

Biosecurity Education and the International Biological Security Education Network (IBSEN)

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the Sixth Session of the Working Group on the Strengthening of the BWC Side Events:

Biosecurity education: from concept to implementation

(London Metropolitan University and UNIDIR)

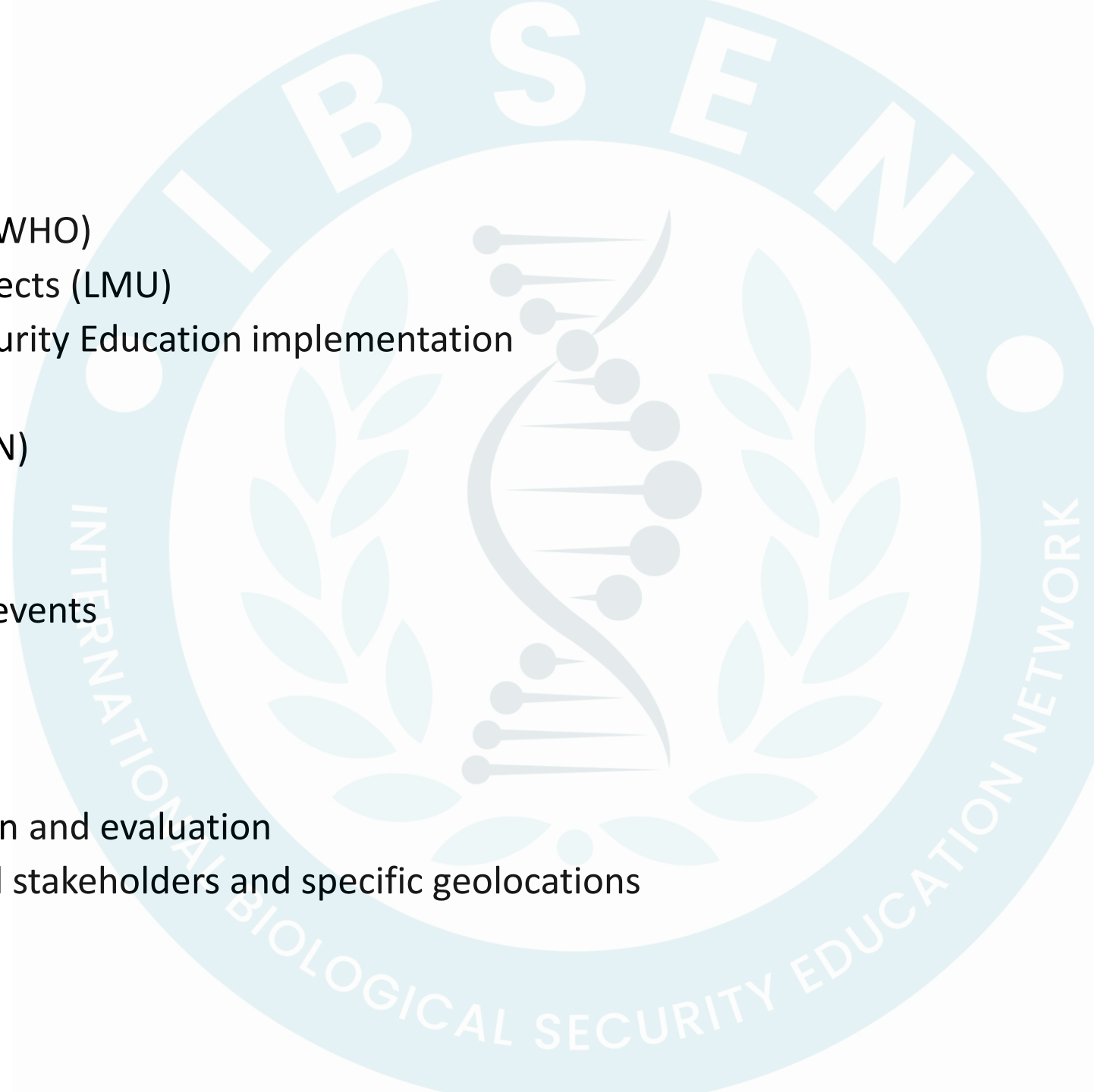
Tuesday 12 August 2025 | 13:15 – 14:45 CEST

Building E Rooms Room XXII



Outline

- Biological Security and its education gaps
 - The Education and Awareness Gap (WHO)
 - Survey of Biosecurity Education Projects (LMU)
 - Main Problems in Biological Security Education implementation
- A Potential Solution: Global network (IBSEN)
 - IAEA/INSEN & OPCW/ABEO
 - IBSEN (LMU BSRC)
 - Newsletters / Workshops / Side events
- Further works
 - Projects linked to the book
 - The handbook for implementation and evaluation
 - Broad collaborations and focused stakeholders and specific geolocations
- Support from BWC ISU



Biological Security and its education gaps

- BWC has regular conferences and intersessions, code of conduct

China, Pakistan and Brazil (2022) BWC/CONF.IX/PC/WP.10

“6. Education and Training

Scientists, along with their professional associations in industry and academia, should work to maintain a well-educated, fully-trained scientific community that is well versed in relevant laws, regulations, international obligations and norms. Education and training of staff at all levels should consider the input of experts from multiple fields, including social and human sciences, to provide a more robust understanding of the implications of biological research. Scientists should receive ethical training on a regular basis.”

- The Education and Awareness Gap (WHO)

The WHO *Global Framework* (2023)

“A chronic and fundamental challenge in biorisk management is a widespread lack of awareness that work in the area of the life sciences could be conducted or misused in ways that result in health and security risks to the public. The lack of awareness is unsurprising, given that biorisks are often overlooked or underemphasized in both educational curricula and on-the-job training. If they are unaware of the potential for misuse and potential malicious application, stakeholders cannot accurately weigh the risks and benefits of proposed research or order. Lack of awareness can also mean that stakeholders are unprepared when new technologies are being introduced as diagnostics, treatments or vaccines...”

- **Survey of Biosecurity Education Projects (LMU) 2021**

Biosecurity education survey using 21 closed and open questions **to assess the biosecurity education projects** carried out in the last two decades

1. **Elements required to implement the code of conduct missing**

Scientists largely unaware of the dangers of dual use

2. The **biosecurity education projects are uncoordinated**

A variety of projects carried out but not coordinated

3. These **deficiencies could be efficiently addressed and remedied**

IBSEN and OPCW/ABEO provide models of ways forward

4. **Advanced science & technology brings new challenges**

Interdisciplinary research from chemistry and biology subjects

- **Security education in other CBRNe issues**

1. **International Nuclear Security Education Network by IAEA**

2. **ABEO of OPCW for chemical security education**

3. **WHO Frameworks and training**

4. **Broad efforts and new challenges from advanced science and technology**

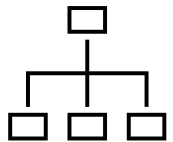
5. **No similar mechanism at BWC/ISU**

International Biological Security Education Network

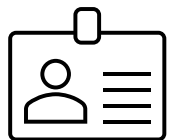
Dual-use oversight: Is the scientific community fit for Purpose? What should be done if it is not?_Shang, et al. <https://doi.org/10.1016/j.jobbb.2023.11.001>

“The rapid advances in biology and the diversity of life sciences combined with technology development add extra challenges for biological security education, in particular how to keep up to date, as well as manage global dissemination and effectiveness. All these issues should be addressed during the development of the IBSEN. If this work is successful, it could significantly improve the possibility of implementation of the BTWC’s new strategy on the review of science and technology and State Parties’ national policy on the Biological Security Strategy in the coming years...”

IBSEN Project



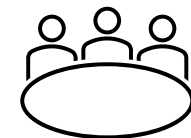
Structure



Contact Database



Website



Coordination meeting

Structure of the IBSEN I

Professor Lijun Shang

Director BRSC,
London Metropolitan
University

**Professor Malcolm
Dando**

Bradford University &
London Metropolitan Uni

Research Assistants (x2),
London Metropolitan
University

8 International Oversight Board Members representing a broad geographic coverage

Structure of the IBSEN II – The International Oversight Board

Dr Maria J. Espona

- Director of Argentina Information Quality (ArgIQ)

Prof Zabta K Shinwari

- Vice Chancellor of the Federal Urdu University of Arts, Science and Technology

Dr Dana Perkins

- Senior Science Advisor, Administration for Strategic Preparedness and Response (ASPR) U.S. Department of Health and Human Services

Prof Xue Yang

- Professor at Law School and a Senior Fellow at the Center for Biosafety Research and Strategy (CBRS), Tianjin University

Prof Brian Balmer

- Professor of Science Policy Studies at UCL

Prof Kathryn Nixdorff

- Professor in the Department of Microbiology and Genetics, Darmstadt University of Technology

Prof Halima Benbouza

- Director for Science and Technology at the National Council of Scientific Research and Technologies, Algeria

Dr Samira Senouci

- First Vice-President of the Moroccan Biosafety Association (MOBSA) and manager at LabSolutions

The IBSEN Website

- The IBSEN website **live since March 2024.**
- It hosts the ***Quarterly Newsletter*** and the educational tools developed as part of the project.
- It is the **essential tool to engage with an academic community and policymakers** and raise awareness about the work of the IBSEN.



QR code to the IBSEN website

IBSEN Quarterly Newsletter

- *Quarterly Newsletters* over two years are **the main means of engaging a large number of interested people.**
- First Newsletter (**May 2024**) - lessons learned from the **International Nuclear Security Education Network (INSEN).**
- Second Newsletter (**Oct 2024**) - the work of **the ABEO & implication to IBSEN.**
- Third Newsletter (**March 2025**) - the work of the **WHO.**
- Fourth Newsletter (**May 2025**) - the work of **IFBA (the International Federation of Biosafety Associations)**
- Fifth Newsletter (**July 2025**) - **two case studies on biosecurity education implementation**
- **Publication** mainly stored on the website and sent via email to contacts



IBSEN Contact Database

- *Objective:* create a **database of scholars, academics and policymakers who are interested in IBSEN** and have a background in biosecurity education.
- *Format:* The database is divided in **4 categories** to include High Schools, Universities, Continuing Professional Education, Government and International Organisations. It aims to have a **global coverage** to adapt the educational tools developed to different audiences and regions.
- *Current stage:* It currently has over 400 contacts in July 2025.

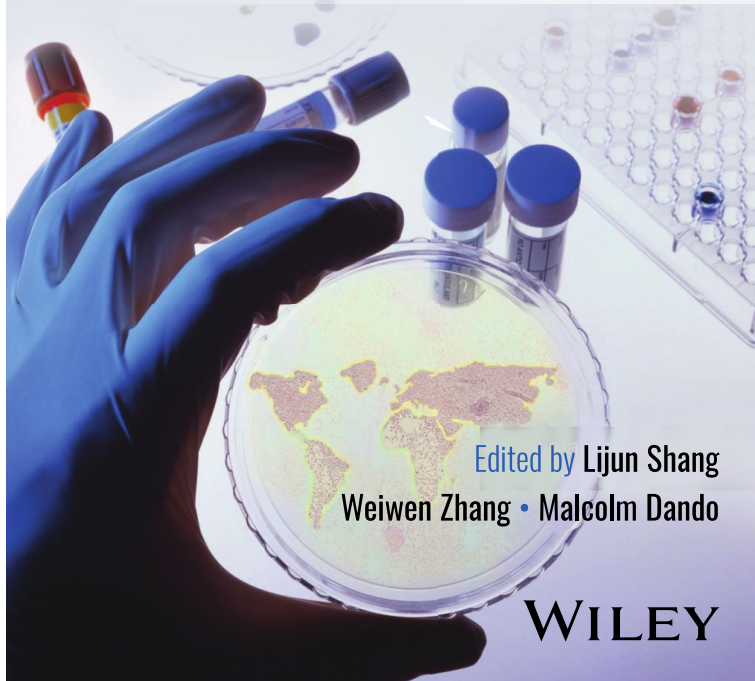
coordination meetings

- Policy Workshop 16 March 2024 *'Toward a collaborative, collective and integrative international CBRN security education: Coordination of International Policy Initiatives on Biosecurity Education'*.
- Participants included national and international experts from academic institutions, civil society and international organisations (UNIDIR, CWC ABEO, BWC ISU, IAEA/INSEN).
- **Regular dedicated workshops for further coordination are vital to strengthening global and regional biosecurity education.**

Essentials of Biological Security I: Textbook Required

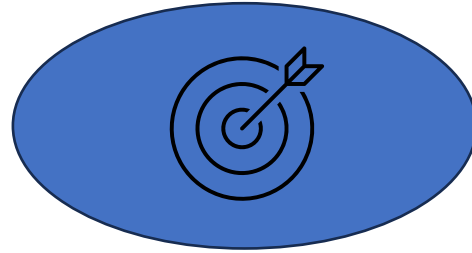
Essentials of Biological Security

A Global Perspective



Edited by Lijun Shang
Weiwen Zhang • Malcolm Dando

WILEY



Objective

To rapidly produce a one-stop-shop resource to help people teach biological security in support of the Tianjin Guidelines.



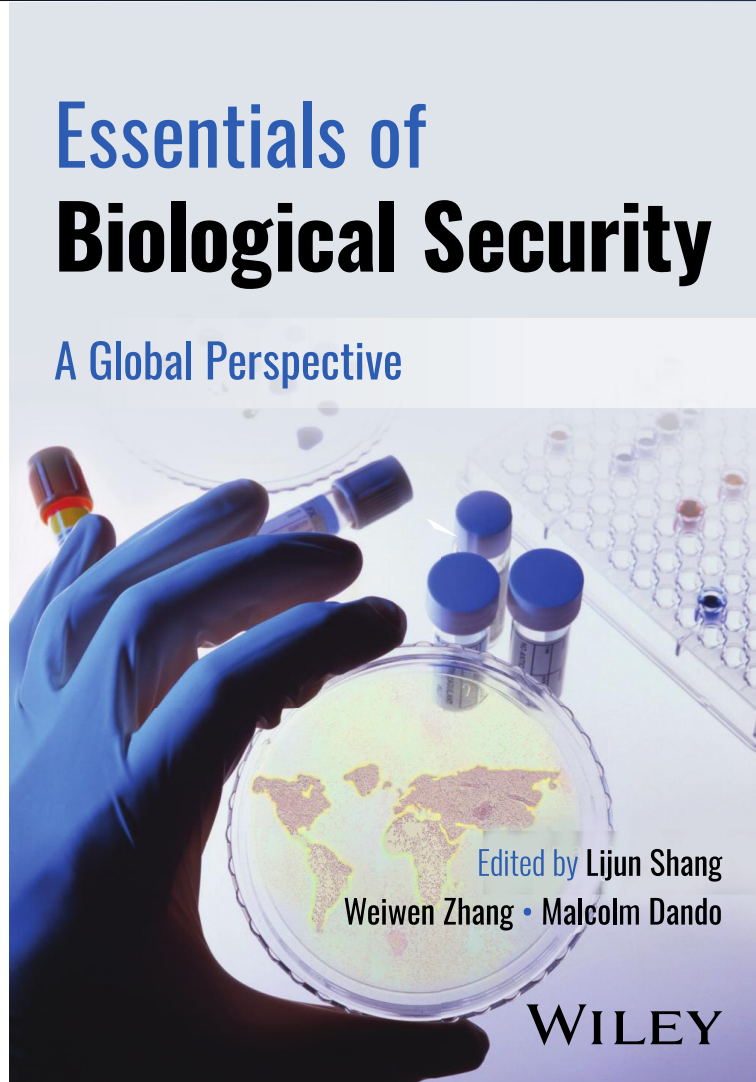
Design

Authors asked to keep a very tight schedule of outline, first draft, and final draft so as to have a book published within a year.

Five sections and 20 chapters. All chapters short (5,000 word suggested limit) with key points, summary and few references (5 suggested limit and key ones starred).

Aim to enable translations into multiple languages and to engage authors from around the world.

Essentials of Biological Security II: Sections of the Textbook



The book is divided into 20 chapters in five sections:

- 1. Introduction and Overview (1 Chapter)**
- 2. The Threat (7 Chapters)**
- 3. The International Response (4 Chapters)**
- 4. The Role of Scientists (6 Chapters)**
- 5. The Future (2 Chapters)**

IBSEN Book Launch and Translations

- *Essentials of Biological Security: A Global Perspective*
- Book launch in **London in June 2024**
- Book Evaluation and Translation project
 - Sub-project to obtain **multiple reviews of the book**
 - Sub-project to **facilitate translations of the book (Chinese, Portuguese, Spanish, etc)**
- Development Possibilities
 - Sub-project to produce chapters as **Team-Based Learning Exercises**
 - Sub-project to produce **cartoons/animations**

From concept to implementation

- *this project was a deliberate attempt to carry out a pilot study that might then usefully be taken up by the BWC.*
- *As far as we can judge the project had been successful and useful - for example, in linking people (database of contacts), providing information (Newsletters) and jointly producing the basic textbook (and planning for the advanced textbook on emerging and converging technologies), etc.*
- Intensive research and studies throughout the funding cycle and extension.

IBSEN Report to Geneva BWC meeting

- Reporting IBSEN developments to **the meetings of the BTWC States Parties in Geneva** is central to consolidating the network.
- Essential to stress the link to the effective and efficient implementation of the **Tianjin Guidelines**.
- Further development of global network through regular meetings and broad **the range of stakeholders (industry and policymakers)** to add to the contacts database.
- Collective and collaborative work with ABEO and INSEN through regular **Side Events**.
- Make official **Statements** at relevant international fora if possible.
- Will have hard copies of **Quarterly Newsletters** for distribution.

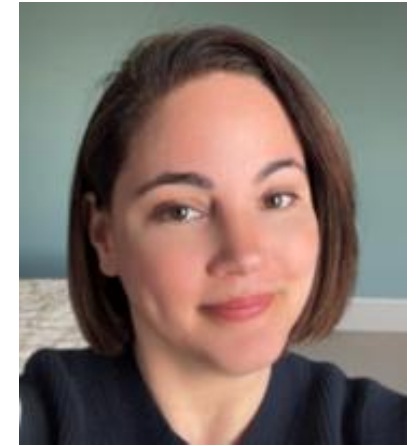
Recommendation from Chair's rolling text

Rolling Text by the Chairperson of the Working Group on the Strengthening of the Convention (28 July 2025)

A. Measures on international cooperation and assistance under Article X

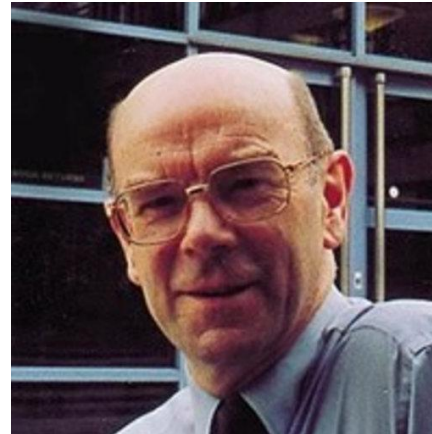
3. The Working Group recommends **that the Implementation Support Unit cooperates with relevant stakeholders to establish an International Biosecurity Education Network.** This Education Network would serve as a forum to further promote the harmonization of curricula and the evaluation of biosecurity education. It would develop freely accessible teaching materials such as MOOC-style online courses and support biosecurity education at the national level which is informed by best practices. Furthermore, the Education Network would serve as a platform for student and faculty exchanges with the aim of fostering and facilitating international scientific exchange and collaboration for peaceful purposes.

Thank you!



Acknowledgements:

Various grant funding bodies
Our global collaborators



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