Forum: Disarmament Council

Issue: Addressing the issue of biological weapons in warfare

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Introduction

As international warfare becomes more prevalent throughout history, the types of warfare are diversifying as well. From firearms to malware, the weapons used have become deadlier and more widespread. However, of all the types of weapons, biological weapons are considered as the most unethical, as it is inexpensive yet deadly to all living organisms. Also, unlike the cyber warfare, where simple attacks can be prevented by antimalware systems, there were no other ways to prevent beforehand from the diversified biological attacks. As a result, they have been commonly referred to as "invisible killers." (Michailiuk, 2016)

Until now, this issue of biological weapons has been a challenge for people and they were forced to prepare with solutions against it. In terms of scientific research, weapons that can lead to mass destruction have gone through significant development in terms of their proliferation and capacities. Typically, chemical, biological, radiological, and nuclear weapons (CBRN) are considered the weapons that are most likely to do this. From this category of weapons, biological weapons are becoming more and more prevalent as it can be mass produced with a fairly low cost as biological agents are easily accessible in nature. In fact, there were bioterrorists who intentionally exploited these advantages of biological weapons, such as intentionally spreading contaminated food and infected water to others.

<Soldiers trying to avoid biological attacks during the WWII>

Biological attacks are the usage of pathogenic micro-organisms, which includes certain viruses, bacterium, pathogenic fungus, in order to attack the people through infection. In other words, it is impossible for human and animals to avoid biological weapons as all living organisms are dependent on food sources and it can be hard to distinguish contaminated food. However, the damage is overwhelming. Even though the contamination may be minimal, the effect on a human particularly may result in incapacitation or death. In

addition, as people start to extend their use of biological weapons through weaponizing newly found agents, there are always newly introduced epidemic and infectious diseases which are, most of the time, barely cured by any type of medication.

<An image during the WWII of soldiers wearing gas masks because of the threat of mustard gas>

According historical datas, there were moments where human populations were decimated by the biological weapons. According to the statistics for the casualties during World War II, approximately 10,000 people were killed due to biological weapons. In response, doctors from all over the world tried to improve medical cures. Unfortunately, this continual innovation in medical treatments against biological threats has not been considered reliable and the scale of bioterrorism has continued to pose an enormous threat to the human life as there are still possibilities of further development in biological weapons. The main reason behind this is because even though there were "Geneva Protocol" in 1925 and "Biological Weapons Conventions" in 1972, which are international regulations banning the usage of biological weapons from the International Committee of Red Cross (ICRC) and the United Nations (UN), private research into and large-scale production of the weapons can still be procured by their own member states as secret weapons or by other actors such as terror groups.

Definition of Key Terms

CBRN

Consisting of a set of English words chemical, biological, radiological, and nuclear, which are the types of weapon that are most likely to cause mass destruction. Among these four types of weapon, biological weapon is considered most deadly in terms of its easiness in transmissibility and unethical use of living organisms as the subjects of experiments.

Biological Weapons

Life forms, including bacteria and viruses and substances, along with higher infected organisms, or a biological agent, including arthropod vectors. In other words, they are weaponized biological agents. Anthrax is one well-known biological weapon that was also used during the World War II.

Biological Agent

A micro-organism which can cause illness in humans, plants, or animals or cause the deterioration of material. They are also capable of replicating themselves and transferring genetic material.

Mass Destruction

A weapon that can potentially cause a wide range of destruction, destroying people, infrastructure and other resources on large scale. This mainly includes the CBRN. Biological weapons specifically have high potential to cause mass destruction due to their ease in spreading.

Bioterrorism

Bioterrorism is a type of terrorism that takes advantage of biological agents. It is the product of people trying to harmfully utilize organisms so that they can become weaponized.

General Overview

Development of Biological warfare

In the past century, there were countless conventional warfare, meaning wars mainly based on conventional weapons such as firearms. In fact, most of the World War I and II were based on conventional warfare rather than any other type of warfare. However, as the biotechnology, or the usages of living systems and organisms to create products, improves, the prevalence of the biological warfare has started to increase at an unprecedented speed. Since World War I, biological threats have been practically used to decimate human lives as there were not enough medical information to prevent these issues. World War I was called the 'pity of war' by being considered as having the most unnecessary destructive war among all the wars recorded in the history. Millions of people died due to the biological weapon called anthrax, which is a type of bacterial biological weapon, and the German used this type of biological weapon not only to kill the opponents, but to kill the horses and mules as well to destroy their transportations. (Michailiuk, 2016)

Biological weapons

Most of the biological agents are not significantly harmful for human's health. In order to make one agent effective, weaponizing the agent would be a necessary step. For example, anthrax is one type of bacterial biological agent that was first weaponized through experiments by Japan until 1932. During the Second Sino-Japanese War and later World War II, Japan successfully developed the uses of anthrax along with other diseases such as the bubonic plague and cholera as

<Japanese aircraft spraying anthrax on China.>

biological weapons by encasing them into bombs where they routinely dropped on Chinese combatants and non-combatants causing approximately 400,000 Chinese to die. (Hudson, 2007) However, the methodology they used to weaponize biological agents was considered unethical as they conducted their research on Japanese-occupied Manchuria and exploited the prisoners as guinea pigs. Later, it has been discovered that the Japanese attacked at least 11 Chinese cities with anthrax and other biological agents by spraying them directly onto homes from aircraft resulting in roughly 580,000 casualties during the experiments and germ warfare. (Barenblatt, 2004)

Prevention against biological warfare

Since the aftermath caused by biological weapons happened on the World War I and II, the Red cross and the UN had created documents and regulations to alleviate the impact of the biological warfare. This included banning the usage and development of certain biological weapons and tracking all member states regarding it. After the implementations of the controls, the frequency of the biological warfare decreased significantly as there were not any significant wars utilizing biological weapons. However, the biological weapons include all sorts of attacking method that consists of living organisms, which means that even though there were regulations from the Red cross and the UN trying to prevent the biological warfare, it is still necessary to have further resolutions to mitigate the mitigate the crisis even more.

Mass Destructions

Four types of weapons that are considered as mass destruction are the CBRN: chemical, biological, radiological, and nuclear weapons. These weapons as categorized does create great aftermath when utilized as biological weapons were used during the World War I and World War II and created over 200 thousand casualties. (Wilmoth, 2016) This statistic may be considered negligible as there were estimates that there were approximately over 60 million casualties total during the World War II, but the fatality rates specifically for inhalation anthrax range from 90% to 100%, which is not a negligible statistic. (Thavaselvam, 2010) It is true that infantry warfare was the overwhelming warfare during the World War II, and injured millions of people, but for most of the times, the injuries were curable. However, for biological warfare, based on the biotechnology during that time, it was impossible to cure the infections which led people to die directly once infected.

Threats posed by the biological weapons

For this type of weapon being successful, there were reasons behind why biological agents were favorable for the terrorists. To begin with, the easiness of proliferation, invisibility during an attack, possible infections through direct contacts, high mortality rates once infected, and difficulty to

recognize the presence of the biological agents before the symptoms show up results the decimation of the victims. In the perspective of a terrorist, the capability of biological weapons would be considerable as it is also easy to trade and obtain the weapons and the low traceability in origin of the attack. In addition, with the relatively low price and high accessibility for all people, biological warfare was becoming more widespread. This low price along with small sizes of the weapons not only led people to have easy obtainment in large scales, but also to dissect them into several ways such as genetically modifying the microorganisms. This process of development would cause the prevalence of the weapon all over the world, and over experiments, weapons that can cause infections with higher mortality rate would be created. As allocating vaccines to the according disease infections is the only way to cure from the aftermath from biological attacks, these developments of new biological weapons would be considered as great threats.

Additionally, in the perspective of a terrorist, the advantages of biological agents mentioned above is a great merit for them to utilize in the warfare. In 2001, there was an anthrax attack in the United States which was an unexpected terrorism. The terrorist has mailed letters to the U.S. senator's office, where the letters were filled with white powders containing anthrax spores. It was more unexpected due to the reason that the last time of inhalation anthrax being detected was 1972 before this terrorism happened. Even though it was a small scale of terrorism, it caused 22 people to get sick including 5 people who died.

<The recovered letter that contained anthrax>

UN Involvement, Relevant Resolutions, Treaties and Events

ICRC and the Geneva Protocol

<The logo of ICRC>

After the usage of biological weapons in World War I, the International Committee of the Red Cross (ICRC) decided to construct measures that are needed considering the biotechnology used in the warfare. As a result, at 1925, the ICRC have placed an international agreement Geneva Protocol, which was mainly for banning asphyxiating, poisonous or other gases and bacteriological methods of warfare which led the fatal outcome from the World War I. The protocol was successful and respected by many others as after the publish of Geneva protocol at 1925, there were numerous wars, such as the cold war, with no significant numbers of casualties caused by biological weapons. However, this effect did not last long as this protocol was mainly focused on World War I by

prohibiting biological weapons used in the war. On the other hand, there were many different weapons which were still open to be researched and developed. Specifically, the protocol has not specified the use of biological weapons against not-ratifying parties, within a state's own borders in civil conflict, research and development of such weapons, or the stockpiling of them. These limitations have caused further occurrences of biological development such as the Japanese anthrax development (1932), which was where Japanese exploited over Chinese prisoners to test their biological weapons.

UNODA and the Biological Weapons Convention

United Nations Office for Disarmament Affairs (UNODA) have opened several conferences for the measures to mitigate the impact of the biological weapons. At 10 April 1972, the Biological Weapons Convention (BWC) was first introduced, which was the first multilateral disarmament treaties for the outlawing of the development, production and stockpiling of weapons. After the publication, the number of major biological wars have decreased significantly; however, further modification was required to narrow the criterions down, such as banning trading of biological agents that have potential of being weaponized, stricter and to prevent future occurrence of biological warfare as there are still biological terrorism such as the anthrax attack (2001) after the introduction of BWC.

After the Second Review Conference (1991) for the BWC to reduce the vagueness of the documents, all 182-member states parties involved in this convention, including United States and the United Kingdom, agreed to provide the annual reports regarding the BWC, including data on research centers and laboratories, information on outbreaks of infectious disease, and similar occurrence due to toxins. After collecting all the data, verification experts (VEREX), an UN group monitoring the dismantling of weapons of mass destructions, would assemble to research verification measures to enforce the BWC and participate further Review Conferences based on the BWC.

The last Review Conference was the Seventh Review Conference (2011) and the committee finally included the details about the plans for promoting universal adherence and decided to update the steps for submission and distribution of the Confidence-Building Measures (CBMs). For further improvements, the Conference agreed on establishing an Implementation Support Unit (ISU) for the member states to effectively enact the conventions. With the aid of ISU, BWC was strengthened as ISU successfully provided national implementation support and assistance. After the last revision on the BWC, it could be considered as successful as no other significant bioterrorism crisis happened after the anthrax attack (2001). Also, the

BWC unlike from the Geneva Protocol prohibited the usage of biological weapons within a member state, so America was able to catch the militia group in Minnesota who produced ricin, a type of poisoned drug, by their own for retaliation against their own government. However, there are still potentials of threats as there are still 10-member states, including Israel and South Sudan, who have neither signed nor ratified the BWC. This means that these member states may cause further crisis with biological weapons as they are dodging the interventions from the UN. In addition, even though there are numerous member states who have signed in for the conventions, there are still people trying to privately obtain biological weapons such as a citizen in Ohio who tried to illegally obtain the bubonic plague through mails (1996).

Timeline of Events

As the issue of the biological warfare was overwhelming along the history, there were significant events and treaties happening with following impacts. Even though there were numerous biological warfare happening, the first measure to mitigate the impact was after the World War I. After said point of time, the treaties to minimize the damage on for the last century including BWC agreement between member states were introduced.

Date	Description of event
1914~1918	During World War I, German and French use biological agents such as glanders and anthrax.
1925	Geneva Protocol agreement by the ICRC
1932	Japan weaponized anthrax as a weapon.
1937	Second Sino-Japanese War where bubonic plague and cholera were utilized
1939~1945	World War II, Japan uses plague, anthrax, and other diseases; several other countries experiment with and develop biological weapons programs.
1972	BWC first introduced from the UNODA
1991	The Second Review Conference for the BWC.
1995	Two members of a Minnesota militia group were convicted of possession of ricin
1996	The Fourth Review Conference for the BWC.
1996	An Ohio man arrested by trying to obtain bubonic plague cultures through the mail.
2001	Japanese anthrax attack on America with fake mails
2011	The Seventh Review Conference for the BWC.
2012~2018	Annual BWC meeting of State Parities

Possible Solutions

Increasing the price of research equipment

Usually, the biological weapons are called the mass destruction for the poor. (Michailiuk, 2016) This means that the reason for the proliferation biological warfare is not only because it is deadly to all living organisms, but it is also because it is cheap and easy to obtain. After the implementation of the BWC, most of the types of biological agents that can be obtained through international trades have been outlawed. However, there are certainly some types of biological agents left in the market that have potentials to be developed into practical biological weapons. By increasing the price of specific biological agents sold to researchers, it can be useful to prevent or at least slower the speed for further developments for biological weapons as it would discourage the researchers to purchase the biological agents. However, there would be limits on the solution as black markets, or illegal markets, may happen where biological agents may be traded illegally.

Requesting funding systems from the Non-Governmental Organizations

Most of the times, it is considered impossible to prevent the loss of lives as the infection rate from the biological agents is overwhelming. Instead, by requesting the funds from Non-Governmental Organizations (NGOs) such as the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF), so that the researchers can conduct developments of the cure for certain biological diseases that can occur from the biological agents that are available in the international markets. However, further measures would be needed to build on to this solution as different cures are needed for different biological weapons and the development of biological cures should be fast enough as new biological weapons are produced in a fast speed. Also, the fatal rate of infections caused by biological weapons has reached a considerable level since the introduction of inhalation anthrax. As a result, researchers would be highly encouraged to at least try to develop injections that can improve the human body's immune system that can counteract biological attacks which would lead to lower the fatality rate.

Annual reports from each member states regarding the biological weapons

After the measures proposed by the UN and ICRC, the frequency of the occurrences of biological crisis did decrease, and the number of casualties is decreasing as well. However, biological terrorism can happen unexpectedly like the anthrax attack in the United States (2001) happened without any warnings. By requesting all member states to agree on submitting annual reports on their trading records, data on research centers and laboratories, and declaration of past activities in offensive or defensive biological defense research, all the developments regarding to the biological weapons would keep its transparency in terms of

their record all over the world and inform people the potential dangers due to the biological controls. In this way, the occurrence of the unexpected attacks using biological weapons from terrorists might decrease. In addition, encouraging the 10-member states who have not even ratified the BWC to join the treaty, so that all member states can be controlled by the UNODA. However, further measures would be required to reduce the trading of biological weapons through illegal markets and the occurrence of producing biological weapons individually without any trading.

Make the punishment heavier for using biological weapons

Even though there were many regulations to keep track of the usage of biological weapons, further minor crisis did occur. This solution is a post action rather than a pre-action for the crisis in order to minimize the reoccurrence of the crisis. Whenever biological warfare happened, it was hard to know the origin of the infection, but it was easy to distinguish if the issue was due to biological controls. In fact, in the anthrax attack in the United States (2001), after analyzing the infections were due to inhalation anthrax, the FBI conducted an intense 7-year investigation to analyze the anthrax spores. After identifying that spores were from the Ames strains from a specific lab, the terrorists were caught easily. Similarly, when getting caught using the biological weapons or even researching for further developments, increase the punishment with heavy fines and set certain restrictions such as tracking systems from the government or other organizations so that they cannot proceed their development or warfare any further. Once caught, it would temporarily decrease the rate of development of biological weapons. However, there are limits of distinguishing all illegal biological developments as there are people who are producing biological weapons in a location where it cannot be detected.

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