

## Time to Bolster Global Biological and Chemical Defense Capabilities

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### Summary

Recent biological and chemical trends highlights a growing concern regarding an evident indifference with respect to the support of the long standing institution CWC and BWC. This can be attributed to three causes the lowering of thresholds for developing BW and using CW, the demonstrated international lack of will to support these key international institutions, and a questionable ability to deal with the types of mass casualty scenarios as a result of biological or chemical attack. Today, the global preparedness and response capabilities are seen to be inadequate to address the range of biological and chemical threats the world is facing.

The 1972 Biological Weapons Convention (BWC)<sup>1</sup> and 1993 Chemical Weapons Convention<sup>2</sup> (CWC) serve as the norms against the use of biological and chemical weapons, respectively. However, recent biological and chemical trends should be cause for concern about a growing indifference to respect for and support of these institutions.

Specifically, three indicators combine to suggest cause for concern regarding biological weapons (BW) and chemical weapons (CW): the lowering of thresholds for developing BW and using CW, the demonstrated international lack of will to support these key international institutions, and a questionable ability to deal with the types of mass casualty scenarios that could result from a biological or chemical attack or even an accident or naturally occurring disease outbreak.

Since the BWC entered into force in 1975, advances in biotechnology<sup>3</sup> for use in the pharmaceutical, medical and agricultural industries have led to the rapid corresponding proliferation of knowledge and equipment across the globe. With growing interest in using biotechnology for other industrial uses such as bio-fabrication, bio-electronics, bio-sensors and even digital organisms and environmental remediation, the biotechnology industry undoubtedly continues to grow.

This proliferation implies that more nations and individuals will have access to dual-use biotechnology that could be used for industrial purposes, economic development, and curing disease or alternatively can be misused for malicious purposes or causing accidents. The deskilling of technologies will translate to increasingly more sophisticated biotech in the hands of a greater number of

people, less education and skill required to use increasing this equipment and tools, and at lower costs for using these capabilities. In short, the thresholds for use of the technology will be dramatically lowered.

For chemical weapons, the thresholds are lowered based on the recent increased use of these weapons. Prior to the CWC entered into force in 1997, major chemical weapons uses<sup>4</sup> were seen in World War I, World War II, southeast Asia by Vietnamese forces, Yemen by Egyptian forces, and the Iran-Iraq war to name a few. Casualties totaled over two million people killed. When the CWC entered into force, for the five-year period from 1997-2002, no chemical incidents were reported. However, since, we have seen an increased willingness by states and terrorists to use chemical weapons on the battlefield, against populations and for assassinations.

The government of Syria and the Islamic state used chemical weapons and toxic industrial chemicals during hostilities and against populations. Two high profile assassinations demonstrate a callous indifference by states to violate the CWC. The successful assassination of Kim Jong Un's half-brother in a Malaysian airport with a binary VX nerve agent and the recent attempted assassination of a former Russian spy and his daughter, Sergei Skripal and his daughter Yulia with a novel Novichok or N-series nerve agent signal demonstrate a disregard for international norms and an inability to be deterred. In the case of the alleged Russian attack, the novel agent use was likely a deliberate message designed to signal what happens to those that cross the Russian government and Vladimir Putin. The world has watched as redlines

have been drawn yet little more than symbolic actions have been taken. In these recent uses of chemical weapons since 2002, the total number of killed has been approximately 5,000, with at least the same number of people injured.

While we have witnessed this lowering of thresholds through the proliferation of biotechnology and the use of chemicals as tools of war and against populations, we have also witnessed a lack of international will to support key international institutions. The results of the most recent review BWC and CWC conferences—which are held every five years and serve as major forums for respective convention decision making—have been less than encouraging.

At the BWC's Eighth Review Conference held in November 2016, the final document<sup>5</sup> fell short of expectations. It was generally looked at as a missed opportunity<sup>6</sup> to address the pressing issues surrounding the effects of biotechnological change on the BWC. In addition, it saw a fractured debate led by the Non-Aligned Movement (NAM) calling for a return to the negotiation of a BWC protocol—a verification protocol—for assessing compliance. Such a proposal would be a non-starter for the United States and several other nations that question whether verification of the BWC is possible given its dual-use nature. While many ideas were floated on topics such as export controls, and matching lists for donor and recipient nations for capacity building, in the end, there was little consensus on a way forward. Even the workplan for the intersessional work program—that many hoped would result in an ambitious effort leading up to the 2021 Ninth Review Conference—fell short. With the end of the Eighth Review Conference, it became clear that no tangible results on the major substantive issues of the day had been achieved.

As a postscript, at the recent 2018 BWC Meeting of States Parties, the fractious debate continued. The only tangible outcome was the establishment of a working capital funding for nations to provide voluntary funding and which could serve as a source of support to fulfill short-term funding needs.

The CWC's Fourth Review Conference held in November 2018 also failed to live up to expectations. The forum failed to arrive at a consensus document<sup>7</sup> and therefore the chair of the review conference issued a summary of the proceedings which essentially described the discussions but did not present final outcomes and conclusions. The major sticking point was as the UK representative noted, "A very small minority who have used, or defended those that use, chemical weapons have obstructed our efforts." In short, the CWC outcome was politicized, hindering attempts to bring perpetrators of chemical attacks to account for their misdeeds.

As one account of the CWC Review Conference noted trying to find some positive outcome, "While the ultimate failure of the review conference to agree to final document sends a negative political signal, the conference of states parties' success in taking forward funds for attribution to hold chemical weapons users accountable is a notable gain for the CWC and the global norm against chemical weapons use."

Still, failure to deal with the key issues of the day and make progress towards biological and chemical issues provides ominous warning signs for

both conventions. Either of the review conferences saw a majority of nations supporting many of the substantive mainstream resolutions, but the decision-making mechanisms requiring consensus limited significant forward movement on major issues.

Finally, progress on global preparedness and response has been seen as a result of efforts by the World Health Organization (WHO) and related Food and Agriculture Organization of the United Nations (FAO) and World Organization for Animal Health (OIE); through the Global Health Security Agenda (GHSA) program; and the support of individual nations on a bilateral basis. However, recent events including the two most recent Ebola outbreaks in West Africa from 2014-2016 and currently ongoing in the Democratic Republic of the Congo, and the African Swine Fever pandemic spreading throughout Asia and Europe demonstrate how far we have to go. One can see clearly a lack of preparedness and response capabilities in areas such as biosurveillance, diagnostics, vaccines and therapeutics, international collaboration and crisis communications.

Despite the lessons China learned about crisis communications during the Severe acute respiratory Syndrome (SARS) virus in 2003, concerns exist about the reporting and transparency by China regarding African Swine fever.<sup>8</sup> Without accurate sharing of information, biosurveillance is spotty and likely, not accurate. Therapeutics including vaccine development continues to be elusive for many emerging diseases. For example, the therapeutic for Ebola, ZMapp, that is, the monoclonal antibody combination treatment<sup>9</sup> used in the West Africa outbreak is still continuing to undergo testing. Despite calls for more rapid development, therapeutics still take over a decade to gain full licensure. Meanwhile, unproductive

discussions about how and under what conditions to share biological and chemical defense capabilities globally as part of the BWC and CWC continue with little progress.

While the BWC and CWC remain important forums for dialogue on biological and chemical issues, recent history suggests that the norms against the use of these weapons have eroded and that thresholds against further use have been lowered. Meanwhile, global preparedness and response capabilities have also been seen to be inadequate to address the range of biological and chemical threats—both deliberate and naturally occurring—the world is facing.

## Endnotes:

<sup>1</sup> Text of Biological Weapons Convention, *US Department of State*, see <https://www.state.gov/t/isn/bw/c48738.htm>

<sup>2</sup> The Chemical Weapons Convention, *SIPRI*, April 1997, see <https://www.state.gov/t/isn/bw/c48738.htm>

<sup>3</sup> Srinibas Kumar, "Biotechnology: Scope and Branches of Biotechnology," *Biology Discussion*, see <http://www.biologydiscussion.com/biotechnology/branches-biotechnology/biotechnology-scope-and-branches-of-biotechnology/15653>

<sup>4</sup> Wm. Robert Johnston, "Summary of historical attacks using chemical or biological weapons," *Johnston's Archive*, December 2017, see <http://www.johnstonsarchive.net/terrorism/chembioattacks.html>

<sup>5</sup> Jenifer Mackby, "Disputes Mire BWC Review Conference," *Arms Control Association*, February 2017, see [https://www.armscontrol.org/ACT/2017\\_01/News/Disputes-Mire-BWC-Review-Conference](https://www.armscontrol.org/ACT/2017_01/News/Disputes-Mire-BWC-Review-Conference)

<sup>6</sup> Ibid.

<sup>7</sup> Alicia Sanders Zakre, "Covering the CWC Conference of States Parties and 4th Review Conference," *Arms Control Association*, December 2018, see <https://www.armscontrol.org/blog/2018/covering-cwc>

<sup>8</sup> Adam Minter, "China's Pig Pandemic Should Worry Everyone," *Bloomberg Opinion*, April 2019, see <https://www.bloomberg.com/opinion/articles/2019-04-24/china-s-handling-of-swine-fever-outbreak-similar-to-sars>

<sup>9</sup> Kevin Kunzmann, "Investigative Ebola Treatment ZMapp to Undergo Testing," *MD Magazine*, February 2018, see <https://www.mdmag.com/medical-news/investigative-ebola-treatment-zmapp-to-undergo-testing>