

Friday 10th August 2018

MX2 - scientific developments, risk assessment and codes of conduct

The first day of the second in the series of 2018 Meetings of Experts (MXs) under the 1972 Biological and Toxin Weapons Convention (BWC/BTWC) was held on Thursday. The topic for MX2 is 'Review of Developments in the Field of Science and Technology Related to the Convention'. The Chair of MX2 is Pedro Luiz Dalcero (Brazil).

Michael Møller, Director-General of the United Nations Office at Geneva, offered a few words at the start of the meeting. He reminded participants of the biological aspects of the UN Secretary-General's disarmament initiative – 'Securing Our Common Future: An Agenda for Disarmament', launched in Geneva in May – and highlighted its connections with the Strategic Development Goals for 2030.

As with MX1, there was a swift run through of opening formalities to allow more time for substantive work.

The dual-use nature of the life sciences was an underlying theme with many reminders from the floor that there were substantial benefits for humankind from scientific and technological developments that should not be overlooked when considering potential negative aspects.

At the end of the day, time was allowed for the action points relating to MX2 from the NGO joint position paper to be conveyed to the meeting in a short intervention. Following the day's formal proceedings, a poster session was held in the hallway outside of the meeting room.

Review of science and technology developments

Presentations were given by the USA and Michael Imperiale (University of Michigan, as a 'Guest of the Meeting'). The floor was then taken by Romania, UK, India, Saudi Arabia, Spain, Venezuela/NAM, Pakistan, Nepal, Switzerland and the Philippines.

The US presentation introduced WP.5 on recent advances in gene editing. As this paper derived from the work of a group of experts, the USA invited one of these, Gigi Gronvall (Johns Hopkins Center for Health Security) to speak on this. Michael Imperiale, spoke to a report from the US National Academies of Sciences, Engineering and Medicine entitled 'Biodefense in the Age of Synthetic Biology' which had been prepared by a panel he had chaired. He highlighted four aspects for assessments of levels of concern about particular capabilities: usability of the technology, usability as a weapon, capability of actors [both in resources and expertise], and potential for mitigation.

Particular developments were referred to in a number of contributions to the discussion: CRISPR/Cas9 (sometimes simply called 'CRISPR', although this term is less specific) [a method for accurately and exactly editing genetic sequences], gene drives [a method that, in theory, ensures a genetic modification is passed down through successive generations until it predominates across the population], advances in gene sequencing [the ability to make long strands of genetic code both accurately and cheaply], and metabolic pathway engineering [the manipulation of the internal machinery of living cells to produce products not usually associated with living organisms]. These short descriptions do not capture all the nuances of such developments.

Biological risk assessment and management

This was the sub-topic/agenda item that took the shortest time for discussion, not least as some aspects were covered under other sub-topics – a code of conduct is irrelevant if it is not connected with some arrangement to consider implications of research or other activities. There were no specific working papers on this subject, although the UK spoke to elements in its working paper on genome editing (WP.4) and three headings of paragraphs were notable: ‘What are we concerned about?’, ‘How should we assess the risks?’, and ‘How should we manage the risks?’ Other interventions were made by India, Saudi Arabia, Spain, Sweden, USA, Netherlands and Venezuela/NAM.

Differences between risk scenarios in relation to biosafety and biosecurity were noted. The need for assessment methodologies to assess whether risk assessment arrangements were adequate was highlighted.

Voluntary codes of conduct

As there were a large number of presentations within this sub-topic/agenda item they were spread out across the available working time. For ease of reporting, the presentations are grouped together in this summary. The first presentation was given by Weiwen Zhang (Tianjin University, as a ‘Guest of the Meeting’) who described elements that should be within codes and China’s experiences of codes. Germany spoke to its paper (WP.1) on contributions of codes to self-governance in Leopoldina [National Academy of Sciences] and the German Research Foundation. China spoke to its paper (WP.9 [jointly with Pakistan]) on its voluntary code of conduct proposal. Japan outlined work to help society understand implications of dual-use research which then informs the operations of codes. France presented on the contribution of codes to ethics and scientific integrity in that country and noted that most guidelines on research integrity do not have dual-use elements within them. The United Nations Interregional Crime and Justice Research Institute (UNICRI) outlined its ‘International Network on Biotechnology’ work. The final presentation, by the Organization for the Prohibition of Chemical Weapons (OPCW), described the derivation of the Hague Ethical Guidelines. Other interventions were from UK, Romania, USA, Australia, Switzerland, Spain, Cuba, India, Pakistan, Netherlands, Iran, Mali, Ukraine, Venezuela/NAM and Russia.

Many references were made to earlier BWC discussions on codes of conduct held in MXs in 2005 and 2008. There were many observations that codes are not stand-alone activities and that they have to be allied with programmes of education and of awareness raising. The need for the scientists involved to have ‘ownership’ of codes was emphasized. The role of research funding agencies in ensuring work carried out using their resources was carried out within appropriate ethical frameworks was highlighted. The different elements that codes contribute to governance of research compared with laws (and other regulations) were hinted at. The overlapping nature of codes was touched upon, i.e., that a profession may have a code and a workplace may have a code such that the work of a researcher would fall within the remit of both codes. Some suggestions were made that codes should be adopted voluntarily on a national basis and, in reference to Article X, Iran noted codes shouldn’t impose limitations inconsistent with the Convention.

Side events

There were two lunchtime events on Thursday. One, entitled ‘Synthetic biology: opportunities for peaceful application and risks of misuse’, was convened by Russia. The other, convened by the InterAcademy Partnership (IAP) and US National Academy of Sciences, Engineering and Medicine, was entitled ‘Academies of science: Assessing security and governance issues of modern biotechnology’.

This is the fourth report from the series of five BWC Meetings of Experts which are being held from 7 to 16 August 2018 in Geneva. Reports are posted to <<http://www.cbw-events.org.uk/bwc-rep.html>> and <<http://www.bwpp.org/reports.html>>. An email subscription link is available on each page.

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