

Science and Technology Review in the BWC and CWC

Policy Primer from the Biochemical Security 2030 Project

Introduction

Advances in science and technology (S&T) may bring many benefits to public health, safety and security; however S&T advances may also be misused to cause harm. This means that S&T developments have impacts across the various articles of the Biological Weapons Convention (BWC) and the Chemical Weapons Convention (CWC) and need to be reviewed regularly. This document outlines the areas of interest within our new project, and our approach to thinking about the development of S&T review within the BWC and CWC regimes. We hope this approach can provide fresh evidence, impetus and solutions to long-standing and emerging challenges which face these regimes.

BWC and CWC review systems

The requirement to take S&T developments into account is acknowledged within both the BWC and CWC. However, historically S&T developments were often understood as subservient to other more pressing issues. In recent years S&T review has been accorded growing significance within both regimes. This has been reflected in the organic emergence of distinct S&T review practices within each regime.

CWC S&T review process and focus

Within the CWC there are two central aspects of S&T review. The first is the Science Advisory Board (SAB) which comprises of 25 independent experts. The

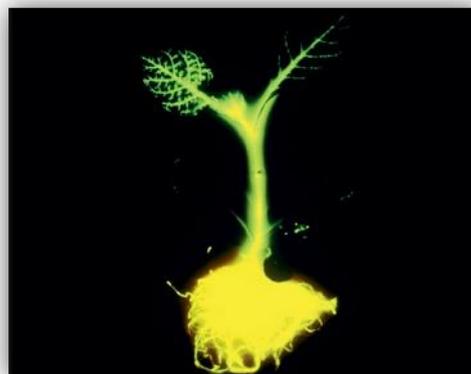


Image 1: The Glowing Plant Project is an example of a successful crowd-funded research project. It promised to reward investors with their very own genetically modified plant seeds which are bioluminescent. Crowd-funding may raise new questions about scientific research oversight nationally and internationally. This is because projects funded through this mechanism may not be subject to traditional forms of ethical and safety review.

SAB generally meets twice a year and produces reports of these sessions (the most recent being the twentieth session which took place in June 2013). The SAB reports to the Director-General, who then submits these reports, alongside his own responses, to the Executive Council.

The SAB can also establish Temporary Working Groups (TWGs), whose findings are communicated via its own meeting reports and are also presented within SAB reports to the Executive Council.

Every five years, the SAB also prepares a larger report for submission to the Review Conference. This process involves contribution from civil society, primarily through a report produced by the International Union of Pure and Applied Chemistry. In the run up to the third review process several S&T areas were

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discussed in relation to their dual-use potential. These are outlined in box 1.ⁱ

Box 1: Key areas of the S&T development relevant to the CWC with dual-use potential

Convergence: Biological processes are increasingly utilised in the production of chemicals as part of industrial processes.

Accelerated discovery of chemicals: Improved systems of compound and drug screening are under constant development.

Nanotechnology: Foundational technology in the development, production and delivery of chemicals, including toxins.

Technologies for delivery: Including commercially available munitions designed to deliver riot-control agents and systems for aerosol drug delivery.

Production technologies: Smaller and 'off the shelf' chemical production systems used for research and development as well as by industry.

BWC S&T review process and focus

Historically, the BWC S&T review involved submissions from states parties to review conferences. Such submissions were not standardised and made only by a handful of states.ⁱⁱ

Since the Fifth Review Conference, the Inter-Sessional Process (ISP) has also become a forum of discussion of S&T

developments as well as the process of S&T review. This forum is open to non-governmental organizations, and has fostered contributions on S&T topics from a wide range of stakeholders. Contributions to discussion have occurred through presentations made at the Meeting of Experts, as well as through side events held at Inter-Sessional Meetings. Institutions within the international scientific community have also held expert meetings and produced reports for the benefit of the convention.ⁱⁱⁱ

Since its establishment following the Sixth Review Conference of 2006, the Implementation Support Unit (ISU) has produced a number of background documents to Meetings of Experts (MXs), Meetings of States Parties (MSPs) and the Seventh Review Conference.

During the Seventh Review Conference a new model for the ISP was agreed. S&T was identified as a standing agenda item for recurrent discussion and several recurring annual topics of discussion were agreed. Each of these were conceivably relevant to the identification, management and mitigation of dual-use issues at national and international level. This included, for example '*new science and technology developments that have potential for uses contrary to the convention*', as well as '*voluntary codes of conduct and other measures to encourage responsible conduct by scientists, academia and industry*'. At the Seventh Review Conference it was decided that different areas of S&T would be addressed

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under the S&T standing agenda item during the ISP each year. These are outlined in Box 2.

Box 2: Annual topics of discussion during the Third ISP are advances in:

technologies for surveillance, detection, diagnosis and mitigation of infectious diseases, and similar occurrences caused by toxins in humans, animals and plants (to be considered in 2013);

understanding of pathogenicity, virulence, toxicology, immunology and related issues (to be considered in 2014);

production, dispersal and delivery of technologies of biological agents and toxins (to be considered in 2015).

Calls for improved review processes

The growing importance of S&T has been reflected in assertions within the BWC and CWC Review Conferences about the cross-cutting significance of S&T in achieving convention goals. This importance has also been reflected in calls for improved review processes by NGOs, academics as well as states parties.^{iv} In both regimes, there are some key themes to calls for improvement:

- The need for the development of systematic and responsive approaches to S&T review. For

example, in both the BWC^v and CWC^{vi}, there has been discussion of the benefits of developing and sharing best practices among states. This includes horizon scanning methodologies.

- The need for, and benefits of, the BWC and CWC engaging with the scientific community.
- Practical procedural improvements within the regimes to ensure the development of useful and issue-focused information on S&T which contribute to agreements and action.
- The need for clearly defined political purposes of S&T review among contributors and policy shapers.

Thinking about the future of S&T review...

Within our project we are developing practical recommendations, as well as new ways of thinking about S&T review in relation to biochemical security. Our project focuses on short-term as well as more long-term developments over the coming decades. So far we have identified three key focal points of current and future discussion.

S&T innovation

By S&T innovation, we mean developments in science and technology. Developments occur at two levels. At the first level are specific cases of discovery and innovation, i.e. improved

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technologies which reduce the cost of gene-sequencing. At the second level are changing norms in innovation. For example, crowd-funding of research projects through websites such as Kickstarter.com may challenge existing research oversight frameworks. This is because this practice may facilitate research in a wider range of contexts which may not be subject to existing governance frameworks (image 1).

Knowledge Generation

By knowledge generation, we mean the way in which knowledge and norms are generated and communicated within the biochemical security regime. This includes the input of scientists into the regime, as well as the development of educational materials for the broader scientific communities and relevant policy communities.

Governance

By governance we mean the norms, institutions, legal frameworks and styles of reasoning that new and emerging science and technology are subject to. This includes, but is not restricted to, systems of national security oversight as well as risk assessment and management.

Project plans....

Over the next year we will be holding a series of international meetings with scientists and policy experts. We will be developing a series of policy briefs and academic outputs, as well as blogs on our website – which are a little more playful!

About the Project

We are developing a clearer understanding of ways to ensure that S&T review feeds into a responsive biochemical regime. This builds on fieldwork conducted in cutting-edge fields of science as well as examinations of existing policy processes. The project is based at the University of Bath and run by Professor David Galbreath (*Primary Investigator*) and Brett Edwards (*Research Officer*). It also includes contributions from Professor Malcolm Dando and Professor Kathryn Nixdorff, as well as other experts. The project is based on a Research Councils UK proposal originally developed and submitted by Dr Alexander Kelle.

Interested? We want to speak to you!

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References

ⁱ *Report of the Scientific Advisory Board on Developments in Science and Technology for the Third Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention RC-3/DG.1 2012*

ⁱⁱ Caitríona McLeish and James Revill (2010) "Reviewing science and technology in the context of the Biological Weapons Convention", Discussion Paper 31st Workshop of the Pugwash Study Group on Implementation of the CBW Conventions Geneva, Switzerland, 4-5th December 2010.

ⁱⁱⁱ Bowman, K., Hughes, K., Husbands, J. L., Revill, J., & Rusek, B. (2011). Trends in science and technology relevant to the biological and toxin weapons convention: summary of an international workshop. The National Academies Press

^{iv} Revill, Kai Ilchmann, Caitríona McLeish & Paul Nightingale(2011) "Proposals for changing the S&T Reviews", Policy Brief.

^v Expert Meeting University of Bath 8-9 November 2012 'Towards the Focused and Effective Science and Technology Review During the third Intersession Process' Project. UK FCO Strategic Programme, grant number. SPF 000211

^{vi} *Report of the Scientific Advisory Board at Its Twentieth Session SAB-20/1 2013 p7*