IBSEN Fifth Quarterly Newsletter

July 2025

Executive summary

Over recent years, biosecurity education has rapidly transitioned from broad concepts into a dynamic field of practice, with the International Biosecurity Education Network (IBSEN) helping drive this evolution and shape new modes of biosecurity education—from traditional textbooks to more innovative, participatory approaches such as cartoons and interactive learning tailored to secondary school students.

This issue's *Special Topic* explores the increasing trend towards hands-on, participatory modes of biosecurity education that are linking traditional learning with leadership development. In addition, we highlight key themes of accessibility, engagement and empowerment to expand the reach and impact of biosecurity education. Underpinning this, is the conviction that building a universal, self-sustaining culture of responsibility in the life sciences depends on providing opportunities for diverse communities, particularly in under-resourced settings.

Two major initiatives are spotlighted as examples of this broader trend: the Youth for Biosecurity Fellowship (Y4B), led by the Biological Weapons Convention Implementation Support Unit (BWC ISU) and the BWC Advanced Education Course (BWCEdu) for diplomats, coordinated by UNIDIR, the Diplo Foundation, and the Fondation pour la Recherche Stratégique.

Both initiatives, though distinct in their focus and audience, demonstrate the value of participatory education approaches and sustained investment in biosecurity education and network-building. At the same time, they expose persistent challenges related to long-term funding, strategic planning, coordination, and scalability across varying stakeholder needs.

This Quarterly Newsletter also details the large number of exciting activities undertaken by LMU BSRC staff, as well as our forthcoming side event at the Sixth Meeting of the Working Group on Strengthening the BTWC, scheduled for August, and future workshops planned for later this year. The section News in Global Biosecurity Education is designed for this purpose.

As part of the IBSEN, the LMU BSRC encourages any people who are interested in biosecurity education to contact the IBSEN team and discuss potential collaborations.

1. Note from Professor Lijun Shang, Director of the Biological Security Research Centre at the London Metropolitan University

This year has been a remarkable one for the CBRNe community. We marked two significant milestones: the 50th anniversary of the entry into force of the Biological and Toxin Weapons Convention (BTWC) in March, followed by the centenary of the 1925 Geneva Protocol in June. These commemorations have taken place against the backdrop of a rapidly evolving scientific and technological landscape and an increasingly complex global environment—factors that continue to shape and enrich biosecurity discussions.

For instance, the Chemical Weapons Convention Coalition (CWCC) recently released a report outlining strategic recommendations for action over the next 5 to 10 years. Within the BTWC framework, attention has now turned to preparations for the Sixth Meeting of the Working Group on Strengthening the BTWC, scheduled for August. We are especially encouraged to see the International Biological Security Education Network (IBSEN) mentioned in the Chair's non-papers and the recommendation for ISU to establish an International Biosecurity Education Network with relevant stakeholders in his following rolling text. We are hopeful that the forthcoming Working Group meeting will offer States Parties a golden opportunity to demonstrate their support for biosecurity education, empowerment, and engagement, and to discuss viable pathways ahead of the Meeting of States Parties in December 2025.

With this promising development and the IBSEN implementation strategy gaining momentum, we anticipate significant progress in the field of biosecurity education. In light of this, we have dedicated this special issue of the Newsletter to an analysis of two recent biosecurity education implementation case studies. Although these two cases are specific focused, they demonstrated the variety of biosecurity education in implementation. We further briefly explore options for securing sustained funding, with the aim of fostering constructive dialogue at the upcoming meeting. A more detailed and systematic analysis of IBSEN's implementation strategies will be featured in future editions of the Newsletter.

In this issue, we share a wealth of updates on global biosecurity education activities—particularly from our own centre. For example, Professor Malcolm Dando delivered a talk titled *The 1925 Geneva Protocol Centenary: Preventing Chemical and Biological Warfare Today*, which reflected on both the historical context of the Protocol and its enduring relevance in contemporary biosecurity. Continuing with historical reflections, Dr. Antony Phillips, the new Associate Member to LMU BSRC, has launched a compelling series of essays based on his personal experiences. His work explores how national and international risk mitigation strategies can protect civilian populations from both intentional and unintentional chemical, biological, and radiological (CBR) incidents.

Professor Lijun Shang has been actively engaging with the pressing topic of AI-related biosecurity risks. He has participated in several scoping workshops and is currently preparing our own upcoming event—a workshop on the implications of advanced science and technology on biosecurity and education, to be held this October in London. Kathryn Millett and Olivia Ibbotson also participated in several conferences and events, including delivering talks at the LMU Annual Research Conference. Both presentations were well received, with Olivia winning first prize for her outstanding presentation.

We continued our Biosecurity School Project and were pleased to present at the British Academy's Summer Showcase. Once again, we were inspired by the enthusiasm and curiosity shown by young people and the general public toward biosecurity issues. Last week, we had the pleasure of hosting Professors Nancy Connell (Rudgers University, USA) and Wilmot James (Brown University, USA) for an insightful visit that added to a particularly eventful month for the Centre.

With this issue published, we're now preparing to attend the upcoming BTWC Working Group Meeting in Geneva, where we will co-organize a side event on biosecurity education with UNIDIR, titled as "Biosecurity education: from concept to implementation". We're excited about what's ahead and look forward to sharing updates upon our return.

I hope you enjoy reading this issue and, as always, please do contact us if you have any thoughts for potential collaborations.

2. Special Topic: Implementing biosecurity education through global participatory approaches

2.1 Introduction

In 2022, the International Biological Security Education Network (IBSEN) was formally conceived after the 9th Review Conference by LMU BSRC with a specific vision to provide a flexible, collaborative and cost-effective framework under which biosecurity education resources could be developed, adapted and shared, and to continue to raise awareness for the need for sustainable biosecurity education. Over the past three years, the biosecurity education landscape has evolved from concept to novel ways of implementation, and the IBSEN has continued to keep pace with changing trends from textbooks to cartoons to participatory and interactive lessons for High School-level students. This article continues our journey in highlighting both new and emerging trends in biosecurity education and showcasing relevant initiatives from which we draw lessons for the continued advancement of the IBSEN and biosecurity education as a whole. The IBSEN project has moved from the conceptual to implementation stage, continuously adapting and evolving.

This article builds upon previous newsletters–particularly the emphasis on building sustainable communities and career opportunities discussed in Newsletter Four. We explore the growing shift in biosecurity education toward ensuring accessibility of education, which is essential for less well-resourced communities, in recognition that a truly universal and self-sustaining culture of responsibility in the life sciences requires empowering broad-based participation and buy-in.

This article highlights two examples of initiatives that aim to empower different audiences: the Youth for Biosecurity Fellowship (Y4B) led by the Biological Weapons Convention Implementation Support Unit (BWC ISU) and the BWC Advanced Education course (BWCEdu) course for diplomats organised by the United Nations Institute for Disarmament Affairs (UNIDIR), the Diplo Foundation and the Fondation pour la Recherche Stratégique (FRS). These two initiatives, both benefiting from relatively well-targeted funding and audiences, illustrate the diversity of approaches to implementing biosecurity education. At the same time, they highlight key challenges—particularly around strategic planning and ensuring sustainable delivery across different levels and stakeholder groups. A more detailed analysis of systematic biosecurity education implementation through IBSEN will be featured in upcoming issues of our newsletter.

2.2 Youth for Biosecurity Fellowship (Y4B)

Recent years have seen a strong and growing movement towards recognising the need for increased opportunities for youth and young professional voices within national and international biosecurity discussions (see, for example, the *IBSEN Fourth Quarterly*

Newsletter)[1]. This reflects a broader trend towards youth inclusion across disarmament as a whole, as launched by the UN Secretary-General's landmark 2018 Disarmament Agenda, *Securing Our Common Future*,[2] and followed up in the 2021 report *Our Common Agenda*, that emphasized meaningful youth inclusion as essential agents of change in security and peacebuilding and central to achieving Sustainable Development Goals.[3] Further, the UN General Assembly reaffirmed the crucial contributions that youth involvement can make through biannual resolutions entitled *Youth, disarmament and non-proliferation* adopted in 2019, 2021 and 2023.[4]

In the *Securing our Common Future*, UN Secretary-General António Guterres asserted that engaging youth and young professionals goes beyond mere tokenism and is a crucial strategy for sustainable institutions, development and disarmament:

"Delivering on the priorities of young people and meaningfully including them in decision-making are investments that will deliver immediate returns, as well as build human capital and social cohesion for the longer term."[5]

The Youth for Biosecurity Fellowship (Y4B) programme exemplifies this youth-forward approach. Originally launched in 2019 by the Biological Weapons Convention Implementation Support Unit (BWC ISU) as the 'Biosecurity Diplomacy Workshop,' the programme was renamed Y4B in 2023. It offers young people, particularly from the Global South, meaningful opportunities to engage in biosecurity dialogue and empowers youth voices to contribute to future policies in biosecurity and biological weapons disarmament.

Financially underwritten by the European Union under successive EU Council Decisions,[6] the 2025 fellowship programme provides an annual opportunity for approximately 20 young scientists from the Global South to participate in an online interactive training programme that combines an in-person visit during meetings of the Biological and Toxin Weapons Convention (BTWC) and enables each cohort to actively engage with decision-makers, observe international diplomatic processes in action, undertake in-person simulation

[1] ISBEN, ISBEN Fourth Quarterly Newsletter (London Metropolitan University: April 2025), https://ibsen.org.uk/wp-content/uploads/2025/05/Newsletter-4-draft_FINAL-TEXT-1.pdf.
[2] See: https://www.un.org/disarmament/sg-agenda/en/.
[3] See United Nations, *Our Common Agenda: Report of the Secretary General*, (2021), https://www.un.org/en/content/common-agenda-report/assets/pdf/Common_Agenda_Report_English.pdf.
[4] See United Nations General Assembly resolution '*Youth, disarmament and non-proliferation*', A/RES/74/64 of 12 December 2019 (https://docs.un.org/en/a/res/74/64), A/RES/76/45 of 13 December 2021 (https://digitallibrary.un.org/record/3951436?ln=en&v=pdf), and A/RES/78/31 of 4 December 2023 (https://docs.un.org/en/A/RES/78/31).
[5] United Nations, *Securing our common future: An Agenda for Disarmament* (Office of Disarmament Affairs, New York: 2018), p. 68. https://front.un-arm.org/wp-content/uploads/2018/06/sg-disarmament-agenda-pubs-page.pdf.
[6] See, for example: EU Council Decision (CFSP) 2024/349 of 16 January 2024 in Support of the Biological and Toxin Weapons Convention (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32024D0349).

exercises, visit laboratories such as Spiez Laboratory in Switzerland, and participate in an international youth network for continued dialogue and career-building.[7] Since its inception, the programme has successfully engaged over 120 young scientists from 49 countries[8] (see Figure 1 and Annex).

During the virtual sessions, participants engage with a wide range of renowned technical experts on issues including science diplomacy, science and technology issues affecting the BTWC, dual-use research and dual-use research of concern, One Health, and the responsible use of the life sciences.

As with all fellowship and networking programmes, impact is difficult to quantify. However, the success of the programme in achieving true engagement was clearly demonstrated in November 2021 when cohort participants led authorship of a call-for-action entitled '*Youth Declaration for Biosecurity*'. Inspired by their experiences at the 2021 BWC Meeting of Experts on Review of Developments in the Field of Science and Technology Related to the Convention, and working across programmes to link up with young professionals from the Genetically Engineered Machines Competition (iGEM)[9], the Nuclear Threat Initiative's Global Biological Policy and Programs (NTI | bio)[10], and the International Federation of Biosafety Associations (IFBA), this document provided a set of recommendations "to mitigate the threat of biological weapons through active and transformative youth engagement."[11]

The *Youth Declaration for Biosecurity* also provided recommendations on supporting youth engagement, as well as capacity-building, awareness-raising and on scientific and technological issues.

Notably, the Declaration drew attention to the importance of including more diverse voices in BTWC negotiations and scientific review processes and the importance of creating secure and sustained career pipelines in biosecurity:

"We support the greater inclusion of diverse voices in biorisk management. We call for increased youth representation in all biosecurity-related matters on different platforms. We encourage mainstreaming youth participation in all deliberations through appropriate youth quotas in the respective delegations and representation of youth bodies such as young science academies. We also call for qualitative and quantitative standards to ensure diversity

[7] United Nations Office for Disarmament Affairs (UNODA), Youth for Biosecurity Initiative, https://disarmament.unoda.org/biological-weapons/eu-support-to-the-bwc/youth-for-biosecurity-initiative/#:~:text=The%20global%20norm%20against%20biological,youth%20voices%20in%20multilateral%20discussions.

[8] UNODA, Youth for Biosecurity Initiative, https://disarmament.unoda.org/biological-weapons/eu-support-to-the-bwc/youth-for-biosecurity-initiative/.

[9] iGEM Responsibility, https://responsibility.igem.org/.

[10] NTI, Global Biological Policy & Programs, https://www.nti.org/about/programs-projects/program/global-biological-policy-programs-nti-bio/.

[11] UNODA, Youth Declaration for Biosecurity, https://disarmament.unoda.org/bwc-youth-declaration-for-biosecurity/.

across gender, ethnic, cultural, and geographic backgrounds in deliberations and decision-making processes. Youth from the Global South are severely underrepresented due to a lack of awareness and available opportunities, therefore special mechanisms are needed to increase their participation."[12]

Also amongst its recommendations, as previously described in the *IBSEN Fourth Quarterly Newsletter*, was the need for the inclusion of biorisk management education as part of undergraduate and post-graduate curricula, as well as further learning opportunities such as workshops, training, and free online courses emphasising the "urgent need to provide training scholarships to low- and middle-income countries (LMICS) to advance and strengthen professional skills."[13] Further to the Declaration, Youth for Biosecurity fellows co-published articles highlighting the need to create opportunities for young life scientists to participate meaningfully in biosecurity diplomacy as part of longer-term investment in the next generation of biosecurity leaders.[14]

More recently, in February 2025, previous Y4B fellows joined forces with the Coalition for Epidemic Preparedness Innovations (CEPI), the Pandemic Center at the Brown University School of Public Health, and NTI | bio at the 61st Munich Security Conference in a meeting of emerging biosecurity leaders in the Global South.[15] Following discussions on minimizing biological risks, whether deliberate, accidental or naturally occurring, participants devised and launched the Biosecurity Emerging Leaders Declaration entitled '*Taking Biological Threats Off the Table Through Next-Generation Global South Leadership*'.[16]

Amongst the recommended actions, were calls to support fellowships and leadership programmes specifically to bring Global South voices into high-level decision-making at relevant biosecurity and health security fora, and "formalizing policy dialogues where Global South leaders take part in and lead discussions on biosecurity governance, which can be translated into ongoing engagement mechanisms in policymaking, regulatory frameworks, and investment strategies related to pandemic preparedness." In addition, and in recognition of the power and importance of networks, the declaration called for Global South-led peer-to-peer collaboration including opportunities for "knowledge sharing, joint initiatives and cross-sector partnerships" – building specifically upon past declaration such as the *Youth Declaration for Biosecurity* – and "joint initiatives that include diverse perspectives to shape the agenda around biosecurity governance and priorities."[17]

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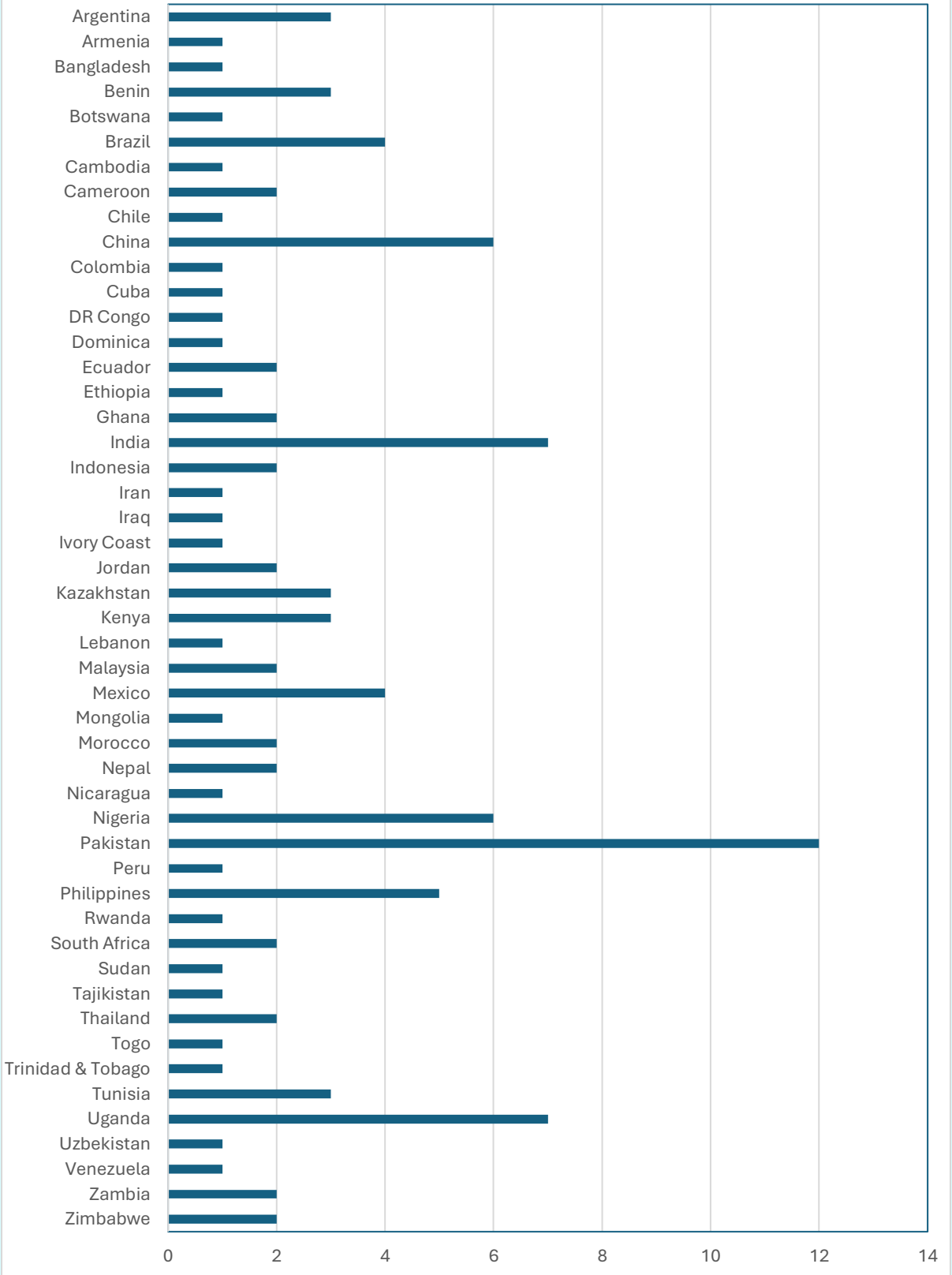
[12] *Ibid*.
[13] *Op. cit*.
[14] T. Alexanian *et al*. '*The Next Wave of Biosecurity Experts: Young Scientists Need a Better Path into Global Diplomacy*'. Science and Diplomacy, 22 February 2022. https://www.sciencediplomacy.org/article/2022/next-wave-biosecurity-experts-young-scientists-need-better-path-global-diplomacy.
[15] See: https://securityconference.org/en/marketplace-of-ideas/taking-biological-threats-off-the-table-through-next-generation-global-south-leadership/.
[16] Biosecurity Emerging Leaders Declaration, 'Taking Biological Threats Off the Table Through Next-Generation Global South Leadership', 61st Munich Security Conference, 15 February 2025, https://mscbiosecuritydeclaration.org/.
[17] *Ibid*.

Figure 1. Youth for Biosecurity participants by country (2021-2025)



2.3 BWC Advanced Education course (BWCEdu)

EU Council Decision 2021/2072 of November 2021 in support of building resilience in biosafety and biosecurity through the Biological and Toxin Weapons Convention provided support for "an international science and technology conference in preparation for the Ninth Review Conference, targeting mainly experts from academia, governments and industry to incorporate their views into the discussions that will feed into the programme of the Ninth Review Conference."[18] Further to the conference were a planned series of events focusing on technical developments of particular importance to the BTWC. These took place in New Delhi (2022), as well as a virtual event in November 2022 and further meetings conducted in the margins of the Ninth Review Conference in Geneva (November 2022) and in March 2023 at the first session of the Working Group on the Strengthening of the BWC.[19]

While initiatives such as those under Council Decision 2021/2072 have made important strides in bringing life scientists and diplomats together, there has been no in-depth, systematic programme designed to unite diverse stakeholders in an immersive setting. Such a programme would not only provide comprehensive knowledge of the BTWC and its specific diplomatic processes, but also cultivate critical analysis and thinking skills, enabling participants to contribute more effectively to discussions and decision-making. In recognition of the importance of scientific and technological knowledge to empower diplomats and policy-makers to better understand technical subjects relating to the BTWC and biosecurity, the BWC Advanced Education course (BWCEdu) emerged to fill this unmet need, seeking to:

"…equip key stakeholders - including government officials in capital with responsibilities in BWC implementation, CBRN experts, aspiring and active diplomats, and life scientists working on BWC issues and biological threats – with the substantive knowledge and practical skills required to contribute effectively to BWC meetings and decision-making."[20]

Housed under the United Nations Institute for Disarmament Research (UNIDIR) Academy,[21] and funded by the Foreign, Common and Development Office of the United Kingdom, the BWCEdu course is a five-month hybrid online and in-person course that took place between October 2024-February 2025 with a cohort of 25 participants drawn mainly from the Global South and specifically including civil society representatives in addition to government and scientific and technological audiences.[22] Implemented with support from the Diplo Foundation and the Fondation pour la Recherche Stratégique (FRS), the BWCEdu is currently seeking funding for further iterations to consolidate its reach and impact, and serve as an ongoing opportunity for diplomats and other stakeholders while integrating with other biosecurity education initiatives. Inspiration for the course was drawn in part from the Asser

[18] EU Council Decision (CFSP) 2021/2072 of 25 November 2021 in support of building resilience in biosafety and biosecurity through the Biological and Toxin Weapons Convention (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D2072).
[19] Personal communication with UNIDIR, 4 July 2025.
[20] Personal communication with UNIDIR, 2 June 2025.
[21] See UNIDIR, UNIDIR Academy, https://unidir.org/what-we-do/unidir-academy/.
[22] Interview with Jean Pascal Zanders and Ljupčo Gjorgjinski, 15 June 2025.

Summer Institute which provides an intensive training and networking programme on disarmament and non-proliferation of WMD, with added emphasis on combining theory with hand-on interactive practice, such as rigorous table-top exercises, and community-building to create and nurture an epistemic community among different stakeholder groups, including early and mid-career professionals.[23]

Aiming to deliver a comprehensive BWC curriculum that would competently prepare the cohort to participate in formal BTWC negotiations, the course concentrated predominantly on covering topics related to BTWC diplomatic processes and current BWC Working Group efforts. To this end, the course was structured around four segments of activities:

1. A preparatory module: completed online through self-paced learning and designed to familiarize participants with BTWC basics and the online platform infrastructure.
2. A series of issue-specific online modules: each module was released and available for completion for two weeks: a week of intensive activity with assignments, followed by a second week with a webinar featuring experts and a wrap-up meeting. They included module texts, curated readings and external materials, live lectures, virtual self-paced activities, interactive exercises, and an online community space. The modules covered the following topics:
    - The diplomatic process
    - BWC national implementation
    - Verification and compliance
    - International cooperation and assistance
    - Assistance, response and preparedness
    - Science and technology developments and mechanism
3. A final coursework project: Participants undertook independent research on specific topics, supported by experts.
4. A week-long intensive in-person segment in Geneva: including tabletop exercises and presentations by the fellows, as well as a science and technology advisory mechanism simulation exercise.[24]

A team of experts from UNIDIR, FRS and the Diplo Foundation provided teaching on the course, in addition to external consultants and support from representatives from the BWC ISU, the Chair of the BTWC Working Group, and several of the Friends of the Chair.[25]

With the main focus of the BWCEdu course on equipping those involved in BTWC negotiations to be able to meaningfully engage in negotiations at meetings of the Convention, the BWCEdu is arguably the most substantively BTWC-focused educational programme in recent years. This is particularly impactful in supporting diversity, inclusion and equity in BTWC processes

[23] *Ibid*.
[24] UNIDIR personal communication, 2 June 2025 and interview with Jean Pascal Zanders and Ljupčo Gjorgjinski, 15 June 2025.
[25] Friends of the Chair act as facilitators and advisors to the Chair of the BWC meetings, and are usually annually appointed to work on specific topics such as national implementation, cooperation and assistance and science and technology.

as diplomats, especially from smaller States Parties, are often reassigned to other issues or locations and rarely have the opportunity gain a comprehensive understanding of the Convention and its underlying peculiarities.

Assessing medium and longer-term impact of the course at this stage is difficult to achieve. However, plans to expand the programme and create a cadre of UNIDIR BTWC Fellows are currently being pursued, while in-kind support from the Diplo Foundation has enabled the continuance of the course online platform to support continued community-building and networking.[26]

2.4 Further notable biosecurity education and engagement programmes

The Youth for Biosecurity Fellowship and BWCEdu are two of a growing international portfolio of biosecurity education programmes as shown in Table 1 below.

Over the past decade, there has been a significant increase in the number of biosecurity education and engagement initiatives, with a particular focus on empowering youth and Global South engagement. A recurring theme in many of these is cross-fertilization and collaboration between programmes which strengthens the next generation of biosecurity leaders and a heavy trend towards interactive learning methodologies as well as hands-on experience through work placements and faculty appointments. However, all these programmes require sustained financial support.

One notable example is that of the Biosecurity Game Changers Fellowship Programme.[27] This year-long leadership development programme, hosted by the Brown University Pandemic Center, aims to cultivate the next generation of biosecurity and pandemic preparedness leaders. The fellowship is open to early and mid-career professionals – especially from the US and the Global South – who have already demonstrated "their potential to impact and lead in biosecurity and pandemic preparedness and response." Fellows are tasked to collaborate on operational projects with either the Pandemic Center or one of their partner organisations which include the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi, the Vaccine Alliance, the International Biosecurity and Biosafety Initiative for Science (IBBIS), Pandemic Action Network (PAN), and the BWC ISU. Each fellow also receives a Brown Faculty appointment for the duration of the fellowship. As one of its Fellowship Leaders stated:

"This fellowship is unique in its placement opportunities across leading and groundbreaking organizations where fellows will learn and build stronger biosecurity bridges among these instrumental organizations."[28]

While funding extends to just eight rigorously selected fellows, and despite involvement of prestigious partner organisations, some of the partner organisations are absorbing the costs of placements themselves in order to ensure the programme has sufficient funds to cover

[26] Interview with Jean Pascal Zanders and Ljupčo Gjorgjinski, 15 June 2025.
[27] See: https://pandemics.sph.brown.edu/game-changers-initiative/biosecurity-game-changers-fellowship.
[28] *Ibid*.

fellows travel for in-person meetings. Further, it is currently unsure whether the programme will secure sufficient funding to carry on the programme.[29]

Table 1. Selected list of youth and early career-facing fellowships, mentorships and sponsorships with specific focus on biosecurity and the BTWC

Initiative/programme	Implementer	Audience	Activities
ACHS Fellowship Program[30]	Asia Centre for Health Security at National University of Singapore (NUS)	Asia	12-month fellowship programme based on a series of online webinars, training and project work and attendance at international biosecurity workshops
Biosecurity Game changers fellowship[31]	Brown Pandemic Center in partnership with the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi, the Vaccine Alliance, the International Biosecurity and Biosafety Initiative for Science (IBBIS), Pandemic Action Network (PAN), and the BWC ISU	Currently limited to 8 African fellows "selected for their potential to impact and lead in biosecurity and pandemic preparedness and response"	1-year fellowship involving in-person meetings, policymaking workshops and collaborative operational projects with the Pandemic Centre/partnership organization focused on a specific aspect of improving biosecurity, biosafety and/or pandemic preparedness and response. Fellows receive a Brown faculty appointment for the duration of their fellowship.
BWCEdu	UNIDIR/Diplo Foundation/FRS	Global (with focus on diplomats & scientists)	5 months hybrid course, with personal projects and in-person interactive table-top simulations
Career development and transition funding	Open Philanthropy	Global	Financial support – in the form of funding for graduate study, unpaid internships, independent study, career transition and exploration periods, and other activities relevant to building career capital – for individuals at any career stage who want to pursue careers that could help to reduce global catastrophic risks or otherwise improve the long-term future

[29] Personal private communication, 3 July 2025.
[30] See: https://asia-chs.org/fellowship-programme/achs-fellowship-program/#programme-outline.
[31] See: https://pandemics.sph.brown.edu/game-changers-initiative/biosecurity-game-changers-fellowship.

Emerging Leaders in Biosecurity (ELBI) Fellowship[32]	Johns Hopkins Center for Health Security	Global	1 year fellowship combining in-person workshops and networking events, with focus on future careers & sustainable alumni network
Fellowship for Ending Bioweapons Programs[33]	Council on Strategic Risks (CSR)	Global	1 year program for young professionals to work on projects and ideas with CSR staff and network partners and visit laboratories & technology companies
ICGEB Fellowships in Pathogen Detection and Biosecurity*[34]	ICGEB	ICGEB member states in Africa	6-month training opportunity at ICGEB laboratories in Italy, India, or South Africa to conduct research on pathogen detection and biosecurity within the BIO-GUARD framework
ICGEB Women Scientists in Africa (WE-STAR) Programme*[35]	ICGEB and South African Department of Science, Technology and Innovation (DSTI)	Women from African ICGEB member states	9 months training at ICGEB laboratories to perform research work in the field of biosecurity and virus detection
IFBA Global Mentorship Program[36]	IFBA	Global (with specific geographical focus in 2025 on Latin America & the Caribbean)	1 year mentorship partnerships with monthly discussions on biosafety, biosecurity, and biorisk management. Mentees receive guidance in obtaining IFBA Professional Certifications and other career developing skills
iGEM Responsibility Fellows (inactive)	iGEM	Global	1 year early-career iGEM alumni working on research projects in biosafety, biosecurity, bioethics, or responsible science and participating in BWC meetings (currently closed)
International Mid-Career Biosecurity Fellowship[37]	Council on Strategic Risks (CSR)	Limited to NATO member countries (besides the US), Australia,	Virtual course plus 4 day, in-person activities and networking

[32] See: https://centerforhealthsecurity.org/education-training/emerging-leaders-in-biosecurity-fellowship.
[33] See: https://councilonstrategicrisks.org/fellowship-for-ending-bioweapons-programs.
[34] See: https://www.icgeb.org/icgeb-fellowships-in-pathogen-detection-and-biosecurity/.
[35] See: https://www.icgeb.org/africa-day-2025-celebrating-support-for-african-women-in-science/.
[36] See: https://internationalbiosafety.org/program-activities/mentoring/ifba-global-mentorship-program/.
[37] See: https://councilonstrategicrisks.org/2025/04/03/call-for-applications-international-mid-career-biosecurity-fellowship-2025/.

		Japan New Zealand and South Korea	
Mid-Career Biodefense Bootcamp Fellowship[38]	Council on Strategic Risks (CSR)	Limited to US, NATO member countries, Australia, Japan New Zealand and South Korea	Virtual course plus 2-day, in-person "bootcamp" with mentors and experts (10+ years of professional and/or advanced academic experience)
Next Generation for Biosecurity Competition[39]	NTI | Bio	Global	Annual competition highlighting innovative youth-led biosecurity research, with winners participating in high- level global fora such as BTWC and the Global Health Security Agenda Ministerial Meetings
Next Generation Global Health Security Network Mentorship Program[40] (inactive)	GHSA	Global	Annual early-career fellowship for young professionals working in global health security
Youth for Biosecurity Initiative (UNODA / EU)[41]	UNODA	Global south focus	Annual 1 year early-career fellowship combining online training and an in-person visit during BWC meetings
United Nations Programme of Fellowships on Disarmament[42]	UNODA	UN Member States, with National officials, particularly in developing countries	Comprehensive 1 year fellowship addressing disarmament, non-proliferation and arms control issues involving lectures, simulations, practical exercises, e-learning, and research, and study visits to international organizations, countries upon invitation of their Governments

*Technical fellowships with technical training

Another clear theme is civil society leadership in conceiving and implementing fellowships, mentoring, educational and sponsorship programmes in biosecurity. Table 1 above provides a list of known programmes, with twice as many implemented by academia and non-governmental organisations than by international organisations. Conversely, more general educational initiatives that are geared towards more general disarmament and non-

[38] See: https://councilonstrategicrisks.org/2025/06/11/call-for-applications-mid-career-biodefense-bootcamp-fellowship-2025/.
[39] See: https://www.nti.org/about/programs-projects/project/next-generation-for-biosecurity/.
[40] See: https://ghsanextgen.wixsite.com/home/mentorship-program.
[41] See: https://www.un.org/disarmament/biological-weapons/eu-support-to-the-bwc/youth-for-biosecurity-initiative/.
[42] See: United Nations, Disarmament Fellowship, https://disarmament.unoda.org/disarmament-fellowship.

proliferation topics tend to be run and underpinned by international organisations, with the notable exception of the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterrey, USA (see Table 2 below).

Table 2. Examples of disarmament and non-proliferation meetings, training and fellowship programmes, with biosecurity/BTWC components

Programme	Implementer	Audience
CNS International Visiting Fellows Program[43]	James Martin Center for Nonprolifereation studies (CNS) at Middlebury Institute of International Studies at Monterrey (MIIS)	Global (junior and mid-career professionals in foreign ministries and other relevant government departments, national export control and regulatory bodies, journalists, research and academic institutions)
Critical Issues Forum – Global Disarmament and Nonproliferation Education for High School Students[44]	CNS	Global (high school students)
Disarmament and non-proliferation of WMD[45]	Asser Institute (Centre for International and European Law) with support from the Organisation for the Prohibition of Chemical Weapons (OPCW)	Global (early- to mid-career government diplomats and professionals, and non-governmental organisations, think tanks addressing WMD issues and research centres in related disciplines)
Disarmament Orientation Course[46]	United Nations Institute for Disarmament Research (UNIDIR) Academy	Global (new diplomats or officials in Geneva with responsibilities for disarmament and arms control matters)
ECOWAS-UNIDIR Regional Seminar on Disarmament[47]	Economic Community of West African States (ECOWAS) & UNIDIR	West African disarmament experts
OPCW Capacity and Development Building Fellowship[48]	OPCW	Global (scientists and engineers, primarily from developing countries)

[43] MIIS, Visiting Fellows Program, https://nonproliferation.org/education/visiting-fellows-program/.
[44] CNS, Critical Issues Forum, https://sites.middlebury.edu/criticalissuesforum/.
[45] Asser Institute, Disarmament and non-proliferation of WMD Summer School, https://www.asser.nl/education-events/summer-programmes/disarmament-and-non-proliferation-of-wmd/?utm_source=chatgpt.com.
[46] UNIDIR Academy, Disarmament Orientation Course, https://unidir.org/what-we-do/unidir-academy/disarmament-orientation-course/.
[47] UNIDIR Academy, ECOWAS-UNIDIR Regional Seminar on Disarmament, https://unidir.org/what-we-do/unidir-academy/ecowas-unidir-regional-seminar-on-disarmament/#:~:text=The%20ECOWAS%2DUNIDIR%20Regional%20Seminar,disarmament%20and%20arms%20control%20issues.
[48] OPCW, Capacity Building: Fellowship Programme, https://www.opcw.org/resources/capacity-building/international-cooperation-programmes/fellowship-programme.

OPCW Policy and Diplomacy Scientists Workshop[49]	OPCW	Global (OPCW member young scientists with chemistry and related backgrounds, with established scientific career goals and active involvement in education or teaching).
Pipeline Program	Women of Color, Advancing Peace, Security, and Conflict Transformation (WCAPS)	Global (female-focused)
Summer Undergraduate Nonproliferation Fellowship Program[50]	CNS	Global (undergraduate students in nonproliferation studies)
UNIDIR-OAS Summer School on Security and Technology[51]	UNIDIR Academy and Organization of American States (OAS)	Non-technical audience consisting of government representatives, policymakers and diplomats
UNIDIR-UNITAR Security and Technology Summer Course[52]	UNIDIR and United Nations Institute for Training and Research (UNITAR)	Diplomats and policymakers from least developed countries and small-island developing states
United Nations Youth Champions for Disarmament Training Programme[53]	United Nations Office for Disarmament Affairs (UNODA)	Global
Youth Disarmament Orientation Course[54]	UNIDIR Academy	Global

2.5 **Elements for successful biosecurity education, engagement and empowerment initiatives**

Over the past decade, learning and career development opportunities within the biological security field have expanded exponentially. Many highly successful initiatives share common elements that create lasting impact by bringing new voices into biosecurity processes, discussions, and careers—and ensuring they remain engaged. Below are some key features

[49] OPCW, Policy and Diplomacy Scientists Workshop, https://www.opcw.org/resources/capacity-building/international-cooperation-programmes/policy-and-diplomacy-scientists.
[50] Summer Undergraduate Nonproliferation Fellowship Program, https://sites.middlebury.edu/summerintern/
[51] UNIDIR Academy, UNDIR_OAS Summer School on Security and Technology, https://unidir.org/what-we-do/unidir-academy/unidir-oas-summer-school-on-security-and-technology/.
[52] UNIDIR Academy, UNIDIR-UNITAR Security and Technology Summer Course, https://unidir.org/what-we-do/unidir-academy/unidir-unitar-security-tech/.
[53] See https://www.youth4disarmament.org/united-nations-youth-champions-disarmament-training-programme-2nd-edition#:~:text=Through%20a%20regional%20approach%2C%20the,connect%20them%20to%20the%20global.
[54] UNIDIR Academy, Youth Disarmament Orientation Course, https://unidir.org/what-we-do/unidir-academy/youth-disarmament-orientation-course/.

the biosecurity community as a whole, and the IBSEN in particular, should consider integrating into their future work.

2.5.1 Collaboration and networking across programmes

The collaboration shown between cohorts of the Y4B fellowship programme working with youth leaders from the Emerging Leaders in Biosecurity Fellowship (ELBI), the International Genetically Engineered Machines Competition (iGEM) and the NTI | Bio Next Generation for Biosecurity Competition to develop the *Youth Declaration in Biosecurity* and collaborative work on academic articles is an exemplar in cross-programme cooperation and the impact and importance of well-resourced and supportive networks.

The ELBI fellows of Johns Hopkins Center for Health Security has a particularly robust alumni network that meets annually and interacts with current cohorts as well as decision-makers and experts in Washington D.C. As one of former Y4B participant and ELBI fellowship alumni commented:

"The relationships built through ELBI go far beyond the program itself. We stay connected throughout the year, often collaborating on projects, speaking on panels together, and supporting each other's work globally."[55]

Providing sustained spaces and opportunities for networking and collaboration is key to building the next generation of biosecurity leaders and keep any scheme sustainable. Thorough evaluation and assessment will be necessary to fully assess and demonstrate their longer-term impact.

2.5.2 Proximity to BWC, other biosecurity related processes and decision-makers

Proximity to international decision-making processes on biological security, such as the deliberations of the BTWC, and direct access to personal interactions with actual decision-makers within government and other agencies make programmes highly attractive to drawing in new, motivated audiences.

Again, the ELBI fellowship demonstrates how important it is to provide unique experiences that are both impactful and empowering in order to attract new and diverse voices to the biosecurity community:

"What makes ELBI truly exceptional is the access it provides to inspiring people and spaces you wouldn't normally encounter—from government, private sector, to public health leaders. The conversations, experiences, and connections formed during the fellowship are unlike anything else…the interactions we have during the fellowship with such spectacular individuals it is unique, from NASA to government agencies, it is wonderful."[56]

[55] Personal email communication, 4 July 2025.
[56] Personal email communication, 4 July 2025.

Beyond raising awareness and educating on biosecurity, the ultimate goal is practical application. Integrating a clear vision for how education can be applied from the early stages of programme design greatly enhances its value and helps generate stronger interest among audiences. The IBSEN recognises this and places particular emphasis on real-world application and effective communication with policymakers as key priorities in its implementation.

2.5.3. Promotion of active-learning and interactive teaching methodologies and hands-on experience

Hand-in-hand with the marked increase in the number of courses, learning materials, fellowships and other initiatives designed to educate new audiences about biosecurity and the BTWC, is the sharp rise in more participatory, hands-on and active learning methodologies. This ranges from participatory learning requiring role-play and individual and group projects such as those exemplified by the Bradford University-produced '*Biological Security Education Handbook: The Power of Team-Based Learning*'[57], to table-top exercises run by the BWC ISU and contained within the BWCEdu course to organisational placements such as those under the Biosecurity Gamechangers initiative.

The Masinde Muliro University of Science and Technology's (MMUST) Bachelor of Science in Biosafety & Biosecurity co-op placement program provides invaluable practical experience, enhances skills, and builds professional networks, significantly impacting a student's career trajectory. At the end of each year of academic study, students are placed in relevant host institutions across Kenya and Tanzania, applying theoretical classroom knowledge to real-world settings and learning the practical demands of the professional world. Host institutions benefit from accessing a pool of motivated and skilled students, contributing to their workforce development and potentially identifying future employees.

Recent research by the IBSEN project on innovative implementation methodologies further reinforces this point. A more systematic analysis, along with detailed recommendations, will be presented in upcoming newsletters.

2.5.4. Investing in sustainable and meaningful alumni networks

While most educational programmes provide platforms for cohorts to engage and converse both in person and online, and networking opportunities are actively created, ensuring longevity and creating a meaningful network is most often a difficult task, requiring longer-term staff and financial investment.

The BWC ISU's Y4B programme, for example, has been successful in bringing global cohorts of young and early-career scientists together, inspiring participants to pursue careers in the biosecurity arena and creating a loose alumni network. However, as one former cohort participant commented: "While they also established a WhatsApp group, the lack of

[57] T. Novossiolova, *Biological Security Handbook: The Power of Team-Based Learning* (Bradford University: 2016) (https://www.bradford.ac.uk/media-v8/site/news/archive/Biological-Security-Education-Handbook-The-Power-of-Team-Based-Learning-(PDF,-429kb).pdf).

continued support and in-person engagement makes it much harder to maintain momentum and build collaborative relationships."[58]

The BWCEdu course also aims to create an alumni group, but this is dependent upon future sustained funding and is likely to rely solely on a virtual platform for continued engagement.

An example of a highly successful alumni network is demonstrated by the ELBI fellowship, now in its 13th year. With annual in-person networking events in Washington D.C. that are open to alumni from previous cohorts, alumni are able to maintain contact with each other, experts and new cohorts consolidating firm working relationships that are key to building a strong and resilient biosecurity community.

"What sets ELBI apart is its sustained funding over the years, which enables in-person gatherings—not just for current fellows, but also for alumni. These yearly reunions are the foundation of a truly lasting network. In-person interactions are key to building trust. ELBI's ability to bring us together regularly has created a unique and enduring professional community."[59]

Given the large number of participants involved in multiple biosecurity programmes—and the added value that such cross-fertilization brings to each initiative and to the biosecurity field as a whole—a more sustainable and impactful approach would be to adopt a holistic view of all existing networks. Instead of maintaining numerous smaller, disconnected networks, a central umbrella network, such as the IBSEN strives to achieve, could bring together alumni and participants from programmes worldwide, fostering interaction and collaboration on a broader scale.

2.6 **Conclusion**

As Magne *et al*. argue, "Public engagement is essential to raise awareness of the need for chemical and biological security education and the latest developments in the field."[60] Such engagement must span geographic regions, genders, age groups, professional sectors, disciplines, and stakeholder communities. A robust, enduring culture of responsibility in the life sciences can only be realized through empowering inclusive participation and cultivating shared commitment – or 'democratizing' biosecurity.

Increasing opportunities for young professionals to engage in international biosecurity discussions, and empowering equity of all voices from across the globe from diverse disciplines from diplomats to policy makers to scientists, creates a global constituency that is better able to engage in biosecurity discussions that affect us all. And bridging the divide between scientists and policy-makers through various education projects helps informed

[58] Personal email communication, 4 July 2025.
[59] *Ibid*.
[60] I. Magne *et al*. (2025), Toward a collaborative, collective, and integrative international chemical, biological, radiological, and nuclear security education, *Applied Biosafety*, 30 (2), 167 – 175). https://repository.londonmet.ac.uk/10325/.

evidence-based decision-making that is essential for designing responsive, resilient, and forward-looking biosecurity strategies.

There are several standout conclusions from these educational initiatives aimed at democratising biosecurity and biosecurity processes which are closely aligned with the objectives and implementation strategy of the IBSEN project.

Firstly, it is clear that investing in youth voices lays a strong foundation for safeguarding the interests of present and future generations. At the same time, empowering a more diverse global audience broadens leadership and builds a more enduring and equitable global capacity to address biosecurity challenges. The inclusion of youth and young scientists is vital for embedding the next generation of scientific leaders into decision-making processes, ensuring that future biosecurity policies are shaped by those driving scientific innovation. This is evidenced in our new initiative of introducing biosecurity education in high school (see below news). Likewise, initiatives that bridge the science–diplomacy divide equip diplomats to make more informed policy decisions grounded in sound scientific evidence, thereby strengthening the norms underpinning the BTWC. Further, fostering sustainable alumni networks helps establish a lasting framework through which future generations can continue to cultivate and expand a well-informed, well-educated biosecurity community.

- Together, these initiatives help provide a fertile environment for the core goals of the IBSEN: to raise awareness of, and advance and implement biosecurity education – not just where it is perceived to be needed the most on an *ad hoc* basis, but on a global level. With more strategic planning and dedicated resources, such initiatives can be expanded with an aim towards a fully global audience based on central, standardised educational materials as can be produced by the IBSEN.

Secondly, close collaboration with, and within, formal international processes and fora, and between programmes is hugely beneficial to efforts biosecurity education, empowerment and engagement efforts. However, while initiatives undertaken under the auspices of international organisations such as UNODA and UNIDIR fosters broader stakeholder buy-in, civil society has proven to be a driving force in raising awareness and delivering educational activities and had a disproportionately strong impact on biosecurity education and engagement.

- With increased and more stable funding, and closer affiliation with relevant international bodies, the impact of civil society – working through the platform of the IBSEN for example – in this space could grow exponentially, amplifying its contributions to global biosecurity.

Thirdly, the rapid expansion of educational programmes and career development opportunities—coupled with broader engagement in international processes—has helped cultivate a more resilient and growing biosecurity community. However, many of these initiatives remain siloed, often due to competition for limited funding, despite clear evidence that cross-programme collaboration significantly strengthens global capacity-building efforts. This fragmentation hampers the ability to evaluate the quality and impact of individual

programmes and raises concerns about the consistency and standardisation of teaching and instructional materials.

- Increased support from State Parties, with potential involvement of the BWC ISU, for an International Biological Security Education Network (IBSEN)—as proposed in the *Non-paper on Possible Elements of Specific and Effective Measures, including Legally-Binding Measures, to Strengthen and Institutionalize the Biological Weapons Convention in All Its Aspects*—could address this fragmentation by serving as a unifying, umbrella organization. A well-funded IBSEN would foster cross-programme collaboration, enabling more effective capacity- and network-building, the sharing of best practices, and the development of common terminology and standardised instructional materials.

2.6.1 **Preliminary potential options for sustained funding of the IBSEN**

Within the IBSEN project, we have analysed existing funding formats for sustained security education. In addition to the International Atomic Energy Agency's (IAEA) International Nuclear Security Education Network (INSEN) and the OPCW Advisory Board on Education and Outreach discussed in our first and second newsletters respectively,[61] there are other precedents from which to draw upon for further development of the IBSEN. We present here a brief outline, with a more detailed analysis to follow in the upcoming Newsletters later this year. Involvement of the BWC, EU Council, State Parties, and other donors are particularly important. Promoting the IBSEN and getting more involved with the BWC ISU could be a useful way forward (as discussed in this paper).

2.6.1.1 *EU Council Decision model*

One option for consideration could draw inspiration from previous EU council decisions such as those providing institutional support for bodies such as the BWC ISU, the IAEA (including the INSEN), the Organisation for the Prohibition of Chemical Weapons (OPCW), the United Nations Office for Disarmament Affairs (UNODA) and the ISU for the Ottawa Convention.[62]

EU Council Decisions relating to the BTWC have provided crucial financial and institutional support to strengthen the implementation and effectiveness of the Biological Weapons Convention (BWC). Funding contributed under EU council decisions is administered by UNODA as part of the BWC Voluntary Trust Fund (VTF). Through these decisions, the European Union has enabled capacity-building activities led by the BWC ISU, such as regional and national workshops and training sessions, as well as enhancing the ISU's operational capacity by providing resources for expert secondments, staffing, and targeted projects that the ISU could not otherwise undertake within its core budget (such as the Youth for Biosecurity fellowship programme)(See Table 3).

[61] See IBSEN First Quarterly Newsletter, May 2024 (https://ibsen.org.uk/wp-content/uploads/2024/05/First-IBSEN-Newsletter.pdf) and IBSEN Second Quarterly Newsletter, October 2024 (https://ibsen.org.uk/wp-content/uploads/2024/10/IBSEN-Second-Quarterly-Newsletter.pdf).

[62] Formally, the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction. See: https://www.apminebanconvention.org/en/implementation/implementation-support-unit.

Table 3. Funding for the BTWC under EU joint actions and Council Decisions

	Funded activities	**Total budget (€ million)**	**Estimated Education/ Awareness (€ million)**
Joint Action 2006/184/CFSP & 2008/858/CFSP (2006-2010)	A significant portion of this was for regional seminars and workshops across Africa, Asia, and Latin America. The primary goal was universalization of the Convention and raising awareness among national authorities. While some technical aspects were discussed, the core was outreach on the BTWC.	~€2.3m	~€1.5m
Council Decision 2016/51/CFSP (2016-2018)	Among activities, this decision specifically funded activities to engage the scientific community and life scientists on dual-use issues (fostering biosecurity networks in the Global South) and the production of tools for outreach, education and engagement. It also funded regional workshops on confidence-building measures (CBMs), which are about transparency and dialogue, not technical skills	~€2.45m	~€1.2m
Council Decision 2019/97/CFSP (2019-2021)	Continued the work of engaging life scientists, industry stakeholders, and academia. A key deliverable was the development of educational materials and organizing workshops to promote dialogue between states and scientists	€2.87m	~€1.5m

Note: Across multiple funding cycles, a conservative estimate suggests the EU has dedicated at least €4-5 million to BWC-specific education and awareness-raising activities since 2006.

Under Council Decision 2024/656 (February 2024), EU members agreed to provide funding to the IAEA INSEN for the purposes of developing and maintaining e-learning material for nuclear security trainings (including translations) as well as conducting training and holding international and regional workshops.[63]

In terms of the OPCW, EU Council decision of June 2023 contributed €5.35M to support the work of the Organisation for the Prohibition of Chemical Weapons (OPCW) over the course of three years, including for activities to "activities will enhance OPCW's role in promoting the peaceful and authorised uses of chemistry to growing diverse audiences via dedicated online tools; expanding engagement with external stakeholders such as women, youth, and

[63] See European Union, COUNCIL DECISION (CFSP) 2024/656 of 19 February 2024 on Union support for the activities of the International Atomic Energy Agency in the area of nuclear security (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400656).

executives; targeting audiences for specialised capacity building efforts inter alia civil society and NGOs."[64] In the case of council decisions relating to the OPCW, implementation of activities are carried out by the Technical Secretariat of the OPCW.

EU council decisions have also been used to provide funding to the United Nations Office for Disarmament Affairs (UNODA) for the organization of specific activities such as facilitating discussions on specific issues on "under-explored, cross-cutting and emerging issues of relevance" to the Convention on Certain Conventional Weapons (CCW).[65] Such funding has enabled the organisation of multiple seminars and workshops on issues under the scope of the CCW, as well as the development of tools for practitioners, analysis and research, and the production of seminal guidance documents and publications.

2.6.1.2 *BWC Voluntary Trust Fund (VTF) model*

The Voluntary Trust Fund was set up in 2012, following a decision taken by States at the Seventh Review Conference (2011) to allow States Parties and donors to contribute financially to specific, practical implementation projects beyond the BWC's limited regular budget.[66] Voluntary contributions are under the fiduciary responsibility of UNODA.

The VTF has supported implementation of over 50 of discrete projects and activities worldwide since its establishment, including:[67]

- Regional workshops on national implementation and Confidence-Building Measures in Africa, Asia, Latin America, and Eastern Europe.
- Technical assistance visits to support biosafety/biosecurity legislation.
- Outreach and universalization events for non-States Parties.
- Fellowship and education initiatives, such as the Youth for Biosecurity Fellowship.

2.6.1.3 *World Institute for Nuclear Security (WINS) model*

The World Institute for Nuclear Security (WINS), a Vienna-based international non-governmental organization, was founded in 2008 with the goal of improving the professionalism and competence of individuals responsible for nuclear and radioactive source security through peer-based knowledge sharing and capacity-building to elevate nuclear

[64] COUNCIL DECISION (CFSP) 2023/1344 of 26 June 2023 in support of enhancing the operational effectiveness of the Organisation for the Prohibition of Chemical Weapons (OPCW) (https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32023D1344).

[65] United Nations, Facilitation of discussions on under-explored, cross-cutting and emerging issues of relevance to the Convention, https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/facilitation-of-discussions-on-under-explored-cross-cutting-and-emerging-issues-of-relevance-to-the-convention/.

[66] BWC/CONF.VII/5 Seventh Review Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, 21 December 2011.

[67] See, for example, projects listed here: UNODA, Current Activities Involving the Implementation Support Unit (https://disarmament.unoda.org/biological-weapons/implementation-support-unit/relevant-activities-overseen-by-the-isu/#:~:text=Strengthening%20national%2C%20regional%20and%20international,being%20carried%20out%20in%20Asia.&text=Japan%20also%20provided%20funds%20to,carried%20out%20in%20autumn%202020).

security standards. WINS serves as a global forum for the exchange of best practices among a wide range of stakeholders—from technical experts to academia and broader civil society. Through its Academy, WINS acts as a dynamic resource hub, developing professional training and educational programs for adaptation and implementation worldwide. It also fosters peer-to-peer learning and networking across 172 countries, while actively promoting diversity, gender parity, and inclusion within the nuclear security field.

Thus, there appear to be several options on how the IBSEN might be organised to best serve as a forum "to further promote the harmonization of curricula and evaluation of biosecurity education." It is important to note, however, that for each option, funding must be ensured for appropriate staffing levels over the longer-term to provide the longevity and stability required to make a demonstrable impact in raising awareness of, and implementing, biosecurity education.

Discussions at the forthcoming Sixth Meeting of the Working Group on the Strengthening of the Biological Weapons Convention in August 2025 provides a golden opportunity for States Parties to signal their support for biosecurity education, empowerment and engagement and discuss viable options in preparation for the Meeting of States Parties in December 2025. With this promising support and a clear IBSEN implementation strategy, we can anticipate meaningful progress in the advancement of biosecurity education.

Acknowledgement

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3. News in Global Biosecurity Education

3.1 News from the LMU BSRC

London Metropolitan University-UNIDIR joint side event at the forthcoming BTWC Meeting in August 2025: *Biosecurity education: from concept to implementation*

On 12 August 2025 during the Working Group meeting on the Strengthening of the Biological Weapons Convention (BWTC) in Geneva, Switzerland, London Metropolitan University will be jointly holding a side event with UNIDIR on advances in biosecurity education. Chaired by Ambassador David Riley (UK) and featuring panellists from the BWC Implementation Support Unit, UNIDIR, and the WHO, the side event will explore recent biosecurity education initiatives and developments and discuss how best to unify efforts and maximise their impact under the overarching framework provided by the International Biological Security Education Network (IBSEN).

Celebrating the 100 year anniversary of the 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925 Geneva Protocol)

Precisely on 17th June 2025, 100 years to the day of the signing of the 1925 Geneva Protocol, Malcolm Dando gave an invited presentation to the Leeds Philosophical and Literary Society at the University of Leeds in the UK. The Society was established in 1819 to promote interest in science, literature and the arts. The title of Professor Dando's presentation was *The 1925 Geneva Protocol Centenary: Preventing Chemical and Biological Warfare Today*, reflecting both the history covered in the presentation and the focus on the relevance of the Protocol today. Professor Dando began by noting that the growth of industrial chemistry during the second half of the 19th facilitated the large-scale use of novel chemical weapons during the First World War and that the public revulsion at this kind of warfare led to the agreement of the Protocol which essentially prohibits the use of chemical and biological weapons, and is now widely regarded as customary international law binding on all States. The Protocol also laid the basis for the development of the Biological and Toxin Weapons Convention (BTWC) in the 1970s and the Chemical Weapons Convention (CWC) in the 1990s. After briefly describing these conventions, the presentation turned to the current situation and the complexities in maintaining and strengthening the entire prohibition regime in a period of rapid scientific and technological change as well as the difficulties in the international situation. Given these problematic issues, the presentation ended by asking what can be done at the present time, and stressed that better security education for chemical and biological scientists was one possible way forward. This led on to an interesting question and answer session focused on the potential role of civil society in supporting the Protocol, the BTWC and the CWC and thus helping to prevent the misuse of the ongoing industrial biotechnology revolution in novel chemical and biological weapons.

New journal issue on Biosafety and Biosecurity for Potential Pandemic Pathogens and Dual-Use Research of Concern

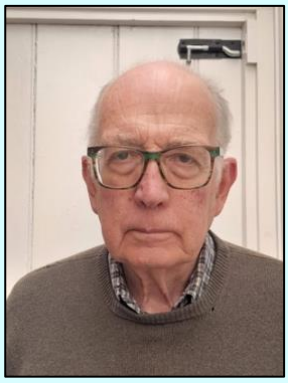
The important scientific journal *Applied Biosafety* devoted an entire issue (Volume 30, Number 2) in early 2025 to Biosafety and Biosecurity for Potential Pandemic Pathogens and Dual-Use Research of Concern. Many of the articles in the issue, for example Gerry Epstein's review of the efforts of the United States during this century to deal with research on dangerous pathogens, will be invaluable in teaching biosecurity education in the future. Members of the IBSEN group contributed an article in the collection focused on the need for a systematic approach to security education for scientists. Our centre member contributed a paper as below: I. Magne, O. Ibbotson, L. Shang, & M. Dando (2025) 'Toward a collaborative, collective, and integrative international chemical, biological, radiological, and nuclear security education', Applied Biosafety, 30 (2), 167 – 175).

Publication of new book discussing the 50 year history and development of the BTWC

There is a pressing need for biosecurity education materials originating from beyond traditional Western sources. In this context, the recent publication *50 Years of the Biological Weapons Convention: Tracking the Journey*, edited by Ajey Lele of the Manohar Parrikar Institute for Defence Studies and Analyses in New Delhi, is a valuable contribution.

Containing numerous chapters by Indian scholars amongst its diverse authors, *50 Years of the Biological Weapons Convention* is a welcome addition to enriching the growing pool of resources available for teaching biosecurity education. Malcolm Dando and Michael Crowley, members at LMU BSRC, contributed to a chapter arguing that both the Chemical Weapons Convention and the Biological and Toxin Weapons Convention have to be considered in relation to prevention of the dual-use of toxins and bioregulators. (see Further reading section on how to obtain a copy of the book).

Outline history of past CBR weapons concepts, preparations and uses



The new associated member of LMU BRSC, Dr Tony Phillips newly started a series of essays that will go on to examine how national and international risk mitigation measures can protect civilian populations from malicious and non-malicious CBR events. To provide a foundation for the risk mitigation series, these are Dr Phillips' personal choices of key historic developments and events relating to CBR weapons, and it will be followed by a short review of terrorist and criminal CBR attacks, attempts and hoaxes.

Scoping AI and its implications for biosecurity issues

As artificial intelligence reshapes the landscape of biological research, scientists are sounding the alarm on potential biosecurity risks. This highlights the urgent need for improved governance and safety evaluations of AI models in biology as current voluntary safety measures fall short of addressing the dual-use nature of advanced biological AI models. These powerful tools, capable of accelerating drug discovery and enhancing crop resilience, could also be misused to create dangerous pathogens. Professor Lijun Shang recently attended several workshops at York and Manchester to scoop the relationship of AI and its potential implications on biosecurity issues. He has been awarded a fund of £1500 to support the planned high profile workshop taking place later this year (for more information, see announcement below).

LMU Staff and Student Research Conference 'Innovation and Community: Research for a Sustainable Future'

In July 2025, Ms. Olivia Ibbotson and Ms. Kathryn Millett participated in the annual London Metropolitan University Student and Staff Research Conference '*Innovation and Community: Research for a Sustainable Future'.* Ms. Ibbotson's presentation, titled '*TB Mary: How a diagnosis of tuberculosis led to an arrest warrant*?', explored a case in Tacoma, Washington, of which the failure to treat Tuberculosis after diagnosis led to a civil arrest warrant. The presentation provided a legal timeline from open-access court documents and questioned how a diagnosis led to a civil arrest warrant being issued? And moreover, questioned the legal and ethical implications of limiting peoples freedom vs public health and security. Ms. Ibbotson's presentation was awarded 'best presentation of Day' of the conference.

Ms. Millett's presentation titled '(Bio)Secure Science: Educating for a Safer, Sustainable Future in the Life Sciences' gave an introduction to understanding dual-use in the life sciences and the role of education on the responsible use of the life sciences in helping ensure a sustainable future in the life sciences.

Link to Olivia Ibbotson's full abstract: Day 1 Abstracts - Innovation and Community: Research for a Sustainable Future | Rise 360 and Link to Kathryn Millett's full abstract and presentation: Pre-recorded presentations - Innovation and Community: Research for a Sustainable Future | Rise 360

University of Bath CBR Cohort annual event

In July 2025, Ms Olivia Ibbotson took part in the Second Annual CBR Cohort Event organized by Dr Brett Edwards, Senior Lecturer in Security and Public Policy at the University of Bath. The event included sessions on toxicological forensics (chemical sampling), the meaning and message behind assassinations and targeted poisonings with CBRN materials, and history of gas warfare before closing with a CBRN game/exercise. Olivia found this event particularly insightful as an early career researcher, by providing an invaluable opportunity to network and partake in open and enthusiastic discussions on CBRNe security.

Appointment to Executive Board of Student/Young Pugwash – Olivia Ibbotson

Olivia Ibbotson, PhD candidate at LMU BSRC, has been appointed an Executive Board member of Student/Young Pugwash.

Olivia's position provides an opportunity for her to represent views of peace and disarmament on Biological and Chemical Weapons, and she will also contribute her knowledge of biosecurity and international law/conventions. The S/Y Pugwash board is very active, providing strategic leadership and guiding the activities of S/Y Pugwash Uk members with S/Y Pugwash Coordinator (Dr Time Street). Dr Street commented that: "I am delighted Olivia has joined the board of SYP. I was very impressed by her presentation on CBRN security

education as our annual conference. I look forward to working with her, and am keen to support the projects she develops, which I am sure will enhance our group."

As Olivia explains, "I feel extremely privileged to be appointed to such a position. As a young researcher in the interdisciplinary fields of disarmament, CBRNe and international law, I have always found inspiration from British Pugwash. I believe it is important that we as scientists promote awareness of responsible research, Dual-Use Research of Concern, weapons of mass destruction and war and peace."

The British Academy Summer Showcase

Olivia Ibbotson represented the International Biological Security Education Network (IBSEN) and Biological Security Research Centre (BSRC) at The British Academy Annual Summer Showcase. The 10-minute talk, titled '*What does biosecurity mean to you?*' took place on Saturday 21st of June.

The talk introduced the concept of biosecurity, using examples in sci-fi to draw out understanding. The definition of biosecurity was explored via real-life examples, fictional examples and a brief of the relevant policy. The event was a very exciting free festival of ideals, with interactive exhibits, workshops, performances and thought-provoking talks.

Update on Biosecurity School Project

Upon holding our launching event back in April, Olivia Ibbotson and Gillian Moore, with the support of Professor Lijun Shang, have successfully run workshops 1 and 2 of our biosecurity School Project.

During workshop 1, the concepts of biosecurity, biosafety and dual-use research of concern were presented and explained. Workshop 2 saw the students dig into real-life examples of biosecurity in humans, animals and plants. The students discussed risks such as climate change and received a short introduction to the horrors of mirror life!

This project so far has shown that students are curious and enthusiastic about biosecurity. Olivia and Gillian have been struck by the strong positive response they have received from students. Thanks to Gillian Moore and all students from Debden Park High School for their passion and enthusiasm for the project!

Forthcoming London Metropolitan University Biological Research Centre high-profile biosecurity workshops announcement

We are pleased to announce two high-profile, invitation-only biosecurity workshops to be hosted by the LMU Biosecurity Research Centre in central London in October and November 2025.

The first workshop will focus on the implications of emerging sciences and technologies for biosecurity and its integration into education. The second will explore the practical implementation of biosecurity education, including strategic planning, innovative delivery methods, and sustainable development models. Further details will be shared soon. In the meantime, please feel free to get in touch if you are interested in contributing to either event.

Visit from Professors Nancy Connell and Wilmot James

In July 2025, Professor Nancy Connell (Professor and Vice-chair for Research in the Division of Infectious Disease in the Department of Medicine at Rutgers New Jersey Medical School (R-NJMS) and the Rutgers Biomedical Health Sciences, USA) and Professor Wilmot Brown Senior (Adviser to the Brown Pandemic Center, Professor of the Practice of Health Services, Policy and Practice at the Brown University School of Public Health, USA) visited Prof. Lijun Shang and Ms Kathryn Millett at LMU. Discussions ranged from collaborations on biosecurity education to the implication of AI, mirror biology and other pressing issues affecting discussions surrounding dual-use issues in the life sciences.

3.2 Other news

Publication of the BTWC Chair's *Non-papers on Possible elements of specific and effective measures, including possible legally-binding measures, to strengthen and institutionalize the Biological Weapons Convention in all its aspects* (6 May 2025 and 28 July 2025)

In consultation with the Vice-Chairs (H.E. Ambassador Camille Petit of France and Mr. Irakli Jgenti of Georgia), and based on inputs from the Friends of the Chair, and with the assistance of the Implementation Support Unit, the Chair circulated a Non-paper on *Possible elements of specific and effective measures, including possible legally-binding measures, to strengthen and institutionalize the Biological Weapons Convention in all its aspects* on 6 May 2025. This non-paper serves as a non-exhaustive basis for further dialogue toward consensus recommendations to be submitted to States Parties at the Tenth Review Conference or a Special Conference for consideration and action.

Drawing upon proposals submitted by States Parties to the Working Group during its the 2023 and 2024 sessions, the non-paper identifies almost 80 potential areas for action by States

parties, under the areas of international cooperation and assistance, scientific and technological developments, confidence-building and transparency, compliance and verification, national implementation, assistance, response and preparedness under Article VII, and organizational, institutional and financial arrangements.

Among the topics for consideration under international cooperation and assistance is the establishment of an International Biological Security Education Network:

"The ISU, with guidance from the [ICA Advisory Group], will cooperate with relevant stakeholders to establish an International Biosecurity Education Network to serve as a forum to further promote the harmonization of curricula and evaluation of biosecurity education."

On 28th July 2025, the Chair published a second version of the non-paper in which the IBSEN featured prominently, further expanding upon the concept and possible activities to include online biosecurity courses and student and faculty exchanges:

"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."

Biosecurity education is at a pivotal stage. With rapid scientific and technological advances, globally uneven and siloed educational efforts, and competing security challenges reducing available funding, biosecurity education requires urgent and sustained support. Supporting the IBSEN would provide an efficient and cost-effective mechanism to unify disparate educational initiatives, provide guidance and collaboration opportunities and empower the development of adaptable and up-to-date biosecurity educational tools. In his following polling text, a formal recommendation is made on education network.

Forthcoming Sixth Working Group on the Strengthening of the Biological Weapons Convention (11-22 August 2025, Geneva, Switzerland)

On 11-22 August 2025, H.E. Frederico S. Duque Estrada Meyer (Brazil) will chair the sixth session of the Working Group on the Strengthening of the Biological Weapons Convention (BWTC) in Geneva, Switzerland. As agreed at the first session of the Working Group in March 2023, the following topics will be addressed:

- 11-12 August 2025: international cooperation and assistance
- 13-14 August 2025: scientific and technological developments
- 15-18 August 2025: confidence-building and transparency
- 19-20 August 2025: compliance and verification
- 21-22 August 2025: national implementation

Discussion of the establishment of the International Biological Security Education Network (IBSEN) by States parties is hoped to take place under the International cooperation and assistance Working Group as raised by the Chair's *Non-paper on Possible elements of specific and effective measures, including possible legally-binding measures, to strengthen and institutionalize the Biological Weapons Convention in all its aspects*.

For further information, see Aide Memoire (https://docs-library.unoda.org/Biological_Weapons_Convention_-Working_Group_on_the_strengthening_of_the_ConventionSixth_session_(2025)/2025-0618_Aide-M%C3%A9moire_-_WG6_en.pdf) and
Agenda of the Working Group on the Strengthening the Convention (https://docs-library.unoda.org/Biological_Weapons_Convention_-Working_Group_on_the_strengthening_of_the_ConventionFirst_session_(2023)/BWC_WG_1_1_AdoptedAgenda.pdf).

Masinde Muliro University of Science and Technology's (MMUST) Bachelor of Science in Biosafety & Biosecurity launches co-op placement programme

The Masinde Muliro University of Science and Technology's (MMUST) Bachelor of Science in Biosafety & Biosecurity (as reported on in our *IBSEN Fourth Quarterly Newsletter* – see https://ibsen.org.uk/newsletters/) has launched a co-op placement programme to provide practical experience for students at the end of each year of study. Co-op placements are facilitated through partnerships with the Biorisk Management Association of Kenya (BMAK), the Tanzania Biological Safety Association (TaBSA) and the Africa CDC East Africa Regional Centre of Excellence for Biosafety & Biosecurity (RCoEBB) located within the National Public Health Laboratory, Tanzania Ministry of Health, Dar es Salaam (https://internationalbiosafety.org/from-classroom-to-career-mmust-students-gain-real-world-experience/).

We encourage and welcome all members from IBSEN to send us news relevant to this Quarterly Newsletter. Please note that it would be your responsibility to ensure the reliability of the information and therefore that the edited news section is from open accessed sources and does not represent the LMU BSCR's views.

4. Further reading

I. Magne, O. Ibbotson, L. Shang, & M. Dando (2025), Toward a collaborative, collective, and integrative international chemical, biological, radiological, and nuclear security education, *Applied Biosafety*, 30 (2), 167 – 175). https://repository.londonmet.ac.uk/10325/.

David R. Gillum, The Role of Biosafety Professionals in Biotechnology Governance: Assessing Oversight of Dual Use Research of Concern and Pathogens With Enhanced Pandemic Potential, Arizona State University ProQuest Dissertations & Theses, 2025. 31993622.

(https://www.proquest.com/openview/7b9dc3c8b290bf2898f0ba6a83c626df/1?pq-origsite=gscholar&cbl=18750&diss=y).

A. Lele (ed), 50 Years of the Biological Weapons Convention: Tracking the Journey (Manohar Parrikar Institute for Defence Studies and Analyses & Pentagon Press: New Delhi, 2025) (https://www.researchgate.net/publication/393380627_50_YEARS_OF_THE_BIOLOGICAL_WEAPONS_CONVENTION_Tracking_the_Journey).

Chemical Weapons Convention Coalition (CWCC), *The Future of the Chemical Weapons Convention: Recommendations from Civil Society for Addressing Challenges Over the Next Five Years* (June 2025, CWCC & Arms Control Association) (https://www.armscontrol.org/sites/default/files/files/Reports/CWCC-Report_2025_FINAL.pdf).

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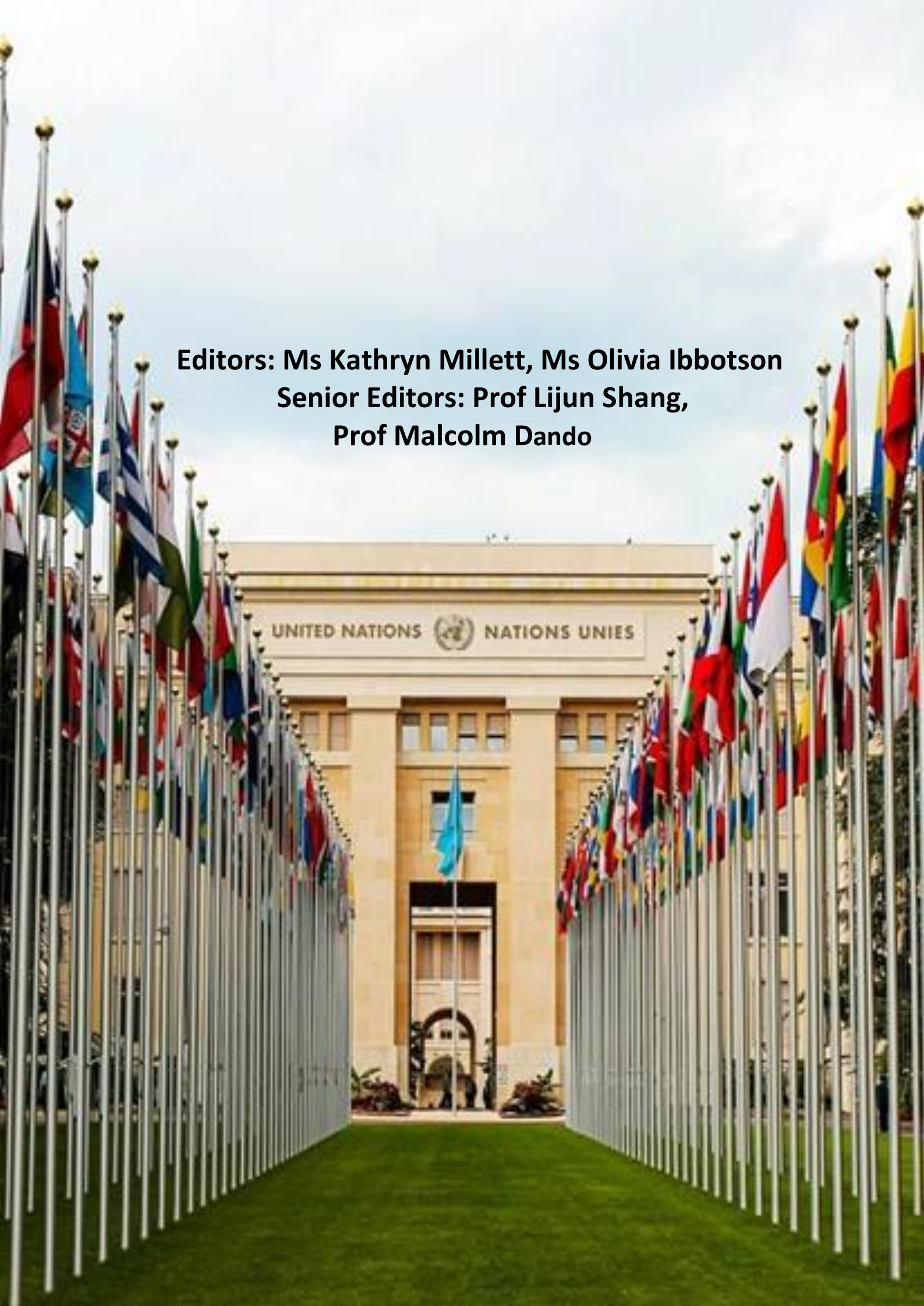
Annex 1: Participants in the Youth for Biosecurity (Y4B) by country and geographical region (2021-2025)

Africa		Asia and the Pacific		Latin America & the Caribbean	
Country	**Total**	**Country**	**Total**	**Country**	**Total**
Benin	3	Armenia	1	Argentina	3
Botswana	1	Bangladesh	1	Brazil	4
Cameroon	2	Cambodia	1	Chile	1
Democratic Republic of the Congo	1	China	6	Colombia	1
Ethiopia	1	India	7	Cuba	1
Ghana	2	Indonesia	2	Dominica	1
Ivory Coast	1	Iran	1	Ecuador	2
Kenya	3	Iraq	1	Guatemala	1
Morocco	2	Jordan	2	Mexico	4
Mozambique	1	Kazakhstan	3	Nicaragua	1
Nigeria	6	Lebanon	1	Peru	1
Rwanda	1	Malaysia	2	Trinidad and Tobago	1
South Africa	2	Mongolia	1	Venezuela	1
Sudan	1	Nepal	2		
Togo	1	Pakistan	12		
Tunisia	3	Philippines	5		
Uganda	7	Tajikistan	1		
Zambia	2	Thailand	2		
Zimbabwe	2	Uzbekistan	1		
Total	**40**	**Total**	**52**	**Total**	**22**



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