

**Eighth Review Conference of the States Parties
to the Convention on the Prohibition of the
Development, Production and Stockpiling
of Bacteriological (Biological) and
Toxin Weapons and on Their Destruction**

25 October 2016

English only

Geneva, 7-25 November 2016

Item 10(b) of the provisional agenda

Review of the operation of the Convention**as provided for in its article XII****Articles I-XV**

**Article I: Reinforcing the core prohibition of the Biological
Weapons Convention**

Submitted by the United States of America

1. The basic purpose of BWC Review Conferences is to assess the operation of the Convention to ensure that its purposes are being fulfilled. The understandings and actions agreed upon by States Parties at such conferences are an important means to ensure the continued relevance and viability of the BWC in the face of changing circumstances. In a time of rapid advances in science and technology, "just-in-time" production and inventory systems, irregular warfare, and growing concerns about chemical and biological weapons (CBW) terrorism, States Parties should consider ways to clarify and reinforce the core prohibitions of the Biological Weapons Convention.

2. Article I of the BWC sets out the central obligations of the Convention: It proscribes the development, production, stockpiling, acquisition, and retention of "microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes." This so-called "general purpose criterion" was written broadly to ensure that its prohibitions remained relevant despite the future progression of science and technology. Successive Review Conferences have affirmed that Article I, and the Convention in general, are broad enough to capture potential misuses of the life sciences as they have continued to advance. However, Review Conferences have also found it useful to specifically address various materials or applications, to send a clear signature to the international community that they fall within the scope of the Convention. For example, the Second Review Conference declared that "toxins (both proteinacious and non-proteinacious) of a microbial, animal or vegetable nature and their synthetically produced analogues are covered"; the Third Review Conference adopted an understanding that the Article I prohibition applies not only to agents or toxins harmful to humans, but also to those harmful to animals or plants; the Fourth Review Conference indicated that the Convention covers not only biological agents, but their components, whether natural, altered, or artificially created, and that the BWC applies to "any applications resulting from genome studies."

GE.16-18521(E)



* 1 6 1 8 5 2 1 *

Please recycle



3. As the fields of life sciences and biotechnology advance, it is important for States Parties to continue to evaluate both scientific/technological developments and the potential for new weapons applications, in order to ensure through Review Conferences that the prohibition against any agents or toxins that might be used malevolently, or any delivery systems that might be designed to use such agents or toxins for hostile purposes or in armed conflict, remains intact. The Eighth Review Conference should strongly reaffirm the comprehensive nature of the Convention — but it should specifically address anti-materiel agents, the use of vectors as delivery systems, so-called "genetic weapons," and the maintenance of plans or preparations to facilitate future biological weapon (BW) production. Finally, the Conference should, as it has done twice before, appeal to the international scientific community not to allow its vital work to be diverted to purposes not permitted by the BWC.

Anti-Materiel Agents

4. Changes in the scientific and technological landscape have led to the development of new technologies and applications that have implications for our understanding of the nature of biological weapons. One of the most significant is the development of microorganisms that can degrade specific materials with unusual speed or effectiveness, often created with genetic engineering techniques. This field offers many potential benefits: such organisms can be used to degrade plastic waste in an environmentally friendly manner, to clean up oil spills, or to detoxify pesticides — in fact, "bioremediation" has been used as a second-stage technology in the destruction of chemical weapons in the United States. However, such anti-materiel agents could potentially also be used for harmful purposes. For example, organisms could be engineered to accelerate corrosion and destroy rubber or metal parts, or to degrade fuel, food supplies, or other equipment, and used against enemy equipment or supplies. Such use would clearly not be for "prophylactic, protective or other peaceful purposes."

5. It would be advantageous to specifically reflect this in the RevCon Final Document. This could most easily be accomplished by modifying the language agreed upon at past RevCons, which states that the Convention "covers all naturally or artificially created or altered microbial and other biological agents and toxins, regardless of their origin and method of production and whether they affect humans, animals, or plants, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes" by adding after "humans, animals, or plants" a reference to "food, water, equipment, supplies, or materials of any kind."

Means of Delivery

6. Article I also bans the development and production of "weapons, equipment, or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict." It is important to ensure that our shared understanding of this provision is sufficiently broad to accommodate contemporary threats. The term "means of delivery," as used in the Convention, is clearly not limited to munitions or equipment, or it would not be listed separately. It includes any method used specifically to deliver or disseminate a biological agent or toxin for prohibited purposes. In particular, "means of delivery" includes deliberate use of any vector — an organism or molecule, including a recombinant or synthesized molecule, that is capable of carrying a biological agent or toxin to a host — to deliver an agent or toxin. Historically, state BW programs have explored the use of vectors for this purpose (e.g., fleas for delivery of *Y. pestis*). Today, such approaches may be particularly appealing to non-state actors, including terrorists, due to their relatively low-tech nature. Alternatively, sophisticated state-level programs might use nanomaterials or other molecular delivery systems to introduce a toxin, pathogen, or genetic component into a living system — an approach perhaps best characterized as a "non-living vector." The use

of vectors to deliver BW is a particularly insidious problem because it could facilitate clandestine or deniable attacks.

7. We therefore encourage States Parties to use the Eighth Review Conference to affirm the understanding that the development or use of vectors, whether living and nonliving, to transmit biological agents or toxins for hostile purposes constitutes a "means of delivery" and is prohibited under Article I, paragraph 2.

Plans or Preparations to Facilitate Future Production of Biological Weapons

8. It is widely recognized that facilities used for peaceful, permitted purposes could, in many cases, be repurposed to produce BW should a decision be made to do so. Consequently, the intent behind the construction and operation of these facilities is of critical importance. Constructing such facilities with the intention of possibly converting them for future production or use of biological agents for purposes not permitted by the BWC is incompatible with the Convention's objectives, as is the development or maintenance of "mobilization plans" to adapt a legitimate facility to produce BW upon demand. Such "hedging" strategies are in contradiction with Article I's obligations, because they evince a conscious and deliberate intention to maintain readiness to use these agents for hostile purposes.

9. The United States therefore believes it is important for States Parties to adopt an understanding at the Eighth Review Conference that plans or preparations designed to facilitate future production and/or use of biological weapons are incompatible with the BWC.

Products of New Genomic Editing and Engineering Technologies

10. The study of genetics and the application of gene modification and editing technologies have continued to advance at an incredibly rapid pace. Improvements in these areas obviously have great potential to improve human health, given the wide range of potential applications for these technologies, ranging from immunization to therapeutics to personalized medicine. However, improvements to these gene editing/engineering technologies also increase the risk that weapons based on these technologies will be developed and used. Such technologies could be used to engineer modified or novel pathogens or toxins, but in principle it might also be possible to apply these technologies directly, for example by disrupting key RNA functions of humans, plants, or animals for hostile purposes. Periodically, concerns have been raised that it may become possible to develop weapons that are "selective" — that is, disproportionately likely to affect certain individuals based on their genetic makeup.

11. The United States is opposed to any form of genetic weapon. Past Review Conferences have agreed that "all naturally or artificially created or altered microbial or altered microbial and other biological agents or toxins, as well as their components," are unequivocally subject to Article I of the BWC. The Review Conference should therefore agree that any weapon, equipment, or means of delivery designed to use such agents, toxins, or components for hostile purposes or in armed conflict, **including for any form of genetic weapon**, is likewise covered by Article I.

12. The Fourth Review Conference adopted new language on the scope of the Convention, declaring that "the undertaking given by the States Parties in Article I applies to", inter alia, "molecular biology, genetic engineering and any applications resulting from genome studies." There is, therefore, a clear precedent for the proposed statement.

Appeals to the Scientific Community

13. Defending against biological threats requires collective global awareness and effective implementation at all levels, from international organizations to national actors to local communities to individual researchers. Life sciences researchers and other members of the scientific community have a responsibility to ensure that their work is not misused for hostile purposes.

14. The Third and Fourth Review Conferences appealed directly to the scientific community to use its expertise only for purposes permitted by the Convention. The United States urges States Parties to make a new appeal to the scientific community, urging scientists to be mindful of the potential for legitimate research to be misused for purposes prohibited by the Convention and to consider the need to take this risk into account in their work. Such language serves to acknowledge the important role that members of the scientific community can play in preventing any potential misuse of biological agents and toxins.

Conclusion

15. As science and technology evolve, it is crucial to ensure that States Parties are on the same page regarding their obligations under the Convention. To that end, this Review Conference provides an opportunity to enshrine our common understandings. An affirmation of the broad, comprehensive scope of Article I is essential, but it should be complemented by specific affirmations that both illustrate that scope and clearly address potential issues. We believe that it is critical that the Final Document reflect these understandings – namely, that the provisions of Article I prohibit: (1) the development of anti-materiel agents; (2) the development of living and nonliving vectors as a means of delivery; (3) the construction or designation of facilities for future biological weapons production; and (4) the targeting of the genetic material of plants, animals, or humans, along with a broad affirmation of the scope of Article I – in order to make it absolutely clear that the prohibitions of the BWC include *all* biological weapons, whether lethal or nonlethal, against humans, plants, animals, or material, as well as all delivery systems, whether living or nonliving. We also believe in the critical importance of encouraging the scientific community to act as sentinels, remaining cognizant of the potential risks of their work and guarding against its misuse.
