocol and the 1972 BWC. It builds on the logical sequence of information gathering of the compliance assessment initiative, the scrutiny of the peer review mechanism and the visits of the bio-transparency and openness initiative. As such, the three facets of 3D BIO are to develop modes and mechanisms to (a) declare, (b) document, and (c) demonstrate adherence to and compliance with the BWC.

Declaration

3D BIO states will declare that they will not develop, produce, stockpile, transfer or use biological weapons. All states that have signed and ratified the BWC and the 1925 Geneva Protocol have already done this, so the declaration serves to emphasise and, importantly, reaffirm political will and support for the international agreements. A precedent for this type of declaration in the biological field is the 14 September 1992 Trilateral Agreement between Russia, the UK and the USA, which took the form of a Joint Statement on Biological Weapons reaffirming the three states' commitment to full compliance with the BWC.

Documentation

3D BIO states will document national implementation measures and efforts to administer and enforce those measures, on an ongoing basis. 3D BIO states will also document relevant facilities and activities to counter outbreaks of disease whether natural, accidental or deliberate, on an ongoing basis.

Most states with biodefence programmes document relevant national legislation and regulations through annual submissions of BWC CBMs and quinquennial national compliance reports to BWC review conferences, as well as through reports to the UN Security Council Resolution 1540 Committee. A small number of states (Belgium, Canada, Czech Republic, France, Luxembourg, the Netherlands and Switzerland) have gone a step further, as outlined above, and are starting to document efforts to administer and enforce national legislation and regulations through the compliance assessment initiative and peer review mechanism. 3D BIO declarations build on these efforts by recognizing the added value of focusing on implementation practices and committing all 3D BIO states to regularly undertaking these implementation audits.

Facilities and activities to counter outbreaks of disease are also documented through the annual CBM submissions to the BWC. 3D BIO declarations provide an opportunity to revisit how best to capture the kind of information required—both individually and collectively—to convey intent and to help prevent or reduce the occurrence of ambiguities, doubts and suspicions.

These underlying purposes of the CBMs—conveying intent and reducing the occurrence of ambiguities, doubts and suspicions—remain essential to the health of the convention. However, to give effect to that traditional purpose in today's political, security and scientific contexts requires a new, expanded understanding of what builds confidence. Confidence building in the biological field today must also be about setting appropriate examples for others to emulate. Governments have to look inwards at themselves, and demonstrate outwards to others, that they have got their house in order in terms of managing the risk that biology may be misused. The process of collecting and submitting information for CBM submissions provides a mechanism for individual governments to draw domestic stakeholders together, to focus internal inter-agency or interdepartmental coordination, and to increase their awareness and oversight of relevant national biological activity. Complete, accurate and annual CBM submissions demonstrate to peers in government, and in other governments, that a state has got its house in order. Further, for the growing number of states parties making their CBMs publicly available, this is also demonstrated to other, equally significant, stakeholders.

One stakeholder in particular is significant here: the scientific community. Although they may feel autonomous in their work, most contemporary life scientists remain susceptible to larger institutional and political pressures. Whether in academic medical centres, pharmaceutical companies or government facilities, they work in corporate settings where norms, professional responsibilities and missions are bureaucratically defined. In addition to those pressures, these scientific environments react significantly to national norms concerning transparency and public accountability. CBMs must be viewed as vehicles to promote norms of transparency and public accountability, and to foster responsible science.

Demonstration

3D BIO states will demonstrate that national BSL 4 (or equivalent) laboratories and biodefence facilities and activities to counter outbreaks of disease adhere to the BWC by hosting regular visits from peers in other 3D BIO states. These visits will demonstrate openness and provide assurance that declarations are accurate. Short exchange programmes between biodefence

scientists in different 3D BIO states can also form part of this facet. These exchanges would, in addition to demonstrating openness, also provide an opportunity to develop international cooperation and collaboration.

On-site inspection trials between the BWC depository states (Russia, the UK and the USA) took place in the 1990s and demonstrated the difficulty of applying traditional arms control principles to dual-use facilities. The trials ultimately failed to determine whether Russia was in compliance with the BWC, because site access was difficult and problematic. An important task for 3D BIO would be to examine some of the problems encountered in the trilateral process and to consider how best to overcome them.

Biological field-inspection experience from UN Special Commission inspections in Iraq has, however, shown that it is possible for on-site inspections to sort peaceful biological research and production activities from offensive weapons work (see appendix A). Similarly, the Verification Experts (VEREX) process concluded that, although no single measure could determine whether or not a state party was in breach of the convention, several measures in combination 'could be useful to varying degrees in enhancing confidence, through increased transparency, that states parties were fulfilling their obligations under the BWC'. The peer review exercise carried out by France in 2013 also emphasized the utility of visits in strengthening confidence between states parties in specific aspects of BWC implementation. Reviewing the exercise, France stated:

Overall this pilot exercise was assessed as an excellent approach in bringing closer and explaining the particularities of the French legislative system relevant to the BTWC. Visits of some affected laboratories were deemed very helpful to illustrate the implementation of the regulation and its implications on the field. The opportunity to be able to talk to the staff of the labs was particularly appreciated.

3D BIO builds on these various experiences by recognizing their value and committing all 3D BIO states to participating in routine visits. Through these visits, concepts of operations, standard operating procedures and capacities will begin to be developed.

A SHARED COMMITMENT AND COMMON POLITICAL WILL

3D BIO has conceptual affinities with the concept of zones in the nuclear field, but unlike nuclear weapon-free zones (NWFZs), 3D BIO would not form a geographically bounded zone. Existing treaties on NWFZs all aim to ban nuclear weapons from explicitly designated areas: Antarctica through the 1959 Treaty of Washington; Latin America and the Caribbean through the 1967 Treaty of Tlatelolco; outer space, including the moon and other celestial bodies, through the 1967 Outer Space Treaty; the sea-bed, ocean floor and subsoil through the 1971 Seabed Treaty; Southeast Asia through the 1995 Treaty of Bangkok; Africa through the 1996 Treaty of Pelindaba; and Central Asia through the 2006 Treaty of Semipalatinsk.

The biological field is different. The BWC already bans the entire category of biological weapons in all 173 (and counting) states parties. The concern, therefore, is primarily about verifiability. Verification is a qualitatively different and more difficult matter for the BWC than for other regimes.

It was never going to be a clear-cut case of counting warheads, measuring mass balances, monitoring the destruction of chemical agents, or cutting up a certain number of submarines or strategic bombers and leaving the pieces out to be photographed by satellites. The dual-use nature of biology is pervasive: unless you actually catch someone adding anthrax to a missile warhead, how can you be sure the anthrax is not being used for peaceful purposes (producing vaccine, for example)?¹⁰

The biological field is unique and therefore requires a different approach than zones. Special features and procedures cannot and must not be avoided. And, even in the nuclear field, exceptions to the geographically bounded zones exist. The South Pacific NWFZ, for example, is a patchwork of zones: it extends across an ocean and it encompasses land territory, territorial waters and open seas that are not under the sovereign rule of the 1985 Rarotonga Treaty members. Rather than a geographic collective, what brings 3D BIO states together is their shared commitment and common political will: to strengthen the BWC and the

Geneva Protocol, to increase transparency about their biodefence programmes and BSL 4 (or equivalent) laboratories, and to develop common modes and mechanisms to declare, document and demonstrate adherence to and compliance with the BWC. Like the zones in the nuclear field, 3D BIO also forms a complementary element to the core, multilateral regime (the BWC in the biological field; the Non-Proliferation Treaty in the nuclear field) that allow states to address shortcomings in the regime and go beyond its undertakings, all the while supporting and reinforcing its normative structure.

3D BIO encompasses all states with biodefence programmes and BSL 4 (or equivalent) laboratories. In line with the recent compliance assessment initiative, peer review mechanism and bio-transparency and openness initiative, 3D BIO is entirely voluntary and aims to build up gradually. Its entry into force should be preconditioned on its ratification by a minimum number of states (although this could be a fairly small number to ensure an early existence), which would be an important step in creating momentum for the political campaign. Institutional support for 3D BIO would help, but is not strictly necessary. The ISU or its successor may be able to play a useful role in coordinating and facilitating the activities of states, and perhaps in managing the associated resources. The operational experience could be used to refine and improve the role of the ISU, and if and when the various measures were to be codified in a legally binding instrument, the associated institutional requirements—and costs—would be clearly understood.

3D BIO would, in the short term, impact the political discourse and substantially progress the verification discussion in the BWC. Longer term, it would considerably strengthen the international biological disarmament and non-proliferation regime, and serve to significantly enhance regional, national and global biosecurity.

¹⁰ Lennane (note 9), p. 40.

ABBREVIATIONS

AHG	Ad Hoc Group
BSL	Biosafety level
BWC	Biological Weapons Convention
CBM	Confidence-building measure
CWC	Chemical Weapons Convention
EU	European Union
ISU	Implementation Support Unit
NAM	Non-Aligned Movement
NWFZ	Nuclear weapon-free zone
OPBW	Organisation for the Prohibition of Biological Weapons
VEREX	Verification Experts
3D	Declare, document and demonstrate

APPENDIX A. THE EARLY POLITICS OF BWC VERIFICATION

Following the initial political debates when the Biological Weapons Convention (BWC) was developed, verification came to the political fore again in the early 1990s at the Third Review Conference. Continuing concerns about possible Soviet noncompliance and growing concerns about a suspected Iraqi bioweapons programme meant a number of state parties wanted to press ahead immediately with the development of a verification protocol. Others were less interested. As a compromise, an Ad Hoc Group of Governmental Experts was established, later known as the VEREX group, whose mandate was to identify and examine potential verification measures from a scientific and technical standpoint.

The group identified and evaluated twenty-one potential verification measures and divided them into several categories under on-site and off-site measures. It agreed that no measure on its own would be capable of verifying compliance, but that some measures applied in combination did have the capability to do so. The VEREX group concluded—as the UN Special Commission’s real-world test of many of the measures showed a few years later—that verification of the BWC was feasible from a scientific and technical viewpoint.

In September 1994, a Special Conference of BWC members convened to consider the VEREX report. Despite considerable disagreements on the nature and content of any further work, including divergent views on the verification issue, the meeting reached a last-minute agreement to establish an Ad Hoc Group (AHG) with a mandate to consider appropriate measures, including ‘possible verification measures’, and to draft proposals to strengthen the BWC to be included in a legally binding instrument. This was part of a package deal that also included—at the request of several Non-Aligned Movement states—the consideration of specific measures to ensure effective and full implementation of Article X (on peaceful scientific and technological collaboration).

As the AHG negotiations proceeded, the legally binding instrument became increasingly referred to as a verification protocol. A core group of states recognised the potential benefits of a verification protocol and, drawing on the Chemical Weapons Convention (CWC) verification model, were of the view that its effectiveness required the following four elements.

1. **Declarations.** The aim of the declaration provisions was essentially to build a global picture of where relevant biological capacity existed, so that it could be monitored to a greater or lesser extent. Determining what exactly was relevant was, of course, the crux of the matter and proved to be both technically challenging and politically difficult. Some categories were easy: there was little question that biodefence facilities and maximum biological containment facilities—biosafety level (BSL) 4 or equivalent—should be declared. Such facilities are relatively few in number and are likely to be working with the most dangerous pathogens and toxins. In contrast, specifying other relevant facilities, such as those with high containment (BSL 3), producing vaccines or working with certain biological agents, was far more difficult. There are many more such facilities and keeping the numbers manageable for any workable regime meant using selection criteria that were more or less arbitrary—providing little confidence that the most relevant facilities would be covered. This problem has only become more complex in the 21st century, as rapid advances in biological science and technology have greatly increased the number, and broadened the geographic distribution, of potentially relevant biological facilities.

2. **Visits.** The visit provisions of the draft protocol were originally based on the routine inspections of the CWC. The idea was to carry out some kind of routine on-site monitoring of declared facilities, but there were arguments over the precise scope and purpose of the visits, as well as the details of how the visits would be conducted. The numbers of declared facilities likely to be involved meant that visiting each of them, even only once every five years, would be impossible, and some kind of random selection would be required. While opinions in the AHG differed widely on the verification goals that visits should attain, perhaps the most pragmatic objective was simply to provide an incentive for states parties to take their declarations seriously. The argument was that, as is the case with the tax systems of many countries, the prospect of receiving a random audit motivates thoroughness and accuracy in the initial declaration.

3. **Consultation and clarification.** The draft protocol included procedures for consultation and clarifying doubts in the case of suspicion or allegation. There was little to these provisions beyond offering a structure for dialogue, and providing an option to do something short of launching a full investigation.

4. *Investigations of alleged violations.* The investigation provisions of the draft protocol were detailed and comprehensive, and arguably the most potent component of actual verification. Investigations were divided into field investigations, essentially of alleged use of a biological or toxin weapon, and facility investigations, of alleged violations of the prohibitions in Article I of the BWC (development, production, stockpiling or other acquisition or retention of a biological weapon). Both types of investigation involved a relatively timely dispatch of professional investigators to conduct an on-site investigation according to detailed procedures.

Even at this early stage, however, some negotiators saw the word ‘verification’ as a stumbling block to progress. A number of states started to use the term ‘compliance monitoring’ instead of verification, because of views that verification had a specific meaning based on its use in nuclear arms control.

In the course of the negotiations, a substantial number of states conducted practice visits and/or practice facility investigations at sites, including biodefence, high containment and vaccine production facilities, in an effort to evaluate and further develop the provisions that were being developed by the AHG. But (unlike the situation several years earlier during CWC negotiations) the reporting of these experiences did not result in any observable degree of a convergence of views and, in particular, did not appear to convince the states that were opposed to visits to accept them. There were limited efforts by states in the formal meeting room to assess the utility and efficiency of the provisions being developed for the protocol.

By 1999, visits had become one of the most contentious aspects of the AHG negotiations. Some states felt that there should be zero inspection visits a year; others felt that each state party was obliged to receive a certain number of visits annually. To avoid this issue becoming a treaty stopper, a proposal was made to postpone the commencement of visits until agreed by a future conference of BWC members.

At the end of 1999, some major issues remained unresolved. The AHG’s 310-page procedural report (the BWC protocol draft text, usually referred to as the ‘rolling text’) reflected a range of divergent positions, with much of the text footnoted and/or within square brackets (often multiple sets of square brackets). The net result was that the rolling text contained, in effect, many alternative packages between the two

contrasting alternatives at each end of the spectrum: one set of provisions that were more or less as intrusive as those agreed for the CWC, which many then considered acceptable for the effective verification of the CWC; and another set of provisions, significantly less intrusive than those contained in the CWC, that many argued would result in a protocol of very limited value, if any, to strengthening the BWC.

In March 2001, the chair of the AHG presented a composite text as a compromise to the various preferred options in the rolling text. However, at the commencement of the twenty-fourth session of the AHG in July 2001, the United States rejected the composite text, arguing that it did not offer rigorous enough verification measures to detect clandestine biological weapons activities, yet it was invasive enough to compromise classified and proprietary information from the US biodefence programme and pharmaceutical industry. The meeting subsequently descended into acrimony, ending without agreement on even a procedural report of the AHG’s work. It is well documented that several other states with concerns about the composite text were happy to hide behind the USA’s formal rejection.

The decade that followed the failed protocol negotiations saw the introduction of an intersessional process, in between the quinquennial review conferences, which shifted political attention away from the thorny issue of verification onto less contentious topics where dialogue could continue.

A EUROPEAN NETWORK

In July 2010 the Council of the European Union decided to create a network bringing together foreign policy institutions and research centres from across the EU to encourage political and security-related dialogue and the long-term discussion of measures to combat the proliferation of weapons of mass destruction (WMD) and their delivery systems.

STRUCTURE

The EU Non-Proliferation Consortium is managed jointly by four institutes entrusted with the project, in close cooperation with the representative of the High Representative of the Union for Foreign Affairs and Security Policy. The four institutes are the Fondation pour la recherche stratégique (FRS) in Paris, the Peace Research Institute in Frankfurt (PRIF), the International Institute for Strategic Studies (IISS) in London, and Stockholm International Peace Research Institute (SIPRI). The Consortium began its work in January 2011 and forms the core of a wider network of European non-proliferation think tanks and research centres which will be closely associated with the activities of the Consortium.

MISSION

The main aim of the network of independent non-proliferation think tanks is to encourage discussion of measures to combat the proliferation of weapons of mass destruction and their delivery systems within civil society, particularly among experts, researchers and academics. The scope of activities shall also cover issues related to conventional weapons. The fruits of the network discussions can be submitted in the form of reports and recommendations to the responsible officials within the European Union.

It is expected that this network will support EU action to counter proliferation. To that end, the network can also establish cooperation with specialized institutions and research centres in third countries, in particular in those with which the EU is conducting specific non-proliferation dialogues.

<http://www.nonproliferation.eu>



FOUNDATION FOR STRATEGIC RESEARCH

FRS is an independent research centre and the leading French think tank on defence and security issues. Its team of experts in a variety of fields contributes to the strategic debate in France and abroad, and provides unique expertise across the board of defence and security studies.

<http://www.frstrategie.org>



PEACE RESEARCH INSTITUTE IN FRANKFURT

PRIF is the largest as well as the oldest peace research institute in Germany. PRIF's work is directed towards carrying out research on peace and conflict, with a special emphasis on issues of arms control, non-proliferation and disarmament.

<http://www.hsfk.de>



INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

IISS is an independent centre for research, information and debate on the problems of conflict, however caused, that have, or potentially have, an important military content. It aims to provide the best possible analysis on strategic trends and to facilitate contacts.

<http://www.iiss.org/>



STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

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