

# THE EMERGING PROTOCOL : A QUANTIFIED EVALUATION OF THE REGIME

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## Introduction

1. The Protocol to strengthen the Biological and Toxin Weapons Convention (BTWC) is developing and is fast approaching its final form<sup>1</sup>. Briefing Paper No 25<sup>2</sup> examined how well the emerging Protocol regime met the objectives set out in the mandate<sup>3</sup> for the Ad Hoc Group and compared the emerging regime and the Chemical Weapons Convention (CWC) regime, which entered into force on 29 April 1997, against an appropriate set of criteria.
2. That analysis concluded that the Protocol declarations will be considerably less onerous than those for the CWC as only tens of facilities will need to be declared in a typical developed country such as those in Europe. No commercial proprietary information (CPI) will be required in declarations 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 visits will ensure that declarations are complete and accurate with the potential for extension of such visits to provide advice and technical cooperation providing a useful bonus for States Parties. The declaration clarification procedures, commencing with 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.
3. It was concluded in Briefing paper No 25 that 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.
4. In this Briefing Paper, the analysis in Briefing Paper No 25 is developed further by examining how various aspects of the regime can be quantified. As before, the CWC regime

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<sup>1</sup>Graham 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>

<sup>2</sup>Graham S Pearson & Malcolm R Dando, *The Emerging Protocol: An Integrated Reliable and Effective Regime*, Briefing Paper No. 25, University of Bradford, September 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>3</sup>United 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.

is used for comparative purposes, as it is the regime that is of the closest relevance<sup>4</sup> to the emerging BTWC Protocol regime.

### **Approach to Quantification**

5. In considering the quantification of the BTWC Protocol regime, it is necessary to recap on the overall appreciation of the regime and the probable size of the future BTWC Organization to implement the Protocol. Detailed analyses<sup>5 6</sup> have led to the appreciation that the future BTWC Organization would have a strength of about 200 and thus be less than half the size of the Organization for the Prohibition of Chemical Weapons (OPCW). The BTWC Organization annual budget would be about \$30 M -- about half that of the OPCW.

6. Briefing Paper No 5 *An Optimum Organization*, issued in January 1998<sup>7</sup>, made a detailed analysis in Annex II (reproduced for ease of reference as an Annex to this Briefing Paper) of the posts and functions in the OPCW which had been reviewed from the point of view of assessing what was likely to be required for a lean and mean BTWC organization. Two key assumptions underpinned the analysis:

a. The numbers of visits and investigations made by the BTWC Organization would be about 30% of the 300 to be carried out by the CWC i.e. about 100 a year and hence the required number of staff to organise and carry out these visits and investigations would be about 30% of the 303 OPCW posts in 1998 for CWC verification and inspection.

b. The numbers of declarations to be made to the BTWC organization were assumed to be in the range from 1400 to 7000 (assuming 10 or 50 declarations per State Party) and thus comparable to the numbers made to the OPCW.

Any posts that were unlikely to have a direct analogue in the BTWC regime, such as the chemical demilitarization branch or specific CW related posts had been deleted, and the numbers of other posts reduced to reflect the reduced number of inspectors which, following a detailed analysis of the OPCW planned inspections for 1998, had been assessed as being about a third of those in the OPCW.

7. The outcome of that analysis gave the following broad indications for the number of posts needed for a future BTWC Organization:

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<sup>4</sup>Graham S Pearson & Malcolm R Dando, *The Emerging Protocol: An Integrated Reliable and Effective Regime*, Briefing Paper No. 25, University of Bradford, September 1999, pp. 4 - 5. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>5</sup>Graham S Pearson, *An Optimum Organization*, Briefing Paper No. 5, University of Bradford, January 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>6</sup>Federation of American Scientists Working Group on BW Verification, *The Structure and Cost of a BWC Organization*, September 1998. Available at <http://www.fas.org/bwc/papers/structure/paperwhole.html>

<sup>7</sup>Graham S Pearson, *An Optimum Organization*, Briefing Paper No. 5, University of Bradford, January 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

<b>Division</b>	<b>BTWC Organization</b>	<b>OPCW</b>
<b>Director-General</b> (Security, Health & Safety, Legal Adviser, Internal Oversight, Secretariat for Policy Making Organs)	42	85
<b>Administration</b> (Budget, Human Resources, Information Systems, Travel, Training)	32	77
<b>External Relations</b>	10	15
<b>International Cooperation &amp; Assistance</b>	10	11
<b>Compliance Monitoring</b> (Declarations, Information Processing, Validation, Evaluation and Confidentiality, Organization Laboratory)	44	66
<b>Visits &amp; Investigations (Number of inspectors)</b>	70	237
<b>OVERALL TOTAL</b>	208	491

In order to facilitate comparison with the OPCW, external relations and international cooperation were shown as separate divisions and the corresponding OPCW numbers in 1998 were included for comparison.

8. The two years since Briefing paper No 5 have seen a significant increase in the experience of the OPCW which has now been in existence for over two and a half years. Although the strength of the OPCW has increased by 16 from 491 to 507, the distribution of these posts<sup>8</sup> amongst the functions of the OPCW is similar to that used in the previous analysis. In addition, there have been a number of developments in the BTWC Protocol. It is consequently both timely and necessary to re-examine what implications the experience of the past couple of years have for the operation, strength and budget of the future Organization.

### **The CWC Regime**

9. The CWC entered into force on 29 April 1997. When Briefing Paper No 5 was distributed, the OPCW had had less than 9 months experience of implementing the CWC with its then 106 States Parties. Now, at the end of 1999, the number of States Parties has risen to 126 and the OPCW has had two and a half years experience in implementing the CWC. As might be expected, there have been developments in the CWC regime and earlier estimates can now be refined.

10. As in the previous analysis<sup>9</sup>, attention is focussed in this analysis on the OPCW inspection regime for activities **not prohibited** under Article VI of the CWC, ie the non-CW facilities: the regime for facilities related to Schedule 1 chemicals, Schedule 2 chemicals, Schedule 3 chemicals and unscheduled discrete organic chemicals (DOCs) and unscheduled DOCs containing the elements phosphorus, sulphur or fluorine (PSF). The CWC requirements for Schedule 2, Schedule 3 and DOC facilities require these to be declared if the quantities of chemicals exceed a specified threshold -- these are thus *declarable* facilities.

<sup>8</sup>Organization for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 2000*, Fourth Session, 28 June - 2 July 1999, C-II/DEC.23, 2 July 1999, p. 4.

<sup>9</sup>Graham S Pearson, *An Optimum Organization*, Briefing Paper No. 5, University of Bradford, January 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

The declared facility is subject to routine inspection if the quantities exceed a second, higher threshold -- these are thus *inspectable* facilities. The OPCW 1998 Annual Report<sup>10</sup> provides the following figures for 31 December 1998:

Data on 31 December 1998	Schedule 2	Schedule 3	DOC
<i>Declared</i> plant sites	297	395	3,506
<i>Inspectable</i> plant sites	119	329	3,314

The Annual Report notes that the number of declared plant sites remained below the numbers assumed for the 1998 OPCW Budget. The report states that "*Some States Parties believe that...outstanding and incomplete declarations could be identified as the main sources of considerable discrepancies between the assumed and actually declared figures.*" This appears likely as elsewhere in the Annual Report 1998 it is recorded that "*Thirty-five of 121 States Parties had still not submitted initial declarations by 31 December [1998].*" and it is widely known that the United States is one of the States Parties that has yet to make its initial declarations in respect of industrial chemical sites.

11. The CWC inspection requirements<sup>11</sup> can usefully be summarized together with the numbers of *inspectable* facilities:

Facility Type		Estimated <i>declarable</i> number (1998 Budget <sup>12</sup> )	Declared <i>inspectable</i> number (1998 Report <sup>13</sup> )	Assumed <i>inspectable</i> number (2000 Budget <sup>14</sup> )	Inspection duration	Number inspected per year per plant site	Number inspected per year per State Party
Schedule chemicals	1	40	24	35	As required	Not limited	Not limited
Schedule chemicals	2	400	119	178	96 hours*	2	Not limited
Schedule chemicals	3	500	329	429	24 hours*	2	3 + 5% sites ≤ 20
DOCs/PSFs		6 - 15,000	3,314	5,500	24 hours*	2	3 + 5% sites ≤ 20

\* As specified in the Convention. Extensions may be agreed between the inspection team and the inspected State Party.

The number of inspections per year per State Party for plant sites producing Schedule 3 chemicals or DOCs is a combined limit. The Convention states in respect of Schedule 3 plant sites that "*the combined number of inspections shall not exceed three plus 5 per cent of the total number of plant sites declared by a State Party under both this Part and Part VIII of*

<sup>10</sup>Organization for the Prohibition of Chemical Weapons, *Annual Report 1998*.

<sup>11</sup>United Nations, *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, Corrected version in accordance with Depository 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>

<sup>12</sup>Organisation for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 1998*, Second Session, 1 - 5 December 1997, C-II/6, 6 December 1997.

<sup>13</sup>Organization for the Prohibition of Chemical Weapons, *Annual Report 1998*.

<sup>14</sup>Organization for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 2000*, Fourth Session, 28 June - 2 July 1999, C-II/DEC.23, 2 July 1999.

*this Annex [the part relating to DOCs], or 20 inspections, whichever of these two figures is the lower."* Consequently, for a State Party with a combined total of Schedule 3 and DOCs plant sites of 20, the limit would be a total of  $3 + 5\%$  of  $20 = 4$  inspections. If it had a combined total of 100 such plant sites, the limit would be  $3 + 5\%$  of  $100 = 8$  inspections. It is noted that the combined ceiling of 20 visits for Schedule 3 and DOCs plant sites will only come into effect when the State Party has in excess of 340 Schedule 3 and DOC plant sites.

12. It needs to be emphasised that the CWC requirement is for the declaration of **plant sites** that comprise **one or more plants** which produced, processed or consumed Schedule 2 chemicals or produced Schedule 3 chemicals or DOCs. Consequently, a single plant site may have a number of plants within it. The routine inspections are to **plant sites**. The multiplicity of plants within plant sites is clearly illustrated by information published<sup>15</sup> by the United Kingdom National Authority:

Number of UK Declarations under the CWC		
CWC Category	Sites	Plants
Schedule 1	2	2
Schedule 2	9	9
Schedule 3	11	16
Discrete Organic Chemicals	132	550
<b>Total</b>	154	577

*Note:* A site classified under more than one category is counted only once

13. The numbers of inspections under Article VI *Activities Not Prohibited Under This Convention* planned<sup>16</sup> by the OPCW for 1999 and 2000 are as follows:

Facility/Plant Site	Expected number of inspections in 1999	Anticipated inspectable sites as of 31 Dec 1999	Planned number of inspections for 2000	Intensity* (%) in 2000
Schedule 1				
SSSF	7	7	7	100
Other	10	28	18	64
<b>Total Schedule 1</b>	<b>17</b>	<b>35</b>	<b>25</b>	<b>70</b>
Schedule 2				
Initial	49	57	57	100
Routine	3	121	10	8
<b>Total Schedule 2</b>	<b>52</b>	<b>178</b>	<b>67</b>	<b>38</b>
Schedule 3	7	429	34	8
DOC/PSF	0 †	5500	6	0.1
<b>Overall Total</b>	<b>76</b>	<b>--</b>	<b>132</b>	<b>--</b>

<sup>15</sup>Department of Trade and Industry, *1997 Annual Report on the Operation of the Chemical Weapons Act 1996 by the Secretary of State for Trade and Industry*, DTI, February 1998.

<sup>16</sup>Organization for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 2000*, Fourth Session, 28 June - 2 July 1999, C-II/DEC.23, 2 July 1999.

## Notes

\* Intensity is calculated by dividing the number of inspections by the number of inspectable sites and multiplying by 100.

†The Convention specifies that inspections of DOC/PSF plant sites shall start at the beginning of the fourth year after entry into force -- they therefore start in May 2000.

14. The different priorities assigned to Schedule 1, Schedule 2, Schedule 3 and DOC facilities reflect the different risks to the Convention. As was noted in Briefing Paper No 11<sup>17</sup>, for the 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.

15. The OPCW has understandably and rightly concentrated its efforts on the inspections relating to the declaration of chemical weapons, of CW production facilities and CW destruction facilities. The remaining effort has been used to carry out Article VI inspections with priority being given to Schedule 1 facilities, then to Schedule 2 facilities and then to Schedule 3 facilities. DOC facilities have the least priority as the Convention makes it clear that inspections will not start until the Convention has been in force for three years ie starting in May 2000.

16. The resources needed to carry out these inspections can be examined, first on the basis of the assumptions used for the 1998 OPCW Budget and then from the data for the actual inspections in 1998. The assumptions used for the 1998 OPCW Budget<sup>18</sup> were as follows:

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<sup>17</sup>J 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>

<sup>18</sup>Organisation for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 1998*, Second Session, 1 - 5 December 1997, C-II/6, 6 December 1997.

Plant site	Inspection team size	Time on site for inspection	Inspection cycle (initial planning to final report)	Inspection frequency
Schedule 1	3 - 4	48 hours	15 days average	0.5/year average
Schedule 2	5	96 hours*	17 days average	1 in 3 years average
Schedule 3	5	24 hours*	14 days average	Limited

\* As specified in the Convention. Extensions may be agreed between the inspection team and the inspected State Party.

17. The actual resources reported in the 1998 Annual Report are:

Type of Plant Site	Number of Inspections	Number of Plant Sites	Inspector-days*
Schedule 1	13	13	224
Schedule 2	68	68	2,329
Schedule 3	13	13	240

\* Inspector-days are the days spent by the inspector away from the OPCW i.e. the number of days from leaving the OPCW until arriving back at the OPCW.

The average number of inspector-days per inspection can then be calculated as:

Type of Plant Site	Average inspector-days per inspection	Days per inspector per inspection assuming 4 inspectors
Schedule 1	17.2	4.3
Schedule 2	34.2	8.5
Schedule 3	18.5	4.6

18. These figures correspond approximately to 4 inspectors travelling for a day, then spending 2, 4 or 2 days at a Schedule 1, 2 or 3 plant site respectively followed by a further day travelling back to the OPCW. In respect of routine inspections at Schedule 3 facilities, the actual duration at the site is about two days as the specified period of inspection of 24 hours begins after the pre-inspection briefing and, frequently, a site tour.

19. The budgeted inspections of Schedule 1, 2, 3 and DOCs have increased gradually over the last three years and according to the OPCW Mid Term Plan<sup>19</sup> are assumed to remain constant over the next few years at a total of 132 inspections (out of the total of some 300 inspections of all types conducted annually) although the number for Schedule 3 and DOCs will increase by 9 and 6 respectively in 2001 whilst the number of Schedule 2 inspections will decrease by 15:

<sup>19</sup>Organization for the Prohibition of Chemical Weapons, Conference of the States Parties, *Draft Medium-Term Plan 2000 - 2003*, Fourth Session, 28 June - 2 July 1999, C-IV/DEC/CRP.32, 2 July 1999. Annex 2 Background for Projections for Industry Related Inspections for 2000 - 2003.

Plant site	1998	1999 <sup>20</sup>	2000	2001
Schedule 1	30	17	25	25
Schedule 2	68	88	67	52
Schedule 3	4	7	34	43
DOC	--	--	6	12
<b>Total</b>	102	112	132	132

20. Using these numbers of inspections for 2001 and assuming that the numbers of *inspectable* facilities remain the same as for 31 December 1999, intensities can be calculated for 2001:

Plant site type	<i>Inspectable</i> facilities	Number of inspections	Intensity (%)
Schedule 1			
SSSF	7	7	100
Other	28	18	64
Total Schedule 1	35	25	70
Schedule 2	178	52	29
Schedule 3	429	43	10
DOCs	5500	12	0.22

The combined intensity for Schedule 3 and DOCs is about 0.9 % -- well below the limit figure of 5%.

21. The overall proportion of the OPCW inspection effort on Article VI related inspections can be deduced from the cost figures

Article VI Category	Total costs, 2000
Schedule 1	1.308 M NLG
Schedule 2	4.837 M NLG
Schedule 3	2.283 M NLG
DOCs	0.412 M NLG
Sub-total	8.84 M NLG

As a proportion of the total cost in 2000 of the inspection programme of 41.861M, this corresponds to about 21% very similar to the 22% calculated in Briefing Paper No 5 using the inspector-days figures in the OPCW 1998 Budget. As was argued in Briefing Paper No 5, the OPCW priority has to be given, and rightly so, to the chemical weapons related activities. When the chemical weapons have essentially been destroyed and chemical weapon production facilities also destroyed, the number of inspections of the Article VI related facilities can be expected to increase.

22. As in previous years, no specific provision is made for the carrying out of challenge inspections or inspections of alleged use as it is assumed that should such a requirement arise then the inspectorate resources would be redeployed as necessary to carry out such an activity. The past year has seen OPCW practice challenge inspections in the UK at a military

<sup>20</sup>Organisation for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 1999*, Third Session, 16-20 November 1998, C-III/DEC.16, 23 November 1997.



facility and of a mock challenge inspection in Brazil at a commercial plant site<sup>21</sup>. In addition, a comprehensive exercise to test the OPCW procedures for allegations of use and provision of technical assistance has been carried out in the Czech Republic. This involved an OPCW team of some 24 inspectors.

23. **Analysis.** The OPCW experience has shown that 132 inspections under Article VI *Activities Not Prohibited Under This Convention* of the CWC are carried out annually by the OPCW. The on-site durations are specified in the CWC for Schedule 2, Schedule 3 and DOC facilities as not exceeding 96 hours, 24 hours and 24 hours respectively. However, in practice the time at Schedule 3 sites is about two days. There is no duration limit for Schedule 1 facilities. These routine inspections are carried out at different frequencies which are highest for Schedule 1 facilities and least for DOC production facilities. Consequently, the intensity of inspection, calculated as the number of inspections divided by the number of inspectable sites, varies from 70% for 35 Schedule 1 facilities through 30% for 178 Schedule 2, 10% for 429 Schedule 3 to around 0.2% for 5500 DOC facilities.

24. The OPCW regime currently extends to over 6,100 *inspectable* facilities. The numbers of declarations are significantly higher as plants within a plant site have to be declared. The UK declaration is for 577 plants at 157 plant sites. It is recalled that the OPCW 1998 Annual Report that the OPCW Annual Report 1998<sup>22</sup> in its account of inspections carried out at Schedule 1, Schedule 2 and Schedule 3 facilities noted that the need for **amended** declarations was the main issue identified as requiring further attention.<sup>23</sup> It is also noted that the UK have also reported<sup>24</sup> that "The feedback from industrial sites...inspected by the OPCW in 1998 has highlighted the fact that their initial concerns about commercial confidentiality were unfounded." Finally, it is noted that there is a serious shortfall in the declarations by States Parties to the OPCW: the 1998 OPCW Annual Report noted that "*Thirty-five of 121 States Parties had still not submitted initial declarations by 31 December [1998].*" and the Director-General has commented<sup>25</sup> on the continuing absence of an industry declaration from the USA noting that "*this State party is the only major industrial country which has not yet made such a declaration...*"

### **The BTWC Protocol Regime**

25. The draft Protocol has been considerably elaborated over the past two years since Briefing Paper No 5 was prepared. It is appropriate to examine the current situation<sup>26</sup> in November 1999 regarding the emerging regime and consider the nature of the developments since October 1997.

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<sup>21</sup>Organization for the Prohibition of Chemical Weapons, *Statement by the Director-General of the OPCW*, United Nations General Assembly, First Committee, 19 October 1999. Available at <http://www.opcw.nl/dgspeech.htm>

<sup>22</sup>Organization for the Prohibition of Chemical Weapons, *OPCW Annual Report 1998*.

<sup>23</sup>Graham S. Pearson, *Visits: The Emerging Portfolio*, Briefing Paper No. 26, University of Bradford, November 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>24</sup>Department of Trade and Industry, *1998 Annual Report on the Operation of the Chemical Weapons Act 1996 by the Secretary of State for Trade and Industry*, DTI Pub 3981, April 1999.

<sup>25</sup>Organization for the Prohibition of Chemical Weapons, *Statement by the Director-General of the OPCW*, United Nations General Assembly, First Committee, 19 October 1999. Available at <http://www.opcw.nl/dgspeech.htm>

<sup>26</sup>United 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/47 (Part I), 15 October 1999, Geneva.

26. The draft Protocol of October 1997<sup>27</sup> -- some 240 pages -- contained all the basic concepts that have subsequently been developed and elaborated by the Ad Hoc Group. There is now much more detail in the latest version of the Protocol<sup>28</sup> and in many Articles the numbers of square brackets has reduced significantly. One such Article is Article IX *The Organization* which now contains provisions for:

- A. *General Provisions*
- B. *The Conference of The States Parties*
- C. *The Executive Council*
- D. *The Technical Secretariat*
- E. *Privileges and Immunities*

27. These provisions are now written in more general terms than the earlier provisions, such as in Annex H in the October 1997 rolling text, which were over-detailed. The current text for the Technical Secretariat states that:

*(D) THE TECHNICAL SECRETARIAT*

*[35. The Technical Secretariat shall assist States Parties in the implementation of this Protocol. The Technical Secretariat shall assist the Conference and the Executive Council in the performance of their functions. It shall carry out the functions entrusted to it by this Protocol, as well as those functions delegated to it by the Conference or the Executive Council in accordance with this Protocol.*

*36. The functions of the Technical Secretariat with regard to Article III and Annexes ... shall include, inter alia:*

*(a) Receiving and processing of declarations submitted by the States Parties to the Organization in accordance with the provisions of Article III, section D;*

*[(b) Receiving, [collecting,] processing, analyzing and storing data and all relevant information relating to the appearance of unusual outbreaks of diseases or epidemics supplied by States Parties and relevant international organizations. [Such functions shall be discharged by the International Epidemiological network, an integral part of the Technical Secretariat];]*

*[(c) Supplying, at the request of the Organization or any State Party, any relevant information drawn up on the basis of collected and processed data, inter alia, to help distinguish outbreaks of diseases and epidemics deemed to have a natural cause from outbreaks of diseases and epidemics which might be the result of a violation or attempted violation of the Convention. [Such functions shall be discharged by the International Epidemiological network, an integral part of the Technical Secretariat];]*

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<sup>27</sup>United 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/38, 6 October 1997, Geneva.

<sup>28</sup>United 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/47 (Part I), 15 October 1999, Geneva.

*(d) Assisting the Executive Council in facilitating consultation, clarification and cooperation among States Parties;*

*[(e) Processing requests for visits, carrying out the preparations for, providing technical support during the conduct of, and conducting visits in accordance with the provisions of Article III, section D, and of Annex B, and reporting the outcome to the Executive Council;]*

*(f) Receiving requests for investigations to address non-compliance concerns, making technical evaluation of these requests, submitting the requests to the Executive Council for consideration, carrying out the preparations for, providing technical support during the conduct of, and conducting investigations in accordance with the provisions of Article III, section G, and of Annex D, and reporting the outcome to the Executive Council;*

*(g) Maintaining and updating a list of ad hoc experts and notifying all States Parties of any additions to or alterations in the list in accordance with paragraphs 11 to 16 of Annex D, Section I;*

*[(h) Negotiating and concluding on behalf of the Organization, subject to the prior authorization of the Executive Council, agreements and arrangements, as appropriate, between the Organization and States Parties, other States and international organizations;]*

*(i) Assisting the States Parties through their National Authorities on other matters relating to the implementation of this Protocol.*

28. The principal elements of the draft Protocol are:

- a. Mandatory Declarations and Notifications (*Article III D Declarations I. Submission of Declarations*)
- b. Follow-Up After Submission of Declarations which includes a package of randomly-selected visits, declaration clarification procedures and voluntary assistance visits. (*Article III D Declarations II. Follow-Up After Submission of Declarations*)
- c. Investigations -- both field and facility investigations (*Article III G Investigations*)
- d. Scientific and Technological Exchange for Peaceful Purposes and Technical Cooperation (*Article VII*)

The resource implications, and the extent to which these have changed over the past two years, will be considered in turn for each of these.

29. **Declarations.** The current requirements for initial and annual declarations as well as for notifications are for the following categories:

*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 - WHO [and OIE] Classification) Facilities*

*[(F) High Biological Containment (BL-3 - WHO [and OIE] Classification) 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]*

*[(M) Current Exceeding of Threshold*

30. The estimates of the number of declarable facilities per State Party continue to be of the order of tens of facilities for a developed European country based on the surveys reported in various Working Papers submitted to the Ad Hoc Group. The information provided in Briefing Paper No 20<sup>29</sup> in April 1999 is reproduced here for ease of reference. It was 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 Canada<sup>30</sup>, the Netherlands<sup>31</sup>, United Kingdom<sup>32</sup>, Italy<sup>33</sup> and the five Nordic Countries<sup>34</sup> can be summarised as follows:

Trigger used	Canada	Netherlands	UK	Italy	Nordic
Military biodefence	Yes	Yes	-	Yes	Yes
Biocontainment	+ other	BL 4	+ other	BL 4	+ other
Listed agents	Not alone	Not alone	Not alone	+ other	Yes

<sup>29</sup>Graham S. Pearson, *Visits: An Essential Portfolio*, Briefing Paper No. 20, University of Bradford, April 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>30</sup>Canada, *Discussion Paper on Declarations: List of Agents and Combinations of Criteria*, BWC/AD HOC GROUP/WP. 6, 28 November 1995.

<sup>31</sup>The Netherlands, *The Relevance and Effectiveness of (Combinations of) Criteria for Declaration*, BWC/AD HOC GROUP/WP.10, 28 November 1995.

<sup>32</sup>United Kingdom, *Survey of Microbiological Facilities in the UK*, BWC/AD HOC GROUP/WP. 81, 23 July 1996.

<sup>33</sup>Italy, *National Survey in the Microbiological Activities*, BWC/AD HOC GROUP/WP. 146, 18 March 1997.

<sup>34</sup>Denmark, 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.

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	5 Nordic Countries
Number of facilities to be declared	30 to 50	[Tens]	[Tens]*	40	50

\* Based on recent discussions with the delegation.

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. More recently, the Austrian/UK contribution<sup>35</sup> 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 be measured in tens rather than hundreds.*" It is clear that numbers in the 10s are being considered for most European countries and this has been confirmed in recent discussions with delegations.

31. The estimated total number of facilities to be declared thus continues to be as assessed in Briefing Paper No 18<sup>36</sup> in January 1999 which reported a figure of the order of 1600 to 3200 assuming a figure of 10 to 20 facilities is taken as the average for 160 States Parties<sup>37</sup>. This total is comparable to the number of 2500 facilities estimated by others.<sup>38</sup>

32. **Follow-Up After Submission of Declarations.** The draft protocol now contains provisions for a portfolio of measures, including randomly-selected visits, declaration clarification procedures and voluntary assistance visits, aimed at ensuring that declarations are complete and accurate.

33. The draft Protocol in *Article III D. Declarations II Follow-Up after Submission of Declarations* in paragraph 5 entitled *Visit schedule* states that:

<sup>35</sup>Austria and the United Kingdom, *Industry and Declarations*, UK Presidency and the European Commission: The BWC and the Pharmaceutical Industry, 13 May 1998.

<sup>36</sup>Graham S. Pearson, *Visits: An Essential and Effective Pillar*, Briefing Paper No. 18, University of Bradford, January 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>37</sup>Graham S. Pearson, *The Strengthened BTWC Protocol: An Integrated Regime*, Briefing Paper No. 10, University of Bradford, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

<sup>38</sup>Working Group on BW Verification, *Estimate of the Number of Declared Facilities*, Federation of American Scientists, September 1997. Available at <http://www.fas.org/bwc/papers/facilities.htm>

*"The total number of all visits ... should not exceed [30][75][140][...] in each calendar year. At the end of each year, the Director-General should prepare a visits schedule for the following year which shall make initial provision for [the conduct of ... [randomly-selected visits][transparency visits], ... voluntary assistance visits and ... [[voluntary] clarification visits]] [two-thirds of the total to be allocated to [randomly-selected visits][transparency visits] and one-third to be allocated to other visits pursuant to this Article]."*

34. For each of the individual categories of visits, the draft Protocol has language concerning the duration and the size of the inspection team:

a. Randomly-selected visits. The duration is specified in paragraph 18 in that *"[Randomly-selected visits][Transparency visits] may last for up to two [consecutive working] days."* with provision for this to be extended if the visited State Party and the visiting team so agree. In addition, *"if so requested by the State Party to be visited, the visit may be extended by up to [1][3] days for the visiting team to provide technical advice or information, [or implement technical assistance and cooperation activities or programmes as specified in Article VII, Section D, paragraph 17,] requested by the State Party to be visited."*

Insofar as team size is concerned *"The Director-General shall limit the team size of the visiting team to the minimum necessary for the proper fulfilment of the mandate. In any event the team shall not exceed four members."*

b. Declaration Clarification Procedures. Should these reach the stage of a [Voluntary][Clarification] Visit then the duration provision states that *"The inviting State Party and the Director-General shall determine the duration of the visit, but in no case shall the duration exceed two days."*

Insofar as team size is concerned, the language is identical to that for randomly-selected visits and states that *"The Director-General shall limit the team size of the visiting team to the minimum necessary for the proper fulfilment of the mandate. In any event the team shall not exceed four members."*

c. Voluntary Assistance Visits. The team size and duration are left to the Director-General and the State Party to be visited to agree: *"The detailed arrangements for, and contents of, a voluntary visit, such as size and composition of the visiting team, duration of the visit...shall be agreed beforehand by the Director-General and the State Party to be visited."*

35. A detailed analysis<sup>39</sup> of randomly-selected visits has concluded that it would be logical for the different categories of declared facility in the Protocol regime to have a different frequency for randomly-selected visits reflecting the potential risk to the Convention. As with the CWC regime where converted chemical weapon production facilities and the Schedule 1 chemical facilities -- which are generally chemical defence facilities -- receive more frequent inspections, there would be logic in converted past BW facilities which still remain in government ownership and biodefence facilities being subject to a higher frequency

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<sup>39</sup>Graham S. Pearson, *Visits: The Emerging Portfolio*, Briefing Paper No. 26, University of Bradford, November 1999. Available on <http://www.brad.ac.uk/acad/sbtwc>

of randomly-selected visits.<sup>40</sup> The maximum (BL4) and high (BL3) containment facilities could have the least frequent visits as such facilities are generally subject to intensive national health and safety inspections; it is also well known that containment is **not** a prerequisite for a prohibited programme and consequently there is no logic requiring high containment facilities to be **more** frequently inspected by the BTWC Organization. Although the triggers for declarations under the Protocol have not been finalised, a possible listing in order of frequency of randomly-selected visits can be drawn up:

Category of Facility	Frequency of randomly-selected visits
Converted past BW facilities in government ownership	Most frequent
Current Defensive Programmes/ Activities	Most frequent
Vaccine Production Facilities	More frequent
Other Production Facilities	More frequent
Work with Listed Agents and/or Toxins	Less frequent
Other Facilities	Less frequent
High Biological Containment (BL-3) Facilities	Least frequent
Maximum Biological Containment (BL-4) Facilities	Least frequent

Although four different frequencies are indicated, it is noted that this could be simplified into three frequencies by merging the middle two frequencies (more and less frequent) into a single intermediate frequency. It needs to be emphasised, however, that **all categories** of declared facilities should receive randomly-selected visits as this promotes complete and accurate declarations for all facilities.

36. **Investigations.** The draft Protocol rightly leaves the size of the investigation team to the Director-General to determine taking into account the circumstances of the particular request: *"The Director-General shall determine the size of the investigation team and select the proper qualified members to conduct the specific type of investigation requested in the investigation request ... taking into account the circumstances of the particular request."*

37. There is, however, alternative square bracketed language which could put a ceiling on the investigation team: *"The size of the investigating team shall be kept to the minimum necessary for the proper fulfilment of the mandate[, but shall not in any event exceed ... persons in cases of field investigations and ... persons in cases of facility investigations]."* Such limits would be unfortunate as it would remove the flexibility that needs to be maintained to achieve maximum effectiveness and efficiency of the new regime. It needs to be recalled that investigations are the crucial measure available to address non-compliance concerns and it would be imprudent if this vital measure were to unnecessarily be impaired.

38. **Scientific and Technical Cooperation.** Article VII has been considerably developed and contains detailed provisions for the establishment of a Cooperation Committee as well as elaborating a number of activities which should be carried out by the Technical Secretariat.

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<sup>40</sup>Graham S. Pearson, *The Ad Hoc Group: Past Biological Weapons Facilities*, in Erhard Geissler et al (eds), *Conversion of Past BTW Facilities*, Kluwer Academic Publishers, Dordrecht, 1998. Graham S. Pearson, *Past Biological Weapons Facilities: An Opportunity for the Ad Hoc Group*, ASA Newsletter 97-6, 4 December 1997, p.1, 16-17. Graham S. Pearson, *The Strengthened BTWC Protocol: An Integrated Regime*, University of Bradford, Briefing Paper No. 10, July 1998. Available on <http://www.brad.ac.uk/acad/sbtwc>

The requirements placed on the Technical Secretariat are extensive and are currently<sup>41</sup> the following:

*Role of the Technical Secretariat*

*17. The Director-General, assisted by the Technical Secretariat, shall promote and facilitate scientific and technical cooperation and exchange among States Parties and shall develop a framework of programmes and activities, taking into account any recommendations of the Cooperation Committee in accordance with the provisions of paragraphs [9], [12] and [28], and implement the decisions of the [Conference of States Parties] [Executive Council]. The Technical Secretariat shall, in accordance with paragraphs ..., where appropriate:*

*[(a) Promote and finance the establishment of vaccine production facilities, particularly in developing countries [which are States Parties];]*

*[(a) bis Provide advice and identify possible sources of financial and technical assistance for the establishment and operation of collaborative vaccine research and development programmes, and on the requirements for vaccine production facilities meeting current Good Manufacturing Practice standards;]*

*(b) Establish and maintain a network to facilitate contact and communications, using the available electronic systems between States Parties, other relevant international organizations and the Technical Secretariat, for the purposes of enabling and promoting scientific cooperation and exchange among States Parties;*

*(c) Convene regional or international seminars with a view to optimizing cooperation on the peaceful uses of bacteriological (biological) agents and toxins;*

*[(d) Develop a framework for donor countries [, including a voluntary fund,] to support an international system for the global monitoring of emerging diseases in humans, animals and plants, and to support, other specific programmes to improve the effectiveness of national and international efforts on the diagnosis, prevention and treatment of [infectious] diseases caused by biological agents and toxins;]*

*[(e) Assist States Parties in training personnel for employment in the Organization, in order to promote the objective of representation on a wide and equitable geographical basis;]*

*[(f) Conduct internship programmes, on the basis of equitable geographical distribution, to optimize cooperation on the peaceful uses of bacteriological (biological) agents and toxins and technical cooperation amongst the States Parties;]*

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<sup>41</sup>United 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/47 (Part I), 15 October 1999, Geneva.



*[(g) Promote the exchange, dissemination and the publication of information on research centres, current research and training programmes and conferences on the diagnosis, treatment and prevention of [infectious] diseases caused by biological agents and toxins;]*

*(h) Provide information on the availability of and accessibility to publications and other publicly available forms of information containing the results of recent and current research programmes on the uses of bacteriological (biological) agents and toxins for industrial, pharmaceutical, medical and agricultural purposes [as well as developments in biodefence activities];*

*[(i) Implement programmes amongst States Parties on equipment and technology exchanges relevant on the peaceful uses of bacteriological (biological) agents and toxins;]*

*(j) Implement at the request of States Parties, programmes of support and assistance for upgrading laboratories nominated for designation and certification;*

*[(k) Implement programmes of support and assistance for designation and certification.]*

#### *Cooperation and assistance in the context of visits*

*[18. If requested by a State Party and in the context of [randomly-selected] [transparency] and [voluntary assistance] visits, provide information and advice on, and implement where appropriate, any cooperation and assistance programme(s) of the Organization in, inter alia:*

*(a) Biosafety, including environmental protection and occupational health issues;*

*(b) The principles of Good Laboratory Practice and current Good Manufacturing Practices;*

*[(c) [The identification of agents,] diagnostics and the [development of innovative vaccines] [availability of existing vaccines and the possible timetable for the introduction of new vaccines];]*

*(d) The principles and requirements of national and international regulatory mechanisms governing the production, validation, marketing and sale of pharmaceutical products and vaccines;*

*(e) Training requirements for facility and national regulatory personnel, and sources of such training;*

*(f) The evaluation of the methodology underpinning the State Party's or facility's declaration process and making suggestions, if necessary, for methodological improvements to future declarations;*

*(g) The provision of information, guidance or identifying any specific training opportunities for facility personnel on efficient biosafety, occupational health and safety practices and environmental protection relevant to the facility. This may include facilitating contact with relevant international bodies;*

*(h) The provision of information on publications and other publicly available forms of information containing current research programmes in the biosciences and biotechnology, conferences, research centres, information databases and other scientific and technological developments and activities about which the visiting team are cognizant of relevance to the Convention and facility;*

*(i) The provision of information and guidance as well as the identification of any specific training opportunities for facility personnel to facilitate the development, evaluation or licensing of products;*

*(j) The identification of national, regional and international sources of information for more detailed follow-up enquiries and specialized assistance on these topics.]*

*19. The Technical Secretariat shall either itself or in cooperation with States Parties provide advice and assistance to States Parties, if requested, on:*

*(a) The establishment and functioning of national authorities;*

*(b) The preparation of declarations required under Article III of this Protocol;*

*(c) The drawing up of internal legislation necessary under the provisions of this Protocol;*

*(d) The content and conduct of training courses and seminars for National Authority and declared facility personnel on the compilation of declarations and the planning and hosting of visits.*

39. These provisions in the draft BTWC Protocol are much more detailed -- and understandably so given the emphasis in the Ad Hoc Group mandate on Article X of the Convention as well as on compliance measures -- than the single corresponding paragraph in the CWC *Article XI Economic and Technological Development* which simply states that:

*1. The provisions of this Convention shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.*

## **A Quantified Evaluation of the Protocol Regime**

40. The quantification of the overall Protocol regime can now be considered using the OPCW information to provide a comparative baseline. As noted previously in Briefing

paper No 5, a lean and mean BTWC Protocol organization would be expected to have a structure comprising:

- Director-General
- Administration
- International Relations & Cooperation
- Compliance Monitoring & Visits/Investigations

In the light of the developments over the past couple of years, the functions within the structure would still be similar although the terminology might well be different so as to more accurately reflect the emerging emphasis of the negotiations:

- Director-General
- Administration
- International Cooperation & Assistance
- Compliance Monitoring

41. The essential technical expertise and capabilities would be embedded in the Organization in the Divisions concerned with International Cooperation & Assistance and with Compliance Monitoring. By considering the requirements in the draft Protocol in the light of the information available from the OPCW and elsewhere, it is possible to examine the quantitative requirements for the implementation of the BTWC Protocol. Each of the principal elements of the regime are considered in turn.

42. **Declarations.** The numbers of declarations per developed European country will be in the range of 10s. Based on the UK data of 577 declarations to the OPCW, it is evident that the number of declarations to the future BTWC Organization will be an order of magnitude less -- and consequently present less of a burden on States Parties. The total number of estimated declarations to the future BTWC Organization remains at around 2500 assuming 160 States Parties and an **average** of about 15 declarations per State Party. It is also apparent that the Ad Hoc Group is paying attention devising clear and unambiguous declaration formats.

43. **Follow-Up After Submission of Declarations.** The current Protocol text has language that imposes a ceiling on the numbers of visits conducted each year "*The total number of all visits conducted pursuant to this Article shall not exceed [30][[75][140][...]] in each calendar year.*" This is in contrast to the CWC which does not impose a ceiling on the numbers of inspections carried out each year but controls this through the control by the Conference of the States Parties of the annual OPCW Programme and Budget -- and consequently has the flexibility to develop in the light of the experience gained by the OPCW in the implementation of the CWC.

44. For an effective and efficient regime, it is necessary to carry out sufficient randomly-selected visits each year of **all categories** of declared facilities in order to ensure that the declarations are both complete and accurate. There will also be a need to carry out declaration clarification procedures which could well benefit from the carrying out of a visit to the facility concerned when it is recalled that the OPCW experience from its routine inspections of Schedule 1, 2 and 3 facilities was that "*the need for amended declarations was the main issue requiring further attention.*" Although there is currently still some concern about visits carried out under declaration clarification procedures, it is probable that such

concern will vanish once the future BTWC Organization comes into being and begins to carry out its work implementing the Protocol.

45. A useful comparison can be made of team size and duration for CWC routine inspections under Article VI and for BTWC Protocol visits. However, it needs to be recognised that the general aim of CWC routine inspections are *to verify that activities are consistent with the information provided in declarations* whereas the three types of BTWC Protocol have three different aims. The randomly-selected visits with the aim of confirming that declarations are accurate and complete have the closest parallel to the CWC routine inspections.

<b>CWC Regime</b>	Team size	Duration	<b>Protocol Regime</b>	Team size	Duration
Schedule 1	3 - 4	48 hours	Randomly-selected	4 max†	2 days†
Schedule 2	5	96 hours*	extension for technical assistance		[1][3] days†
Schedule 3	5	24 hours*	Clarification	4 max†	2 days†
DOC		24 hours*	Voluntary assistance	As agreed	As agreed

\* As specified in the Convention. Extensions may be agreed between the inspection team and the inspected State Party.

† As specified in the Protocol. The duration of a randomly-selected visit may be extended if the visited State Party and visiting team so agree.

The greater flexibility available under the OPCW regime is apparent.

46. It is suggested that the different categories of facilities to be declared under the BTWC Protocol should, as in the CWC regime, be subject to different frequencies of randomly-selected visits reflecting the different risks posed to the Convention:

<b>Category of Facility</b>	<b>Frequency of randomly-selected visits</b>
Converted past BW facilities in government ownership	Most frequent
Current Defensive Programmes/ Activities	Most frequent
Vaccine Production Facilities	More frequent
Other Production Facilities	More frequent
Work with Listed Agents and/or Toxins	Less frequent
Other Facilities	Less frequent
High Biological Containment (BL-3) Facilities	Least frequent
Maximum Biological Containment (BL-4) Facilities	Least frequent

47. In considering what these frequencies might be, it is useful to recall the CWC situation for which the following frequencies can be deduced:

<b>Category of Facility</b>	<b>Frequency of inspections</b>
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Chemical weapon production facility	
closed or converted	2.5 per year on average
partially destroyed	Once every two years
Schedule 1 chemical	Once every eighteen months
Schedule 2 chemical	Once every three years
Schedule 3 chemical	( 3 + 5% sites ≤ 20*
DOCs (Discrete Organic Chemicals)	( 3 + 5% sites ≤ 20*

\* The number of inspections per year per State Party for plant sites producing Schedule 3 chemicals or DOCs is a combined limit. The Convention states in respect of Schedule 3 plant sites that *"the combined number of inspections shall not exceed three plus 5 per cent of the total number of plant sites declared by a State Party under both this Part and Part VIII of this Annex [the part relating to DOCs], or 20 inspections, whichever of these two figures is the lower."* Consequently, for a State Party with a combined total of Schedule 3 and DOCs plant sites of 20, the limit would be a total of 3 + 5% of 20 = 4 inspections.

48. Some possible *target* frequencies for randomly-selected visits to the different categories of facilities declared under the BTWC Protocol might be:

<b>Category of Facility</b>	<b>Frequency of randomly-selected visits</b>
Converted past BW facilities in government ownership	Once every eighteen months
Current Defensive Programmes/ Activities	Once every eighteen months
Vaccine Production Facilities	Once every three years
Other Production Facilities	Once every three years
Work with Listed Agents and/or Toxins	Once every five years
Other Facilities	Once every five years
High Biological Containment (BL-3) Facilities	Once every ten years
Maximum Biological Containment (BL-4) Facilities	Once every ten years

49. Estimates can then be made for the numbers of visits required

<b>Facilities</b>	<b>Number of facilities*</b>	<b>Frequency of visits</b>	<b>Visits per year</b>
Converted past BW facilities	20	Once/18 months	14
Biological defence facilities	43	Once/18 months	29
Vaccine production facilities	162	Once/three years	54
Other production facilities		Once/three years	
Work with listed agents		Once/five years	
Other facilities		Once/five years	
BL-3 facilities		Once/ten years	
BL-4 facilities	48	Once/ten years	5

\* There is some limited information available about the number of facilities in some of these categories from information submitted by States Parties under the CBMs (Confidence Building Measures) agreed at the Second and Third Review Conferences.<sup>42</sup> It needs to be recognized that just over half of the States Parties have made such declarations and the information provided is variable. Nevertheless, in the 1997 declarations, some 43 facilities were declared as biodefence facilities: 32 were in Western countries (19 in the USA), 1 in China, 1 in India, 9 in Russia. Insofar as BL-4 maximum containment facilities are concerned, 48 were declared in the 1997 declarations: 37 in Western countries, 1 in Belarus, 2 in Cuba, 2 in the Czech Republic, 1 in Mongolia, 1 in Poland, 1 in Russia, 2 in the Slovak Republic, 1 in South Africa. Finally, in 1997, 162 vaccine production facilities were declared: 68 in Western countries (11 in the USA, 11 in Japan, 10 in Spain, 9 in Italy..) and 94 in other countries (19 in India, 16 in Russia, 8 in Brazil, 7 in Argentina, 7 in China, 7 in South Korea...).

50. It is evident that if it is assumed that there are globally 2,500 declared facilities, then such frequencies would require more than 100 randomly-selected visits each year. This analysis shows the desirability of avoiding the specification of an upper limit in the BTWC Protocol as such an arbitrary limit could result in forcing the regime to be less effective. It would be preferable to control the numbers of visits through the Conference of the States Parties monitoring and approval of the annual programme and budget as well as the number of posts within the future BTWC Organization.

51. As noted in previous Briefing Papers, the number of clarification visits following declaration clarification procedures can be expected to decrease with time after entry into force of the Protocol as States Parties gain experience in making accurate and complete declarations. Likewise, voluntary assistance visits to provide assistance in making declarations and implementing the Protocol can also be expected to decrease over time. The number of visits to provide technical assistance and cooperation can be expected to increase. It is, however, desirable to build appropriate flexibility into the provisions for voluntary assistance visits. The current draft Protocol which, for example, limits the extension of randomly-selected visits to "*implement technical assistance and cooperation activities or programmes as specified in Article VII, Section D, paragraph 17*" is unnecessarily restrictive -- a point which is illustrated by comparing the language in paragraph 17 of Section D with that in paragraph 18 of Section D (which is headed *Cooperation and assistance in the context of visits*) and appears much more relevant. It would be preferable to simplify the reference to "*as specified in Article VII*" and not specify specific sections or paragraphs. After all, control will be exercised by the Conference of the States Parties over the programme and budget of the future BTWC Organization.

52. As already noted, Article VII of the Protocol is considerably more developed than the single paragraph in the corresponding Article of the CWC. In the previous analysis of the size of the BTWC Organization, it was assumed that the number of posts required for international cooperation was the same as that for the OPCW:

OPCW Organization	Number	Prospective BTWC Organization	Number	Change
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<sup>42</sup>Iris Hunger, *Article V: Confidence Building Measures*, in Graham S. Pearson & Malcolm R. Dando (eds), *Strengthening the Biological Weapons Convention: Key Points for the Fourth Review Conference*, Department of Peace Studies, University of Bradford, September 1996. Available on <http://www.brad.ac.uk/acad/sbtwc> Iris Hunger, *Private communication*, November 1999, Max Delbrück Centre for Molecular Medicine, Berlin.

<b>International Cooperation &amp; Assistance</b>	2	<b>International Cooperation &amp; Assistance</b>	2	---
Assistance and Protection	5	Assistance and Protection	4	-1
International Cooperation	4	International Cooperation	4	---
<b>Total</b>	<b>11</b>	<b>Total</b>	<b>10</b>	<b>-1</b>

The OPCW has found it necessary to increase the resources for the international cooperation and assistance division by another 3 posts -- 2 for assistance and protection and 1 for international cooperation -- to a total of 14. It would be prudent, given the much wider remit of Article VII of the Protocol, to make greater provision for the numbers for International Cooperation & Assistance in the future BTWC Organization than in the OPCW. A total of 15 to 20 is proposed, representing an increase of 5 to 10 posts.

### Investigations

53. The draft Protocol has well developed text for both field and facility investigations. As noted above, it is again preferable to build flexibility into the Protocol language leaving it to the Director-General of the future BTWC Organization to determine *the size of the investigation team and select the proper qualified members*. The recent OPCW practice investigation of an alleged use of chemical weapons involved a team of 24. This provides a lower limit for the size of team required for a BTWC Protocol investigation as additional skills may well be required for a BTWC investigation. It is useful to recognize that in order to guarantee a capability to be able to send a team of 24 to carry out an investigation at any time, there needs to be a pool of three times that number i.e. 72 from which to draw the team. This larger pool is necessary because of annual leave, training, sickness and other factors which prevent members of the pool from being available. This pool of 72 is not something which can safely be reduced because an investigation, should one be required, must be carried out thoroughly and effectively as otherwise the Protocol regime will fall into disrepute.

### Concluding Remarks

54. This Briefing Paper has extended the analysis of the emerging Protocol regime in Briefing Paper No 25 by examining how various aspects of the regime can be quantified. The CWC regime has again been used for comparative purposes, as it is the regime that is of the closest relevance to the emerging BTWC Protocol regime.

55. The quantified analysis has shown that the current draft Protocol is much more restrictive than the CWC in numerous aspects. It would be highly preferable to incorporate flexibility into the Protocol now and thereby avoid the danger of arriving at a Protocol which has been unnecessarily constrained and is unable to develop in the light of developments in microbiology and biotechnology in the 21st century. It needs to be recognized that the Conference of the States Parties will have more than enough control over the programme and budget of the future BTWC Organization. The Protocol can with advantage address the concepts and approaches to be adopted without specifying and limiting every detail.

56. **All categories** of declared facilities need to be subjected to randomly-selected visits to ensure that they are complete and accurate. However, different categories of declared facilities should be subjected to different frequencies of randomly-selected visits.

57. The frequency with which different categories of declared facilities should be subjected to randomly-selected visits should reflect the risk to the Convention. Consequently, past BW facilities still within government ownership and biodefence facilities should be subject to the most frequent randomly-selected visits whilst BL-4 maximum containment facilities should be subject to the least frequent randomly-selected visits. The target frequency for past BW facilities and biodefence facilities could with advantage parallel that for Schedule 1 facilities in the OPCW with a frequency of randomly-selected visits so that such facilities would be visited once every eighteen months.

58. The quantified examination indicates that the previous analysis of the size of the future BTWC Organization remains largely correct. The numbers of inspectors remains at about 70 -- a number necessary to enable investigations to be carried out at any time -- and the number of visits -- randomly-selected, clarification and voluntary assistance -- remains at around 100 a year. The number of posts required for International Cooperation & Assistance could usefully be increased by 5 or 10 thus bring the total size of the future BTWC Organization to about 220 which is still well under half the size of the OPCW which currently has 507 posts. The budget for the future BTWC Organization continues to be some US \$30 M about half that of the OPCW, which in 2000 is 132 M NLG or approximately US \$66 M.

59. This quantified evaluation of the emerging Protocol has shown that an effective and efficient regime is being developed. Its size will be less than half and its budget half that of the OPCW. The frequency of randomly-selected visits should vary according to the category of declared facility. Care needs to be taken to build flexibility into the Protocol and avoid unnecessary constraints as, after all, the Conference of the States Parties will control the programme and budget of the future BTWC Organization.



## ANNEX: ANALYSIS OF OPCW STAFF NUMBERS

(Based on Staff Numbers in reference<sup>43</sup> as amended by reference<sup>44</sup>)

OPCW Organization	Number	Prospective BTWC Organization	Number	Change
<b>Director General</b>	5	<b>Director General</b>	3	-2
Security	11	Security	2	-8
Office of Deputy Director-General	5			-5
Health & Safety Branch	11	Health & Safety Branch	5	-6
Internal Oversight	6	Internal Oversight	2	-3
Office of Legal Adviser	4	Office of Legal Adviser	2	-2
Treaty Matters	3	Treaty Matters	1	-2
Internal Matters	2	Internal Matters	1	-1
Special Projects	2			-2
Subtotal	<b>49</b>	Subtotal	<b>16</b>	<b>-33</b>
Secretariat for Policy Making Organs	3	Secretariat for Policy Making Organs	2	-1
Conference Services Branch	3	Conference Services Branch	2	-1
Languages	23	Languages	18	-5
Conference Support	4	Conference Support	2	-2
Documentation	3	Documentation	2	-1
<b>Total</b>	<b>85</b>	<b>Total</b>	<b>42</b>	<b>-43</b>
<b>Administration</b>	2	<b>Administration</b>	2	---
Budget & Finance	2	Budget & Finance	1	-1
Budget	3	Budget	1	-2
Accounts	3	Accounts	2	-1
Disbursement & Treasury	6	Disbursement & Treasury	2	-4
Human Resources Branch	2	Human Resources Branch	1	-1
Recruitment	3	Recruitment	1	-2
Staff Administration	7	Staff Administration	3	-4
Information Systems Branch	4	Information Systems Branch	2	-2
Network Systems	5	Network Systems	3	-2
Systems Application	7	Systems Application	3	-4
System Security	1	System Security	1	---
Archives, Document management	7	Archives, Document management	3	-4
General Services Branch	2	General Services Branch	1	-1
Procurement	4	Procurement	1	-3
Travel & Transportation	7	Travel & Transportation	2	-5
Building/Facility Management	4	Building/Facility Management	1	-3
Training & Staff Development	4	Training & Staff Development	1	-3
Training Management	4	Training Management	1	-3
<b>Total</b>	<b>77</b>	<b>Total</b>	<b>32</b>	<b>-45</b>

<sup>43</sup>Organization for the Prohibition of Chemical Weapons, Technical Secretariat, *Note by the Director-General: Technical Secretariat: Post Structure and Placements as of 8 September 1997*, Administration Division, S/14/97, 11 September 1997.

<sup>44</sup>Organisation for the Prohibition of Chemical Weapons, Conference of the States Parties, *Programme and Budget 1998*, Second Session, 1 - 5 December 1997, C-II/6, 6 December 1997.

<b>OPCW Organization</b>	<b>Number</b>	<b>Prospective BTWC Organization</b>	<b>Number</b>	<b>Change</b>
<b>External Relations</b>	2	<b>External Relations</b>	2	---
Government Relations & Pol Aff	4	Government Relations & Pol Aff	2	-2
Media & Public Affairs	4	Media & Public Affairs	2	-2
Protocol	2	Protocol	2	---
Visa	3	Visa	2	-1
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>10</b>	<b>-5</b>
<b>International Cooperation &amp; Assistance</b>	2	<b>International Cooperation &amp; Assistance</b>	2	---
Assistance and Protection	5	Assistance and Protection	4	-1
International Cooperation	4	International Cooperation	4	---
<b>Total</b>	<b>11</b>	<b>Total</b>	<b>10</b>	<b>-1</b>
<b>Verification Division</b>	3	<b>Verification Division</b>	2	-1
Confidentiality	7	Confidentiality	7	---
Declarations	2	Declarations	2	---
Information Processing	8	Information Processing	6	-2
Information Validation	8	Information Validation	6	-2
Policy and Review	4	Policy and Review	3	-1
Evaluation	4	Evaluation	3	-1
Industry Verification	7	Industry Verification	7	---
Chemical Demilitarization	7	Chemical Demilitarization	---	-7
Technical Support Branch	4	Technical Support Branch	2	-2
OPCW Equipment Store	8	BTWCO Equipment Store	2	-6
OPCW Laboratory	4	BTWCO Laboratory	4	---
<b>Total</b>	<b>66</b>	<b>Total</b>	<b>44</b>	<b>-18</b>
<b>Inspectorate Division</b>	2	<b>Inspectorate Division</b>	2	---
Operations & Planning Centre	21	Operations & Planning Centre	6	-15
Inspection Management	3	Inspection Management	2	-1
Inspection Team Personnel	211	Inspection Team Personnel	60	-151
<b>Total</b>	<b>237</b>	<b>Total</b>	<b>70</b>	<b>-167</b>
<b>OVERALL TOTAL</b>	<b>491</b>	<b>OVERALL TOTAL</b>	<b>208</b>	<b>-183</b>