Science, Security and Ethical Dilemmas

Dr Rob Floyd
Assistant Secretary
Infrastructure Security and Emergency Management Branch
Homeland & Border Security Division
Department of the Prime Minister and Cabinet

Australian Government
Department of the Prime Minister and Cabinet

Outline

- Science & security – a long history
- National Security Science & Innovation Strategy
- Balancing scientific advances with security risks – an ethical dilemma
- Biotechnology – a case study in science, security and ethics
- Policy responses – what should Government do?
- Conclusions

Science & security – a long history

- Scientific advances underpin weapons' design, deployment and attendant defences
  - Military explosives, munitions, WMD etc
  - Dynamic equilibrium with +ve and -ve applications
- Historically, science-security interaction has been militarily-focused
- Since 2001, interaction increasingly involves civil society
  - New sectors – e.g. health

National Security Science & Innovation Strategy

- NSSIS
  - Announced in the inaugural National Security Statement
  - Enhances application of science & innovation to NS
  - Establishes 12 NS objectives for science and innovation
    - build a more prepared and resilient society
    - allow NS community to make smarter use of information
  - Establishes an annual process to communicate science and innovation priorities to researchers, entrepreneurs and funding

- Will facilitate better collaboration, more relevant R&D and enhancement of required research capabilities

Balancing risks and benefits

- NSSIS focuses on contemporary security threats
  - some of which derive from scientific advances
- Need to weigh advantages of scientific advancement against disadvantages, including potential security threats
  - Involves subjective judgement
    - informed by ethics
- Biotechnology is the current centre of debate

Biotechnology – a case study (1)

- Biotechnological advances pose ‘dual use dilemma’
- Dilemma understood by nuclear scientists
- New issue for biologists
  - security dimensions poorly understood, possibly because no significant BW use
  - concern security risks may be dismissed/diminished
    - Bruce Ivins “amerithrax” case emphasises risks are real and present
    - Rogue insiders a key challenge

Biotechnology – a case study (2)

- Key experiments heightened international community's concerns:
  - Mousepox virus (CSIRO/ANU - 2001)
  - *De novo* synthesis of Poliovirus (2002)

- US response – "Fink Report"
  (*Biotechnology Research in an Age of Terrorism*)
  - Identification of 7 'Experiments of Concern' including:
    - altered virulence, pathogenicity, transmissibility, environmental stability

Biotechnology – a case study (3)

- One Australian view:
  - Miller and Selgelid (2008) *Ethical and Philosophical Consideration of the Dual-Use Dilemma in the Biological Sciences*
    - Supported by PM&C's NSST Unit
    - Identifies 11 experiments of concern
- Dual Use Dilemma is an *ethical* dilemma
- Science and Values
- Trade-off between security and academic freedom?
- Avoiding trade-offs: *Designing-in-Ethics*

Policy options – what should Government do?(1)

- Initiatives to protect collaborative life sciences research from potential malevolent misuse
  - International arrangements e.g. BWC; Australia Group
- Balance NS concerns with need to advance research
  - require security, government policy & researcher inputs
  - include public, private and research sectors
  - Intelligence-led approach – threat-based
- Responsibility for safeguarding against misuse
  - ethical analysis led to options for 'locus of responsibility'
    - Individual – Institution – Government
  - layered approach, not a single solution

Conclusions

- Broadened NS concept means science-security interaction will continue to involve new sectors
- Policy responses should be risk-based
  - Non-regulatory approaches
    - Codes of Conduct
      - *but Jayant Patel ignored the Hippocratic Oath...*
  - Regulatory approaches
    - Graduated (risk-based) regulation
      - *SSBA scheme*
- Balancing advantages of biotechnological advancement against security risks poses an ethical dilemma