

VERIFYING AND DEMONSTRATING COMPLIANCE WITH THE BTWC

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I. INTRODUCTION

Compliance issues have plagued the 1972 Biological and Toxin Weapons Convention (BTWC) from its inception. Countries hesitated or initially declined to join the BTWC because it did not contain mechanisms to verify compliance.¹ In the 1980s the compliance of states parties was seriously, in some cases rightly, questioned.² Concerns about compliance led to a flurry of diplomatic activity in the 1990s and it was the question of whether or not it would be possible to verify

¹ France originally refused to join the BTWC because of the lack of verification provisions. Sweden criticized the lack of verification procedures during negotiation of the BTWC. Littlewood, J., *The Biological Weapons Convention: A Failed Revolution* (Ashgate: London, 2005), pp. 15–16.

² Most importantly, concerns existed about Soviet non-compliance with the BTWC, which later turned out to be justified. Leitenberg, M., *Biological Weapons Arms Control*, Project on Rethinking Arms Control (PRAC) Paper no. 16 (University of Maryland, Center for International and Security Studies at Maryland: College Park, MD, May 1996); Kelly, D. C., 'The trilateral agreement: lessons for biological weapons verification', Verification Research, Training and Information Centre (VERTIC), *Verification Yearbook 2002* (VERTIC: London, 2002), pp. 94–108. There were also numerous accusations by Cuba of US bioweapon use on Cuban territory. These accusations were never seriously addressed. They are commonly considered to have been politically motivated and completely unjustified. Zilinskas, R. A., 'Cuban allegations of biological warfare by the United States: assessing the evidence', *Critical Reviews in Microbiology*, vol. 25, no. 3 (1999), pp. 173–227.

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SUMMARY

Almost 40 years after it came into being in 1972, the Biological and Toxin Weapons Convention remains without a proper verification mechanism. The decade after the collapse of negotiations on a verification protocol for the BTWC in 2001 went by without discussions on the issue, but recently states have again voiced their support for verification procedures and civil society organizations have touched on the subject. Discussions on BTWC verification need to accept two basic premises: verifying compliance with the BTWC is about determining whether or not states are using their life science capabilities to build biological weapons and does not relate to any of the many other obligations in the biological weapon control regime; and verification cannot be expected to provide 'yes or no' answers to compliance questions. Instead, a functioning verification mechanism for the BTWC will enable moving from little towards more confidence in compliance in relation to an increasing number of states.

Three elements are central to BTWC verification: an information-monitoring capacity, challenge investigations and consultation procedures to address ambiguities and low-level compliance concerns. These three elements already exist in draft form, in the confidence-building measures, the United Nations Secretary-General's investigation mechanism and the consultative mechanism under Article V of the BTWC. All three elements need to be revised and clarified.

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compliance that led to the collapse of negotiations on a verification protocol for the BTWC in 2001.³ In the 2000s compliance concerns emerged in relation to biodefence activities.⁴ In the future, scientific and technological developments in the biological area will make it even more difficult than it is today to delineate the thin line between compliance and non-compliance.⁵

Thinking about compliance-assessment mechanisms for the BTWC requires clarification of what actions constitute compliance or non-compliance. The preamble to the BTWC declares that the aim of the treaty is ‘to exclude completely the possibility of bacteriological (biological) agents and toxins being used as weapons’.⁶ The central norm that the BTWC establishes is prohibition of the possession of biological weapons, thereby making their use impossible.⁷ Given that there are no longer any publicly known stockpiles of or production facilities for biological weapons, this central non-possession norm translates into a norm of not using the life sciences and biotechnology to develop biological weapons. Assessing compliance with the BTWC should focus on, and is understood in this paper as, determining whether states are using their life science capabilities to build biological weapons.

Of course, many more obligations are set out in the BTWC and also recorded in the final documents of the review conferences. Some examples are (a) the requirement to nationally implement the biological weapon prohibition, in Article IV of the BTWC; (b) the obligation not to hamper the economic or technological development of states, in Article X of the BTWC; (c) the commitment to submit relevant data annually under the BTWC’s confidence-building measures (CBMs), as agreed during the review conferences in 1986 and 1991; and (d) the undertaking to assist states if biological

³ See section II of this paper.

⁴ Roffey, R. and Gould, C., ‘Preventing misuse of the life sciences: the need to improve biodefence transparency and accountability in the BWC’, *Nonproliferation Review*, vol. 18, no. 3 (2011), pp. 557–69.

⁵ Committee on Trends in Science and Technology Relevant to the Biological Weapons Convention, National Research Council et al., *Life Sciences and Related Fields: Trends Relevant to the Biological Weapons Convention* (National Academies Press: Washington, DC, forthcoming 2011). For a prepublication copy see <http://www.nap.edu/catalog.php?record_id=13130>.

⁶ Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, opened for signature on 10 Apr. 1972, entered into force on 26 Mar. 1975, <<http://www.opbw.org/convention/conv.html>>.

⁷ See also Zanders, J. P. and Eckstein, S., *The Prohibition of ‘Use’ under the BTWC: Background on Relevant Developments during the Negotiations, 1969–1972* (SIPRI: Stockholm, Dec. 1996).

weapons have been used against them, in Article VII of the BTWC.

Compliance with these obligations is important for the well-being of the BTWC but not central to its effectiveness in preventing the re-emergence of biological weapons. Compliance with the numerous obligations that the BTWC establishes is desirable as it makes for a strong and vital treaty. However, compliance with the non-possession norm is the sole factor that is essential to the effectiveness of the convention.

Finding a path through what one analyst has called the ‘semantic swamp’ of terms relating to verification in the BTWC context requires some effort.⁸ Besides ‘verification’, terms such as ‘compliance monitoring’ or ‘compliance mechanism’ are frequently used. In addition, the term ‘verification’ itself has been defined in various ways. Examples include the following:

1. ‘Verification is the process of gathering and analyzing information to make a judgment about parties’ compliance or non-compliance with an agreement.’⁹
2. ‘Verification is the process that one country uses to assess whether another country is complying with an arms control agreement. . . . Monitoring systems collect data on the forces and activities of another country.’¹⁰
3. Verification ‘involves the collection, collation and analysis of information in order to make a judgment as to whether a party is complying with its obligations’.¹¹

All definitions of verification stress the importance of information. To assess whether a treaty regime is working effectively and to regulate the behaviour of states, actors must have reliable information about the activities they want to regulate. Insight into the treaty-relevant activities of parties to a treaty is one of the main sources of confidence in compliance and significantly increases the likelihood that all its parties

⁸ Lennane, R., ‘Verification for the BTWC: if not the protocol, then what?’, *Disarmament Forum*, no. 1 (2011), p. 39.

⁹ United Nations Institute for Disarmament Research (UNIDIR) and Verification Research, Training and Information Centre (VERTIC), ‘Coming to terms with security: a handbook on verification and compliance’, UNIDIR/2003/10, 2003, <<http://www.vertic.org/media/assets/Handbook.pdf>>, p. 1.

¹⁰ Woolf, A. F., *Monitoring and Verification in Arms Control*, Congressional Research Service (CRS) Report for Congress R41201 (US Congress, CRS: Washington, DC, 21 Apr. 2010), p. 3.

¹¹ United Nations, General Assembly, ‘Report of the Panel of Government Experts on verification in all its aspects, including the role of the United Nations in the field of verification’, A/61/1028, 2007, p. 11.

will comply with the agreed norms.¹² Information gathering can be ad hoc, for example through on-site challenge inspections. If relevant information is collected continuously, the applicable term is ‘monitoring’. Monitoring can be part of verification, which is the process of collecting relevant information and using it to arrive at a judgement about the compliance of actors with an established norm.

In addition to collecting relevant information on a particular country’s capabilities and activities—by other countries, a dedicated international organization or civil society—the country in question can also actively provide information to make assessments of its compliance easier. Such proactive provision of relevant information can be referred to as a ‘demonstration of compliance’.

Assessing compliance with the BTWC is more complicated than for chemical and nuclear weapons’ arms control and disarmament treaties. Because of the dual-use character of most of the activities in biotechnology and the life sciences, verification is not about counting pieces of equipment or measuring the amounts of certain agents present at a facility. Instead, what needs to be clarified is intent: namely, the reason why certain pieces of equipment or amounts of agents are present and the end to which they are being put. Verification in the biological arms control area can therefore not be expected to provide ‘yes or no’ results to compliance assessments, except in severe cases of treaty violation.¹³ While non-compliance is verifiable in extreme cases, compliance is not. The best that can be achieved is the statement ‘no indication of non-compliance at this moment’.

What must and can be aimed for is increasing or maintaining confidence in compliance. A functioning verification mechanism for the BTWC will enable moving from little confidence in compliance towards more confidence in compliance in relation to an increasing number of states. How much and what type of information is necessary to move along the confidence scale towards higher levels of confidence in compliance differs from country to country and depends very much on the pre-existing relationship with the other countries involved.

¹² Krass, A. S., SIPRI, *Verification: How Much Is Enough?* (Taylor & Francis: London, 1985), p. 170.

¹³ This is not a qualitative difference to other areas of WMD arms control, merely a quantitative one: absolute judgments about compliance are seldom possible in any of these fields. Instead, there are higher or lower degrees of confidence in compliance.

This paper traces the debate about verification from the 1980s to the present, outlines three main elements of a verification mechanism for the BTWC and makes recommendations on how these could be achieved.

II. THE VERIFICATION DEBATE BEFORE 2001

In 1980, at the First Review Conference of the BTWC, the states parties expressed their general satisfaction with the effectiveness and efficiency of the convention. Between 1980 and 1986 doubts about the Soviet Union’s compliance grew, in particular as a result of a suspicious outbreak of anthrax in the Soviet city of Sverdlovsk.¹⁴ At the 1986 review conference, a number of states expressed the view that the BTWC needed strengthening. There was not agreement, however, on whether new mechanisms were necessary, and if so, what form these should take.

Almost all of the countries whose representatives spoke during the opening plenary of the Third Review Conference in 1991 sought concrete steps to strengthen the treaty, in particular its verification measures. Almost all states described verification of the BTWC as difficult, if not impossible. The United States believed the treaty to be not verifiable but agreed to look into verification possibilities nevertheless: ‘The Convention is not effectively verifiable and we do not know any way to make it so . . . [A]lthough we have not found [verification] measures, the United States is prepared to explore the feasibility of effective verification of the BW Convention.’¹⁵

Canada was of the view that despite difficulties, the verification mechanisms for the BTWC could be improved: ‘[V]erification is not just a yes-or-no, all-or-nothing proposition, and Canada is of the view that, despite the difficulties, progress can be made in strengthening this vital aspect of the Convention.’¹⁶

The United Kingdom held a middle position: ‘It is widely recognised that it will not be easy and indeed may not be possible to devise an effective verification regime for the Biological Weapons Convention. . . . Nonetheless, we believe that it is important and timely for States Parties to conduct a

¹⁴ A detailed account is available in Sims, N. A., *The Diplomacy of Biological Disarmament. Vicissitudes of a Treaty in Force, 1975–1985* (Palgrave Macmillan: Basingstoke, 1988), pp. 226–52.

¹⁵ Statement by US Ambassador Ronald F. Lehman to the Third Review Conference of the BWC, Geneva, 10 Sep. 1991, pp. 2, 6.

¹⁶ Statement by Canadian Ambassador Peggy Mason to the Third Review Conference of the BWC, Geneva, 10 Sep. 1991, p. 3.

thorough examination of the feasibility of developing a verification regime.¹⁷

The views of only a few non-Western states were documented. China and India took note of the wishes of the Western states and agreed to an examination of possible verification measures. Iran did not mention verification in its opening statement. The Soviet Union saw the development of a verification system as a 'highly complicated task' but demanded 'to get down to work with the view to develop a verification mechanism'.¹⁸

During the conference no state spoke against examining the issue of verification in more detail. By that time, the discussion had shifted to whether verification in the biological area was technically feasible or not. Accordingly, the Final Document of the Third Review Conference established the 'Ad Hoc Group of Governmental Experts open to all States parties to identify and examine potential verification measures from a scientific and technical standpoint' (VEREX).¹⁹ VEREX met for four sessions, in 1992 and 1993. During the first session possible verification measures were identified; at the second session these measures were examined in detail; and during the third session the measures that had been identified and examined were evaluated. The fourth session was dedicated to writing a final report. That report, 'which is considerably more positive than many had foreseen', was agreed by consensus and concluded 'that potential verification measures as identified and evaluated could be useful to varying degrees in enhancing confidence, through increased transparency, that States Parties were fulfilling their obligations under the BWC'.²⁰

The VEREX report was forwarded to all states parties and assessed at a Special Conference in 1994, which agreed on further steps. All statements delivered during the general debate addressed the technical feasibility of a verification system for the BTWC. Of the 25 statements, 20 expressed the view that VEREX

had proven the feasibility of verification in the area of biological arms control. The European Union (EU) stated this most clearly: 'The VEREX results had convinced the European Union that verification of the Convention was possible'.²¹ In its opening statement the USA, except for a clear aversion to the term 'verification', expressed no detectable scepticism towards a legally binding additional protocol to the BTWC: '[T]he United States supports strengthening the BWC through the negotiation of a legally binding regime that provides for a reasonable, effective, and mutually reinforcing set of mandatory measures. To this end, we plan to participate actively and constructively in the work of this Special Conference and beyond'.²²

China, India, Indonesia and Iran, however, articulated varying degrees of doubt. China was blunt: 'The VEREX group's study had shown that the technical means for verification of biological weapons were still inadequate'.²³ India was also straightforward: 'Technical inadequacies highlighted by the VEREX process . . . posed fundamental problems in the strengthening of the Convention and needed to be fully examined'.²⁴

During the discussions at the Special Conference in 1994 it became clear that the VEREX conclusions were only ostensibly positive. Diplomatic rhetoric and the liberal use of conditional verbs such as 'would' and 'could' in the VEREX report shrouded the continuing differences in interpretation and evaluation of the effectiveness of verification measures. No state, however, spoke against multilateral negotiations on a verification instrument for the BTWC. In the end, despite ongoing disagreement, the parties agreed to establish an Ad Hoc Group 'to consider appropriate measures, including possible verification measures, and draft proposals to strengthen the Convention, to be included, as appropriate, in a legally binding instrument'.²⁵

¹⁷ Statement by British Ambassador Tessa A. H. Solesby to the Third Review Conference of the BWC, Geneva, 11 Sep. 1991, p. 4.

¹⁸ Statement by Soviet Ambassador Serguei B. Batsanov to the Third Review Conference of the BWC, Geneva, 12 Sep. 1991, pp. 2, 3.

¹⁹ Third Review Conference of the Parties to the BWC, Final Document, 1992, Geneva, BWC/CONF.III/23, p. 16.

²⁰ Rosenberg, B. H., 'A regime to monitor compliance with the Biological Weapons Convention moves closer', eds J. B. Poole and R. Guthrie, *Verification 1994: Arms Control, Peacekeeping and the Environment* (Brassey's: London and New York, 1994), p. 129; Ad Hoc Group of Governmental Experts to Identify and Examine Potential Verification Measures from a Scientific and Technical Standpoint, Report, 1993, Geneva, BWC/CONF.III/VEREX/9, p. 9.

²¹ Special Conference of the States Parties to the BWC, Summary Record of the 2nd Meeting, Geneva, 13 Oct. 1994, BWC/SPCONF/SR.2, p. 3.

²² Statement by US Ambassador Donald A. Mahley to the Special Conference of the BWC, Geneva, 19 Sep. 1994.

²³ Special Conference of the States Parties to the BWC, Summary Record of the 3rd Meeting, Geneva, 26 Sep. 1994, BWC/SPCONF/SR.3, p. 8.

²⁴ BWC/SPCONF/SR.3 (note 23), p. 14.

²⁵ Special Conference of the States Parties to the BWC, Final Report, Geneva, 19–30 Sep. 1994, BWC/SPCONF/1, p. 10.

The Ad Hoc Group met for 24 sessions between January 1995 and August 2001. Little progress had been made by the time of the Fourth Review Conference, in 1996. During the general debate at that conference, no state expressed scepticism about the political and technical feasibility of a verification instrument. Pakistan expressed the most cautious view when its representative said: ‘The verification of the BWC has long been regarded as a difficult and complex issue. Verification provisions could not be agreed earlier because of objections based on arguments advanced by some important countries. Their political views have evolved since then. However, the complexity and difficulty of the measures envisaged for verification of the BWC have not changed.’²⁶

In contrast, the EU was the most optimistic: ‘The effective verification of the BTWC, once considered too complex and impractical, is now regarded as achievable. The work of VEREX and the ad hoc Group has constructed a broad consensus, both technical and political, on the outlines of a workable regime.’²⁷

The chairman of the Ad Hoc Group presented the first draft of a protocol to the BTWC in June 1997 and the final text in April 2001. This protocol, although consistently referred to by some as a ‘verification protocol’, included many more elements than verification as understood here would require such as provisions for assistance and protection, and for scientific and technological exchange for peaceful purposes.²⁸ On 25 July 2001 the USA rejected the draft protocol and stated: ‘The draft Protocol will not improve our ability to verify BWC compliance. It will not enhance our confidence in compliance and will do little to deter those countries seeking to develop biological weapons.’²⁹

Because the states parties did not agree to continue negotiations without the USA, the work of the Ad Hoc Group ended unsuccessfully.

²⁶ Statement by Pakistani Ambassador Munir Akram to the Fourth Review Conference of the BWC, Geneva, 26 Nov. 1996.

²⁷ Statement on behalf of the European Union by Irish Minister Mervyn Taylor to the Fourth Review Conference of the BWC, Geneva, 25 Nov. 1996.

²⁸ Lennane (note 8), p. 40. The most recent version of the draft protocol text under negotiation, the ‘rolling text’, and the final draft protocol text as suggested by the chairman, the ‘composite text’, are available at the Biological and Toxin Weapons Convention Website, <<http://www.opbw.org/>>. For a description of the envisaged protocol see Littlewood (note 1).

²⁹ Statement by US Ambassador Donald A. Mahley, Geneva, 25 July 2001.

III. BEYOND VERIFICATION AFTER THE AD HOC GROUP?

While the term ‘verification’ was less and less used after 1995, it became impossible to refer to it after 2001. There was complete inaction and an almost total silence on the topic between 2001 and 2010.³⁰ Only recently have a few authors resumed discussion of verification.³¹

After conclusion of the Fifth Review Conference in 2002, the BTWC’s states parties focused their work on enhancing the implementation of certain provisions of the BTWC. Discussions during the intersessional processes of 2003–2005 and 2007–10 concentrated on national implementation, disease surveillance and the involvement of the scientific community. At the Sixth Review Conference in 2006, verification issues were mentioned only in passing. Of the 37 statements made during the opening debate, 12 referred explicitly to verification—those of the EU and Russia among them, but neither those of the USA nor of many of the more influential states of the Non-Aligned Movement (NAM). The EU, as the only group of countries giving one of these 12 statements, ‘remain[ed] committed to the development of measures to verify compliance with the Convention in the long term’.³² Pakistan believed that ‘the Convention continues to be challenged by the absence of a mechanism for verification’.³³

In 2009, after US President Barack Obama took office, many states expected a change in the US position on BTWC verification. But while the rhetoric was different, the substance remained essentially

³⁰ The EU continued to support verification as a distant aim, but this did not play a role in practice in the BTWC proceedings after 2002. Council of the European Union, ‘Fight against the proliferation of weapons of mass destruction: EU Strategy against Proliferation of Weapons of Mass Destruction’, 15708/03, 10 Dec. 2003, <<http://www.consilium.europa.eu/showPage.aspx?id=718>>, p. 10. Few non-governmental organizations focused on verification, but examples of 2 that did are Sunshine Project, ‘Sunshine Project country studies’, <<http://www.sunshine-project.org/countrystudies/>>; and Hamburg Research Group for Biological Arms Control, ‘Improving the confidence building measures under the BWC’, <http://www.biological-arms-control.org/projects_improvingthecbms.html>.

³¹ Lennane (note 8); Lentzos, F. ‘Hard to prove: The verification quandary of the Biological Weapons Convention’, *Nonproliferation Review*, vol. 18, no. 3 (2011), pp. 571–82; and Kosal, M. E. et al., BioWeapons Prevention Project (BWPP) online discussion, ‘Do we need verification for the BWC and how could it look like?’, Mar.–Sep. 2011, <<http://www.bwpp.org/revcon-verification.html>>.

³² Statement by the European Union to the Sixth BTWC Review Conference, 20 Nov. 2006.

³³ Statement by Pakistan to the Sixth BTWC Review Conference, 20 Nov. 2006.

unchanged. US Under-Secretary of State Ellen Tauscher announced at the 2009 Meeting of States Parties in Geneva that: ‘The Obama Administration will not seek to revive negotiations on a verification protocol to the Convention. We have carefully reviewed previous efforts to develop a verification protocol and have determined that a legally binding protocol would not achieve meaningful verification or greater security’.³⁴

At the Meeting of States Parties in 2010, the last gathering of the BTWC’s states parties before the Seventh Review Conference (with the exception of the three-day Preparatory Committee in April 2011), the situation had significantly altered. Of the 29 opening statements, 10 referred explicitly to verification. More significantly, however, among these statements were: the EU, which remained ‘committed toward identifying effective mechanisms to enhance and possibly verify compliance with the Convention’;³⁵ the NAM, which urged a ‘legally binding agreement . . . that cannot exclude the negotiation and establishment of a verification mechanism’;³⁶ Russia, which was of the view that ‘one of the key ways to improve the BWC remains the establishment of a legally binding mechanism for verification of compliance’;³⁷ and India, which expressed the opinion that ‘only a multilaterally agreed mechanism for verification of compliance can provide the assurance that all States Parties to the BWC are in compliance with their obligations’.³⁸

There is evidently strong consensus in the BTWC community that verification would be a valuable addition to the convention. The one exception remains the USA which reiterated its view ‘that a verification regime is no more feasible than it was in 2001, and perhaps even less so, given the evolution of technology and industry’.³⁹

³⁴ Statement by US Under-Secretary of State Ellen Tauscher to the BTWC Meeting of States Parties, 9 Dec. 2009.

³⁵ Statement by the European Union to the BTWC Meeting of States Parties, 6 Dec. 2010.

³⁶ Statement by the Non-Aligned Movement to the BTWC Meeting of States Parties, 6 Dec. 2010.

³⁷ Statement by Russia to the BTWC Meeting of States Parties, 6 Dec. 2010.

³⁸ Statement by India to the BTWC Meeting of States Parties, 6 Dec. 2010.

³⁹ Statement by the USA to the BTWC Meeting of States Parties, 6 Dec. 2010. It is an open question, whether US opposition is due to an understanding of verification that is different from that of the rest of the BTWC’s states parties.

IV. ELEMENTS OF A COMPLIANCE-MONITORING SYSTEM

This paper considers verification to relate to the central norm of the BTWC. As noted above, verification of compliance hinges on the availability of relevant information and on explanations of how capacities and capabilities are being used. Arguably, three elements are common to all disarmament treaties and also essential in a verification mechanism for the BTWC. First, there needs to be a baseline of relevant information. Second, at the other end of the spectrum, there should be a mechanism for the investigation of serious cases of non-compliance, so-called challenge investigations. Third, there ought to be a mid-level mechanism for clarification.

Fortunately, the initial components of all three elements already exist. If they are further developed and used judiciously in a modular approach, as was suggested in 2004, the BTWC would be much more robust in the years to come.⁴⁰

From CBMs via declarations to an information-monitoring capacity

The most important element of a verification mechanism will be a system to monitor relevant information in order to establish reliable baseline knowledge about BTWC-relevant activities. There are two reasons for this. First, as mentioned above, information is the starting point for all verification efforts. In order to judge compliance, knowledge is needed about the country to be judged. Second, given that currently no state advocates biological weapons, and allegations of BTWC non-compliance are few and far between, the expectation would be that neither challenge investigations nor other compliance clarification procedures to establish the absence or presence of biological weapons would be widely used. Instead, the most important element of a verification mechanism for the BTWC would be the continuous reaffirmation through information monitoring that existing capabilities and capacities are not being used to develop biological weapons.

⁴⁰ Findlay, T. and Woodward, A. ‘Enhancing BWC implementation: a modular approach’, Weapons of Mass Destruction Commission no. 23, Oct. 2004, <http://kms1.isn.ethz.ch/serviceengine/Files/ISN/13519/ipublicationdocument_singledocument/b419b826-7bfe-4f87-b500-130cbee5c9b5/en/200410xx_No23.pdf>.

States have been exchanging information since the early days of the BTWC. A detailed political requirement to do so, however, emerged only during the Second Review Conference in 1986 with the establishment of the CBMs, which took the form of data-exchange measures.⁴¹ They were amended for the first and only time at the Third BTWC Review Conference in 1991. The Sixth Review Conference in 2006 decided on a number of changes to the procedure of submission and distribution.⁴² The CBMs currently require states to annually provide information on (a) research centres and laboratories; (b) national biological defence research and development programmes; (c) outbreaks of infectious diseases and intoxications (poisoning with a toxin); (d) publication of research results; (e) promotion of contacts between scientists and experts; (f) legislation, regulations and other measures; (g) past offensive or defensive biological research and development programmes; and (h) vaccine-production facilities.⁴³

Over the years official assessments of the CBMs have fluctuated between criticism, because of limited participation and low data quality, indifference and support. When the CBMs were assessed for the first time, the Third BTWC Review Conference in 1991 summarized the views of states simply as: ‘While welcoming the participation of States parties in the exchange of information to promote confidence in the implementation of the Convention, it was recognized that participation in that exchange had not met the expectations of most States parties.’⁴⁴

In the early 2000s most states did not worry about low participation in the CBM process as they were expecting a legally binding declaration system to supersede the CBMs.⁴⁵ When this development did not materialize, states again came to perceive the CBMs as an important BTWC instrument. In 15 of the 29

opening statements at the Meeting of States Parties in December 2010, governments explicitly mentioned the CBMs, all in support of them. Japan, Australia, Canada, South Korea, Switzerland, Norway, and New Zealand (the JACKSNNZ) depicted CBMs as ‘one of the key instruments to establish confidence in compliance with the treaty obligations’.⁴⁶

In order to become a useful element of a verification mechanism for the BTWC, the CBMs need to be redesigned as declarations that provide information which is useful in assessing compliance with the BTWC’s core prohibition. These new declarations need to require information from states on activities that would be particularly helpful in developing biological weapons, should the state decide to engage in biological weapon development (i.e. information is needed on activities that can easily be misinterpreted as being offensive).⁴⁷ It is not easy to determine which information is most useful. In other technology fields, a particular piece of equipment or special types of material are often clear indicators of weapon development or at least of questionable technology use. Certain types and quantities of highly enriched uranium or ‘classical’ nerve agents, for instance, have no or extremely limited peaceful applications. In sharp contrast, any number of types of biotechnology equipment and materials can be used for a weapon programme. Even in biotechnology, however, certain capabilities and capacities would be particularly helpful for a large-scale biological weapon programme and therefore justify further questions and investigation. Accordingly, the redesigned CBMs should cover civilian and military biodefence activities and work with live smallpox virus and aerosols.

Almost as important as data on these particular activities is to put these activities in context. Information about a certain piece of equipment, a certain facility or research activity is almost useless without contextual knowledge about how it fits with the overall size and sophistication of a country’s biotechnology capabilities. The redesigned CBMs therefore need to provide information about the general life science capabilities of a state. Major

⁴¹ On the history of the CBMs, analyses of their effectiveness and suggestions for amendments, see Hunger, I. and Shen, D., ‘Improving transparency: revisiting and revising the BWC’s confidence-building measures’, *Nonproliferation Review*, vol. 18, no. 3 (2011), pp. 513–26.

⁴² Sixth Review Conference of the Parties to the BWC, Final Document, 2006, Geneva, BWC/CONF.VI/6, p. 22.

⁴³ Current CBM forms are available at BWC/CONF.III/23 (note 19), pp. 25–47; and UN Offices at Geneva, ‘Disarmament’, <<http://www.unog.ch/bwc/cbms>>.

⁴⁴ BWC/CONF.III/23 (note 19), p. 52.

⁴⁵ Hunger, I., *Biowaffenkontrolle in einer multipolaren Welt. Zur Funktion von Vertrauen in internationalen Beziehungen* [Controlling biological weapons in a multipolar world: the function of trust in international relations] (Campus Verlag: Frankfurt and New York, 2005), p. 201.

⁴⁶ Statement by the JACKSNNZ to the BTWC Meeting of States Parties, 6 Dec. 2010.

⁴⁷ For a very different view on how CBMs should be redesigned see Koblentz, G. D. and Chevrier, M. I., ‘Modernizing confidence-building measures for the Biological Weapons Convention’, *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, vol. 9, no. 3 (2011), pp. 232–38.

indicators of the level of a country's technological development are its high-level containment facilities, notably biosafety level (BSL) -3 and -4 facilities, and its capabilities for large-scale production or processing of biological materials.

The current list of CBM topics and those identified in the two preceding paragraphs match only to a limited degree. Information on biodefence work is probably the most important topic of all. For this reason, in 2005 the United Nations Secretary-General, Kofi Annan, singled out biodefence and called on all states 'to increase the transparency of bio-defence programmes'.⁴⁸ BTWC states parties are already required to provide information on biodefence work in CBM Form A, part II, but this CBM needs a major overhaul.⁴⁹

The current CBM format does not specifically cover work with live smallpox virus. Smallpox is special among the multitude of possible biological weapon agents because it no longer exists as a natural public health threat. The Smallpox Advisory Board of the World Health Organization currently oversees work with live smallpox virus. Therefore, instead of adding live smallpox work as a specific CBM topic, the BTWC's states parties should establish a relationship with the Smallpox Advisory Board and keep themselves informed about such work.

Work with aerosols is also not covered by the current CBMs. The most efficient way to distribute biological weapon agents in a mass casualty attack is through the release of an aerosol. Therefore, the CBMs should request information on the generation and testing of aerosols indoors and, even more importantly, outdoors.

CBM Form A, part I, should be expanded to include data on BSL-3 facilities in addition to information on BSL-4 capabilities. The declaration of BSL-3 facilities has always been controversial due to the large number of such facilities in some countries. Nonetheless, if a state has no BSL-4 facilities, information on the number, size and activities of BSL-3 facilities is invaluable to assess where it stands in terms of life science research.⁵⁰

The requirement to provide information on mass production and processing capabilities is already

established in the current CBM Form G, which requests data on facilities that produce vaccines for humans. Other types of mass production and processing capabilities—mass production of veterinary vaccines; large-scale manufacture of plant inoculants; major food, beverage, and animal feed production facilities; and biofuel manufacturing—are also relevant and should be declared.

Gathering data through declarations is only useful if the data is helpful in making judgements about compliance with the BTWC's prohibition. Turning raw data into information requires ensuring its usability, completeness and accuracy. Ensuring usability entails the easy accessibility of declarations and their readability, chiefly meaning their availability in more than one language. Ensuring completeness can be as simple as asking for a missing page or as potentially demanding as an on-site inspection, an option that is currently available only on a voluntary basis. Ensuring accuracy entails comparing data from different years to check plausibility and comparing declared data with data from other sources. Currently, there are no multilateral mechanisms in place to make use of the declared information after it has been provided by states. The more the following procedures are considered and implemented, the better the baseline knowledge of relevant information will be: (a) continue to make declarations available via a website; (b) approach states and civil society organizations annually to request that they share translations; (c) remind states that fail to submit declarations to do so; (d) check declarations to see that all forms are filled in and ask states to submit missing parts, if necessary; (e) prepare an annual list of participation, including showing the continuity of reporting by individual states; (f) summarize annually the data provided (e.g. number of BSL-4, biodefence and vaccine-production facilities; and the funding levels of biodefence programmes) with a standardized report of no more than 10 pages; (g) summarize annually in a standardized way the data provided on a country-by-country basis; and (h) compare the declared data with relevant data from other sources.⁵¹

⁴⁸ United Nations, 'In larger freedom: towards development, security and human rights for all', Report of the Secretary-General, A/59/2005, 21 Mar. 2005, p. 29.

⁴⁹ On necessary changes see Roffey and Gould (note 4).

⁵⁰ For an illustration of this argument see the Kenya country report in BioWeapons Prevention Project (BWPP), 'BioWeapons Monitor 2010', <<http://www.bwpp.org/documents/BWM%202010%20WEB.pdf>>.

⁵¹ There is a wealth of open source data available; this resource is basically untapped. Examples of alternative transparency building efforts are the BioWeapons Monitor (note 50); and the trade monitoring system for biological dual use equipment suggested by the Hamburg Research Group for Biological Arms Control. For a detailed description see Jeremias, G. and Hunger, I., 'Building transparency in the world wide trade in biological dual use equipment', Occasional paper

Transparency and building confidence in compliance would be further promoted if states had the opportunity to discuss their declarations in non-controversial forums, such as annual regional or international ‘CBM meetings’ or during invited on-site visits to declared facilities. Based on experiences at the Organisation for the Prohibition of Chemical Weapons (OPCW), these opportunities might not be as controversial as expected if the mode of discussion is chosen wisely.⁵² Much opportunity exists in this area for states to actively demonstrate their compliance by offering additional information and providing explanations of certain activities, by initiating and hosting consultations, meetings and workshops, and by inviting governmental and non-governmental experts to relevant facilities, such as biodefence facilities.⁵³

In all of the procedures suggested for consideration above, there is an important role for the BTWC’s Implementation Support Unit (ISU). However, whether the ISU is mandated, and provided with resources, to conduct any of the activities depends entirely on the BTWC’s states parties. Civil society organizations, in contrast, could—if the declarations are publicly available and resources permitting—conduct all the activities listed above without political consensus in the conference room in Geneva.⁵⁴ When adopting the CBMs, states did not specify that access to data would be restricted. While the representatives of some states have always claimed that the CBMs are for government use only, CBMs were available to selected non-governmental experts until 2005. The Sixth BTWC Review Conference explicitly decided to limit access to the CBMs to states. However, a growing number of states (30 in 2011, as of 20 November) make their CBMs publicly available via the ISU website or directly to non-governmental organizations (NGOs).⁵⁵ There is a trend towards ‘an international expectation

of transparency . . . transforming the past common practice of state secrecy about certain activities into an indicator of malevolent intent’.⁵⁶

Challenge investigations

Challenge investigations are the ultimate tool for dealing with allegations of serious non-compliance with agreed international norms. The BTWC has no challenge investigation mechanism but sets out in Article VI that a state party may lodge a complaint with the UN Security Council if it finds another state party acting in breach of the BTWC and that the Security Council may initiate an investigation. No further detail is provided.

The BTWC’s parties have expressed concern about this lack of an investigation mechanism. Of the 29 states or groups of states taking the floor during the opening debate of the Meeting of States Parties in December 2010, 11 specifically mentioned the importance of the UN Secretary-General’s investigation mechanism, presumably as a substitute for the missing challenge investigation mechanism in the BTWC.

The Secretary-General’s mechanism for investigations into the alleged use of chemical and biological weapons dates back to the early 1980s.⁵⁷ In 1987 the UN General Assembly requested the Secretary-General to carry out investigations into the possible use of chemical and biological weapons and to develop technical guidelines and procedures with the assistance of qualified experts.⁵⁸ In 1988 and 1989 an expert group developed 20 pages of ‘Guidelines and procedures for the timely and efficient investigation of reports of the possible use of chemical and bacteriological (biological) or toxin weapons’ and an additional 15 pages of technical appendices setting out the details of, for example, sampling procedures, areas of expertise for investigation personnel and investigation equipment.⁵⁹ Under the coordination

no. 12, Dec. 2010, <<http://www.biological-arms-control.org/projects-trademonitoring/TradeMonitoring-OccPaper2010-Final.pdf>>.

⁵² Trapp, R. ‘Review . . . and What Next?’, BioWeapons Prevention Project (BWPP) online discussion, 10 Feb. 2011, <<http://www.bwpp.org/revcon-reportingrequirements.html>>.

⁵³ Germany, ‘Confidence building and compliance: two different approaches’, Working paper for the Seventh BTWC Review Conference, 2011, <[http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/BC0A9D8E64907CACC125792D005739F9/\\$file/Germany+CBMs+and+compliance.pdf](http://www.unog.ch/80256EDD006B8954/%28httpAssets%29/BC0A9D8E64907CACC125792D005739F9/$file/Germany+CBMs+and+compliance.pdf)>, p. 2.

⁵⁴ An example of civil society activity in this field is BioWeapons Prevention Project (BWPP), ‘BioWeapons Monitor’ (note 50).

⁵⁵ See Hamburg Research Group for Biological Arms Control, *2011 Reader on Publicly Available CBMs* (University of Hamburg: Hamburg, forthcoming Dec. 2011).

⁵⁶ Zanders, J. P. and Smithson, A. E. ‘Ensuring the future of the Biological Weapons Convention’, *Nonproliferation Review*, vol. 18, no. 3 (2011), p. 481.

⁵⁷ For details of the history of the mechanism see e.g. BWC Secretariat, ‘Mechanisms available to States Parties to investigate the alleged use of biological or toxin weapons and to provide assistance in such cases’, BWC/MSP/2004/MX/INF.3, 1 July 2004; Littlewood, J., ‘Investigating allegations of CBW use: Reviving the UN Secretary-General’s mechanism’, *Compliance Chronicles*, no. 3 (Dec. 2006).

⁵⁸ UN General Assembly Resolution 42/37C, 30 Nov. 1987.

⁵⁹ UN General Assembly Document A/44/561, Annex I, 4 Oct. 1989.

of the UN Office for Disarmament Affairs, the investigation mechanism was recently discussed in detail and the appendices were updated, although not the guidelines and procedures outside the appendices. A training course for investigation personnel was offered by Sweden and conducted in May–June 2009.⁶⁰ Over the years there have been 12 investigations, all related to chemical (including toxin) weapons. The most recent investigations took place in 1992.

Using the Secretary-General's mechanism as one element of a verification mechanism for the BTWC would be desirable.⁶¹ It would make use of a recently updated, tried and tested system of procedures and capabilities, instead of setting up a new procedure. The biggest problem with the Secretary-General's mechanism is that it is designed to investigate the alleged use of biological weapons; it cannot be used to investigate their alleged development, production and stockpiling. This, however, is not an insurmountable obstacle. Investigating activities other than the alleged use of biological weapons is politically highly charged. It is more promising to initially address such cases of compliance concern through consultation procedures. Should these concerns persist or have become graver after the consultations, there is a high likelihood that the Security Council would initiate a challenge investigation, which should then use the guidelines, procedures, experts and laboratories available under the Secretary-General's mechanism.

Another way in which the gap in the coverage of the Secretary-General's mechanism could be closed was suggested in 2005. Under Article 99 of the UN Charter, the Secretary-General has the authority to investigate violations of the BTWC in order to determine whether they pose a threat to international peace and security, in which case they would need to be brought to the attention of the Security Council.⁶²

⁶⁰ For updated appendices, information on the investigation mechanism and key documents see UN Office for Disarmament Affairs, 'Secretary-General's Mechanism for investigation of alleged use of chemical and biological weapons', <http://www.un.org/disarmament/WMD/Secretary-General_Mechanism/>.

⁶¹ Findlay, T., 'A standing United Nations verification body: necessary and feasible', The Weapons of Mass Destruction Commission, no. 40, May 2005, <<http://www.blixassociates.com/wp-content/uploads/2011/03/No40.pdf>>; and Littlewood (note 57).

⁶² Becker-Jakob, U. 'Are there possible roles for the UNSG investigation mechanism in the BWC regime?', BioWeapons Prevention Project (BWPP) online discussion, 8 Nov. 2011, <<http://www.bwpp.org/revcon-uninvestigation.html>>. For more detail see Becker, U., Müller, H. and Wunderlich, C., 'While waiting for the protocol: an interim

An international capacity to investigate the alleged use of biological weapons and BTWC non-compliance allegations is indispensable to a strong biological weapon control regime and one of the three necessary elements of a verification mechanism for the BTWC. The BTWC's parties are in the fortunate position of having the Secretary-General's mechanism, which is well developed and available for that task.

Further clarification of how exactly the Secretary-General's mechanism would interact with the BTWC would be useful. During such deliberations, governmental and non-governmental experts could also clarify how the BTWC would interact with the OPCW in the case of investigations involving toxins, and whether differentiations need to be made between BTWC members, signatories and non-member states in requesting and receiving investigations.

Between an information-monitoring capacity and challenge investigations

A third indispensable component of a verification mechanism for the BTWC is a 'mid-level element', something between the politically highly charged challenge investigations and day-to-day information-monitoring activities. This third element already exists in the form of the consultative mechanism under the BTWC's Article V, which stipulates that states parties 'undertake to consult one another and to cooperate in solving any problem which may arise in relation to the object of, or in the application of the provisions of, the Convention'.⁶³ Successive review conferences have turned the multilateral dimension of this provision into a 'consultative mechanism' that includes the possibility of a consultative meeting.⁶⁴

The consultative mechanism has been used once, in 1997, at the request of Cuba, which required clarification of an outbreak of *Thrips palmi*, an insect pest, on its territory. Cuba suspected that the outbreak had resulted from the spraying of a substance during an overflight by a US agricultural aircraft. The chairman of the 1997 Consultative Meeting concluded that 'due inter alia to the technical complexity of the subject and to the passage of time, it has not proved

compliance mechanism for the Biological Weapons Convention', *Nonproliferation Review*, vol. 12, no. 3 (2005), pp. 541–72.

⁶³ BTWC (note 6), Article V.

⁶⁴ Sims, N. A., *The Evolution of Biological Disarmament*, SIPRI Chemical & Biological Warfare Studies, no. 19 (Oxford University Press: Oxford, 2001), pp. 31–36.

possible to reach a definitive conclusion with regard to the concerns raised by the Government of Cuba'.⁶⁵ However, both parties to the dispute seemed satisfied with the outcome, as they did not pursue the matter further.⁶⁶

Reportedly, consultations with the aim of clarifying compliance concerns have taken place in bilateral and trilateral settings.⁶⁷ Because the proceedings and results of such consultations have never been officially reported to the BTWC's parties, it is debatable whether they can be subsumed under the BTWC's Article V consultative mechanism.

Article V's consultative mechanism is the only BTWC instrument that is currently available to address compliance concerns. It is a valuable element of any verification mechanism for the convention, in particular to address compliance concerns other than the alleged use of biological weapons. In order to fulfil its mid-level function effectively, the consultative mechanism should be kept as flexible as possible, while simultaneously improving reporting to the BTWC meetings of states parties on any consultations, including meetings and visits.⁶⁸

V. CONCLUSIONS

States parties to the BTWC should resume thinking seriously about the verification issue. Unfortunately, 'the unverifiability of the BWC has become such an article of faith that few critically question it any longer'.⁶⁹ Nonetheless, scientific, technological and political developments make reconsideration of this view necessary. A new debate on verification should avoid the pitfalls of earlier exchanges on the issue, and particular effort should be made to depoliticize it.⁷⁰

⁶⁵ Soutar, I., 'Report of the Consultative Meeting: letter from the Chairman to all BTWC States Parties', Geneva, 15 Dec. 1997, p. 2.

⁶⁶ For a detailed description of the consultative process between Cuba and the USA see Sims (note 65); Zilinskas (note 2); and Wright, S., 'Cuba case tests treaty', *Bulletin of the Atomic Scientists*, 1 Nov 1997, pp. 18–19.

⁶⁷ Tucker, J. B., 'Strengthening consultative mechanisms under Article V to address BWC compliance concerns', Harvard Sussex Program (HSP) Occasional Paper, May 2011, <http://www.sussex.ac.uk/Units/spru/hsp/occasional%20papers/HSPOP_1.pdf>, pp. 5–7.

⁶⁸ Tucker suggested how the consultative mechanism could be improved (note 67).

⁶⁹ Zanders and Smithson (note 56), p. 480.

⁷⁰ Smithson, A. E., 'Time to de-politicize the verification debate!', BioWeapons Prevention Project (BWPP) online discussion, 12 July 2011, <<http://www.bwpp.org/revcon-verification.html>>.

Three elements of a verification mechanism are important: information-monitoring capacity, challenge investigations and consultation procedures to address ambiguities and low-level compliance concerns. These three elements can be said to be available, in draft form, in the CBMs, the UN Secretary-General's investigation mechanism and the consultative mechanism under Article V of the BTWC. All three elements need to be revised, clarified and expanded.

First, the CBM mechanism needs major review to clarify its mid- and long-term function and form. The CBMs should evolve into legally binding declarations on the topics of most relevance to assessing compliance with Article I of the BTWC. The conceptual discussions on the future form and function of declarations could usefully form part of intersessional process meetings on the topic of compliance between the seventh and eighth BTWC review conferences. Detailed discussion of declaration triggers and of specific declaration requirements and formats should be delegated to an intersessional working group dedicated to that task and should make use, as appropriate, of the outcome of discussions on declarations during the Ad Hoc Group negotiations in the 1990s. Those discussions of declarations, in particular their format, were largely not politically sensitive and recalling them is therefore unlikely to have negative repercussions.⁷¹ Information gathered through annual declarations should be assessed, checked and complemented with open source data, and made publicly available. Preferably, an adequately mandated ISU with sufficient resources could assume this function but, resources permitting, civil society actors could concomitantly or alternatively assume this role. In this way, over time the BTWC would gain a powerful information-monitoring capacity.

Second, the intersessional process between the seventh and eighth BTWC review conferences should address in detail and agree on the precise relationship between the UN Secretary-General's mechanism and the BTWC, in particular how the mechanism can be used to address alleged cases of not only use but also the development, production and stockpiling of biological weapons. As with declarations, this would fit well in the intersessional process meetings on the topic of compliance.

⁷¹ For instance, states should have no difficulty using the check-the-box version of asking for floor space ranges for biodefence facilities.

Third, the BTWC's states parties should reaffirm, in statements and practice, the importance of the consultative mechanism under Article V of the BTWC in addressing ambiguities and doubts about compliance. Most importantly, the results of consultations need to be reported back to all parties in order to keep the process within the BTWC framework.

A wide discussion on verification of the BTWC at this point in time would be in the fortunate position of taking place in an era in which very few states, if any, are interested in biological weapons. Without the political pressure to quickly put in place a verification mechanism because of pressing compliance concerns, discussions should be freer and more comprehensive and balanced.

The verification debate is important now. While relatively little concern about the development of biological weapons by states exists at the moment, this could change in the future.⁷² Some might be happy to leave implementation of the biological weapon prohibition to states, with little scrutiny at the international level. However, if technological developments, new security assessments and changed threat perceptions make biological weapons attractive for states at a later point in time, such an approach could prove hauntingly wrong.

ABBREVIATIONS

BTWC	Biological and Toxin Weapons Convention
CBM	Confidence-building measure
ISU	Implementation Support Unit
JACKSNNZ	Japan, Australia, Canada, South Korea, Switzerland, Norway, and New Zealand
NGO	Non-governmental organization
OPCW	Organisation for the Prohibition of Chemical Weapons
VEREX	Ad Hoc Group of Governmental Experts to Identify and Examine Potential Verification Measures from a Scientific and Technical Standpoint
WMD	Weapons of mass destruction

⁷² The situation is different with non-state actors. Bioterrorism is still high on the security agenda of many states. The use of biological weapons by non-state actors is, however, not the topic of this paper, and the BTWC is not the primary place to address this threat. See also the BioWeapons Prevention Project (BWPP) online discussion, 'How do countering bioterrorism and the BWC relate to each other?', <<http://www.bwpp.org/revcon-bioterrorism.html>>.

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>



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