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Reflections and a Call for Action

Youth Perspectives on the Biological Weapons Convention

Reflections and a Call for Action: Youth Perspectives on the Biological Weapons Convention

Young people are widely recognized as “critical agents of positive change,” who can make meaningful contributions to peace and security, sustainable development, and human rights. As the world’s first digital natives, young scientists are uniquely positioned to help craft collective and innovative global solutions to address the implications of rapid advances in bioresearch and biotechnology. The official meetings of the Biological Weapons Convention (BWC) offer a unique platform to ensure that the next generation’s perspectives are included in discussions on current developments and trends shaping the international biosecurity regime.

Over the past five years, youth leaders have produced a series of [outcome reports and recommendations](#) to amplify youth perspectives on issues relevant to the BWC. In 2022, the Youth for Biosecurity Network, through its delegation to the Ninth Review Conference, formulated and presented actionable recommendations for BWC States Parties aimed at strengthening global biosecurity and biosafety efforts. Recognizing the accelerating pace of technological innovation and the evolving geopolitical landscape, the group reconvened in 2024 to update and complement the original recommendations with a new set of proposals.

As preparations begin for the Tenth Review Conference, scheduled for December 2027, this milestone offers an opportunity to assess progress against earlier recommendations, identify gaps, and set priorities for the future. Rapid scientific and technological developments, evolving security dynamics, and the need for sustained implementation make it essential to revisit and update previous guidance. This report reflects those considerations and aims to provide actionable steps to strengthen the Convention in light of current and emerging challenges.

Youth participants from the UN Office for Disarmament Affairs’ Young Women for Biosecurity Fellowship and the Nuclear Threat Initiative’s Next Generation Biosecurity Delegation convened during an in-person session in December 2025 on the margins of the seventh session of the Working Group on Strengthening the Convention in Geneva to prepare the document. The process was designed to be collaborative and inclusive, drawing on diverse expertise across science, policy, and civil society. Participants developed and centered the report around four subject areas:

1. Science and Technology
2. Compliance and Verification
3. National Implementation
4. Youth Engagement, Gender, and Diversity

Each subject area is divided into two sections:

1. Progress Updates – summarizing progress achieved against previous youth recommendations and identifying areas for continued improvement
2. Priority Recommendations – outlining priority topics and identifying practical, realistic recommendations for States Parties to strengthen existing approaches or introduce new measures

The drafting process was facilitated by UNODA staff and civil society facilitators who provided guidance and feedback. This approach ensured that the resulting report reflects both informed analysis and actionable proposals aligned with current discussions under the BWC. This document is intended to complement previous youth-led contributions, including the [Youth Recommendations for the Ninth Review Conference of the Biological Weapons Convention](#) and the [2024 Youth Recommendations for the Strengthening of the Biological Weapons Convention](#), and should be read in conjunction with those materials.

The views expressed in this report are solely those of the youth participants. The text does not constitute an official publication of the United Nations, donors, or the Nuclear Threat Initiative, nor does it imply endorsement of the views expressed or guarantee the accuracy or impartiality of the material.



A. Science and Technology (S&T)

Progress Updates

Authors: Niveditha Sasi Kumar and Mónica Chinchilla-Adell.

Youth recommendations heavily emphasized the risks of emerging technologies and the need for ethical governance frameworks. States highlighted similar concerns in this regard during the meetings of the Working Group on the Strengthening of the Convention:

- States Parties addressed science and technology (S&T) related to the Biological Weapons Convention (BWC) by identifying synthetic biology and artificial intelligence (AI) as key challenges. They suggested establishing a “Mechanism for the Review of Scientific and Technological Achievements Relevant to the BWC” to share information and support education.
- States Parties proposed the national implementation of a network of “active disease surveillance, biosecurity, and biocustody” to assess risks associated with dual-use research of concern (DURC). They highlighted the need to ensure the strictly peaceful use of biological and biotechnological sciences.
- A State Party to the BWC proposed that bioethics programs be carried out in universities, research institutions, and transfer centres as part of the national plan for compliance with the Convention.

Priority Recommendations

Authors: Marjana Akter, Kaitlyn Connors, Dr. Sriram Kumar, and Dr. Mahlaqua Mila Noor.

- **Expand BWC Definitions to Cover Critical Infrastructure Risks:**

- States Parties should ensure the definition of biological agents and toxins includes “anti-material biological agents and engineered bio-constructs capable of compromising critical infrastructure through material degradation, sabotage, or disruption.” These agents would be subject to existing prohibitions and oversight applicable to traditional pathogens to prevent their unlawful development, use, or transport.
- **Adopt ‘Biosecurity-Through-Process’ and Incentivize Proactive Leadership:**
 - Transition from a single ‘Biosecurity-by-Design’ review to continuous ‘Biosecurity-Through-Process’ occurring at each stage of research and development. Collaborate with funders and professional societies to establish bonus-bursaries, professional distinctions, and public recognition to incentivize proactive leadership and a culture of responsibility in bioscience and biotechnology.
- **Standardize Risk Criteria and Access for AI Biodesign Tools:**
 - States Parties should develop internationally consistent risk definitions for activities involving AI-driven biodesign, with special attention to dual-use potential. Access to advanced AI tools related to protein and biodesign should be restricted to individuals with verified cyber-biosecurity and data-protection qualifications established by diverse S&T experts.

All users should be identifiable through universal research IDs (e.g., ORCID), ensuring accountability and regulatory oversight.

B. Compliance and Verification

Progress Updates

Authors: Hree P. Samudra and Shreyash Pramod Borkar.

States Parties moved closer to calls from youth to distinguish conceptually between “compliance” and “verification,” by treating verification as a continuum of confidence-building and assessment measures rather than a binary protocol question. Proposals on expert groups and spectrum-based approaches to confidence were suggested.

- Proposals such as a public portal for Confidence Building Measures (CBMs) and voluntary peer-review exercises, alongside growing support for an open-ended working group on compliance and verification, echoed youth recommendations for phased, transparency-driven approaches as a pragmatic on-ramp to any future verification regime.
- The increasing linkage between S&T review and compliance discussions, including explicit references to synthetic biology and AI, mirrored youth emphasis on integrating rapidly evolving technologies and risk-assessment tools into compliance thinking.
- Regional group interventions in favour of a comprehensive, legally binding compliance and verification mechanism, indicated political convergence with key elements of the verification architecture advanced in youth recommendations since 2022.

- State Parties have validated the demand from youth for a permanent decision-making body to address the BWC's institutional deficit. However, initiatives diverged from youth recommendations by prioritizing strict state-centric oversight rather than democratic, multi-stakeholder governance models advocated by the next generation.

Priority Recommendations

Authors: Avantika Bhaduri, Marissa El Hajje, and Coleen Pangilinan.

The lack of a robust verification mechanism is mainly due to political resistance, resource limitations – including financial – and scientific technical complexity in an evolving and emerging technology landscape. States Parties should implement the recommendations based on the language proposed in Annex I (BWC/WG/7/CRP.1):

- **Confidence-Building and Transparency**
 - 12. “The ISU should be tasked to...: [(f) Encourage transparency by offering incentives — like technical assistance, capacity-building, or recognition — for States Parties that provide facility tours or join peer review processes.]”
 - 13. “All interested States Parties are encouraged to consider possible improvements to existing CBMs and possible additional CBMs, including but not limited to the consideration of the proposals already made [such as improving CBM templates to enable anonymized pattern analysis and using digital platforms with automated checks to raise submission rates and cut administrative costs, “ with a view to further discussion at [future Review or Special conferences.]”
- **Compliance and Verification**
 - 14. “Recognizing that disarmament and arms limitation agreements should provide for adequate measures of verification satisfactory to all parties concerned... States Parties will establish a Working Group on Compliance and Verification open to all States Parties. [Until the Working Group develops concrete compliance and verification measures, including possible legally-binding measures, a safe and secure crisis communication platform facilitated by the ISU should be established where State Parties could directly share information with other State Parties. Any State Party or the ISU could initiate this direct communication tool, and it would be accessible only to the State Parties involved and the ISU (as an observer post-initiation). State Parties would be able to raise concerns, share information, and provide any evidence they would like to resolve or dispute any claims of non-compliance.]”
 - 17. “In this context, the Working Group on Compliance and Verification will consider the following:” [(g) Integration of regional capacity-building initiatives to ensure (a) - (f), including but not limited to multi-sectoral training to comprehensively verify biological threats without hindering research and data during the verification process, establishing voluntary lab-certification programs to streamline cooperation and material transfer, building peer-review networks and dedicated forums of trained early-career scientists and other relevant government and non- governmental stakeholders to strengthen

verification capacity through national, regional, cross-regional, and global public-private partnerships, and supporting local biosafety and biosecurity professional development.]

C. National Implementation

Progress Updates

Authors: Natalie Kiilu, Whitney Arneaud, and Cibele Zolnier.

Significant progress on International Cooperation and Assistance (ICA) under Article X demonstrated the willingness and commitment of State Parties. Examples of notable achievements include:

- Expansion of the Implementation Support Unit (ISU) from three to four members, with discussion on increasing to seven members in the Seventh Working Group meeting.
- Embrace of broader roles for civil society as evidenced by its inclusion in Member States' official statements and meeting proposals.
- Greater support for context-specific approaches to the implementation of ICA measures, e.g., to facilitate the implementation of domestic export controls, supported by increased funding.
- Enhanced communication and outreach efforts through UNODA's online channels, reaching wider audiences.

Further efforts, particularly concerning the Article X database and supporting platforms, where consensus has stalled, are required.

Priority Recommendations

Authors: Dominique Aluquin, Ana Celia Valenzuela-González, and Liz Estrellita Romero-Salcedo.

- **Institutionalize a Chemical, Biological, Radiological, and Nuclear Explosives (CBRNE) Biosecurity Multi-Stakeholder Mechanism:** A national multi-stakeholder mechanism, led by National Contact Points (NCPs), should be established to bring together government agencies, academia, private sector actors, and relevant research institutions to synergize efforts across addressing the prevention of CBRNE weapons.
 - Integrate universities as key technical experts, supporting oversight, training, and the early identification and warning of emerging vulnerabilities.
 - Include stakeholders from infrastructure surveillance, aligning with S&T recommendations on anti-material agents and bio-construction materials.
 - Ensure regular coordination, with at least annual meetings and structured, cross-sector data-sharing channels.
- **Submit a Biennial National Implementation Report:** coordinated by NCPs through the national multi-stakeholder mechanism.

- Use standard reference tools and data sources, including VERTIC's Legislative Analysis Tool, the BWC National Implementation Measures Database, CBMs, assistance offers, working papers, and UNSCR 1540 reports, along with any future metrics developed.
- ISU should draw on these summaries to tailor support, such as mentoring and pairing where possible, and to incentivize regular, timely reporting through incentives complementary to CBM-related practices.
- **Establish/Strengthen Regional Biosecurity Networks:** Led by States Parties and regional organizations with groupings that make practical and political sense to participating States.
 - Build on existing models like the ASEAN Biosecurity and Biosafety Network and OAS UNSCR 1540 workshops to provide context-specific support.
 - Promote regional capacity-building, harmonized biosafety and biosecurity practices, coordinated assistance, and structured information-sharing.
 - Request ISU support for developing, operationalizing, and sustaining these networks to ensure long-term effectiveness and responsiveness.

D. Youth Engagement, Gender and Diversity

Authors: Martha Nyakambi and Jackline Somi.

Progress Updates

In recent BWC discussions and related UNODA reports, efforts to integrate youth engagement and gender equality into approaches on the Convention and wider biosecurity have increasingly surfaced, alongside technical and legal negotiations. Previous youth declarations have called for:

- **Institutional progress on science, ethics, and education:** Draft outcomes strengthen scientific advisory inputs, advance biosecurity education and career pathways through an International Biosecurity Education Network, and explicitly reference responsible innovation and the Tianjin Biosecurity Guidelines.
- **Broader engagement and capacity-building momentum:** Enhanced cooperation among States Parties, international organizations, and stakeholders, alongside outreach, CBM training, national implementation reviews, and youth-focused side events, signals growing attention to awareness, skills development, and science-policy linkages.
- **Addressing persistent gaps in inclusion and regionalization:** Despite expanded engagement language, explicit commitments to youth representation, diversity criteria, and youth-led or regional biosecurity capacity networks remain absent and require further institutionalization.

Priority Recommendations

- **Mainstream gender and youth perspectives across BWC implementation:**

- Integrate gender-responsive and youth-inclusive measures into reporting and implementation of BWC Articles IV, VII, and X.
- Include commitments to train and integrate young scientists, particularly women, within multilateral activities.
- Ensure national biosecurity strategies, emergency response plans, ethics frameworks, and CBM/National Implementation reporting explicitly reflect gender equality, non-discrimination, and youth expertise.
- Mandate the adoption and reporting of ethical guidelines, including the Tianjin Biosecurity Guidelines, with a gender lens.
- **Institutionalize youth and gender representation in BWC governance:**
 - Reserve space for youth and women in scientific advisory bodies, national delegations, and relevant expert panels.
 - Establish a Youth Rapporteur mechanism to convey youth perspectives in plenaries and Review Conferences.
 - Introduce representation targets or quotas to ensure meaningful participation of women, youth, and underrepresented groups in BWC processes.
- **Strengthen inclusive capacity-building and future-oriented governance among the ISU and regional organizations:**
 - Support regional biosecurity networks and hubs that mentor youth and women, enable joint research, and build equitable capacity, particularly in the Global South.
 - Expand youth and gender focused career pathways, including funded placements, scholarships, and initiatives such as Youth4Biosecurity.
 - Ensure BWC deliberations and guidance address emerging technologies (e.g., AI-enabled biotechnology, agricultural biosecurity) through intersectional risk frameworks that consider gender, age, socioeconomic status, and regional dimensions.

References

1. “Article I: Reinforcing the core prohibition of the Biological Weapons Convention,” (24 November, 2022), <https://docs.un.org/en/bwc/conf.ix/wp.30>.
2. Shreyash Borkar, Sriram Kumar, and Kaitlyn Connors, “Redefining Biological Weapons: Expanding the BWC to Incorporate Infrastructure Harm and Cyber-Biothreats,” (NTI, 20 November, 2025), <https://www.nti.org/analysis/articles/redefining-biological-weapons-expanding-the-bwc-to-incorporate-infrastructure-harm-and-cyber-biothreats/>.
3. “ASEAN leaders’ declaration on strengthening regional biosafety and biosecurity,” Association of Southeast Asian Nations (ASEAN), 9 October, 2024, https://asean.org/wp-content/uploads/2024/10/6-ASEAN-Leaders_Declaration-on-Strengthening-Regional-Biosafety-and-Biosecurity.pdf.

4. “Draft final report of the Working Group on the Strengthening of the Convention,” (1 December, 2025), [https://docs-library.unoda.org/Biological_Weapons_Convention_-_Working_Group_on_the_strengthening_of_the_ConventionSeventh_session_\(2025\)/2025-1201_BWC_WG7_CRP_1_draft_final_report_1.pdf](https://docs-library.unoda.org/Biological_Weapons_Convention_-_Working_Group_on_the_strengthening_of_the_ConventionSeventh_session_(2025)/2025-1201_BWC_WG7_CRP_1_draft_final_report_1.pdf).
5. “UNSCR 1540 implementation program: Workshops,” Organization of American States (OAS), accessed 15 December, 2025, <https://www.oas.org/en/sms/cicte/unscr1540/workshops/>.
6. “Biological Weapons Convention national implementation database,” UN Institute for Disarmament Research & VERTIC, accessed 15 December, 2025, <https://bwcimplementation.org>.
7. “Survey template of national implementation measures for the 1972 Biological and Toxin Weapons Convention and biological weapons-related provisions of relevant international instruments,” VERTIC, April 2021, https://www.vertic.org/wp-content/uploads/2021/06/VERTIC_BWC_Legislation_Survey_Template_EN.pdf.