

# Development of the BTWC: 1980-2008

Lecture No. 8

# 1. Outline

- How the BTWC deals with scientific and technological developments
  - Slides 2-6
- The First Review Conference
  - Slides 7-8
- The Second and Third Review Conferences
  - Slides 9-12
- The Fourth and Fifth Review Conferences
  - Slides 13-18
- The Sixth Review Conference
  - Slides 19-20

# 2. Factors Affecting the BTWC

- Perceptions of the threat
  - State programmes in the early 1990s –Iraq, South Africa, the USSR
  - CB terrorism – Sarin in Tokyo, anthrax letters
- Techniques of arms control
  - Confidence-Building Measures as the Cold War ended
  - Universalisation and National Implementation to help prevent terrorism
- Scientific and technological change

# 3. The Impact of Scientific and Technological Change

- Article X
  - Development possibilities
- Article IV
  - Biosafety standards
  - Biosecurity requirements
- Article III
  - Export control arrangements
- Article I
  - The central prohibitions

# 4. The Impact on Article I

- Meselson's question in 2000
  - “Every major technology – metallurgy, explosives, internal combustion, aviation, electronics, nuclear energy – has been exploited, not only for peaceful purposes but also for hostile ones. Must this also happen with biotechnology, certain to be a dominant technology of the twenty-first century?”
  - “At present we appear to be approaching a crossroads – a time that will test whether biotechnology, like all predecessor technologies, will come to be intensively exploited for hostile purposes or whether instead our species will find the collective wisdom to take a different course...”

# 5. The BTWC and Scientific and Technological Change

- Article XII
  - The Five-Yearly Review Conferences are required to take relevant scientific and technological changes into account
- Background Document on scientific and technological changes of relevance
  - Contributions are requested from States Parties and the document is made available at the conference
- The document is considered at the Review Conference
- Agreements reached by consensus and incorporated in the Final Declaration under each article
  - Impact on the central prohibitions is considered under Article I

# 6. A Regime of Research

- Sims argued in *The Evolution of Biological Disarmament* that the Fifth Review Conference
  - “...might, for example, return to the language of the British draft conventions of 1969 and 1970 and state that the parties recognise an obligation ‘not to conduct assist or permit research aimed at production of the kind prohibited’ under Article I...”
  - “It might also declare that research and development are so intrinsically related to each other that, in order for the ban on BTW development to be upheld, it is necessary for research to be constrained by the same condition...”
- Sims added that it is not clear at what point a line of research would cross the threshold of prohibition but while
  - “...That practical problem would remain...the burden of proof would be shifted to the practitioner of research...”

# 7. The First Review Conference of 1980

- The three Depositary States – the USSR, the USA and the UK produced a joint contribution
  - “10 (b) Although recombinant DNA techniques could facilitate genetic manipulation of micro-organisms for biological or toxin warfare purposes, the resulting agents are unlikely to have advantages over known natural agents sufficient to provide compelling new motives for illegal production or military use in the foreseeable future...”
- Sweden appeared less sanguine
  - “These genetic techniques imply a potential to change existing potential BW-agents, e.g. in order to increase their ability to survive in different environments....It cannot be excluded that new BW-agents (e.g. combinations between existing viruses or combinations between viruses and other genes) could be constructed...”



# 8. Final Declaration of the First Review Conference

- Agreement on Article I
  - Just two short paragraphs
- Stating
  - “The Conference notes the importance of Article I as the Article which defines the scope of the Convention and reaffirms its support for the provisions of this Article.”
  - “The Conference believes that Article I has proved sufficiently comprehensive to have covered recent scientific and technological developments relevant to the Convention.”

# 9. The Second Review Conference of 1986

- Four countries made contributions to the background document on relevant scientific and technological changes
  - The UK concluded (para 7.2) that “The 1980 paper...doubted that such improvements provided compelling advantages for production or use in the foreseeable future. In the event, the rapid pace of development across a range of peaceful activities indicates that there is greater potential than was perhaps evident at the time.”
  - And (para 4.1) “In 1980, the depositaries paper considered solely the chemical synthesis of toxins....The possibilities for microbial synthesis of toxins provided by GE [Genetic Engineering] offer much greater opportunities... to achieve useful quantities of toxins for... significant military use...”
- These points were strongly reinforced in Sweden’s contribution to the background document

# 10. Final Declaration of the Second Review Conference

- Agreement on Article I
  - Five paragraphs mostly dealing with the impact of scientific and technological developments
- Including
  - “The Conference, conscious of the apprehensions arising from the relevant scientific and technological developments, *inter alia*, in the fields of microbiology, genetic engineering and biotechnology, and the possibilities of their use for purposes inconsistent with the objectives and provisions of the Convention, reaffirms that the undertakings given by the States Parties in Article I applies to all such developments.”
  - “The Conference reaffirms that the Convention unequivocally applies to all natural or artificially created microbial or other biological agents or toxins whatever their origin or method of production. Consequently, toxins (both proteinaceous and non-proteinaceous) of a microbial, animal or vegetable nature and their synthetically produced analogues are covered.”

# 11. The Third Review Conference of 1991

- Seven countries contributed to the background document on relevant scientific and technological changes
- Canada in addition to its contribution distributed another document on *Novel Toxins and Bioregulators*
- The contribution from the USA also noted the problem of increasing knowledge of bioregulators
  - “Their range of activity covers the entire living spectrum, from mental processes (e.g. endorphins) to many aspects of health such as control of mood, consciousness, temperature control, sleep, or emotions, exerting regulatory effects on the body. Even a small imbalance in these natural substances could have serious consequences, including fear, fatigue, depression or incapacitation. These substances would be extremely difficult to detect but could cause serious consequences or even death if used improperly.”

# 12. Final Declaration of the Third Review Conference

- Agreement on Article I
  - Seven paragraphs most again dealing with the impact of scientific and technological change
- Including
  - Some repeats of material in the 1986 Final Declaration
  - New material including
    - “The Conference notes that experimentation involving open-air release of pathogens or toxins harmful to man, animals or plants that has no justification for prophylactic, protective or other peaceful purposes is inconsistent with the undertakings contained in Article I.”
    - And a direct appeal to the scientific communities of States Parties to support the BTWC.

# 13. The Fourth Review Conference of 1996

- Four countries contributed to the background document on relevant scientific and technological developments
- Switzerland amongst others emphasised the scope and pace of change
  - “During the last decades biotechnology and genetechonology have revolutionized (and is still doing so) many areas of biological and medical sciences. The possibilities of studying and manipulating genetic information have provided a huge amount of knowledge on basic principle of life...”
- The UK raised the question of ethnic targeting
  - “...It cannot be ruled out that information from genetic research could be considered for the design of weapons targeted against specific ethnic or racial groups...”

# 14. Final Declaration of the Fourth Review Conference

- Agreement on Article I
  - Nine paragraphs on Article I included repeats of those from 1991 on open-air experiments and the appeal to scientific communities
- Most noticeable, however, was para 6 which expanded the range of fields of work causing apprehensions
  - “6. The Conference, conscious of apprehensions arising from relevant scientific and technological developments, *inter alia*, in the fields of microbiology, biotechnology, molecular biology, genetic engineering, and any applications resulting from genome studies, and the possibilities of their use for purposes inconsistent with the objectives and provisions of the Convention, reaffirms that the undertakings given by States Parties in Article I applies to all such developments.”

# 15. The Fifth Review Conference of 2001-2002 (i)

- Five countries contribute to the background document, four in BWC/CONF.V/4 and the UK in BWC/CONF.V/4/Add.1
- South Africa's contribution to BWC/CONF.V/4 concentrated on a subject which had not previously been given much attention – the developments of plant biocontrol agents and plant inoculants. It concluded, for example, that
  - Plant inoculants are relevant because
    - “a. A growing industry and more sophisticated production facilities that have the potential to be diverted to BW producing facilities, as in the case of vaccine production facilities.”
  - Biocontrol of plant pests and weeds is relevant because
    - “b. Undesirable plants, exotic plants and even noxious plants in one country may be natural, essential and in many cases utilised for commercial purposes (crops) in other countries



# 16. The Fifth Review Conference of 2001-2002 (ii)

- The background document in 2001 was unusual in the additional 29 page addition by the UK. This consisted of
  - A. Introduction/Overview (pages 1-6)
  - B. Detailed Science and Technology Review (pages 7-29)
- Part A concluded that
- “18...Given the accelerating pace a in science and technology, the UK wonders whether it is prudent to maintain a five year gap between such assessments under the BTWC. The UK suggests that the upcoming Review Conference consider establishing a mechanism for State Parties to work together on a more frequent basis to conduct such scientific and technical reviews and to consider any implications at the necessary level of expertise.”

# 17. The Fifth Review Conference of 2001-2002 (iii)

- The UK's detailed science and technology review covered 23 separate topics
  - Genomics and proteomics
  - Bioinformatics
  - Human Genome Project and human diversity
  - Gene therapy
  - Virulence and pathogenicity
  - Vaccines and novel therapies
  - Recombinant protein expression
  - Toxins and other bioactive molecules
  - Detection and identification technologies
  - Human infectious disease patterns
  - Smallpox destruction
  - Drug resistance

# 18. The Fifth Review Conference of 2001-2002 (iv)

- The UK list of topics continued as follows
  - Disease in agriculture
  - Pest control in agriculture
  - Global initiatives to tackle disease
  - Molecular biology applications and crops
  - Trends in protein production technologies
  - International co-operation and biosafety: activities under the Biodiversity Convention
  - Means of delivery of agents and toxins
  - Use of pathogens to control weeds and 'criminal' crops
  - Bioremediation: the destruction of material
  - Countering the threat of BW terrorism
  - Impact of the entry into force of the CWC

# 19. The Sixth Review Conference of 2006

- For the first time the Conference Secretariat provided a summary of the States Parties contributions rather than just collating them
- Nevertheless the original contributions can be found on the web
- What stands out in these contributions is the new concerns that are still arising as the revolution in the life sciences progresses. Thus the Netherlands argued
  - “14...one could imagine that in the future microscopic machines built of DNA and protein particles could be made to intervene in biological processes by imitating the effect of an enzyme or toxin. This degree of artificiality might exclude the technology from the Convention....we recommend...that misuse of...developments in the field of nanotechnology and derived applications is in fact a violation of Article I.”

# 20. Final Declaration of the Sixth Review Conference

- Agreement on Article I
  - Just four paragraphs but a sweeping statement in para 2 that “The Conference reaffirms that Article I applies to all scientific and technological developments in the life sciences and in other fields of science relevant to the Convention.”
- Agreement on annual inter-sessional meetings, including in 2008
  - “(iii) National, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins.
  - (iv) Oversight, education, awareness raising, and adoption and/or development of codes of conduct with the aim of preventing misuse in the context of advances in bio-science and bio-technology research with the potential of use for purposes prohibited by the Convention.”

# Sample Questions

- 1. How is the problem of keeping the Biological and Toxin Weapons Convention up-to-date in regard to scientific and technological change carried out? Do you think the present mechanism is adequate?**
- 2. How does the assessment of the impact of scientific and technological change made in the First Review Conference of 1980 compare with that made in the Sixth Review Conference of 2006?**
- 3. What do you consider to be some of the key scientific and technological changes relevant to the Convention since 1980? Discuss one of these in detail.**
- 4. How all do you think the Final Declarations of Review Conferences reflect the Background Papers on science and technology changes? Give some examples of either adequate or inadequate reflections of the scientific view point.**

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