

Working Group on the Strengthening of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

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Agenda item 6

Identifying, examining and developing specific and effective measures, including possible legally-binding measures, and making recommendations to strengthen and institutionalize the Convention in all its aspects within the mandate of the Working Group

Important Elements for the Establishment of a BTWC Science and Technology Review Process

Submitted by the United Kingdom of Great Britain and Northern Ireland

I. Introduction

1. Science and technology (S&T) underpins the goals at the heart of the Biological and Toxin Weapons Convention. The United Kingdom believes that a full and meaningful consideration of the Convention and its implementation requires a proper understanding of relevant developments in S&T in the life sciences and other disciplines where the convergence or co-development of technologies is being realised.

II. Science and Technology is a Cross Cutting Theme

2. S&T is a cross cutting and integral theme across BTWC provisions and as such, States Parties have stressed its importance for decades. This understanding is reflected in both the Convention text where States Parties are instructed to take into account S&T developments as part of their review of the operation of the Convention under Article XII and in more recent practice, during intersessional process discussions. With S&T at the Convention's core, it is clear that S&T review does not stand alone, separate from BTWC articles; rather, it has implementation and operational impact for key themes across the BTWC, particularly those identified by States Parties at the Ninth Review Conference. The UK sets out examples of recent S&T advancements in relation to these themes in Working Paper BWC/WG/2/WP.8. It has also been recently emphasised to BTWC States Parties in recent preparations for the August Meeting of the Working Group that S&T will be essential to any international cooperation and assistance mechanism and hence S&T is relevant to Art X as it is to other provisions of the Convention.

3. The UK takes a proactive and future focussed approach to the management and mitigation of biological threats. The UK holds the view that biological threats neither recognise nor respect political or geographic boundaries. Biological threats can be naturally-occurring and self-replicating, and pose a unique threat to global security. In particular, the threat posed by biological weapons has been increasing significantly in recent years given the greater availability of sophisticated biotechnology tools, the huge



reductions in the costs of sequencing and synthesis, and the convergence of new technology areas such as engineering biology and AI.

4. The refreshed UK Biological Security Strategy (set out in Working Paper BWC/WG/2/WP.10) highlights key areas of risk, with particular relevance to the BTWC, that we assess as being most pertinent to future global health security across human, animal, plant and environmental health, notably¹:

- COVID-19 reminded us how vulnerable we are to biological threats and that they can have catastrophic impacts. The evolving risk of a new pathogen emerging, whether naturally, accidentally or deliberately and becoming a serious global threat is rising constantly as humanity expands into previously uninhabited regions and the impact of climate change takes effect;
- The spread of Antimicrobial Resistance (AMR) is accelerating rapidly due to the rise in the incidence of infections, the extended use of antimicrobials across multiple industries, and a lack of new and innovative antimicrobials. As AMR increases, certain infections will no longer be treatable and routine medical care may become too risky leading to significant loss of life. A lack of effective antibiotics would also exacerbate disease outbreaks and put pressure on food security;
- Accidental Release. The number of laboratories around the world able to handle the highest hazard pathogens has increased since the onset of COVID-19. This has been driven by an increase in funding for research (such as ‘gain of function research’, which aims to improve understanding of disease causing agents) and global pandemic preparedness activities. The risk of accidental release or misuse is increasing as the number of laboratories and people working with high hazard pathogens rises;
- Risk of Deliberate Misuse. Advances in life sciences and biotechnology promise better and faster cures, more sustainable energy sources, and improved quality of life, but they also bring new risks that must be managed. The proliferation of information online, and the growing numbers of skilled researchers able to perform high-risk experiments, has made dual use research more accessible than ever.

5. To ensure the Convention can better respond to current and emerging biological threats, S&T developments should be reviewed in a systematic and structured manner. The review process should provide regular and timely evidence-based and expert analysis-derived advice to BTWC States Parties to allow them to consider potential implications when discussing the implementation and operation of the Convention. At the Ninth Review Conference, States Parties decided, “to develop with a view to establishing a mechanism to review and assess scientific and technological developments relevant to the Convention”. The UK recognises the leadership that the Republic of North Macedonia has taken to bring States Parties views together on this matter and many of which are reflected in BWC/CONF.IX/WP.65².

6. The approach to a structured and systematic BTWC science advisory process that gained support at the Ninth Review Conference was based on a hybrid model that contains three key elements: (a) an open-ended Scientific Advisory Group, open to all States Parties; (b) a smaller-sized Scientific Reporting Committee whose members are nominated from the open-ended Scientific Advisory Group and (c) temporary working groups which can be established on a demand basis with narrowly defined mandates, where specific technical expertise is required. States Parties at the Ninth Review Conference also recognised that such a process must have adequate administrative and practical and/or technical support from the Implementation Support Unit (ISU) through the establishment of at least two additional positions including a Science Officer. The UK sets out in the annex key elements for

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1161970/UK_Biological_Security_Strategy.pdf

² BWC/CONF.IX/WP.65. Draft Terms of Reference and Rules of Procedure toward the development of a BWC Science and Technology Advisory Process. Submitted by North Macedonia.

consideration by the Working Group for the development of a structured and systematic S&T review process.

Annex

Requirements of a BTWC S&T Review Process:

- i. The S&T review process under the BTWC shall identify areas of scientific and technological advancements that could have beneficial applications for strengthening the implementation and operation of the Convention. The S&T process shall also consider potential risks associated with such developments and assess where current and emerging threats may occur and how they might be mitigated;
- ii. The S&T review process shall be independent, expert led and have the flexibility to draw in appropriate expertise from governments, non-government organisations, international organisations, academia, industry, civil society or other experts, as deemed appropriate and as required, though the establishment of temporary working groups, whose mandate shall be specified and time bounded;
- iii. The S&T review process shall identify appropriate tools and techniques for the assessment of benefits and risks of S&T developments relevant to the BTWC. Such tools and techniques might include, for example, qualitative assessment frameworks (such as The National Academies of Sciences, Engineering, and Medicine Framework or the Tucker Framework) that have previously been evaluated by the BTWC community, including representatives from BTWC delegations and experts from civil society, as being useful^{3, 4, 5};
- iv. The S&T review process shall carry out a broad ‘horizon scanning’ function to search for emerging or current S&T themes such as engineering biology or artificial intelligence (AI), which may require targeted technology watch or in depth technical assessment;
- v. The S&T review process shall carry out technology watch on key S&T concepts such as gene editing or machine learning (ML) to monitor advancements, which may have relevance to the BTWC;
- vi. The S&T review process shall carry out ‘deep dives’ or in depth technical assessments of technological advancements such as novel gene editing techniques or AI drug discovery, focussing on the potential benefits and risks for implementation and operation of the Convention;
- vii. The S&T review process shall provide timely, clear, evidence based, expert analysis derived and action orientated advice to States Parties via the formal meetings of BTWC States Parties, such as Review Conferences, Meetings of States Parties or a Special Conferences of States Parties where appropriate;
- viii. The structure of the S&T review process should take into consideration the need for diverse technical expertise, geographical representation and gender balance;
- ix. The review process shall incorporate a reporting capability to collate relevant information and provide results from horizon scanning research, technology watch

³ Bowman K, Husbands JL, Feakes D, McGrath PF, Connell N, Morgan K. Assessing the Risks and Benefits of Advances in Science and Technology: Exploring the Potential of Qualitative Frameworks. *Health Secur.* 2020 May/Jun;18(3):186-194. doi: 10.1089/hs.2019.0134. Epub 2020 Jun 10. PMID: 32522047.

⁴ BWC/MSP/2019/MX.2/WP.6. Biological risk assessment and management: some further considerations, Submitted by the United Kingdom of Great Britain and Northern Ireland.

⁵ BWC/MSP/2019/MX.2/WP.3. Approaches to Risk and Benefit Assessment for Advances in the Life Sciences. Submitted by the United States of America.

and in depth technology assessments to provide information and recommendations to BTWC States Parties.

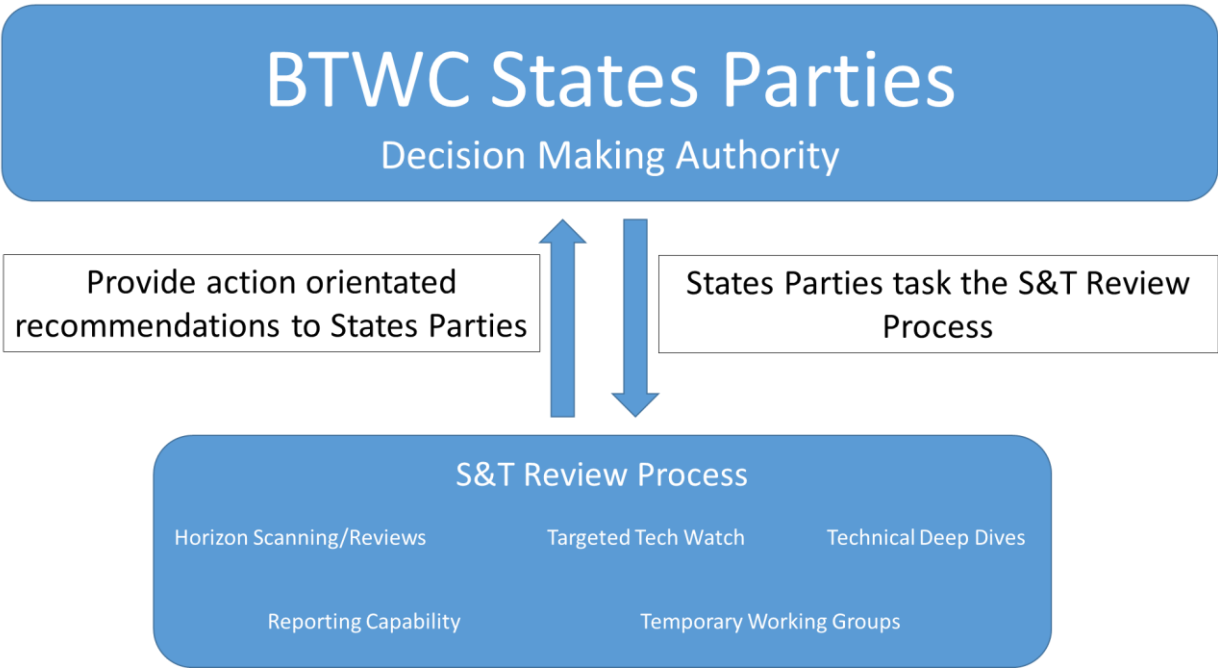


Figure 1: Diagrammatic representation of the S&T Review Process key purpose, decision making and functions showing the flow of information and tasking.