The Vital Importance of Education and Awareness Raising for Biosafety and Biosecurity

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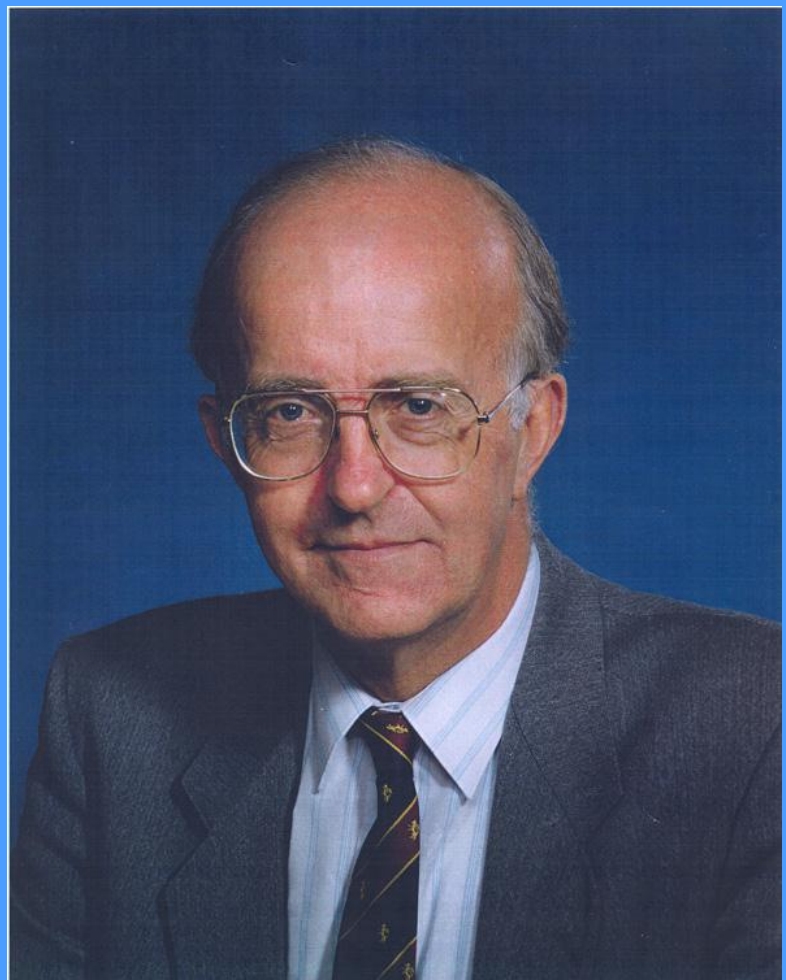

Education & Awareness Raising

- Biosafety and biosecurity are of **vital** importance to counter outbreaks of disease, whether natural, accidental or deliberate
- Of the three weapons of mass destruction – chemical, biological and nuclear – it can be argued that biological weapons present the greatest threat
  - Only small amounts of material are needed because infection spreads in humans, animals or plants
  - The Biological & Toxin Weapons Convention is the weakest of the three Conventions

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- All three conventions to prohibit weapons of mass destruction – chemical, biological and nuclear – are **currently** focussing on education and awareness raising for strengthening their regimes
  - Opportunity now for those engaged in the Biological and Toxin Weapons Convention to enhance education and awareness raising for **all those** engaged in the life sciences
  - **whether** in government, academia or industry

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- The Biological & Toxin Weapons Convention (BTWC) is the weakest of the three Conventions
  - The Non-Proliferation of Nuclear Weapons Treaty (NPT) has 190 States Parties
  - The Chemical Weapons Convention (CWC) has 190 States Parties
  - The BTWC has 170 States Parties
  - The BTWC has a secretariat of 3 people in marked contrast to the OPCW and the IAEA
- Consequently **national** implementation is **key**

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- The Biological & Toxin Weapons Convention (BTWC) currently has Review Conferences at five year intervals
  - *to review the operation of the Convention, with a view to assuring that the purposes of the preamble and the provisions of the Convention*
- In addition there is an Intersessional Process
  - Meeting of Experts – one week in July/August
  - Meeting of States Parties – one week in December

– to discuss, and promote common understanding and effective action

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- The Intersessional Process
  - has three Standing Agenda Items (and a biennial item):
  - Cooperation and assistance, with a particular focus on strengthening cooperation and assistance under Article X;
  - Review of developments in the field of science and technology related to the Convention;
  - Strengthening national implementation
- All three Standing Agenda Items are relevant to education and awareness raising

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- Cooperation and assistance, with a particular focus on strengthening cooperation and assistance under Article X;
  - (e) **education,** training, exchange and twinning programmes and other means of developing human resources in the biological sciences and technology relevant to the implementation of the Convention, particularly in developing countries;
  - (f) capacity-building, through international cooperation, in **biosafety** and **biosecurity**, and …

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- Review of developments in the field of science and technology related to the Convention;
  - (c) possible measures for strengthening **national biological risk management**, as appropriate, in research and development
  - (e) **education and awareness-raising about risks and benefits** of life sciences and biotechnology
- Strengthening national implementation
  - (d) national, regional and international measures to improve **laboratory biosafety and security** of pathogens and toxins;

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- However, the BTWC to prevent deliberate outbreaks of disease in humans, animals or plants is not alone
- States are rightly equally concerned with natural and accidental outbreaks of disease in humans, animals and plants
- And their efforts are coordinated internationally through the World Health Organisation (WHO), the World Animal Health Organisation (OIE) and the Food and Agriculture Organisation (FAO).

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- In addition, the United Nations SCR 1540 (2004) agreed provisions to prohibit any non-State actor from obtaining N, B or C weapons
- SCR 1540 (2004) includes the requirement:
  - *8. Calls upon all States:*

– *(d) To develop appropriate ways to work with and inform industry and the public regarding their obligations under* ***such laws****;*

['***such laws***' are '*national rules and regulations*' that '*ensure compliance with their commitments under the key multilateral non-proliferation treaties*.']

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- The United Nations SCR 1540 (2004) provisions to prohibit any non-State actor from obtaining N, B or C weapons requires:
- All States to submit information for 1540 Matrices regarding their national implementation of these prohibitions
- The matrix for the Ukraine, approved 30 December 2010, is available at:

http://www.un.org/en/sc/1540/docs/matrices/Ukraine%20revised%20matrix.pdf

OP 2 - Biological Weapons (BW)

State:	**Ukraine**
Date of Report:	25 October 2004
Date of Addendum 1:	06 October 2005
Date of Addendum 2:	28 January 2008

Does national legislation exist which prohibits persons or entities to engage in one of the following activities ? Can violators be penalized ?		National legal framework		Enforcement: civil/criminal penalties and others		Remarks
		YES	if YES, indicate source document of national implementation law	YES	if YES, indicate source document	
1	manufacture/produce			X	Criminal Code, article 440	
2	acquire			X		
3	possess					
4	stockpile/store			X	Criminal Code, article 440	
5	develop			X		
6	transport			X		
7	transfer					
8	use			X	Criminal Code, articles 439 and 441	
9	participate as an accomplice in a.m. activities					
10	assist in a.m. activities	X	Law on the Fight Against Terrorism, 2003, Art 24,25	X	Criminal Code, article 258	
11	finance a.m. activities	X	Law on the Fight Against Terrorism, 2003, Art 25	X	Law on the Fight Against Terrorism, Art 25	
12	a.m. activities related to means of delivery					
13	involvement of non-State actors in a.m. activities			X	Criminal Code, article 258	
14	Other	?	Decree of the Presidium of the Supreme Soviet of the Ukrainian Soviet Socialist Republic ratifying the BWC, of 21 February 1975	X	Criminal Code, article 440: prohibition of sale	

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- Furthermore, the United Nations Environmental Programme (UNEP) and the Cartagena Protocol on Biosafety have helped enhance biosafety awareness in many States around the world
- The Ukraine National Biosafety framework is available at http://www.unep.org/biosafety/files/UA-NBFfinal.pdf
  - Although primarily addressing GMOs {Genetically Modified Organisms} this framework includes the following education requirements:

The Ministry of Education and Science shall:

- Provide for the development of scientific and technical potential in genetic engineering;
- Provide for the protection of international and national patents and other types of intellectual property in GMOs' handling and genetic engineering;
- Develop criteria for safe GMOs' handling and genetic engineering in closed systems;
- Develop and improve a system of controlling the observance of genetic engineering safety regulations;
- Conduct licensing of genetic engineering in closed systems;
- Issue permits for the importation of unregistered GMOs, if they are to be used exclusively for research purposes in closed and open systems, and public testing purposes, taking into consideration the results of state ecological and sanitary-and-epidemiological expert examination of GMOs' biological and genetic safety that is conducted in accordance with international treaties of Ukraine.

Although focussing on GMOs does require **biosafety**

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- Global concerns for both biosafety and biosecurity
- WHO Laboratory Biosafety Manual 2004
- WHO Laboratory Biosecurity Manual 2006
  - Biosafety - Laboratory biosafety describes the containment principles, technologies and practices that are implemented to prevent the unintentional exposure to pathogens and toxins, or their accidental release
  - Biosecurity - Laboratory biosecurity describes the protection, control and accountability for valuable biological materials in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release.

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- **CWA 15793:2008 Laboratory biorisk management standard**
  - The scope of this laboratory biorisk management system standard is to set requirements necessary to control risks associated with the handling or storage and disposal of biological agents and toxins in laboratories and facilities.
- See also CWA 15793 September 2011
- CWA 16335 September 2011 Biosafety professional competence
- CWA 16393 January 2012 Guidelines

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- Way forward is to build on synergies
- Build awareness of common requirements and goals
  - Human, animal and plant health regimes (WHO, OIE & FAO)
  - Security regimes and obligations – nuclear, chemical and biological conventions
  - Nuclear security education experience as a model
  - UN SCR 1540 obligations
  - CEN Workshop Agreements 15793, 16335, 16393
  - Particular opportunity with OPCW emphasis on education and outreach

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- Particular opportunity with OPCW emphasis on education and outreach
  - See SAB-21/WP.3 of 7 Jan 2014 of Temporary Working Group on Education and Outreach in Science & Technology relevant to CWC at http://www.opcw.org/index.php?eID=dam_frontend_push&docID=17057
  - This is an outstanding example of what can, and needs to, be done in regard to education and awareness raising

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- Those engaged in education and awareness need to be aware of diverse regimes relating to biology and chemistry, as well as, the obligations of International Humanitarian Law and International Human Rights Law.
- Education and awareness-raising need to adopt a **comprehensive all-embracing approach** leading to increased value of education and awareness as it becomes relevant to all engaged in the life sciences and chemistry.

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- There is a need for **both** top-down and bottom-up approaches, as States
  - need to implement obligations arising from treaties and
  - to nationally implement effective biosafety and biosecurity **throughout** the State
- **and** all those engaged in the life sciences and chemistry whether in government, academia or industry need to be aware of these obligations and ensure effective biosafety and biosecurity in their work.