



Biological weapons convention: implementation and responsibilities in the lab

The rising global risk of terrorism and the increasing sophistication of terrorists have raised the potential for misuse of biotechnology. Addressing threats posed by the misuse of biotechnology requires a concerted response at international, national, facility and personal levels. It is incumbent on those in the life sciences to be actively engaged in supporting the government's efforts in responding to this threat.

In addition to raising awareness of international discussions and expectations, this paper aims to outline areas in which the life-science community can contribute to reducing the threat of misuse. It addresses personal responsibilities, including improving attitudes to biosecurity, identifying security implications of activities, developing a harmonised approach to biosecurity within Australia, and actively promoting these measures with Australian and international colleagues with view to improving security, both nationally and internationally.

International expectations and obligations

The international legal regime prohibiting biological weapons is clear: the actual use of biological weapons is outlawed through the Geneva Protocol 1925 and the Biological Weapons Convention 1972 (BWC) prohibits all member states from developing, producing, stockpiling or otherwise acquiring or retaining biological weapons and their means of delivery. States party to the BWC must also prohibit their supply to, or acquisition by, all other entities – state and non-state.

For Australia and many other member states, effective BWC implementation is not only achieved through enacting legislation. It also involves raising awareness and promoting security practices within the diverse communities

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of research scientists, industry groups (production, equipment and trade), public health, military and other government experts – noting that any of these groups could inadvertently contribute to an illicit biological weapons programme.

The BWC objectives are, in part, complemented by the Australia Group (AG)¹, an informal arrangement which seeks to harmonise national export controls on materials and equipment suitable for the development of biological and chemical weapons. Export permits – issued by the Department of Defence – are required prior to exporting AG-listed items.

Since the terrorist attacks of September 11 and subsequent *B. anthracis* incidents in the US, the bombings in Indonesia, and claims from extremist groups such as Al-Qaida that they would use chemical and biological agents as weapons, many countries have moved to strengthen national defences against bio-terrorism. In addressing terrorism, the UN Security Council Resolution 1540, adopted in 2004, re-emphasises the role of the BWC and export control provisions. The resolution requires all UN members to adopt and enforce criminal laws to prohibit activities associated with nuclear, chemical or biological weapons programmes, and to introduce measures for controlling access to harmful WMD materials. Enactment of effective laws is now mandatory under international law and Australia is expected to comply².

Biosecurity: an international perspective

Effective national implementation of the BWC forms the basis of international discussions to strengthen the treaty³. A vital element of effective implementation relates to controlling access to dangerous pathogens and toxins. At the 2003 BWC meeting of experts in Geneva, state parties discussed biosecurity and national legislation. From this, elements of a best-practice biosecurity model emerged. Note that the term 'biosecurity' is used here to describe the prevention of deliberate misuse of biological pathogens and toxins, and should not be confused with 'biosafety'.

The meeting agreed that biosecurity is a discipline in its own right and should not be overshadowed by the common understanding of biosafety. However, standard biosafety precautions do provide some security measures, such as restricting access to facilities to authorised people, but further measures are required to ensure effective, comprehensive biosecurity. Details of biosecurity best practice are at www.dfat.gov.au/asno

Satisfying Australia's international obligations

Effective and efficient implementation of our international obligations depends on a coordinated whole-of-government approach underpinned by three pillars:

- Complementary self-regulation by facility operators⁴.
- Comprehensive legislation.
- Effective implementation and enforcement arrangements.

Self regulatory measures Improving attitudes to biosecurity

While improving biosecurity practices can be directed through legislation, the ease with which small quantities of agents and scientific expertise can be transferred



means there is an equally urgent need for the scientific community to adopt lab practices which ensure that their research is not inadvertently misused for hostile activities.

Implementation of good biosecurity is a significant challenge and requires major changes to workplace attitudes, from the top of organisations down to individuals. During the discussions at the 2003 BWC Experts Meeting, it was noted that: "... biosecurity was multi-faceted and could not be achieved simply with locks and keys" and that biosecurity is a "whole-of-life process", covering the acquisition, use, transfer and disposal of materials. This is the harder part of achieving good national controls – it requires constant awareness by both facility operators and regulators, and coordination and maintenance to ensure that exploitable weak links do not develop.

Responsibilities of researchers

With rapid technological changes, researchers are in a strong position to identify potential misuse of their research. Even with strong legislative and enforcement provisions, Australia's security will never be watertight unless there is an equally robust commitment by researchers to assist the government's efforts. To this end, DFAT encourages researchers to examine how their activities might be misused and take steps to prevent this possibility⁵. Some steps include, but are not limited to, strengthening physical security, restricting access to authorised workers only, effective stock auditing, checking intended use and appropriate chain of custody, developing codes of conduct, and reporting thefts or suspicious incidents to DFAT or to the National Security Hotline⁶ (some measures may be made mandatory once the legislative review, discussed later, is finalised.) Details can be downloaded from www.dfat.gov.au/asno

Researchers' complementary efforts could contribute to the 2005 BWC discussions on codes of conduct for scientists.

National legislation, implementation and enforcement

Australia has a body of Federal and State legislation relating to biological issues. These laws are many and varied but focus on minimising harm to human health and safety (biosafety) rather than biosecurity. Moreover, these only apply – and in particular ways – to subsets of the population of facilities and agents of potential concern in Australia. Further information on legislation is found at www.dfat.gov.au/asno

In responding to the heightened bioterrorism threat, the Department of Prime Minister and Cabinet is working with other government agencies in a legislative review into the control of hazardous goods which includes, inter alia, harmful biological materials – primarily, pathogens and toxins – with a view to ensuring that regulations and their implementation and enforcement are effective, consistent and sufficient to prevent the procurement or possession of such goods for illegal purposes. The review will also consider provisions which ensure early detection of the procurement of these materials and that penalties for offences are appropriate.

One option for any decisive action arising from the review would be to enhance current regulatory systems. In progressing international best-practice biosecurity measures through regulatory means, it is important to adopt a whole-of-government approach, and not to 'reinvent the wheel' or duplicate existing structures. Where niche regulation is already in place, the key is to coordinate each element to ensure there are no gaps, while minimising administrative burdens.

Conclusion

There is considerable pressure by and expectation from the international community, particularly our close allies, to improve measures to control access to harmful biological agents and so deter their misuse. Effective national measures also serve to strengthen regional and international security.

The collective attitude of the Australian life-sciences community would have an important impact in improving international security. Through collaborative research, education and training programmes provided in Australia, international researchers would introduce appropriate biosecurity measures and be more aware of the security implications of their work. DFAT encourages Australian researchers in actively promoting biosecurity benefits with their international counterparts. DFAT looks forward to working with the ASM to ensure a positive outcome.

Contacts

Specific questions on exporting biological materials and equipment can be directed to: The Defence Trade Control & Compliance Department of Defence
Tel: (02) 6266 3459
<http://www.defence.gov.au/strategy/dtcc/default.htm>

Further information on BWC obligations, biosecurity measures, the Australia Group, unusual requests for materials, thefts and other activities implying BWC non-compliance can be provided by:

Kylie Brown (International Security Division) or
Andrew Leask (Australian Safeguards and Non-Proliferation Office) at DFAT
Tel: (02) 6261 1111
E-mail: bwc@dfat.gov.au
<http://www.asno.dfat.gov.au/>

Additional links

<http://www.opbw.org/>
<http://disarmament.un.org:8080/wmd/>

References

1. <http://www.australiagroup.net/>
2. <http://www.un.org/News/Press/docs/2004/sc8076.doc.htm>
3. The history of the BWC can be found at <http://www.asno.dfat.gov.au/>
4. The term 'facility operators' includes all entities handling, or potentially handling, biological materials, whether in public private or biodefence laboratories.
5. Examples of research includes, but is not limited to: increased resistance to antibiotics, increased toxicity, virulence, infectivity and/or viability; vaccine research; microbial production technology; aerosolisation or detection.
6. National Security Hotline: 1800 123 400