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THE EMERGING PROTOCOL : AN INTEGRATED RELIABLE AND EFFECTIVE REGIME

by Graham S. Pearson and Malcolm R. Dando

Introduction

1. The Protocol to strengthen the Biological and Toxin Weapons Convention (BTWC) is developing and is approaching its final form¹. It is therefore timely to examine how well the emerging Protocol regime meets the objectives set out in the mandate² for the Ad Hoc Group and to compare the emerging regime and the Chemical Weapons Convention regime, which entered into force on 29 April 1997, against an appropriate set of criteria.
2. As the Protocol develops, it is important to keep under review the overall effectiveness of the regime and the extent to which it meets the objectives that States Parties had established at the Special Conference in 1994. The particular nature of biological weapons and their differences from chemical weapons need to be borne in mind in carrying out such a review.
3. This Briefing Paper examines the mandate to identify appropriate criteria against which to evaluate the individual elements of the emerging Protocol, considers whether there are additional criteria which need to be included and then addresses why the CWC regime is relevant to the emerging BTWC Protocol regime before providing a comparative evaluation of both the emerging Protocol and the existing CWC regime against these criteria. It is concluded that the current draft Protocol contains the essential elements for a reliable and effective integrated regime.

The Mandate

4. The mandate³ for the Ad Hoc Group is for it *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...*" The heart of the Protocol is the *system of measures to promote compliance with the Convention* which under the mandate have to meet the following requirement:

Such measures should apply to all relevant facilities and activities, be reliable, cost-effective, non-discriminatory and as non-intrusive as possible, consistent with the effective implementation of the system and should not lead to abuse.

In addition, the mandate requires that:

Measures should be formulated and implemented in a manner designed to protect sensitive commercial proprietary information and legitimate national security needs.

¹Graham S Pearson, *The Strengthened BTWC Protocol: An Overall Evaluation*, Evaluation Paper No. 1, University of Bradford, July 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

²United Nations, *Special Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, Final Report, BWC/SPCONF/1, 19 - 30 September 1994, Geneva.

³United Nations, *Special Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, Final Report, BWC/SPCONF/1, 19 - 30 September 1994, Geneva.

Measures shall be formulated and implemented in a manner designed to avoid any negative impact on scientific research, international cooperation and industrial development.

5. From the above, a number of criteria can be identified:

- Applicable to all relevant facilities and activities
- Reliable
- Cost-effective
- Non-discriminatory
- Non-intrusive as possible consistent with effective implementation
- Non-abuse

to which can be added

- Protection of commercial proprietary information
- Protection of legitimate national security needs
- Avoid negative impact on scientific research, international cooperation and industrial development

6. In deciding to establish the Ad Hoc Group, the 1994 Special Conference *determined to strengthen the effectiveness and improve the implementation of the Convention*. [Emphasis added] Consequently, the mandate for the Ad Hoc Group as already noted above was *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.... In this context, the Ad Hoc Group shall, inter alia, consider....* The Ad Hoc Group has therefore rightly considered measures to improve the implementation of other Articles of the Convention such as Article III (non-transfer) and Article IV (national implementation). The overall aim of the mandate is thus to not only to address compliance measures and measures to ensure the effective implementation of Article X of the Convention but also to improve the effectiveness of the Convention. In other words, the cumulative effect of the Protocol is to increase transparency, enhance confidence in compliance and to help deter non-compliance -- and these are thus appropriate criteria to use in evaluating the Protocol regime. A major factor in the effectiveness of the regime is the extent to which it is universal and this is clearly one of the reasons why measures *to ensure effective and full implementation of Article X* are specifically stated in the AHG mandate as the measures agreed to achieve this will greatly influence and encourage the ratification and accession of States to the Protocol. Consequently, the promotion of the Protocol universality is another appropriate criteria to be used in the evaluation of the Protocol regime.

7. Finally, there is the overall objective of strengthening the norm against biological weapons. If the Protocol regime is indeed evaluated as being reliable and effective then the norm against the development, production and use of biological weapons will have been strengthened by the Protocol. However, the converse needs to be noted. Should the Protocol regime be weak, ineffective and unreliable then the norm will have been brought into disrepute -- and the barriers preventing the deliberate use of disease as a weapon of war will have been significantly weakened. Indeed, as was noted in the formal statement made on 29 June 1999 by State Secretary Wolfgang Ischinger of Germany on behalf of the German Presidency of the European Union *"we firmly believe that unless we can achieve decisive progress now, we might risk stagnation or even retrogression. I believe that, all in all, the glass is more than half full and that we have grounds for optimism. By adopting this*

Common Position the EU has renewed its commitment to, and expresses its firm belief in, the success of these negotiations." [Emphasis added]. It is vital that an effective and reliable regime be devised.

8. The following further criteria have thus been identified:

- Promotion of Protocol universality
- Increased transparency
- Enhanced confidence in compliance
- Deter non-compliance

9. This leads to a consolidated list of criteria:

- Applicability (to all relevant facilities and activities)
- Protection of CPI (commercial proprietary information)
- Protection of NSN (legitimate national security needs)
- Avoid negative impact (on scientific research, international cooperation and industrial development)
- Reliable
- Cost-effective
- Non-discriminatory
- Non-intrusive (as possible consistent with effective implementation)
- Non-abuse
- Promotion of Protocol universality
- Increased transparency
- Enhanced confidence in compliance
- Deter non-compliance

It will be recognised that some of these are closely related and can be combined under a single heading. Thus applicability and non-discriminatory are closely related and can usefully be considered together under "Applicability". Likewise the non-intrusive criteria is closely related to the protection of CPI and of NSN and the avoidance of negative impact and can be considered together under "Acceptability" which also embraces the potential burden of the measure.

10. This Briefing Paper evaluates the emerging Protocol regime against the following criteria:

- Applicability
- Acceptability
- Reliability
- Cost-effectiveness
- Potential for abuse
- Promotion of Protocol universality
- Increased transparency
- Enhanced confidence in compliance
- Deterrence of non-compliance

As it is widely accepted that of all the arms control regimes, the Chemical Weapons Convention (CWC) regime is that of the closest relevance to the emerging Protocol regime -- and both regimes include toxins -- hence the CWC regime is used as a comparative baseline

in this evaluation. The relevance of the CWC regime is first considered before addressing the nature of the two regimes and then evaluating them against the above criteria.

The Relevance of the CWC Regime

11. Although there is general acceptance that the CWC regime is that of closest relevance to the emerging BTWC Protocol regime, it has been suggested by some that the BTWC is *orders of magnitude more difficult to monitor than nuclear, chemical or conventional arms control accords*.⁴ However, biological weapons are most closely related to chemical weapons because both involve the attack primarily of human beings through the inhalation of material and consequently, the delivery means used for biological and chemical weapons are similar even though the quantities needed for a biological weapons attack is significantly smaller than for a chemical weapons attack. The view that there are orders of magnitude difference between the task facing those monitoring the strengthened BTWC Protocol and the CWC suggests that the dual-use problem in regard to biotechnology is different in kind from that in regard to chemical technology. More detailed analysis shows that this generalization is incorrect.⁵

12. In reality, the problem of verification of the BTWC is directly analogous to that of the CWC. Although the CWC does list chemicals in Schedules and links the strictness of monitoring to the Schedules, there are many chemicals that could be used as chemical weapons that are not listed on the Schedules⁶. This is particularly true if assumptions such as the need for stability and a reasonable storage life are dropped. The CWC⁷ in Article VI. 2 requires each State Party to *adopt the necessary measures to ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred or used within its territory or in any other place under its jurisdiction for purposes not prohibited under this Convention*. Only in regard to the chemicals listed in the schedules of the CWC Annex on Chemicals does the CWC go on to specify how this is to be implemented. As was pointed out in Briefing Paper No 11⁸, *it is left for individual States-Parties to decide what the necessary measures should be for the huge multitude of unscheduled chemicals (including toxins and other toxic biotechnological-process products) also subject to the Art VI.2 provision in accordance with what has come to be called its general purpose criterion*.

⁴Amy E. Smithson, *Tall Order: Crafting a meaningful Verification Protocol for the Biological Weapons Convention*, Politics and Life Sciences, March 1999, in press.

⁵Jonathan B. Tucker, *Verification Provisions of the Chemical Weapons Convention and their Relevance to the Biological Weapons Convention*, in *Biological Weapons Proliferation: Reasons for Concern, Course for Action*, ed. Amy E. Smithson, The Henry L. Stimson Center, Report No. 24, January 1998.

⁶Graham S. Pearson, *Chemical and Biological Defence: An Essential Security Requirement*, Proceedings 8th International Symposium on Protection Against Chemical and Biological Warfare Agents, Stockholm, Sweden, 11 - 16 June 1995, p. 14

⁷United Nations, *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, Corrected version in accordance with Depositary Notification C.N.246.1994.Treaties-5 and the corresponding Proces-Verbal of Rectification of the Original of the Convention, issued on 8 April 1994. Available at <http://www.opcw.nl/cwc/cwc-eng.htm>

⁸J P Perry Robinson, *The CWC Verification Regime: Implications for the Biotechnological & Pharmaceutical Industry*, Briefing Paper No. 11, University of Bradford, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

13. As the CWC Annex on Chemicals⁹ states in the first paragraph of Section B *For the purpose of implementing this Convention, these Schedules identify chemicals for the application of verification measures according to the provisions of the Verification Annex. Pursuant to Article II, subparagraph 1 (a), these Schedules do not constitute a definition of chemical weapons.* [Emphasis added]. It is thus clear that the lists of chemicals in the CWC Schedules are not, and cannot be, comprehensive lists -- and the parallel will be equally true of any lists of biological agents and toxins in the emerging BTWC Protocol. It has therefore to be appreciated that in **both** the CWC and the BTWC Protocol regimes, other toxic or infectious materials, produced in a facility that is not within the scope of the required declarations, may be utilized in a breach of the regime. Verification, confidence and trust does **not** come about in the CWC regime because all relevant items are monitored -- and **the same will be the case under the BTWC Protocol regime.**

The CWC Regime

14. The CWC regime includes provisions for the declaration and destruction of both chemical weapons and chemical weapons production facilities as well as for the data monitoring and verification of activities not prohibited under the CWC.

15. The central elements of the CWC¹⁰ are:

- Declarations of chemical weapons, of chemical weapons production facilities (Art III)
- Activities not prohibited under this Convention (Art VI)
- Systematic verification through data monitoring and on-site inspection (Verification Annex)
- Consultations, Cooperation and Fact-Finding (Art IX)
 - includes Procedure for requesting clarification
 - Procedures for challenge inspections
- Annual information on national programmes related to protective purposes (Art X)
- Economic and Technological Development (Art XI)

together with the Organization for the Prohibition of Chemical Weapons (OPCW) to implement the CWC. For the purposes of this Briefing Paper, attention is concentrated on the provisions for the data-monitoring and verification of activities not prohibited under the CWC and the provisions for the declaration and destruction of chemical weapons and chemical weapon production facilities are ignored as there is no comparable requirement in the BTWC Protocol. It should, however, be noted that the implementation of CWC Article XI *Economic and Technological Development* has been thus far fairly modest and the provisions being considered for the BTWC Protocol Article VII are much broader.¹¹ Each of the central elements is considered in turn.

⁹United Nations, *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, Corrected version in accordance with Depositary Notification C.N.246.1994.Treaties-5 and the corresponding Procès-Verbal of Rectification of the Original of the Convention, issued on 8 April 1994. Available at <http://www.opcw.nl/cwc/cwc-eng.htm>

¹⁰United Nations, *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, Corrected version in accordance with Depositary Notification C.N.246.1994.Treaties-5 and the corresponding Procès-Verbal of Rectification of the Original of the Convention, issued on 8 April 1994. Available at <http://www.opcw.nl/cwc/cwc-eng.htm>

¹¹Measures in CWC Article XI and the BTWC Protocol Article VII are compared in Graham S. Pearson, *Article VII Measures: Optimizing the Benefits*, Briefing Paper No. 22, University of Bradford, July 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

Activities not prohibited under this Convention (Art VI)

16. Article VI sets out the right that States Parties have, *subject to the provisions of this Convention, to develop, produce, otherwise acquire, retain, transfer or use toxic chemicals for purposes not prohibited under this Convention.* It requires that:

2. *Each State Party shall adopt the necessary measures to ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred, or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention. To this end, and in order to verify that activities are in accordance with obligations under this Convention, each State Party shall subject toxic chemicals and their precursors listed in Schedules 1, 2 and 3 of the Annex on Chemicals, facilities related to such chemicals, and other facilities as specified in the Verification Annex, that are located on its territory or in any other place under its jurisdiction or control, to verification measures as provided in the Verification Annex.*

Only in regard to the chemicals listed in the schedules of the CWC Annex on Chemicals does the CWC go on to specify how this is to be implemented. As was pointed out in Briefing Paper No 11¹², *it is left for individual States-Parties to decide what the necessary measures should be for the huge multitude of unscheduled chemicals (including toxins and other toxic biotechnological-process products) also subject to the Art VI.2 provision in accordance with what has come to be called its general purpose criterion*.

17. It is thus evident that, although the General Purpose Criterion in Article I of the Convention is all-embracing in that:

Each State Party to this Convention undertakes never under any circumstances:

(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;

and chemical weapons are defined in Article II as

1. *"Chemical Weapons" means the following, together or separately:*

(a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;

it is made clear in the Annex on Chemicals in the first paragraph of Section B *For the purpose of implementing this Convention, these Schedules identify chemicals for the application of verification measures according to the provisions of the Verification Annex. Pursuant to Article II, subparagraph 1 (a), these Schedules **do not constitute a definition of chemical weapons.** [Emphasis added].*

¹²J P Perry Robinson, *The CWC Verification Regime: Implications for the Biotechnological & Pharmaceutical Industry*, Briefing Paper No. 11, University of Bradford, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

18. Consequently, the CWC regime in Article VI is focussed on the declaration of relevant industrial data rather than chemical weapons data. The principal features of this regime were summarised in Briefing Paper No 11¹³ in the following table:

Table 1. The chemical control regimes under the CWC

<i>Elements of control regime</i>	<i>For Schedule 1 chemicals</i>	<i>For Schedule 2 chemicals</i>	<i>For Schedule 3 chemicals</i>	<i>For unscheduled discrete organic chemicals</i>
<i>Production limit</i>	No more than 1000 kg of all types may be held by a state-party	None specified, but all production must be for, and in quantities consistent with, purposes not prohibited under the Convention		
<i>Data reporting (initial and annual)</i>	Yes: detailed information on production, use, import and export	Yes: for each one, aggregate national data on production, use, import and export	Yes: for each one, aggregate national data on production, import and export	No, except for plant specific data (as with the scheduled chemicals)
<i>Inspection of facilities producing more than threshold quantities</i>	Yes: highly stringent and augmented with instrumented monitoring	Yes	Yes: less stringent	Not until EIF+3 yrs, if then approved by the Conference of the States Parties
<i>Export control</i>	Exports permitted only to states parties, with advance notification of OPCW	End-use certification required until EIF+3 yrs, after which exports permitted only to states parties	End-use certification required; and possibility of other measures after EIF+ 5 yrs	None specified

19. Briefing Paper No 11 then goes on to address the mandatory declarations, routine inspections and challenge inspection provisions of the CWC which together comprise the

¹³J P Perry Robinson, *The CWC Verification Regime: Implications for the Biotechnological & Pharmaceutical Industry*, Briefing Paper No. 11, University of Bradford, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

central elements of the ongoing monitoring and verification regime. These are summarised here for ease of reference reproducing material and language from Briefing Paper No 11¹⁴.

20. Mandatory Declarations. For purposes of the Article VI declarations, the CWC Annex on Chemicals sets out three schedules, which together list 43 species or families of chemical: 12 in Schedule 1 (including saxitoxin and ricin, as well as blister and nerve gases and intermediates thereof), 14 in Schedule 2, and 17 in Schedule 3 (including hydrogen cyanide, which as a toxic agent of biological origin is a toxin within the meaning of the Biological Weapons Convention). Of the 43, 27 are precursors and 16 are toxicants. Each of the chemicals has been scheduled because it is deemed to pose a risk to the object and purpose of the Convention, the chemicals in Schedule 1 a *high* risk, and those in Schedule 2 a *significant* risk. The scheduling also reflects the degree of industrial application of the listed chemicals, those in Schedule 3 being ones *produced in large commercial quantities* and those in Schedule 1 *having little or no use for purposes not prohibited under this Convention*. The three schedules are in fact negotiated lists, though criteria for adding new chemicals to them, or removing existing ones, are also specified in the Annex on Chemicals. Two categories of declaration are triggered by each schedule, one having to do with the chemicals *per se*, the other with facilities associated with them. The amount of detail required is greatest for Schedule 1 and smallest for Schedule 3, this reflecting the differing stringency of the control regime associated with each schedule. The facilities to be declared are ones in which more than threshold quantities of the chemicals are produced or, for chemicals on Schedules 1 and 2, processed or consumed. The facility declarations also extend, with certain exemptions, to plant sites where *unscheduled discrete organic chemicals* are *produced by synthesis* in more than threshold quantities. Annual declarations are made in two broad types, one reporting data for the previous year, the other reporting anticipated data for the year ahead. A summary of all these declaration requirements is given in Table 2.

Table 2. Chemical industry declarations required of CWC States-Parties

<i>CWC element</i>	<i>Information to be declared by each State Party</i>	<i>Deadline</i>
VerAx VII.9-10 VerAx VIII.9-10	Each plant site where there is plant that has produced Schedule 2 or 3 chemicals for chemical- weapons purposes at any time since 1 January 1946	By entry into force (EIF) + 30 days
VerAx VI.17-20	Location and details of all facilities approved for production of more than 0.1 kg/yr of Schedule 1 chemicals for research, medical or pharmaceutical purposes. Annual declarations also required: of prior-year production, consumption, storage and transfer, and of projected next-year production.	By EIF + 30 days By year-end + 90 d & year-start - 90 d

¹⁴J P Perry Robinson, *The CWC Verification Regime: Implications for the Biotechnological & Pharmaceutical Industry*, Briefing Paper No. 11, University of Bradford, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

<i>CWC element</i>	<i>Information to be declared by each State Party</i>	<i>Deadline</i>
VerAx VII.1-2	Aggregate national data on the production, processing, consumption, import and export of Schedule 2 chemicals, for each such chemical during the previous calendar year. Declaration to be repeated annually.	By EIF + 30 days By year-end + 90 d
VerAx VIII.1-2	Aggregate national data on the production, import and export of Schedule 3 chemicals, for each such chemical Declaration to be repeated annually.	By EIF + 30 days By year-end + 90 d
VerAx VII.3-8	Each plant site where Schedule 2 chemicals have recently been, or will next year be, produced, processed or consumed in amounts exceeding 1 ton/yr (or less for three of the chemicals: see Table 3), with details. Annual declarations also required, both of prior-year and of projected next-year activities.	By EIF + 30 days By year-end + 90 d & year-start - 60 d
VerAx VIII.3-8	Each plant site where Schedule 3 chemicals have been or will be produced in amounts exceeding 30 ton/yr, with details. Annual declarations also required, both of prior-year and of projected next-year activities.	By EIF + 30 days By year-end + 90 d & year-start - 60 d
VerAx IX.1-6	For unscheduled discrete organic chemicals, each plant site where more than 200 tons were synthesized during the previous year, unless the chemicals contain P, S or F, in which case the threshold is 30 tons, or unless the chemicals are exclusively explosives or hydrocarbons. The list of sites is to be updated annually.	By EIF + 30 days By yr-start + 90 d

21. **Routine Inspections.** If the annual quantity of scheduled chemical processed, consumed and/or produced in a declared facility exceeds a specified threshold, the facility becomes liable to routine inspection by the OPCW Technical Secretariat. It is not obvious, in

retrospect, that this simple quantitative method for triggering the international inspectorate into action within civil industry is really the best way of ensuring that all industrial 'dual use' facilities that are especially vulnerable to abuse are brought within the ambit of routine inspection. As set out in the treaty, the trigger is clearly a compromise. The key thing about it is that it is the outcome of international negotiation in which senior representatives of chemical industry, as well as diplomats and chemical-weapons experts, were involved throughout. Important for industry representatives was the willingness of the diplomats first to write into the treaty stringent provisions for safeguarding confidential proprietary information, secondly to accept that the number of routine inspections a State-Party would be required to receive at declared industrial facilities each year would be rather tightly limited, and thirdly to accept that each and every routine inspection could be governed by a *facility agreement* that had been negotiated bilaterally between the OPCW Technical Secretariat and the State-Party concerned. These facility agreements limit access by OPCW inspectors **solely** to those particular areas of a plant site that had been declared as producing, or otherwise handling, a scheduled chemical; the facility agreements **preclude** access to other areas. Within those parameters, the intrusiveness of routine inspection varies from schedule to schedule. A summary of the facility control regime is given in Table 3 -- in which CWSF is the abbreviation for Chemical Weapons Storage Facility, CWPF for Chemical Weapons Production Facility, CWDF for Chemical Weapons Destruction Facility, and UDOC for Unscheduled Discrete Organic Chemicals. The key points to note are that routine industry inspections under the CWC are carried out relatively infrequently (perhaps once every three years at a particular facility), and that they are tightly circumscribed inspections that are confined to declared areas of plant sites.

Table 3. The Facility Control Regimes under the CWC

<i>Facility type</i>	<i>Number of inspectable facilities anticipated by OPCW PrepCom</i>	<i>Routine inspection regime</i>							
		<i>Facility agreement</i>	<i>Annual production threshold</i>		<i>Continuous monitoring</i>	<i>Notice of inspection</i>	<i>Duration of inspection</i>	<i>Access during inspection</i>	<i>Frequency of inspection</i>
			<i>for reporting</i>	<i>for inspection</i>					
CWSF	33 (and 40 for OACW)	Mandatory	[not applicable]	On-site instruments	initial: 72 hrs other: 48 hrs	As agreed	Automatic to declared facilities	Not specified in the CWC	
CWPF	43	Mandatory	[not applicable]	On-site instruments	initial: 72 hrs other: 24 hrs	As agreed	Automatic to declared CW	Upto 4 per year	
CWDF	4	Mandatory	[not applicable]	On-site instruments and inspectors		As agreed	Automatic to all parts of declared facilities	Not specified in the CWC	

Schedule 1 facilities	<i>ca 75</i>	Mandatory	0.01 kg	0.01 kg	On-site instruments	As agreed	Automatic to declared facilities	Not specified in the CWC
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Schedule 2 facilities	More than 300	Mandatory unless waived by both sides	BZ: 10 kg amiton: 1 t PFIB: 1 t Others: 10 t	No	48 hrs	96 hrs	Automatic to plant site and to specified areas within declared plants; beyond that, as agreed	Upto 2 per year per plant site
Schedule 3 facilities	ca 400	Optional	30 t	200 t	No	120 hrs	24 hrs	Upto 2 per year per plant site, with limit on combined total
UDOC facilities	More than 5000	Optional	PSF: 30 t Others: 200t	200 t	No	120 hrs	24 hrs	Automatic to plant site; managed, to declared plants

22. **Challenge Inspections.** Routine inspections are not meant to discourage production of chemical weapons or other illicit activities in undeclared facilities, nor can they be expected to deter abuse of declared facilities, such as could conceivably happen if cheaters were to find ways of evading the procedures prescribed for the routine verification regime. Moreover, routine inspections do not allow States Parties much opportunity to demonstrate that particular facilities within their jurisdiction are not being abused. The challenge inspection provisions of the CWC are intended to serve the first two of these functions. They could also contribute to the third. A State-Party wishing to dispel doubts or allegations concerning its own compliance may, under CWC Art IX.5, seek the assistance of the Executive Council to clarify the situation. It is up to the Council to decide what to do, but among its options will be that of organizing a special inspection by the Technical Secretariat. No challenge inspections have yet been conducted under the CWC. A number of States-Parties have, however, invited the participation of the OPCW Technical Secretariat in practice challenge inspections.

23. Challenge inspection represents the CWC verification regime at its most intrusive. Like the civil-industry controls, it is a precedent-setting feature of the treaty. Walter Krutzsch and Ralf Trapp¹⁵ describe how, in the intrusiveness of challenge inspection and in the essentially unlimited range of sites at which it may be applied, it far surpasses such procedures as the 'unannounced inspections' of the IAEA safeguards system, the CSCE inspections, the 'short notice inspections' of the INF treaty and the 'inspections on suspicion' of the CFE treaty. In the limitations placed by the Convention on challenge inspection are to be seen the most delicate of the compromises reached by the original negotiators: a balance between, on the one hand, the effectiveness of the central deterrent against cheating and, on the other hand, the security of information unrelated to the Convention which, for one reason or another, States Parties wish to keep secret. For the BTWC Protocol regime, the key must surely lie, as it did with the CWC, in the degree to which the routine and the challenge on-site inspection regime can be made to support one another, thereby enhancing their overall deterrent effect.

The overall CWC Regime

24. It is becoming evident that the overall CWC regime is being successfully implemented.¹⁶ One of the significant benefits that has arisen has been because States Parties have made declarations and the key parts of each State Party's declarations are available to all other States Parties. The Deputy Director-General of the OPCW has noted¹⁷ that *this has been a considerable confidence-building measure because it has ...enabled states-parties to see what other states -parties have declared, and, if necessary, to seek clarification. This process has answered a lot of questions that were out there prior to entry into force. Frankly, prior to entry into force, before states-parties made their declarations, all that other countries had to go on were press reports and intelligence estimates and so forth. The whole process of having declarations available to other states-parties has been a great success and a very*

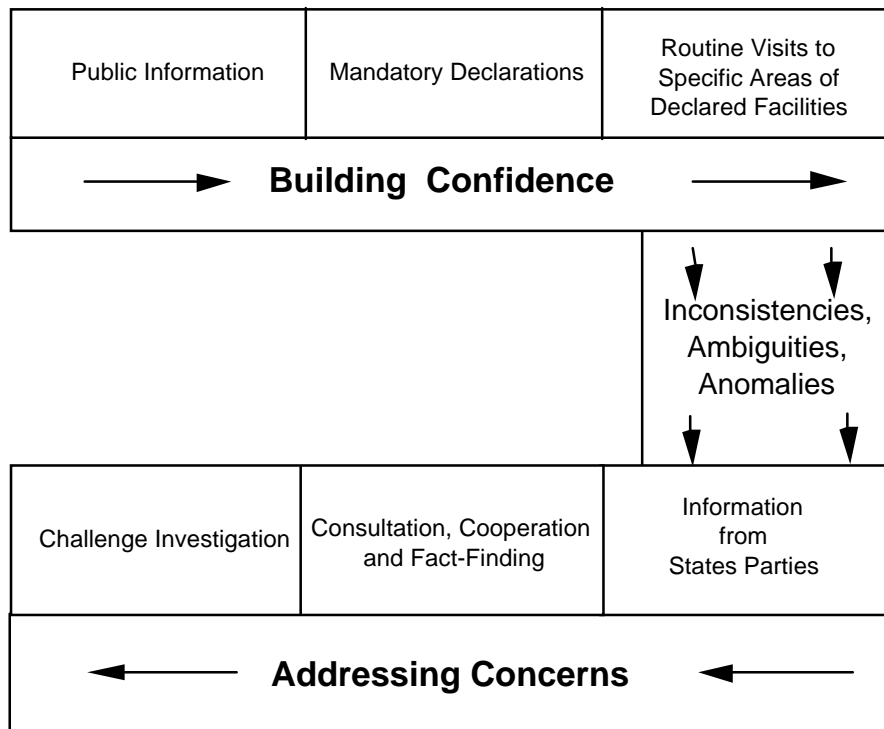
¹⁵Walter Krutzsch and Ralf Trapp, *A Commentary on the Chemical Weapons Convention*, Nijhoff, 1994, pp.175-76

¹⁶See Organisation for the Prohibition of Chemical Weapons, *Report of the Organisation on the Implementation of the Convention (29 April - 31 December 1997)*, Conference of States Parties, Third Session, 16 - 20 November 1998, C-III/3, 20 November 1998, and Organisation for the Prohibition of Chemical Weapons, *Report of the Organisation on the Implementation of the Convention (1 January - 31 December 1998)*, Conference of States Parties, Fourth Session, 28 June - 2 July 1999, C-IV/5, 2 July 1999.

¹⁷Arms Control Today, *The CWC at the Two-Year Mark: An Interview with Dr. John Gee*, April/May 1999, pp. 3 - 9.

substantial confidence-building measure. The follow-up to declarations is thus a significant component of the regime.

The overall CWC regime can be summarised schematically as follows:



The BTWC Protocol Regime

25. The central elements of the emerging Protocol regime¹⁸ are:

- Declarations of relevant programmes and facilities
- Follow-up after submission of declarations
 - including randomly-selected/transparency visits
 - declaration clarification procedures
 - voluntary visits
- Measures to ensure submission of declarations
- Consultation, Clarification and Cooperation
- Investigations, both Field and Facility
- Article VII measures to promote technical cooperation

together with an Organization to implement the Protocol. In addition, there are various other provisions which will all contribute to the strengthening of the Convention and the effective implementation of the Protocol. However, for the purposes of this Briefing Paper attention is focussed on the central elements and their evaluation against the criteria identified above.

26. Each of the central elements is considered in turn.

¹⁸United Nations, *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/46, 30 July 1999, Geneva.

Declarations of relevant programmes and facilities

27. The current Protocol has provisions in *Article III. D. Declarations. I Submission of Declarations* for the following:

Initial Declarations

[(A) Past Offensive and/or Defensive [Programmes][Activities]

[(B) National Legislation and Regulations

Annual Declarations

[(C) Current Defensive [Programmes][Activities]

(D) Vaccine Production Facilities

(E) [Maximum Biological Containment][BL-4][Laboratories][Facilities]

(F) [High Biological Containment][BL-3][Laboratories][Facilities]

[(G) Work with Listed Agents and/or Toxins]

[(H) Other Production Facilities]

[(I) Other Facilities]

[(J) Transfers

[(K) Declarations on the Implementation of Article X of the Convention

[Notifications]

[(L) Outbreaks of Disease]

28. It should be recalled that the architecture of the declaration requirements is designed to ensure that the **most** relevant facilities are declared and **not** all possible facilities. A number of surveys of national microbiological activities have been reported to the AHG. The results for Canada¹⁹, the Netherlands²⁰, United Kingdom²¹, Italy²² and the five Nordic Countries²³ can be summarised as follows:

Trigger used	Canada	Netherlands	UK	Italy	Nordic
Military biodefence	Yes	Yes	-	Yes	Yes

¹⁹Canada, *Discussion Paper on Declarations: List of Agents and Combinations of Criteria*, BWC/AD HOC GROUP/WP. 6, 28 November 1995.

²⁰The Netherlands, *The Relevance and Effectiveness of (Combinations of) Criteria for Declaration*, BWC/AD HOC GROUP/WP.10, 28 November 1995.

²¹United Kingdom, *Survey of Microbiological Facilities in the UK*, BWC/AD HOC GROUP/WP. 81, 23 July 1996.

²²Italy, *National Survey in the Microbiological Activities*, BWC/AD HOC GROUP/WP. 146, 18 March 1997.

²³Denmark, Finland, Iceland, Norway and Sweden, *Results of a Facility Declaration Trial in the Five Nordic Countries*, BWC/AD HOC GROUP/WP. 173, 18 July 1997.

Biocontainment	+ other	BL 4	+ other	BL 4	+ other
Listed agents	Not alone	Not alone	Not alone	+ other	Yes
Genetic modification	Not alone	Not alone	Not alone	Not alone	Yes
Production microbiology	Yes	+ listed agents + biocontain	Not alone	+ listed agents	+ other
Aerobiology	+ other	+ listed agents + biocontain	-	+ listed agents	+ other

Most of the surveys give an indication of the number of facilities which would need to be declared if certain triggers, or combinations of triggers, were to be used to capture those facilities of most relevance to the Convention. In these surveys, the triggers or combinations used generally included military biodefence and BL 4 containment as stand alone triggers and production microbiology in combination with work on listed agents as one of several combined triggers. The numbers to be declared if triggers such as these were to be used can be summarised as:

	Canada	Netherlands	UK	Italy	Nordic
Number of facilities to be declared	30 to 50	[Tens]	-	40	50

29. The broad conclusion that emerges is that the number of facilities in each country that would need to be declared under triggers chosen to capture those facilities of most relevance to the Convention would be relatively limited with numbers of the order of 10s in each country. It is recalled that the Austrian/UK contribution²⁴ to the EU seminar for the pharmaceutical industry on 13 May 1998 said that *"the number of facilities in individual EU countries that would need to be declared can probably measured in tens rather than hundreds."* It is clear that numbers in the 10s are being considered for most European countries.

30. It is also clear that no commercial proprietary information will be required for declarations. As was pointed out in Briefing Paper No 18²⁵, it is also apparent from the footnote to the title of *Appendix D Information to be provided in declarations of other facilities* in the July 1998 draft Protocol²⁶ that neither commercial proprietary information or national security information will be required in declarations as the footnote states:

Declared information will be passed to all States Parties to the Protocol. Accordingly, the design of the declaration formats is intended to avoid reference to confidential proprietary information or national security information...

²⁴Austria and the United Kingdom, *Industry and Declarations*, UK Presidency and the European Commission: The BWC and the Pharmaceutical Industry, 13 May 1998.

²⁵Graham S Pearson, *Visits: An Essential Portfolio*, Briefing Paper No. 20, University of Bradford, April 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

²⁶United Nations, *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/41, 16 July 1998, Geneva.

This exclusion of commercially sensitive information was also stated in the Austrian/UK contribution²⁷ to the EU seminar for the pharmaceutical industry on 13 May 1998 which said that "*All are agreed that the forms should be simple and straightforward and should not seek any information which would be considered commercially sensitive.*" Although the Declaration Appendices have been modified and the footnote no longer appears in the current draft Protocol, it is clear from the formats in the current draft, which are broadly similar to those in the earlier draft which bore the footnote, that the intention to avoid reference to commercial proprietary information or national security information remains.

Follow-up after Submission of Declarations

30. Briefing Paper No. 20²⁸ addressed the whole question of how to ensure that declarations were indeed accurate and complete and concluded that there was a need for a portfolio of visits, all of which are **non-confrontational** and **non-accusatory**, comprising basically three types:

- a. Transparency (randomly-selected) visits
- b. Declaration clarification visits
- c. Voluntary visits -- which fall into several categories:
 - (i) assistance in compiling individual facility and national declarations
 - (ii) resolve any ambiguities related to declarations
 - (iii) further the cooperation and assistance provisions of the Protocol
 - (iv) to resolve a particular concern

Briefing Paper No 20 noted that the requirement for most of these apart from transparency visits can be expected to decrease over time. The Protocol needs to accommodate a flexible portfolio which should realistically accommodate about 100 visits a year based on probable size of BTWCO.

31. The current draft Protocol in II. *Follow-Up after Submission of Declarations* includes provision for the following three types of activity:

- (A) Randomly-Selected/Transparency Visits
- (B) Declaration Clarification Procedures and Voluntary Visit
- (C) Voluntary Visits

which can be briefly summarized as:

²⁷Austria and the United Kingdom, *Industry and Declarations*, UK Presidency and the European Commission: The BWC and the Pharmaceutical Industry, 13 May 1998, Brussels.

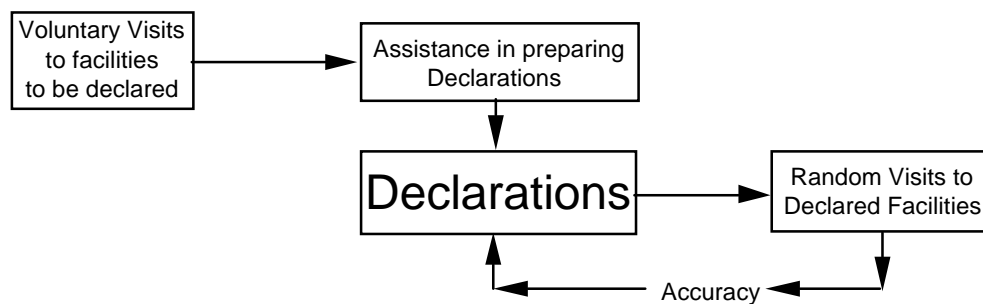
²⁸Graham S Pearson & Malcolm R. Dando, *Visits: An Essential and Effective Pillar*, Briefing Paper No. 18, University of Bradford, January 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

(A) Randomly-Selected/ Transparency Visits	(B) Declaration Clarification Procedures and Voluntary Visit	(C) Voluntary Visits
Confirm declarations consistent with obligations	Consultations (written exchange of information or consultative meeting) followed, if necessary , by visit	a. Obtain advice on declaration obligations b. Obtain technical assistance c. Resolve an ambiguity... d. Resolve a specific concern
No more than [20][50][60][100] per year		Mandate agreed between DG and SP for a. and b. visits
Divided between each category in proportion to the total number in each category		
No more than 2 per State per year		
Fairly distributed among regional groups		
No facility subject to more than two such visits		
Not more than 4 in visit team	Not more than [4][5] in team	
Up to 2 days duration	Up to 48 hours duration	
May be extended to provide technical assistance & advice	May be extended by agreement	

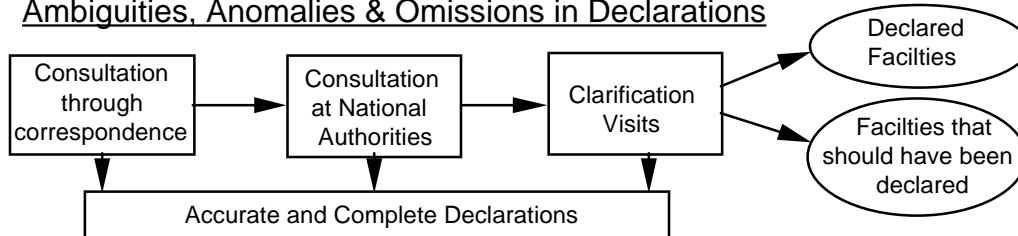
32. The overall inter-relationship of declarations and visits can be shown schematically:

DECLARATIONS & VISITS

Accurate Declarations



Ambiguities, Anomalies & Omissions in Declarations



Measures to Ensure Submission of Declarations

33. These are provisions which first appeared in the draft Protocol in July 1999 and reflect the difficulties that the CWC has encountered in receiving declarations that were complete or on time. The report²⁹ on the implementation of the CWC for the year 1 January to 31 December 1998 noted that *thirty-five of 121 States Parties had still not submitted initial declarations by 31 December* [1998]. A tabulation shows how many of the 121 States Parties had made initial declarations and other obligatory notifications:

Initial declaration or obligatory notification	Received by 31 December 1998 from States Parties
Initial declaration	86
National Authority	85
Point of entry for inspection teams	65
Standing diplomatic clearance number	53
Implementing legislation	40

Detailed information by State Party is provided in Annex 4 of the OPCW report.

34. The provisions in the Protocol require the Director-General as soon as possible after the deadline for the submission of initial or annual declarations has passed to issue a written request to States Parties which have not submitted all their declarations and that the Director-General shall report to each session of the Conference of States Parties on the implementation of the declaration obligations. In addition, currently within square brackets, should a State Party not submit its initial or annual declarations within the [6] month period following the relevant deadline, then one or more of the following measures may be applied:

- (a) *The State Party shall have no vote in the Conference of States Parties;*
- (b) *The State Party shall not be eligible for election as a member of the Executive Council or, if already a member of the Executive Council, shall be suspended from membership of the Executive Council;*
- (c) *The State party may not invoke the declaration clarification procedure...or a facility investigation;*
- (d) *The State party may not request the Technical [Secretariat][Body] for technical assistance under Article VII other than assistance in the preparation of declarations;*
- (e) *The State party may not have access to the declarations of other States Parties;*
- (f) *The State Party may not invoke those provisions on consultation, clarification and cooperation...;*

Consultation, Clarification and Cooperation

²⁹Organisation for the Prohibition of Chemical Weapons, *Report of the Organisation on the Implementation of the Convention (1 January - 31 December 1998)*, Conference of States Parties, Fourth Session, 28 June - 2 July 1999, C-IV/5, 2 July 1999.

35. These are provisions to enable States Parties to consult and cooperate *on any matter which may be raised relating to the object and purpose of the Convention, or the implementation of the provisions of this Protocol and to clarify and resolve any matter which may cause concern about possible non-compliance with the [basic] obligations of this Protocol or the Convention.* It sets out a number of procedures for seeking clarification which States Parties may follow prior to the submission of any request for an investigation.

Investigations, both Field and Facility

36. The Protocol contains detailed procedures for the initiation and carrying out of investigations:

[(a) Investigations to be carried out in geographic areas where the [release of, or] exposure of humans, animals or plants to microbial or other agents and/or toxins has given rise to a concern about a possible [non-compliance under Article I of the Convention][use of biological weapons], hereinafter referred to as "Field investigations".]

(b) Investigations of alleged breaches of obligations under Article I of the Convention, to be conducted inside the perimeter of a particular facility(ies) at which there is a substantiated concern that it is involved in activities prohibited by Article I of the Convention, hereinafter referred to as "facility investigations".

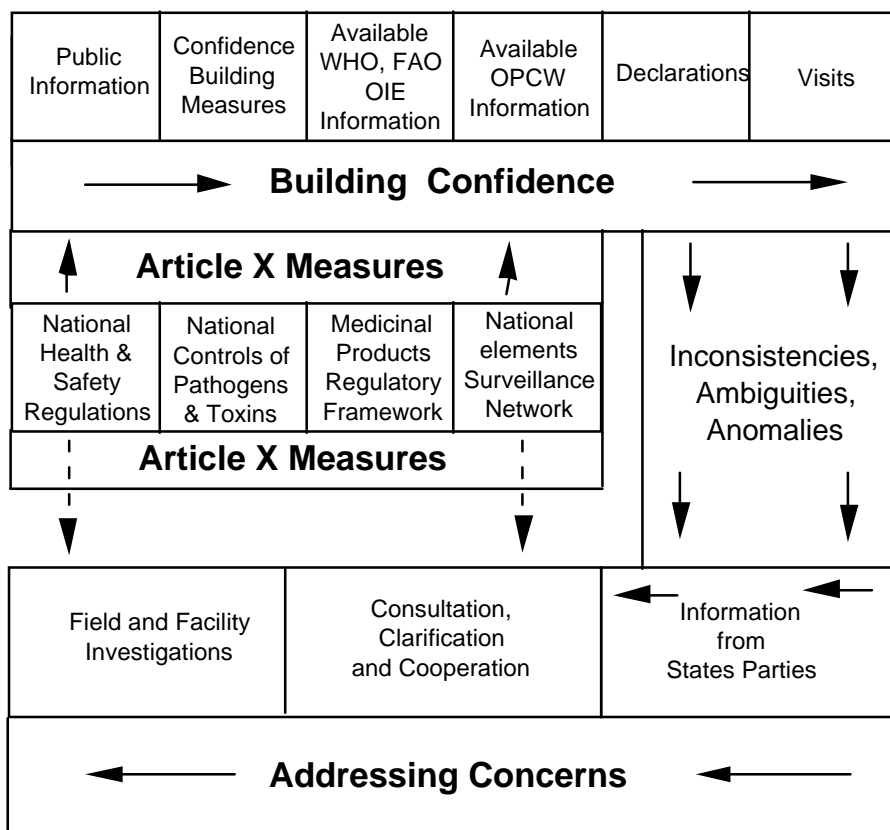
Article VII Measures to Promote Technical Cooperation

37. A number of measures are being elaborated in the Protocol with the aim of achieving the full and effective implementation of Article X of the Convention. Briefing Paper No 22³⁰ considered the extent to which such activities would be appropriate and well suited to the future BTWC Organization as well as the contributions that they would make to building confidence in compliance and to promoting universal accession to the Protocol. Briefing Paper No 22 concluded that *it is already clear from the existing text of Article VII that the Protocol has moved well beyond what is in the CWC and consequently that the Protocol should already contain elements that will help to promote its universality to all States.*

The Overall BTWC Protocol Regime

38. The overall regime can be shown schematically as follows in which the contribution that Article X measures can make to both increasing transparency and to building confidence as well as to providing information that can help to resolve inconsistencies, ambiguities and anomalies is included:

³⁰Graham S Pearson, *Article VII Measures: Optimizing the Benefits*, Briefing Paper No. 22, University of Bradford, July 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>



Comparative Evaluation

39. The CWC and the BTWC Protocol regimes can now be evaluated against the criteria:

- Increased transparency
- Enhanced confidence in compliance
- Applicability (to all relevant facilities and activities)
- Acceptability (burden, avoidance of negative impact, protection of CPI and national security needs)
- Reliability
- Cost-effectiveness
- Potential for abuse
- Promotion of universality
- Deterrence of non-compliance

This evaluation is made, first for the CWC regime and then for the BTWC Protocol regime, in the following tables. As an illustration of the evaluation process, mandatory declarations under the CWC are assessed as having provided increased transparency and have also enhanced confidence in compliance. Their applicability is, however, limited to those facilities that are required to be declared. Their acceptability is seen as moderate as some declarations are classified as containing CPI and a significant number of declarations are needed -- several hundred -- for a developed country in contrast to the 10s of declarations envisaged for the BTWC Protocol. Their reliability is assessed as poor as the OPCW experience has shown that a number of States Parties have been distinctly dilatory in submitting their declarations. The cost effectiveness is assessed as moderate because of the number of declarations and the need to ensure protection of the information within the

declarations. The potential for abuse is seen as moderate as the mandatory declarations for the OPCW *in isolation* have no elaborated declarations follow-up or declaration clarification procedures. Likewise the deterrence of non-compliance through declarations *in isolation* is seen as moderate. Finally the promotion of universality is seen as low primarily because of the burden associated with the large numbers of declarations and the detailed information required which has been judged as requiring protection.

40. The comparable evaluation for mandatory declarations in the BTWC Protocol regime is broadly similar. They also are assessed as providing increased transparency and to increasing confidence in compliance. Their applicability is likewise limited to those facilities which will require to be declared. Their acceptability is seen as high as no CPI will be required and their number is modest -- of the order of 10s in a developed country. Their reliability is assessed *in isolation* as poor, based on the BTWC CBM experience, to good as their reliability has the potential to increase both through the declaration follow-up procedures and through the measures to ensure that declarations are submitted. Their cost-effectiveness is seen as high as the numbers required are significantly less than for the CWC, no CPI is required and the burden is consequently significantly less although the benefit to the regime is high as the most relevant facilities will be declared. The potential for abuse is seen as moderate as the number of facilities requiring to be declared will be small -- tens of facilities per country -- and consequently other relevant facilities will not be declared. Likewise the deterrence of non-compliance through declarations *in isolation* is seen as moderate. Finally the promotion of universality is seen *in isolation* as low to moderate primarily because of the burden associated with the provision of declarations.

41. A similar process is applied to arrive at the other evaluations shown in Table 4.

Table 4: Overall Evaluation of CWC and of BTWC Protocol Regimes

CWC Regime Measure	Increased Transparency	Enhanced Confidence in Compliance	Applicability	Acceptability	Reliability	Cost-effectiveness	Potential for abuse	Deterrence of non-compliance	Promotion of Protocol universality
Mandatory declarations	Yes	Yes	To facilities to be declared	Moderate	Poor (OPCW experience)	Moderate	Moderate	Moderate	Low
Routine inspections	Limited increase - in particular areas	Limited improvement - in particular areas	To particular areas declared	High (Facility Agreement)	Good in particular areas	Moderate	Low	Good in particular areas	Low
Challenge inspections	Yes - in area inspected	Yes	Very broad	Yes	Moderate - depends on initiation	Good	Low*	High	Low

CWC Article XI Econo mic & Techno logical Develo pt	Low (few activities)	Low (few activities)	Poten tially broad	Yes	Low	Moder ate	Low	Low	Moderat e
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for * Potential for abuse is assessed as low because the initiation of a challenge inspection will be highly political and the provisions dealing with abuse are severe.

BTWC Protocol Regime Measure	Increased Transparency	Enhanced Confidence in Compliance	Applicability	Acceptability	Reliability	Cost-effectiveness	Potential for abuse	Deterrence of non-compliance	Promotion of Protocol universality
Mandatory declarations	Yes	Yes	To facilities to be declared	High (No CPI required)	Poor to Good (CBM experience)	High (better than CWC as fewer reqd)	Moderate	Moderate	Low to Moderate
Declaration follow-up procedures									
- randomly-selected visits	Increased	Increased	To facilities to be declared	High	High (improves quality of declarations)	High (infrequent visits)	Low	Good	Moderate (through technical assistance extensions)

- declarat ion clarific ation procedu res	Increased	Increased	Broa der (to facili ties that shoul d be decla red)	High	High (impro ves quality of declara tions)	High (Reduc es over time)	Low	Good	Moderat e (ensures equal obligati ons)
- volunta ry visits	Possible	Possible	Some	Yes	Low	Moder ate	Moderate	Low	Moderat e (for assistan ce)
Measur es to ensure submis sion of declarat ions	Increased	Increased	Yes	Yes	Depen ds on politic al will	High	Low	Good	Moderat e (ensures equal obligati ons)
Investig ations	Yes - in area inspected	Yes	Very broad	Yes	Moder ate - depend s on initiati on	Good	Low*	High	Low

Article VII Measures	Moderate (more activities)	Moderate (more activities)	Potentially broad	Yes	Low	Moderate	Low	Moderate	High (concrete measures)
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- Potential for abuse is assessed as low because the initiation of an investigation will be
- highly political and the provisions for dealing with abuse are severe.

Conclusions

42. As might be expected, there are indeed similarities and differences between the CWC and the BTWC Protocol regimes. Both the CWC and the BTWC Protocol regimes are addressing the dual-use nature of the technology and both are addressing prohibitions which are based on general purpose criteria -- in the BTWC Protocol regime this is the prohibition in Article I of the BTWC:

Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

*(1) Microbial or other biological agents, or toxins, whatever their origin or method of production, **of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;***

(2) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.

43. The CWC regime was finalised in the late 1980s whilst the BTWC Protocol regimes is currently being finalised -- and has benefitted from the experience gained by the OPCW and by States Parties in the implementation of the CWC as well as the other international developments during the past decade. Thus the BTWC Protocol regime has been tailored -- and rightly so -- to deal with the particular problems associated with compliance of the BTWC which includes the necessity to cope with a situation in which smaller quantities of agent and smaller facilities could be used in a non-compliant activity. However, the experience gained from compliance and verification regimes over the past decade has made it clear that one of the strongest tools in assessing compliance is the consistency of the information that becomes available from many sources. In a world in which more and more information is being provided on official as well as unofficial websites, it is becoming harder and harder to be confident that proscribed activities can be hidden in such a way that no inconsistencies are evident. In terms of the jigsaw analogy, there is no requirement to have all the pieces of the jigsaw to be confident of compliance **so long as all the pieces are clearly from the same picture.** It is for this reason that it is vital that the BTWC Protocol regime is a three pillar regime³¹ with declarations of which the completeness and accuracy are ensured through declaration follow-up procedures and declaration clarification procedures, infrequent visits as part of these declaration follow-up procedures as well as to implement Protocol Article VII measures, and both field and facility investigations.

44. The BTWC Protocol regime can thus be considered in the round and compared with the CWC regime. The Protocol declarations will be considerably less onerous than those for the CWC as only tens of facilities will need to be developed in a typical developed country such as those in Europe. No CPI information will be required yet the facilities to be declared will be selected to be those of particular relevance. The provisions for ensuring the submission of declarations have no parallel in the CWC regime and should be effective in ensuring that States Parties to the Protocol comply with their obligations. The declaration follow-up procedures with infrequent randomly-selected/transparency visits will ensure that declarations are accurate with the potential for extension of such visits to provide advice and technical

³¹Douglas J MacEachin, *Routine and Challenge: Two Pillars of Verification*, The CBW Conventions Bulletin, Issue No 39, March 1998, pp.1 - 3.

cooperation providing a useful bonus for States Parties. The declaration clarification procedures, ranging from written correspondence through a consultative meeting to, if necessary, a clarification visit, will ensure that declarations are complete and accurate. Both of these are developments from the CWC regime and should ensure that the Protocol regime is more reliable. Investigations are always going to be highly political in nature and consequently extremely rare events. They are, however, vital elements of the overall regime. The specific Protocol provisions for implementation of Article X of the BTWC go far beyond the comparable provisions in the CWC -- and will contribute both to the promotion of universality of the Protocol and to the increasing of transparency and the building of confidence in compliance.

45. All in all, the BTWC Protocol is being crafted so that it will achieve the requirement for an effective and reliable regime which, in accordance with the AHG mandate, will *strengthen the effectiveness and improve the implementation* of the BTWC and thereby strengthen the norm against biological weapons.