Ninth 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

24 November 2022

English only

Geneva, 28 November to 16 December 2022
Item 11 of the provisional agenda
Consideration of issues identified in the review of the operation of the Convention as provided for in its Article XII and any possible consensus follow-up action

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

Submitted by the United States of America

1. The basic purpose of a Biological Weapons Convention (BWC) Review Conference is to assess the operation of the Convention to ensure that its provisions are being implemented and its purposes are being fulfilled. The understandings adopted and actions decided 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. As the fields of life sciences and biotechnology advance, States Parties need to consider whether and to what extent these developments may affect the Convention, and how to clarify and reinforce its core provisions.

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.

3. However, Review Conferences have also found it useful to specifically address various biological materials or applications, in order to send a clear message to the international community that these materials or applications 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; and 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." As science and technology advance, it is important for States Parties to continue to evaluate scientific and/or technological developments, not only to ascertain what benefits they may offer, but also to assess whether they might potentially be used for new weapons applications. It is vital to ensure through Review Conferences that States Parties reaffirm their understanding that the Convention's prohibitions remain strong – both broad enough to encompass future developments and specific enough to ensure their effectiveness.

4. The Ninth Review Conference should strongly reaffirm the comprehensive nature of the Convention — but it should specifically address anti-materiel agents, the use of vectors

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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.

I. Anti-Materiel Agents

5. Changes in the scientific and technological landscape have led to the development of new technologies and applications that have implications for our understanding of what constitutes a biological weapon. One of the most significant changes is the development of anti-materiel agents: microorganisms that can degrade specific materials with unusual speed or effectiveness, often created with genetic engineering techniques. Anti-materiel agents offer 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" is often used in the destruction of secondary waste from the demilitarization of chemical weapons in the United States.

6. However, 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.”

7. States Parties should address this in the RevCon Final Document. This could most easily be accomplished by modifying the language adopted 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 material of any kind***.”

II. Means of Delivery

8. 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.

9. In particular, “means of delivery” must be understood to include any carrier, such as an insect vector, capable of delivering a biological agent or toxin to a host. Historically, state biological weapons programs have explored the use of living vectors for this purpose (e.g., fleas for delivery of *Y. pestis*). Today, such approaches may be particularly appealing to a variety of actors, including non-state actors such as terrorists, due to their relatively low-tech nature. The use of vectors such as ticks or mosquitos to deliver biological weapons is a particularly insidious problem because it could facilitate clandestine or deniable attacks.

10. At the Ninth Review Conference, States Parties should therefore affirm that ***developing, producing, stockpiling, or otherwise acquiring or retaining a living vector or any other means to transmit biological agents or toxins for hostile purposes*** is prohibited under Article I, paragraph 2.

III. Plans or Preparations to Facilitate Future Production of Biological Weapons

11. It is widely recognized that facilities used for peaceful, permitted purposes could, in many cases, be repurposed to produce biological or toxin weapons 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 specific intention of possibly converting them for future production or use of biological or toxin 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 biological or toxin weapons upon demand. Such hedging strategies evince a conscious and deliberate intention to maintain readiness to use these agents for hostile purposes.

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

IV. Products of New Genomic Editing and Engineering Technologies

13. 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 for hostile purposes, but in principle it might also be possible to apply these technologies directly, for example by altering genes and negatively affecting key functions of humans, plants, or animals for hostile purposes. There are also concerns that that it may become possible to misuse genetic data to develop weapons that target individuals or populations based on their genetic background.

14. The United States is opposed to any form of genetic weapon. Past Review Conferences have reaffirmed that "all naturally or artificially created or altered microbial and other biological agents or toxins, as well as their components," are unequivocally subject to Article I of the BWC. The Fourth Review Conference elaborated this further, affirming that the undertaking given by the States Parties in Article I applies to relevant scientific and technological developments, *inter alia,* in the fields of "molecular biology, genetic engineering and any applications resulting from genome studies." Subsequent Review Conferences have included a broader statement reaffirming "that Article I applies to all scientific and technological developments in the life sciences and in other fields of science relevant to the Convention." This statement is important in emphasizing the broad scope of the Convention, but does not provide the same clarity with respect to the use of biological agents, toxins, or their components as weapons designed to target and damage or alter genetic background.

15. The Review Conference should therefore combine ideas drawn from the statement of the Fourth RevCon with the broader language adopted by later Conferences by affirming that "Article I applies to all scientific and technological developments in the life sciences and in other fields of science relevant to the Convention, ***including developments regarding the targeted modification of genetic material.***"

V. Appeals to the Scientific Community

16. 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.

17. 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 conducting 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.

VI. Conclusion

18. 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.

19. We believe that it is critical that the Final Document reflect the understandings articulated above, 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 and that affect humans, plants, animals, or material, as well as all delivery systems. 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.