

# Scientific and technological developments relevant to the Biological & Toxin Weapons Convention

**September 2006**

The Royal Society, International Council for Science (ICSU) and InterAcademy Panel on International Issues (IAP) jointly held a workshop at the Royal Society on 4–6 September 2006 to consider new scientific and technological developments relevant to the operation of the Biological & Toxin Weapons Convention (BTWC). The workshop brought together 84 leading international scientific and policy experts from 23 countries to provide independent and authoritative advice to BTWC States Parties on new scientific and technological developments relevant to the Sixth Review Conference being held in Geneva in November 2006. This statement highlights the key points from the workshop and is not necessarily an expression of the views of the Royal Society, ICSU or IAP.

The workshop attendees strongly condemned biological and toxin weapons and the development of microbial or other biological agents or toxins that have no justification for prophylactic, protective or other peaceful purposes. This condemnation also covered the application of technological developments to weapons, equipment or means of delivery to use such agents or toxins for hostile purposes or in armed conflict.

Workshop attendees stressed the truly international scope of scientific and technological developments. The Sixth Review Conference, bringing together delegates from all over the world, therefore provides a valuable opportunity to strengthen agreement on the global prohibition of biological and toxin weapons.

## **Impact of scientific and technological developments**

- The pace of technological developments is now so rapid that their implications need to be reviewed more frequently than allowed by the five year cycle of BTWC Review Conferences.
- It is becoming increasingly difficult to know where technological breakthroughs will occur in the world as many countries have sophisticated research facilities. It is also difficult to predict the details and application of breakthroughs given the serendipitous nature of scientific research. Therefore science and technology reviews for future BTWC Review Conferences must range very widely.
- Technological developments are now bringing processes that could feasibly be used to make and deploy biological and toxin weapons within the capability of small groups below state level because of the reduction in costs and expertise required.
- Enabling technologies going beyond the classical life sciences are equally relevant to the BTWC, particularly in relation to the means of delivery of agents for hostile purposes. The convergence of these technologies with traditional and current biotechnologies should be closely monitored.

## **Safeguarding beneficial developments**

- Scientific and technological developments and their wider dissemination and implementation will undoubtedly bring great positive benefits to humankind, so over-regulation that would prevent the provision of these benefits must be avoided.

## **BTWC Article I**

- The misapplication of the new scientific and technological developments discussed during the meeting should be covered under Article I of the Convention. Consequently, it is important to reaffirm at the forthcoming Review Conference that the Convention unequivocally covers all naturally or artificially created or altered microbial or other biological agents or toxins, as well as their components, whatever

their origin or method of production, that have no justification for prophylactic, protective or other peaceful purposes.

#### **BTWC Article III**

- The risk of misuse of 'dual use' technologies can be minimised, though not completely eliminated, through national controls and regulations and through increased awareness of the prohibitions of the BTWC. The Review Conference is urged to call upon all States Parties to adopt appropriate measures.
- Improved risk management processes to deal with dual use technologies need to be developed. These should include further investigation of best practice in communicating the associated risks. Methods are also needed for undertaking assessments across the full biological agent threat spectrum, which ranges from the deliberate weaponisation of biological agents through the inadvertent misuse of dual use technologies to emerging naturally-occurring diseases.

#### **BTWC Article IV**

- National and international scientific organisations and industry should encourage and engage those involved with scientific endeavours to increase awareness of the Convention and dual use issues, thereby both promoting in depth implementation of the Convention and ensuring vigilance when work with dual use potential is undertaken.
- Processes need to be explored by which the scientific community can regularly input into the BTWC regime, such as independent scientific advisory panels and specific meetings on subjects with a science focus. For example, if they do not already do so States Parties should seek advice from their scientific community as part of their preparation for BTWC meetings and consider including scientists in their delegations.

#### **BTWC Article V**

- Restricting the flow of information about new scientific and technical advances is highly unlikely to prevent potential misuse and might even encourage misuse. Freedom of communication and movement of scientists is fundamental to scientific progress and therefore to achieving the potential benefits for human, animal and plant health. Governments may take steps to protect their own security by occasionally restricting some information. However, they should also promote transparency and confidence building. All reasonable measures should be taken to facilitate the flow of information and scientists amongst the international community in both the developing and developed world.

#### **BTWC Article X**

- Establishing and maintaining effective national and global surveillance systems for human, animal and plant diseases is a key element of the defence against the misuse of scientific and technological developments. This is a good example where States Parties should cooperate with each other and international organisations (such as World Health Organisation, World Organisation for Animal Health and United Nations Food & Agricultural Organisation) to further the development and application of scientific discoveries for the detection, prevention and countering of disease, under Article X of the Convention.

*A full report of the workshop will be produced for the BTWC Review Conference. RS-IAP-ICSU will also be hosting a lunchtime seminar at the United Nations in Geneva at lunchtime on Tuesday 21 November 2006 during the Review Conference. Please send any response to this statement to:*

*Dr Nick Green, Science Policy Section, The Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG, UK  
Tel: +44 (0)20 7451 2586      E-mail: [nick.green@royalsoc.ac.uk](mailto:nick.green@royalsoc.ac.uk)*

*Further information on the organisers of the international workshop is available online at:*

[www.royalsoc.ac.uk](http://www.royalsoc.ac.uk)

[www.icsu.org](http://www.icsu.org)

[www.interacademies.net](http://www.interacademies.net)