

The University of Bradford Institutional Repository

This work is made available online in accordance with publisher policies. Please refer to the repository record for this item and our Policy Document available from the repository home page for further information.

Author(s): Pearson, G.S.

Title: Scientific and Technical Implications of the Implementation of the BTWC Protocol

Additional title: Report on the NATO Advanced Research Workshop, Warsaw, Poland: 2-4 November 2000

Project: Bradford Project on Strengthening the Biological and Toxin Weapons Convention (BTWC)

Publication year: 2000

BTWC Briefing Papers: 1st Series: No. 32

Series Editor(s): Pearson, G.S. and Dando, M.R.

Publisher: University of Bradford (<http://www.brad.ac.uk>)

Publisher's repository: <http://bradscholars.ac.uk:8080/dspace>

Copyright statement: © 2000 University of Bradford. This work is licensed under a Creative Commons Licence (<http://creativecommons.org/licenses/by-nc-nd/2.0/uk>).



SCIENTIFIC AND TECHNICAL IMPLICATIONS OF THE IMPLEMENTATION OF THE BTWC PROTOCOL

by Graham S. Pearson

REPORT* OF THE NATO ADVANCED RESEARCH WORKSHOP WARSAW, POLAND: 2 - 4 NOVEMBER 2000

Introduction

1. The NATO Advanced Research Workshop entitled "Scientific and Technical Implications of the BTWC Protocol for Civil Industry" was held in Warsaw, Poland on Thursday 2 through Saturday 4 November 2000 under the co-directorship of Col. Prof. Krzysztof Chomiczewski, Commandant of the Military Institute of Hygiene and Epidemiology, Warsaw, Poland, and Col. Prof. Henri Garrigue, Conseiller Militaire chargé des questions biologiques, Représentation de la France à la Conference du Désarmement in Geneva, Switzerland. It was attended by 49 individuals from 17 countries, of which 23 came from 8 of the original NATO countries (Belgium, Canada, France, Germany, Netherlands, Norway, United Kingdom and United States) and 23 came from 6 of the new NATO countries and cooperation partners (Czech Republic, Hungary, Poland, Romania, Russian Federation and Slovakia) and one from each of Brazil, South Africa and Sweden. 25 of the experts from 14 of the 17 countries represented came from government departments or agencies engaged in the negotiation of the Biological and Toxin Weapons (BTWC) Protocol or the implementation of the Chemical Weapons Convention. Representatives were also present from the Organization for the Prohibition of Chemical Weapons (OPCW) as well as from National Authorities established to implement the CWC.

2. The workshop was designed to focus on the scientific and technical implications of the implementation of the BTWC Protocol for government, biodefence facilities, academia and industry. As the negotiations of the BTWC Protocol are close to completion with widespread agreement that these should be completed before the Fifth Review Conference to be held in Geneva from 19 November to 7 December 2001, in order to focus attention on the implementation of the Protocol rather than on the resolution of the remaining square brackets, for the purposes of the Workshop a clean text was provided which was based on the latest version¹ of the Protocol text (BWC/AD HOC GROUP/52 (Part I) dated 11 August 2000) with the square brackets removed as proposed in the University of Bradford Evaluation Paper No 19², September 2000.

3. The Warsaw ARW was structured to facilitate discussion of the essential elements of the BTWC Protocol in such a way that the requirements detailed in the Protocol could be

* This report is based on material that I presented in the final session of the Workshop giving my appreciation of the outcome of the Workshop. It represents my personal assessment of a very lively, highly effective and enjoyable Workshop.

¹United 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/52 (Part I), 11 August 2000, Geneva.

²Evaluation Paper No. 19, *The BTWC Protocol: Proposed Complete Text For An Integrated Regime*, September 2000 provided a proposed clean text based on the August 2000 draft protocol text in AHG/52 (Part I).

considered from the point of view of the key constituencies involved -- government, biodefence facilities, academia and industry. The workshop had the following main sessions:

Session I. The Emerging BTWC Protocol. The first session set the scene for the workshop by outlining the background to the ongoing negotiations of a Protocol to strengthen the Biological and Toxin Weapons Convention, comparing the Protocol to the Chemical Weapons Convention, which is the regime of greatest relevance to the BTWC and its Protocol as both address dual use technology, both have a general purpose criterion and both address toxins, and showing that the basic architecture of the BTWC Protocol and the CWC is the same although the Protocol is considerably more elaborated throughout than the CWC.

Session II. Implementation: International Organization and National Implementation. An overview was presented of the importance of the future Protocol to avoid biological weapons continuing to be the weak link in the non-proliferation regimes that are vital to counter weapons of mass destruction by a representative from Hungary. A valuable oversight of the experience of the OPCW in implementing the CWC which focussed on lessons for the BTWC Protocol was presented by a representative from the OPCW. This was complemented by a presentation by a National Authority of the national implementation of the CWC which identified the importance of planning and flexibility as being key to successful implementation given by a participant from the United Kingdom.

Session III. Mandatory Declarations & Declaration Follow-Up Procedures. An outline of the principal elements in the Protocol for mandatory declarations and declaration follow up procedures by a participant from France was followed by presentations which addressed the implications of these protocol requirements for government, for research and development facilities, for biodefence facilities and for industry given by participants from Poland, Czech Republic, Germany and the Netherlands. This was then followed by a presentation which outlined the lessons which had been gained from carrying out practice visits in both government and industrial facilities given by a participant from the United Kingdom.

Session IV. Facility & Field Investigations . An outline of the principal elements in the Protocol for facility and field investigations by a participant from South Africa was followed by presentations which addressed the implications of these protocol requirements for government and for industry given by participants from the United States, Poland and France.

Session V. International Cooperation and Assistance. An outline of the principal elements in the Protocol for international cooperation (Article VII) and assistance (Article VI) by a participant from Brazil was followed by presentations which addressed the implications of these protocol requirements for government, for research and development and for industry given by participants from the Netherlands, Poland and Romania.

Session VI. Incentives and Safeguards. An outline of the obligations and rights within the Protocol by a participant from France was followed by presentations on the government and industrial perspectives regarding incentives and safeguards in the Protocol given by participants from Sweden, United States and Belgium.

Session VII. Awareness Raising and Outreach. The importance of awareness raising and outreach had been identified in several of the earlier sessions and this penultimate session considered the provisions in the Protocol for public information and then considered the importance of outreach to all the relevant constituencies in States Parties given by participants from the United Kingdom and Canada. A final presentation by a participant from the NATO WMD (Weapons of Mass Destruction) Centre outlined the approaches being taken within NATO to raise awareness of the dangers posed by WMD and how these dangers can be countered.

Concluding Remarks. The final session was a summary presentation by one of participants in which a personal appreciation of the outcome of the Workshop in regard to its theme of the scientific and technical implications of the implementation of the BTWC Protocol for government, biodefence facilities, academia and industry was presented.

4. Overall, the Workshop was extremely timely as it enabled the participants who brought a wide range of expertise in different areas to have an outstandingly informed discussion about the implementation of the BTWC Protocol. The participation of representatives from the OPCW and from the National Authorities set up to implement the CWC in several countries in the Workshop was especially valuable as it provided the opportunity for all participants to gain a first hand insight into the experience of OPCW and the National Authorities which was extremely relevant in considering the implementation of the BTWC Protocol. The participation by representatives from CWC National Authorities was enhanced as it was evident that the decision has already been taken in some countries to collocate the National Authority for the BTWC Protocol with the National Authority for the CWC.

5. Overall, it was evident from the discussions during the Workshop that there was nothing to suggest that an effective Protocol cannot be achieved before the Fifth Review Conference in November/December 2001 and there was also nothing to suggest that the Protocol could not be implemented effectively by government, biodefence facilities, academia and industry. The overall message was that the key to success in implementation is in planning and flexibility. A note of caution was, however, sounded that care needs to be taken not to be over prescriptive in the Protocol as this could impair its effectiveness.

The key points emerging from the presentations and discussion in each of these areas is considered in turn.

The Emerging BTWC Protocol

6. The CWC is a particularly relevant regime to the BTWC and its Protocol because of the close relationship between chemical weapons (CW) and biological weapons (BW) and their overlap in respect of toxins and bioregulators. Both the CWC and the BTWC have general purpose criteria and both address dual use materials and technology. There are, however, differences as well as similarities between the CWC and the BTWC Protocol. The differences, which largely reflect the existence of CW stockpiles and CW production facilities which need to be destroyed under verification, can be summarised as follows:

CWC	BTWC Protocol
CW to be declared	No declarations of BW
CW production facilities (CWPF) to be declared	No declarations of BW production facilities
CW to be destroyed under verification	No destruction of BW under verification
CWPF to be destroyed	No destruction of BW production facilities
Tight timelines (associated with CW & CWPF)	No tight timelines
Scheduled Chemicals - Single Small Scale Facility (SSSF) - Verification regime varies according to Schedule	List of agents and toxins - No SSSF equivalent - Declaration trigger

The similarities can be summarised as follows:

CWC	BTWC Protocol
Mandatory declarations	Mandatory declarations
Routine inspections	Declaration follow-up
Challenge inspections	Facility investigations
Investigation of alleged use	Field investigations
Article X Assistance	Article VI Assistance
Article XI Technical Cooperation	Article VII Technical Cooperation
Article VIII Organization	Article IX Organization
Article VII National Implementation Measures	Article X National Implementation Measures

7. Consequently, if the CW and CWPF elements of the CWC are excluded, it is apparent that the basic architecture of the CWC and the BTWC Protocol is the **same**. It was also noted that the declaration requirements in the BTWC Protocol have been developed from the Confidence-Building Measures (CBMs) agreed at the Second Review Conference in 1986 and extended at the Third Review Conference in 1991 for the provision of information on:

- a. Maximum containment (BL-4) facilities
- b. Current biodefence programmes
- c. Past offensive and defensive programmes
- d. Vaccine production facilities

8. It is also evident that the BTWC Protocol has in many aspects been developed from the CWC although the BTWC Protocol is much more elaborated throughout. The protocol also has provisions which are not in the CWC such as measures to ensure the submission of declarations, declaration clarification procedures, provision for ad hoc investigation specialists, immunity waiver provisions for the Director General and for the Organization together with a much more extensively developed Article (VII) on technical cooperation.

9. The key elements in the BTWC Protocol were identified as being:

- * Implementation -- Organization and National Authorities
- * Compliance Measures
 - Declarations and Declaration Follow-Up Procedures
 - Field and Facility Investigations

- * International Cooperation and Assistance
- * Need to inform the relative constituencies
 - Awareness raising and outreach

and the Workshop had therefore been structured to address each of these in turn in successive sessions. These sessions were generally structured so as to start with a presentation on the Protocol provisions and then for presentations addressing the implications for government and industry drawing upon relevant experience such as that of the OPCW or of CWC National Authorities.

10. The Workshop was focussed on the implementation of the Protocol and was not addressing the resolution of the remaining square brackets. The questions being addressed were:

- Any lessons from prior experience?
- Will the Protocol provisions be effective?
- Any unforeseen difficulties?
- How to optimize effectiveness and efficiency?
- How to achieve effective implementation?

Implementation: International Organization and National Implementation

11. An overview was presented of the importance of the future Protocol to avoid biological weapons continuing to be the weak link in the non-proliferation regimes that are vital to counter weapons of mass destruction. It was noted that the annual budget of the IAEA is about \$100 M, of the CWC is about \$60 M and that of the CTBT also about \$60 M whilst the projected budget for the future BTWC Organization was about \$30 M a year. In considering the importance of the future Protocol, the necessity for ensuring that biotechnological activities are not in the grey area between permitted peaceful activities and prohibited activities was noted. It was also recognised that the Protocol needs to be formulated in such a way that there are clear cut rules, particularly for industry. In comparing the future Protocol it was noted that the planned density of visits under the Protocol was comparable to that under the CWC. A further observation was that the projections for facility numbers under the CWC was about an order of magnitude higher than the numbers actually declared. In respect of the BTWC Protocol, more accurate predictions should be possible because of the information provided by some States Parties under the CBMs. In respect of implementation, the importance of both the Organization and National Authorities was emphasized. Both are vital for an effective Protocol. Overall, it was judged that the future Protocol would not add significantly to the burden upon States Parties and would be small compared to other ongoing national activities.

12. A valuable oversight of the experience of the OPCW in implementing the CWC which focussed on lessons for the BTWC Protocol was presented by a representative from the OPCW. It was evident that there were many lessons from OPCW experience and whilst some have been taken into account by the Ad Hoc Group there are quite a few which have not. Some of these are appropriate for the PrepCom phase for the Protocol. A point noted was that it is important to determine what needs to be addressed now, what in the PrepCom phase, what after entry into force and what is best never resolved. There is significant benefit to be gained from having a longer period than the six months (180 days) in the CWC between the trigger point and the entry into force of the Convention as once the trigger point

is reached, there is then a scramble by a large number of States to ratify prior to the entry into force. The Protocol would benefit from a longer time between the trigger point and the date for entry into force.

13. Further observations related to the importance of being able to develop declaration formats in the light of experience. Under the CWC, routine inspections were vital for declaration quality. The OPCW also recognised the significant benefits of an evolving inspection manual which was not a document adopted by the Executive Council. In respect of providing information to States Parties about ongoing inspections, the OPCW had developed the Verification Implementation Report approach rather than providing copies of individual inspection reports. The VIR approach increased transparency and built confidence between States Parties. In respect of clarifications, it was noted that there are advantages in the Technical Secretariat initiation of clarifications concerning declarations as this was much less political than if such clarifications are initiated by a State Party. It was also observed that there were inconsistencies in the national implementing legislation between States Parties to the CWC which would need to be addressed. A recent OPCW joint initiative with the Caribbean States, which had little if any chemical industry, had identified the potential value of an integrated approach to legislation that addressed both toxic chemicals and pesticides and the implementation of the CWC. A similar integrated approach could well be attractive for similar small States in respect of the legislation required to implement both the Protocol on Biosafety to the Convention on Biological Diversity and the future BTWC Protocol.

14. In regard to the Organization, it was important to have sufficient flexibility to enable the Director General to **run** the organization. Micromanagement by the political organs of the Organization needs to be avoided. Another requirement was for the Organization to have managers to run the various Divisions and not political appointees; ideally, the Director general should have a selection of candidates for the top posts from which he/she can select those most able to perform the required duties. Finally, a career Organization is needed in order to attract good quality staff.

15. Overall, the analysis of the CWC and the OPCW indicates that:

- * The BTWC Protocol is **overprescriptive**
- * Flexibility is the **key** to success
- * The Organization must be able to **develop** in the light of experience

16. The next presentation addressed the experience of a National Authority in implementing the CWC nationally. It was noted that the BTWC Protocol National Authority was likely in several States to be colocated with the CWC National Authority and, indeed, the presentation was given by the Head of one CWC National Authority who was already the BTWC Protocol National Authority designate. The additional resources to set up the BTWC Protocol National Authority were anticipated as being modest and less than that required for the implementation of the CWC. In setting up the CWC National Authority the importance had been recognised of:

- * Early wide consultation
- * Early preparation
- * Revision in the light of experience

with flexibility being recognised as the key to success. The implementation of the CWC had been easier than expected to implement although planning and flexibility were essential. Although industry had found implementation of the CWC to be time consuming, it was much less so than other regulatory regimes such as those for the FDA (Food and Drug Administration). Confidentiality in the implementation of the CWC was not evidently an issue even though there had initially been concern in industry. It was surprising that this message does not appear to have reached the pharmaceutical industry as several of the CWC Schedule III facilities and the Discrete Organic Chemicals (DOC) facilities are pharmaceutical plants. There was also nothing to stop a pharmaceutical facility being subject to a challenge inspection under the CWC.

17. Overall, the analysis of the CWC National Authority indicated that there were real potential benefits from the colocation of the CWC and the BTWC Protocol National Authorities because:

- * Trust had **already** been established with industry in the implementation of the CWC
- * There was considerable direct read across from CWC implementation experience to the Protocol implementation as both regimes have similar architecture
- * Both the CWC and the BTWC have General Purpose Criteria which largely fall to National Authorities to implement
- * Both the CWC and the BTWC cover toxins and bioregulators
- * Pharmaceutical industry already subject to Schedule III/DOC inspections and **could** be subject to CWC challenge inspections.

Mandatory Declarations & Declaration Follow-Up Procedures.

18. An outline of the principal elements in the Protocol for mandatory declarations and declaration follow up procedures was followed by presentations which addressed the implications of these protocol requirements for government, for research and development facilities, for biodefence facilities and for industry. Finally, a presentation outlined the experience gained from carrying out practice visits in both government and industrial facilities.

19. It was noted that declarations as in the CWC aim to provide information *inter alia* on capabilities within States Parties and consequently whether a particular facility is in use or not is irrelevant when considering whether it should be declared or not as what is important is whether such a capability meeting the declaration trigger requirements exists within the State Party. It is also recognised that not all facilities will be declared but rather those meeting the declarations requirements which are designed to require the declaration of the facilities of greatest relevance to the Convention. In considering the experience under the CWC, it was again noted that the CWC has flexibility as to who initiates a clarification. The Technical Secretariat may have information -- from published literature or from the web for example -- which is not available to a State Party and can easily initiate a low-key clarification.

20. Although there appears to be a perception that the declaration formats are complex, it was said that they could be completed within about 45 minutes. There would be advantage in the declaration formats being streamlined as this would ease completion and also remove

the current complex perceptions. The importance of developing declaration formats in the light of experience and of declaration follow-up procedures and visits was stressed.

21. In respect of the initial declarations of past offensive/defensive, it was recalled that 1 January 1946 had already been agreed by the States Parties to the BTWC for the information to be provided under the politically binding Confidence-Building Measure (CBM) Form F. It was also noted that the date of 1 January 1946 is used in the CWC and as both the CWC and the BTWC address toxins there is an argument for consistency with the same date, 1 January 1946, being used in the two regimes. As the purpose of the Protocol is to increase transparency and build confidence between States Parties, it is desirable that there should be no less information provided under the Protocol declarations than under the present CBMs. There is, however, scope for using two levels of detail -- one level comparable to that required under the CBM for information in the years from 1 January 1946 until a number of years prior to entry into force of the Protocol and a more detailed level for the years after a number of years prior to the entry into force of the Protocol. It was important to strike the right balance between declarations of the past activities and declarations of current activities; both are important to increasing transparency and building confidence.

22. Insofar as current biodefence programme/facility declarations are concerned, it was noted that although concerns were being expressed about possible disclosure of national security vulnerabilities, the information required in the declaration formats does **not** disclose vulnerabilities. In discussion of biodefence declarations, it was noted that under the CBMs only a small number of States Parties have provided information on biodefence programmes and it appeared as if the Protocol requirements for biodefence declarations were being skewed or distorted to accommodate the programme of a single State. Again, as the purpose of the Protocol is to increase transparency and build confidence between States Parties, there should be no less information provided under the Protocol declarations than under the present CBMs.

23. In considering the implication for industry, it was noted that the declarations would be less onerous and be less of a burden than the CWC declarations. No major problems had been found in a limited series of trials in more than one country. Two triggers were of real importance for industry:

- * Vaccine production facilities
- * Other production facilities

as the other declaration triggers had been found to have little impact on industry. It was noted that it is a decision for the State Party as to which facilities meet the declaration trigger and have to be declared and consequently the State party should provide the information required in the declaration format on what is within a facility.

24. Insofar as declaration follow-up procedures are concerned, visits has a low level of intrusiveness and the measures to protect confidentiality were accurate. Experience from practice visits to both government and civil facilities had shown that planning, training and preparation are vital. It is important to acquaint managers in facilities with information already in the public domain. It had been shown in these practice visits that commercial proprietary information (CPI) can be protected through managed access procedures. Interviewing, observation and auditing are critical for a successful visit. It was clear from practice visits that a great deal of information **can** be provided **even** where there are

considerable CPI concerns. Overall, visits amplifies the value of declaration information and helps set the activity in context. The main value from visits comes over several years of such visits carried out globally.

25. There appeared to be a common perception among European countries that visits to industrial facilities did not present a significant problem and that managed access procedures would protect CPI. This was in contrast to the perceptions being expressed notably by PhRMA and in the US. The reasons for this difference were discussed. It was noted that there is a different culture and experience in the US from that in Europe where there is much more trust between industry and the government. In the US there appears to be more emphasis on visits being to check the validity of declarations and the possibility of inaccuracies and errors being highlighted whereas in Europe the focus of visits is seen much more on promoting transparency and putting the declarations into context.

26. The importance of industry support for the Protocol regime was recognised. It was noted that the Protocol has been significantly elaborated over the past three years to **meet** industry concerns. There was a need for continuing two way dialogue, communication and outreach between the negotiators and industry **based** on the **latest** version of the Protocol.

Facility & Field Investigations

27. An outline of the principal elements in the Protocol for facility and field investigations was followed by presentations which addressed the implications of these protocol requirements for government and for industry. It was noted that the timeline between the notification to the Executive Council (EC) and the EC taking a decision might be as short as 12 hours -- as is the case with challenge inspections under the CWC -- and that this highlights the problem for States Parties with seats on the Executive Council in considering a request for an investigation. It also puts into sharp relief the near impossibility of any investigation **ever** being initiated under a green light procedure. The point was, however, noted that there might be a practical requirement for a slightly longer time between a decision and the actual start of an investigation in order for the investigation team to be assembled, especially if, as is possible for a field investigation, ad hoc investigation specialists are to be part of the investigation team.

28. Although assumptions may be made that a field investigation at the request of a State Party which believes that it has been subjected to a BW attack will be carried out in a cooperative atmosphere, caution was expressed that in such a scenario there might be a misinformation objective. Likewise although other investigations might not be carried out in a cooperative atmosphere, it was important to recognise that non-cooperation is **not** necessarily an indication of guilt. It always needs to be remembered in any investigation that "absence of evidence is **not** evidence of absence".

29. In considering the implication for industry, it was observed that field investigations are of little relevance although accidental releases (such as at Sverdlovsk) are relevant. It was noted that in Europe and in the US any such accidental release will both attract media attention and be investigated nationally by the appropriate health and safety or pollution agency.

30. Although industry has expressed concern about the potential for loss of a unique micro-organism that is vital for its profitability, it was recognised that a corrupt inspector seeking to

acquire a few bacilli is a remarkably ineffective approach as a number of unlikely events have to occur:

- a. A corrupt inspector has to be recruited by the Organization
- b. The corrupt inspector has to successfully complete his training and be accepted as an inspector
- c. The corrupt inspector then has to be selected for the particular investigations
- d. If selected for the investigation, the corrupt inspector has to know where the particular microorganism is to be found
- e. The corrupt inspector then has to be selected for the subteam that inspects the particular part of the facility where the particular microorganism is to be found
- f. The particular microorganism then needs to be accessible in that particular part of the facility at the time when the inspection takes place
- g. The corrupt inspector then has to collect a sample of the microorganism unobserved
- h. If the area being inspected is known to contain sensitive information, the escorts for the investigation team are likely to limit the number of inspectors from the subteam allowed in the area.
- i. In addition, if the area being inspected is known to contain sensitive information, the inspectors are likely to be required to wear protective clothing and to take no personal belongings such as paper or pens into the sensitive area and be required to remove the protective clothing and shower after leaving the sensitive area
- j. Subsequent to this, the corrupt inspector then has to transport the microorganism out of the investigated facility and out of the investigated State Party whilst maintaining the viability of the microorganism.
- k. The corrupt inspector then has to transfer the microorganism to someone who can exploit the microorganism.
- l. Exploitation of the microorganism is by no means easy and can be difficult.

Insofar as visits are concerned, the chance of successful acquisition of a sample by a corrupt inspector is even less as the size of the team making a visit is much smaller, reducing the chance that the corrupt inspector will be selected, and the intrusiveness of visits are much less, reducing the chance that the relevant part of the facility will even be visited.

31. It was observed that there were much easier and more certain and effective ways to obtain CPI -- for example by corrupting a worker within the particular facility. In addition, it was noted that the UK had actually carried out a trial in a nuclear facility investigation to see whether a corrupt inspector could obtain an unobserved sample of a particular material. The corrupt inspector had been rapidly identified by the facility and he had been unable to collect or remove a sample.

32. Overall, it appeared that the risk of diversion of a sensitive strain was being overstated. It was also observed that the likelihood of an investigation in Europe was very slight because of the transparency already available about the activities of industry under European Community regulations and controls.

International Cooperation and Assistance.

33. An outline of the principal elements in the Protocol for international cooperation (Article VII) and assistance (Article VI) was followed by presentations which addressed the

implications of these protocol requirements for government, for research and development and for industry. It was recognised that there are **both** security **and** international goals for many of the States Parties engaged in the Ad Hoc Group negotiations. Although it was necessary to strike the right balance between the security and international cooperation elements of the Protocol, it was unnecessary and counterproductive to suggest that one or other of these goals was unimportant.

34. The goals of modern biotechnology are crucial in the areas of environment, health and agriculture. It was noted that there is a synergy between initiatives to enhance health, protect the environment and promote safety and security as these together improve prosperity within a country. There was much of common relevance between the BTWC Protocol and the Protocol on Biosafety to the Convention on Biological Diversity agreed in January 2000. The key issues in addressing biotechnology and maximizing its benefits for health, environment and security are:

- * Transparency
- * Public perception
- * Endless education
- * Mass media -- although it was noted that good news is generally regarded by journalist as not being news

35. A key element is capacity building where it is important to harness the synergy between the Protocol and the other ongoing international initiatives in respect of biosafety, good laboratory practice (GLP), good manufacturing practice (GMP) and disease surveillance, treatment and prevention. It was recognised that national competent authorities with oversight of and carrying out inspection of relevant facilities and activities directly contributes to increased transparency and increased confidence. However, resources are limited and it is important to avoid unnecessary duplication. There is much to be said for the future BTWC Protocol Organization focussing on the international cooperation activities for which it is best qualified to carry out. It is also important to be realistic about the resources that are likely to be available for international cooperation under the Protocol regime.

Incentives and Safeguards.

36. An outline of the obligations and rights within the Protocol was followed by presentations on the government and industrial perspectives in respect of the incentives and safeguards in the Protocol. It was noted that the BTWC Protocol will be an agreed regime and that States Parties can therefore be expected to cooperate in its implementation even though there will be differences between the expectations of individual States Parties as some will see the security benefits as paramount whilst others will see the development provisions as most important. It was also recognised that the CWC experience has shown that the implementation of the Convention is carried out by a different constituency from the one which negotiated the Convention -- this would equally be true for the BTWC Protocol.

37. It was observed that the regime being developed for the BTWC Protocol has to and is striking balances between:

- * Obligations and Rights
- * Prescription and Flexibility
- * Transparency and Protection of national security information/commercial proprietary information

Safeguards come from the way in which the regime is being elaborated in the Protocol whilst incentives come from the perceived benefits to safety and security and to development.

Awareness Raising and Outreach

38. The importance of awareness raising and outreach had been identified in several of the earlier sessions and this penultimate session considered the provisions in the Protocol for public information and then considered the importance of outreach to all the relevant constituencies in States Parties. The approaches being taken within NATO in the WMD (Weapons of Mass Destruction) Centre and the WMD initiative to raise awareness and outreach of the dangers posed by WMD and how these dangers can be countered served as a case study. It was recognised that universality is a key objective for the BTWC Protocol and to achieve this it will be necessary to raise the awareness of **non** States Parties of the benefits resulting from becoming a State Party.

39. A Protocol with unnecessary secrecy would be ineffective on several counts. It would be important for the Provisional Technical Secretariat (in the PrepCom phase), the Organization and the Protocol National Authorities to have **proactive** outreach programmes in order to reach the target constituencies in **all** countries. There was also benefit from publicly available information about the implementation of the Protocol as academic and other NGO groups could then provide useful health checks. Overall, for an effective Protocol regime, the Protocol Organization and the National Authorities need effective awareness raising and outreach programmes in order to attract support over time from politicians, policy makers and the public.

Concluding Remarks

40. A summary presentation addressed the outcome of the Workshop in regard to its theme of the scientific and technical implications of the implementation of the BTWC Protocol for government, biodefence facilities, academia and industry. The following overall conclusions emerged from the Warsaw NATO Advanced Research Workshop on "Scientific and Technical Implications of the BTWC Protocol for Civil Industry" held on 2 - 4 November 2000:

1. There was **nothing** to suggest that an effective Protocol cannot be achieved before the Fifth Review Conference of the BTWC in November/December 2001.
2. There was **nothing** to suggest that the Protocol could not be implemented effectively.
3. The key for success in implementation is **planning and flexibility**.

4. **Caution** was expressed that overprescription could strangle an effective Protocol.