Forum: Disarmament Commission

Issue: Strengthening international agreements surrounding biological warfare

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Introduction

Biological warfare is the use of toxins originating from disease-producing organisms such as bacteria, viruses, and insects with a malicious intent of harming humans, animals, or plants. Although biological weapons were first used in the early 14th century, the danger of biological weapons has only been widely gaining attraction since the 20th century as biological weapons, once launched, are beyond arbitrary control. In addition, the unprecedented technological advances have allowed humans to gain invaluable knowledge regarding bacteriological and virological production, which significantly increased the production of weaponized biological agents.

After witnessing the devastating consequences of harnessing biological weapons in World War I and II and acknowledging the possible loopholes that countries could easily exploit in the Geneva Protocol, international organizations have devised a treaty called the Biological Weapons Convention (BWC) in order to prevent a reemergence of these pernicious weapons. BWC provides a solid framework in efforts to prohibit any association with biological weapons with over 183 parties being a signatory of this treaty. Nevertheless, technological improvements have inevitably allowed non-state actors as well as governments to acquire and produce biological weapons.

Before composing possible solutions, delegates must acknowledge that biological warfare is a subset of biological events: an event should first be taken into consideration of its origin and its intention before classifying it as biological warfare, and hence undertaking subsequent actions. For instance, the dissemination of a harmful agent in a research laboratory may or may not be classified as biological warfare based on its origin and intention.

Figure 1: A spectrum enumerating different biological events and their risks

Definition of Key Terms

Biological warfare

The intentional use of living infectious microorganisms or toxins that are derived from organisms to cause death or disease in humans as a weapon of war

Biological agents

Microorganisms or toxic substances that cause diseases in humans, plants or animals, or causes the deterioration of a material, which can be utilized and developed as means of biological warfare

Bioterrorism

Terrorism involving the intentional dissemination of toxins and other infectious agents that are not state-sponsored and not used during a war

Agroterrorism

The usage of microbes or their toxins, bacteriological weaponry, and any other infectious agents to terrorize human populations by destroying or contaminating food supplies

Casualty agents

Substances that cause death or serious illness, causing personnel to become unable to perform work in combat or support roles for long periods of time

Incubation period

The time taken from exposure to harmful biological agents to the onset of signs and symptoms of diseases caused by the aforementioned substances

Background

Pre-20th and Early 20th Century

Biological weapons at this stage were minimally used due to the superficial knowledge from insufficient advances in technology and limited ideologies regarding the use of biological agents in warfare. However, there were still occurrences of biological weapons being utilized in warfare. One of the earliest recorded events is in 1346 when Mongol forces are believed to have catapulted plague-infested bodies over the barricades into the Black Sea port of Caffa. A similar act took place in 1710 between Russia and Sweden. From this, it can be seen that armies used infected corpses as a biological weapon by attempting to institute a disease in the enemy's region.

The Hague Conventions of 1899 and 1907

The Hague Conventions are normally believed to be the earliest legislation that combats the problem of biological warfare. Hosted in the Hague, Netherlands, the first Hague Convention established and renewed a

declaration prohibiting the discharge of projectiles with the sole object to spread asphyxiating poisonous gases. This was ratified by all major parties except the United States. This was later revised by the Hague Convention of 1907, in which they have prohibited the discharge of projectiles and explosives from balloons. However, among the major parties, only China, Britain, and the United States have ratified this declaration.

World War I

Rapidly escalating tensions in the European region alongside the discovery of Germ theory from works by Louis Pasteur and Robert Koch led to the development of bioweaponry, a viable project for many of the countries. World War I was a quintessential war for the countries to implement their products due to the nature of the war being focused on trenches. The Hague Conventions were severely violated: most of the participating parties were all developing biological weapons in order to cause detrimental actions towards enemies.

In particular, the German army utilized a specific bacteria discovered by Robert Koch during the First World War: anthrax. Caused by the bacterium *Bacillus Anthracis*, the Germans contaminated animal feed and livestock using Anthrax, which was effective in sabotage situations. However, anthrax, unlike other diseases, is not contagious. Therefore, the Germans did not use it deliberately against adversaries.

Post-World War I and World War 2

After witnessing the devastating outcome of World War I, combatants felt an urge in developing protection equipment as well as fully developing biological toxins. Under the aegis of governments, countries quickly began to produce respirators that nullified gas attacks, including gas masks and some extended into creating research facilities in fostering biological weapons creation. Conversely, international organizations decided to forge an international treaty in order to regulate the manufacturing of biological weapons, which is the Geneva Gas Protocol.

Geneva Gas Protocol of 1925

The Geneva Gas Protocol is an international treaty that entered into force on 8th February 1928. Supervised by the international trade in arms and ammunition and under the auspices of the League of Nations, it mainly discusses the complete prohibition of asphyxiating, poisonous or other gases, analogous liquids, materials, or devices, but also extends its supervision towards bacteriological methods of warfare. As of July 2020, 145 states have ratified the Protocol. Although this law is widely believed to be a fundamental of many subsequent treaties such as the BWC and the Chemical Weapons Convention, there are still many problems, one of which being the protocol does not ban the development, production, stockpiling of these weapons, leading to countless situations where countries were found to be violating the law through the usage of biochemical agents that they have been developing.

In World War II, biochemical weapons were not as effective in comparison to World War I. This was primarily due to the fact that gas masks were now prevalent between households and governments taught children

how to wear gas masks properly in case of a gas deployment. However, countries continued to experiment with biological weapons, often conducting inhumane trials on civilians and prisoners of war (POW).

Unit 731

Widely regarded as one of the most notorious units that carried out lethal human experiments under the Imperial Japanese Army, Unit 731 was a biological and chemical warfare research unit that was active during the 1930s until the end of World War II. It was located at Harbin, which at that time was a part of the Japanese puppet state of Manchukuo. The primary purpose of this unit was to test the extremities of human bodies in harsh conditions in order to better understand the limitations of the human body, which can be reflected towards their soldiers. The unit has used approximately 3000 prisoners in performing these experiments, mainly consisting of POWs from China, Korea, and Mongolia. One of the major experiments that this infamous unit did was "field testing", testing pathogens such as Cholera and Anthrax and analyzing their effects on small communities. This was done via spraying the agents onto villages in China. The spraying killed thousands of local civilians. The Japanese army obtained numerous information regarding each of the biological toxins that they used, such as bubonic plague and paratyphoid fever. Another major section of Unit 731 was vivisection, in which the Japanese would force prisoners to be infected with a disease of some sort and then performing vivisections without anesthesia in order to understand how the disease affected their organs. Other than these experiments, Unit 731 was also responsible for other atrocious experiments, including sleep depravity as well as centrifugal endurance.

Late 20th Century and 21st Century

It was evident that incorporating the technology manifested during WW2, anonymities were now able to produce biological weapons without any adversities. This allowed numerous government and non-governmental organizations to carry out covert research missions primarily focused on further developing their biological weapons. During the process, there were some incidents in which governments have carelessly put their own civilians as part of the experiment, and there have been also cases where non-party state actors obtained biological weapons and deployed them in terrorist attacks.

Biological Weapons Convention (BWC)

Perhaps acknowledged as the most successful anti-biological warfare legislation in history, the Biological Weapons Convention is a treaty signed on 10th April 1972 and came into effect on 26th March 1975. The core obligations of parties under the convention are not to develop, produce, stockpile biological agents as well as agreeing not to encourage any entities to manufacture any of the potential toxins. As of July 2021, 183 states have ratified the treaty.

Bioterrorism

As mentioned beforehand, the rapid development of technology has allowed practically anyone that has the right amount of interest to manufacture biological weapons. Therefore, a new segment of terrorism has emerged in

recent years: bioterrorism. As defined by the CDC, bioterrorism is the intentional release of viruses, bacteria, or other germs that can sicken or kill people, livestock, or crops. One of the most notable examples of bioterrorism would be the 2001 Anthrax attacks where letters containing powdered anthrax spores were mailed to several United States senators and news media offices, killing 5 people and sickening 17 more. Anthrax spores are relatively easy to find in nature but can also be simply produced in a lab due to technological advancements. Hence, it is extremely hard for governments and state officials to regulate individuals as not all anthrax spores are manufactured with the intent of terrorism. Some research departments may produce anthrax spores within arbitrary control to research antibiotics as well as study the immune response to anthrax toxins. In addition, the flaws lingering in the BWC, such as the lack of verification methods of checking compliance of States Parties, make it even harder for states to monitor non-state actors regarding the development and intention of these biological agents. In 1990, the Japanese cult Aum Shinrikyo group was publicized to deploy anthrax in Tokyo several times. Although it was unsuccessful, this case allowed the public to realize that the production of powder anthrax, even though it is a complicated and expensive process, can be performed on an individual basis.

Major Parties Involved

Soviet Union / Russia

Biological Substance Preparation (also known as Biopreparat) was a biological warfare agency from the 1970s. It was a civilian disguised series of secret lab experiments with the objective of developing pathogenic weapons that could be used during a war. Furthermore, there has been evidence that the Soviet Union was actively developing biological weapons, such as Poison Laboratory of the Soviet Secret Services (alternatively known as Laboratory 1) and Vozrozhdeniya Island (Island that includes Aralsk-7, a biological weapons test site). In recent history, Russia has been an active participant in putting its efforts to control the usage of biological weapons, as there have been numerous cases where Russia signed treatments such as the BWC for the cause of regulating toxins. However, the unintimated number of biological weapons remaining from the Soviet Union era still possesses a potential danger if they were not disposed of or in the continuation of development by member nations.

United States

The United States has a long history with biological weapons. By granting full immunity against prosecution towards some Unit 731 officers, the United States has earned unmatched information regarding biological agents and their effects and symptoms when exposed to human beings. Ever since the United States expeditiously developed biological agents, some ethical questions materialized during this process. From 1962 to 1973, the United States initiated Project 112, which included Project SHAD: Shipboard Hazards and Defenses. SHAD included 52 sets of tests that involved releases of biological agents in locations such as Hawaii, the Panama Canal Zone, and the coast of San Diego. US officials also had numerous cases where they secretly sprayed researched bacteria such as *Bacillus Globigii* and *Bacillus Subtilis* variant *Niger* in subway stations. This was to comprehend the disease-spreading capability of these bacteria variants. However, ethical reasons were discussed soon after the revealment of these sets of experiments, with citizens concerned over how the government was

jeopardizing the health of the citizens. In 1969, President Nixon had renounced bioweapons following his campaign and submitted the Geneva Protocol for ratification. Although the United States is ostensibly against biological weapons, recent biodefense programs prove that the US is still manufacturing biological agents for defensive purposes.

South Africa

South Africa is also heavily involved in manufacturing biological weapons. From 1981 to 1995, South Africa conducted a covert chemical and biological weapons program called Project Coast. A lot of the projects were based on existing Soviet techniques, and the main purpose of this project was to develop the bioweaponry technology so that it can be used to effectively expunge potential threats to the government. The project ended alongside the end of apartheid, and despite many efforts to destroy equipment and information obtained from these programs, some still linger in the region, which can be easily misused when terrorist networks approach these remnants.

China

The recent outbreak of COVID-19 from Wuhan, China, precipitated countries' suspicion regarding the origin of this virus. The two major theories regarding the origin are either the virus being sufficiently evolved to an extent in which it can cause a worldwide disease, or it being manufactured in a lab for bioweaponry. Furthermore, the Made in China 2025 (MIC2025) policy has targeted several key industries that the Chinese government would aid in becoming internationally competitive. The inclusion of aerospace engineering in one of the key 10 industries could seem innocuous, but when harnessed with existing knowledge and research, China has the potential to become one of the dominant sides that encompasses a wide variety of biological weapons as development in aerospace engineering will allow the unprecedented scale of mass dissemination of biological agents via the use of new technology, although ostensibly it can be viewed as "aerospace engineering."

United Nations Office of Disarmament Affairs (UNODA)

The United Nations Office for Disarmament Affairs (UNODA) is a department that serves to provide substantive and organizational support for norm-setitng in the area of disaramament. They primarily support the development and implementation of practical disaramament measures after a conflict, with measures such as disarming and demobilizing former combatants or civilians affected by war and helping them to reintegrate in a civil society. Being an active supporter of the BWC, they have been helping member states of the BWC by monitoring nations and holding regular meetings. They have also released papers regarding the safety of biological warfare such as the publishment of "Developing a Biological Incident Database" in March 2009.

Timeline of Events

Date	Description of event
1346	The first recorded Biological Warfare at the Siege of Caffa
1861	Discovery of the Germ Theory

1899 **1907**	The Hague Convention of 1899 ratified The Hague Convention of 1907 ratified
1925	Signing of the Geneva Protocol
1930~1945	Japan's Unit 731 active period
1962	Initiation of Project 112
1966	Contamination of the New York Metro system with *Bacillus globigii*
1969	President Nixon signs an executive order to stop all offensive biological weapon research and production.
1970s	Initiation of the Biopreparat Project
1972	Biological Weapons Convention signed
1979	Anthrax outbreak in Sverdlovsk, Russia
1981	Institution of Project Coast
1995	Aum Shinrikyo cult's Tokyo Subway Sarin Attack
2001	2001 Anthrax Attacks

Previous Attempts to Resolve the Issue

As aforementioned, there have been numerous efforts to address the issue of biological warfare, such as the Hague Conventions of 1899 and 1907, the Geneva Gas Protocol, and the Biological Weapons Convention. Nevertheless, these treaties were not a major success due to the numerous loopholes and the lack of detail which allowed many of the member states to bypass the legislation and continue developing biological agents.

The initial launch in order to combat biological warfare was the Hague Conventions of 1899 and 1907, where *"the use of projectile with the sole intent of spreading asphyxiating posion was agreed to be prohibited during international combat."* However, these conventions were severely violated during the First World War, as aforementioned in the Research Report, with uses including the German army using anthrax and extending it up to chemical gases like chlorine gas. Over 500,000 civilian casualties resulted from the deployment of biochemical agents and gases. Ultimately, countries realized the rapid speed at which a biological agent affected a single community with thousands of human population, which led to the formation of the 1925 Geneva Protocol. More details of this Protocol are aforementioned in the Research Report, but in short, it discusses the complete prohibition of *"asphyxiating, poisonous or other gases, analogous liquids, materials, or devices, but also extends its supervision towards bacteriological methods of warfare."*

The Geneva Protocol seemed to be effective in which they discussed the complete prohibition of all those enumerated agents. However, the biggest problem underlaid in this Protocol was that there was no mention of addressing the production, storage, testing, and transfer of the forbidden methods of warfare. This allowed countries such as the Soviet Union and the United Nations to amass large supplies of chemical and bacteriological agents through continuous research and development largely funded secretly by the government.

After a lot of these secret research facilities emerged to the public eye, there was a high demand and urgent request for the international body to formulate a supplement to the Geneva Protocol. Furthermore, the aftermath of WW2 in which years of research results from notorious units such as Unit 731 were obtained by countries and the rapid development of technology resulted in anonymities being easily able to replicate the creation of biological agents and start using them on innocent civilian-targetted attacks. Hence, the Biological Weapons Convention came into effect. The BWC effectively bans biological weapons by prohibiting their development, production, acquisition, transfer, stockpiling, and use. In other words, it filled in the missing aspects of the Geneva Protocol, which allowed the public to accredit this convention as the most successful anti biological warfare treaty to this day. Nevertheless, this does not mean that it is quintessential. The BWC itself also embodies some loopholes. Most notably, the BWC does not have a verification mechanism, which leads to a lack of mechanisms to verify the compliance of the states parties.

Bioterrorism was also a huge problem, as the public now had garnered a lot of information regarding the creation of biological agents that can be easily utilized to perform assassinations without the use of deliberate weapons. This was a serious issue as biological weapons were now being used for covert assassinations. For example, in 1978 a Bulgarian exile named Georgi Markov was attacked and killed in London by Bulgarian secret services. This was done via discharing a tiny pellet into the subcutaneous tissue of Markov. However, this even extended to the general public, where in 1996, a woman named Diane Thompson removed Shigella dysenteriae type 2 from a hospital's collection and infected her co-woekrs with contaminated pastries in the office bathroom. This allowed the governments to realize the seriousness of the issue: how minimal efforts and knowledge can lead to serious harm and casualties. Although there has been efforts to curb the issue such as detection services and surveillance, a vast minority of them yielded fruit due to the lack of intelligence regrading bioterrorism.

Relevant UN Resolutions:

- S/RES/1540
- S/RES/2325
- A/RES/2826 (XXVI)

Possible Solutions

One of the biggest problems that underlie in most of the previous treaties that have been legislated was the presence of loopholes that allowed specific member nations to continue research of biological agents without any repercussions from treaties. Moreover, rapid technological advances and improvements made in recent years have changed the current situation of biological warfare, and therefore some of the treaties may be outdated in recent days. Hence, delegates may be interested in approaching solutions to strengthen the authoritive powers of these treaties or even extend to the creation of a new biological warfare treaty under the aegis of the United Nations, as well as to recuperate the lost mutual trust between states so that information regarding bacteria can be exchanged under the primary goal of expanding intelligence.

Another reason why these loopholes were manipulated intentionally by member nations was the fact that there weren't any serious consequences that were faced by countries if there was an alleged flout of BWC and The Geneva Protocol. Hence, delegates should think of serious retributions that will avert the nations from violating the treaties. Some notable examples can be economic sanctions imposed by the United Nations, restrictive measures towards the country's financial transactions. The consequences may be implemented that repeated offenses will lead to a higher reprimand such as the 3-strike policy that is widely enforced in multiple global institutions.

An extension to this idea can be the consideration of infrequent, spontaneous visits to suspected member nations alleged to fail to comply with the relevant treaties to check declarations and procedures. The big factor that should be taken into account is the fact that there should be no consequences to the organization center itself after concluding a sudden visit. Member nations should be fully aware that the organization, in seeking for the primary goal of keeping the danger of biological warfare under control, may randomly perform a check to their country, and they will have to fully act in accordance with the organization's orders. Delegates also have to think about who will perform these checks and how to minimize the possibility of corruption in the center's investigation process. When this is in place, this would significantly strengthen the verification process that was not present in previous treaties as well as to have a better understanding of the extent to which the organization should impose the degree of consequences.

Furthermore, as aforementioned in the *introduction* of this research report, there is not a clear criterion that will allow the distinguishment or of biological events, in which delegates may consider the establishment of a Scientific conference specifically targeted towards biological events and classification of them, allowing subsequent actions to be held if necessary. For this to be successful, there has to be a considerate thought on who will organize these conferences, with which individuals would it be opening it to (member states, relevant NGOs), as well as how often these conferences will take place.

Lastly, there needs to be an effective protocol that the world can abide if a case of bioterrorism has been taken place. For example, there can be a worldwide surveillance network that can be automated to detect possibilities of bioterrorism in the region. However, this will require a huge integration of human and laboratory resources, hence delegates may want to consider the extent in which this surveillance would be used.

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