



Australian Government
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Defence Science and
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The Role of Awareness-Raising, Education and Codes of Conduct in the Dual-Use Research Environment

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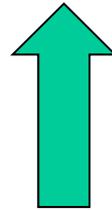
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Issues to be discussed in this presentation

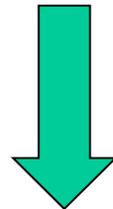
- Dual-Use Dilemma in Biological Research
- Efforts through the Biological Weapons Convention (BWC) to address the dual-use dilemma
- Awareness-raising
- Codes of Conduct
- Importance of Co-operative efforts

Dual-use Dilemma in biology

Public health / pharmaceuticals / agriculture



- Materials - seed cultures of pathogens, toxins
- Equipment - incl. fermenters, centrifuges, freeze dryers
- Technology and knowledge ('know-how')

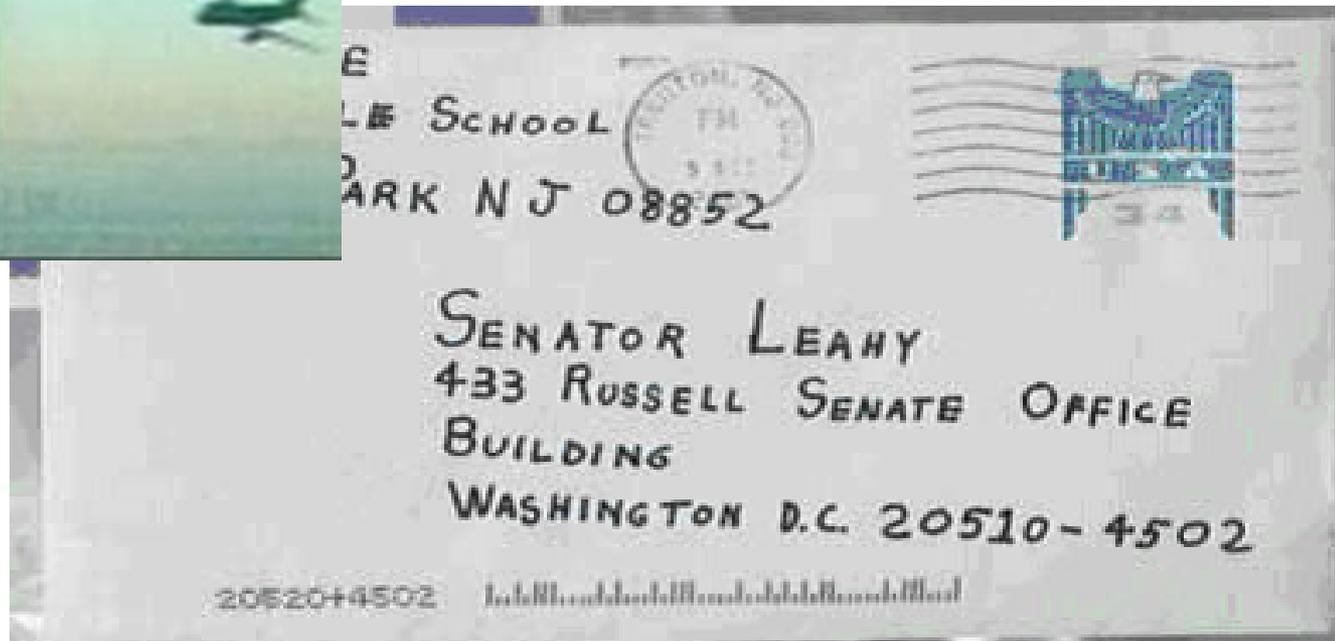


Biological weapons / Bioterrorism



Post 9/11

Increasing concerns
about bio-terrorism



The Challenge

How to prevent the mis-use of biological sciences for BW or other hostile purposes, without hindering research and peaceful applications of biological sciences.

Key issues:

- dual-use nature of materials and equipment associated with biological weapons
- the difficulty in recognising when an apparently innocent transaction may have a hostile intent
- the possibility that research being undertaken for beneficial objectives may have hostile applications.

Biological Weapons Convention

Article I: ‘Each State Party to this Convention **undertakes never in any circumstance to develop, produce, stockpile** or otherwise acquire or retain:

(a) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;

(b) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.’

4th Review Conference - **includes prohibition of ‘use’ of biological weapons and prohibition of bioterrorism.**

However....

- Less than 5% of biological scientists are aware of:
 - the dual-use nature of biology, and potential for mis-use of biology for hostile purposes;
 - the BWC, and the prohibitions which are enacted in domestic law.

BWC - Post 9/11

Increasing focus on the roles of the BWC as a means to raise the barriers to bio-terrorism

- Inadvertent support of the biological community to a terrorist group
 - Provision of materials, equipment, ‘know-how’
- ‘Disgruntled insider’
- Theft of pathogens or toxins from biological facility

BWC - Post 9/11

- Annual meetings in Geneva to:
 - discuss;
 - develop common understandings and
 - promote effective action
- On a range of BWC/‘biosecurity’ issues, including:
 - Domestic legislation;
 - Enhanced security of pathogens/equipment, and knowledge;
 - Awareness raising, education, codes of conduct.

Codes of conduct in the context of the BWC

Raise awareness of BWC issues, including:

- BWC-International obligations
- BWC-related domestic laws and regulations
- Dual-use dilemma
 - Including ‘experiments of concern’
- Potential inadvertent assistance to BW-proliferation / bio-terrorism

Facilitate development of responsible culture and behaviour in individual scientists and in workplaces, and appropriate workplace regulations and oversight, that minimise the risk of mis-use of biological sciences for hostile purposes.

Layer of Codes*

Useful to think of Codes of Conduct as occurring in a number of layers, including:

- *Guiding Principles (A Universal Code cf. Hippocratic Oath)*
- *Scientific Society Codes (Codes of Ethics)*
- *Institutional or Workplace Codes (Codes of Practice)*

We would see these various codes as complementary and mutually reinforcing, and may be most effective if developed as a package.

* Australia, Working Paper, BWC/MSP/2005/MX.35 (24 June 2005)

* Chair 'Synthesis Paper', BWC/MSP/2005/L.1 (16 November 2005)

Outcomes of BWC process

- Guiding Principles (a short ‘universal’ aspirational Code of Ethics - compare with Hippocratic Oath);
- Elements or themes that may subsequently be drafted into appropriate language by various biological sciences societies and incorporated into existing Society Codes (Codes of Conduct);
- Elements or themes that may subsequently be drafted into appropriate language by various institutions / workplaces and incorporated into existing Workplace Codes (Codes of Practice).

[Name of Institution] Workplace Code [Elements]

The **[Name of Institution]** Workplace Code is the following a set of requirements developed to ensure that scientists employed by **[Name of Institution]** comply with all obligations, legislation, regulations and oversight mechanisms, and to prevent activities by **[Name of Institution]** scientists which would deliberately or inadvertently assist in the development of biological weapons.

- 1) Awareness of international obligations under the Biological Weapons Convention (BWC)
- 2) Awareness of national legislation and associated regulations related to **[Name of Country]** obligations under the BWC.
- 3) Awareness of the various regulatory and oversight mechanisms applicable to the **[Name of Institution]** research program, including the Research Oversight process / Advisory Committee.
- 4) A personal commitment by all scientists employed by **[Name of Institution]** Workplace Code to fully comply with all international obligations, national legislation and related regulations, and the various regulatory and oversight mechanisms applicable to the **[Name of Institution]** research program.
- 5) Awareness of the dual-use nature of biological materials, equipment and ‘know-how’, and a personal commitment by all scientists employed by **[Name of Institution]** to not deliberately or inadvertently assist anyone in any BW-proliferation or bio-terrorism activity.
- 6) A personal commitment by all scientists employed by **[Name of Institution]** to report to Senior Manager, **[Name of Institution]** any issue or activity that they consider may be relevant to compliance with BWC obligations, **[Name of Country]** national legislation and associated regulations, or **[Name of Institution]** regulations and oversight mechanisms.

How do codes relate to teaching of biological sciences?

One possible approach :

- BWC issues taught in 1st year undergraduate level
- Perhaps part of ‘scientist responsibility/ ethics’ course?
- A refresher course at beginning of postgraduate program.
- Short courses offered by academia/societies and gov’t outreach to workplaces.

These will be more effectively taught by academics with strong personal commitment to objectives of the BWC.

- Hence, need for Workplace Codes in Biology Departments at academic institutions.

New partnerships between academics / National Authorities / senior government scientists.

Additional thoughts ...

- To be effective, development of Codes and the teaching of BWC ethics will require high levels of cooperation between academia, government officials and the broader scientific community, including scientific societies
 - and a strong sense of responsibility and vigilance within the relevant scientific communities.
- This will need to be a continuing process because of the changing players and changing technologies in the various biological sectors
 - cannot do it once and then put a ‘tick in the box’.
- Further reading:
 - R J Mathews and J M Webb, ‘Awareness Raising, Education and Codes of Conduct within the Framework of the Biological Weapons Convention’, in BWPP Reader (Geneva, 2009). (BWPP Website)