

“A Brief Study on the Evolution of International Legal Framework on Biological Weapons”

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Abstract:

The development of bio-technology as seen in the 21st century is astounding, but with progress comes inexorable catastrophe. The use of biological weapons is not unique to this era and its roots can be traced back to the first millennium. However, as technology and research improve every day, there is a dire need to absolutely restrict the use of biological weapons. At present, there is a lacuna with respect to a strong legal framework within the sphere of international law to govern the use of biological weapons. In this paper, the author attempts to analyse the existing laws that attempt to restrict States from using and developing lethal biological weapons. The author would also make an attempt to critically analyse the shortcomings of these legislations and determine if there is a need for the laws to evolve to cater to the growing needs of the society. Further, the author would attempt to draw a comparison between the law that prohibits biological weapons and the law that prohibits chemical weapons, and address the threat posed by non-state actors with respect to biological weapons.

Introduction:

The undeniable progress in bio-technology and information technology have transformed the society we live in. Globalisation has indeed brought the world together, with the objective to change and improve lives. However, inter-State disputes, presence of Non-State Actors, etcetera are still a threat to civilization due to the rapid development in a variety of weapons of mass destruction. Each day marks a new pinnacle of success for the human race, contrarily there have arisen different possibilities for doom. The prospect of a biological war has loomed over civilizations from the time man discovered the use of poison. Biological weapons are creations that attack and systematically degenerate society by targeting human resource or plants and livestock. These weapons, unlike conventional weapons, are an invisible enemy as they aim at spreading diseases. Once contracted, they can spread, if not immediately, across boundaries of States and territories.

Biological weapons are of various forms, existing either naturally or artificially manufactured. They could be developed from microorganisms like bacteria, virus, fungus, parasite and rickets; toxic weapons that are developed from naturally occurring toxins; and modified and genetically engineered toxins.¹ The biggest threat that genetically engineered toxins pose is that biological

¹ Anthony Tu, *Chemical and Biological Weapons and Terrorism* (Taylor & Francis Group, LLC, 2018.).

agents such as bacteria or virus could be made resistant to vaccines, increase the communicability of the agent, intensify the strain of the disease or even stimulate mutations.

This paper attempts to explore different international laws that impose a restriction on biological weapons, and analyse if there is a need for the law to evolve to cater to the needs of the ever-changing world.

Historical Background:

The use of Biological Weapons is not exclusive to the modern era. In the 10th century, biological agents were discharged into wells in order to annihilate towns.² This was succeeded by instances wherein enemy territories tried to devour each other or subdue rebellions with the use biological weapons.³ “Bio-war” at that point of time included dumping human carcasses into wells, catapulting the bodies of plague victims, mixing the blood of lepers with wine, firing saliva from rabid dogs, etcetera.⁴ The absence of advanced technology and necessary scientific know-how perhaps was a boon at that point of time as it secured the world from the barbaric tendencies of man.

The 20th and 21st centuries witnessed an increase in the usage of biological weapons. During the First World War, although biological weapons were used at a small scale, it led to the establishment of various biological warfare programmes⁵. The European nations set up research facilities to study and develop biological weapons. During the Second World War, the Japanese initiated a large-scale programme for the development of biological weapons, this was eventually used in their conquest of China.⁶

The United States of America and the Soviet Union engaged in extensive development of biological weapons after the Second World War. In 1950, the U.S. Navy conducted an experiment on civilians in San Francisco to test their vulnerability to biological weapons.⁷ Another test was conducted in 1966 in New York to study the impact of releasing anthrax in a big city.⁸ Concurrently, in the Soviet Union, the biological weapons programme was endorsed to a greater extent during the late 1940's.⁹ This was done to protect the army and the population against a biological weapon attack. The Cold War between U.S.A. and U.S.S.R. fuelled the need for the two countries to further develop and promote research on biological weapons.

² Friedrich Frischknecht, “The History of Biological Warfare” 4 *European Molecular Biology Organization* (2003).

³ *Id.* at S47.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ Mahendra Pal, Meron Tsegaye, *et.al.*, “An Overview on Biological Weapons and Bioterrorism.” 5 *American Journal of Biomedical Research* (2017).

⁸ *Supra* note 2 at S48.

⁹ Raymond A Zilinskas, “The Soviet Biological Weapons Programme and its Legacy in Today’s Russia” 11 *National Defence University* (2016).

Diseases such as anthrax, tularaemia, brucellosis, plague, Venezuelan equine encephalitis, typhus, Q fever and botulinum toxin became viable diseases that were to be developed into bio-weapons.¹⁰ In 1971, smallpox broke out in a city in Kazakh.¹¹ This was followed by a break out of the plague, and in 1979 anthrax broke out in the Soviet Union. The U.S. alleged that these breakouts were due to illicit testing of biological weapons in the Soviet Union.¹² The succeeding decades witnessed an increase in allegations of the usage of biological weapons.¹³ The United States became a victim of an anthrax attacks in 2001, wherein *B. anthracis spores* were sprinkled in letters that travelled through the U.S. Postal System¹⁴. These events urged nations to improve their defences against biological weapons.

The rapid communicability, lack of vaccines and potential outbreak of epidemics or pandemics could lead to loss of lives and render the entire planet at risk. Further, there exists an increased threat of non-state actors availing and developing such biological weapons, which could endanger humanity. Biological weapons are not simple to develop as biological agents¹⁵ are not easily available and require more advanced forms of technology to convert these agents into aerosols, which is the most effective method to launch a biological weapon.¹⁶ Hence in status quo, States or State-sponsored organisations have better access to such biological agents that could be potential biological weapons.

This however, does not mitigate the risk of non-state actors availing these biological agents. The stockpiling of such substances would further increase the quantity of these dangerous substances making it more susceptible to fall into the wrong hands. Another aspect with regard to these agents is that they are also used by research facilities to develop vaccines or antidotes, which could benefit humanity, at large. Therefore, it is essential that the framework governing biological agents must be clear and unambiguous, in order to impose an exclusive restriction on the weaponization of biological agents.

¹⁰ Michael Moodie, “The Soviet Union, Russia, and the Biological Antoxin Weapons Convention” *The Non-Proliferation Review* (2001).

¹¹ *Supra* note 2 at S48.

¹² *Supra* note 10 at 60.

¹³ *Supra* note 2 at S49.

¹⁴ Elin Gursky, Thomas V. Inglesby, *et.al.*, “Anthrax 2001: Observations on the Medical and Public Health Response” 1 *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, And Science* (2003).

¹⁵ World Health Organization, *Public Health Response to Biological and Chemical Weapons - WHO Guidance Annex III* (World Health Organization, 2nd edn., 2004).

¹⁶ *Supra* note 1.

Analysis of existing legal framework to tackle biological weapons:

The end of the 19th century marked the beginning of microbiology by Louis Pasteur, Robert Koch and others¹⁷. This laid the founding stones for the use of biological weapons in the modern era. Although the First World War witnessed a significant use of chemical weapons as opposed to biological ones, evidence has been produced that points out that nations like Germany and France developed certain biological weapons to infect the enemy.¹⁸

After the First World War, in order to prevent the use of any kind of biological weapons in the future, the *Geneva Protocol for the Prohibition of the Use in War of Asphyxiating Poisonous or Other Gases, and of Bacteriological Methods of Warfare* or the ‘Geneva Protocol’ was drawn up in 1925 and came into force in 1928.¹⁹ This was one of the first pieces of international legislation that prohibited the use of bacteriological (biological) weapons. The preamble of the Geneva Protocol emphasised on the determination of the civilized world to rid itself of the use of *asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices*²⁰ in war. The objective of the Protocol is clearly and unambiguously asserted in the preamble. The universalisation of the prohibition on the aforementioned substances is in consonance with the aims and objectives of the Covenant of the League of Nations.²¹ The Geneva Protocol is brief and extends a prohibition upon the use of bacteriological methods of warfare upon those countries that have not already prohibited such use.

Prior to the Geneva Protocol, countries were not required to incorporate any legislations prohibiting the use of such weapons. Hence, the Geneva Protocol tried to fill the void within international law with respect to the use of biological weapons. The Geneva Protocol, however, was not extensive and only sought to universalise the prohibition on the use of biological weapons during war. The Government of the French Republic was entrusted as the depository i.e., the French Republic was charged with assuming a variety of functions such as, including the receipt of signatures, accession, ratification, reservation, etc.²²

The Geneva Protocol was ratified by eighty-four nations, including all the major military and industrial nations of the world except the United States and Japan.²³ The United States ratified it

¹⁷ V. Barras, G. Greub, “History of biological warfare and bioterrorism” 20 *European Society of Clinical Microbiology and Infectious Diseases* (2014).

¹⁸ *Ibid.*

¹⁹ Geneva Protocol for the Prohibition of the Use in War of Asphyxiating Poisonous or Other Gases, and of Bacteriological Methods of Warfare, 1925.

²⁰ *Ibid.*

²¹ The Covenant of the League of Nations, 1920.

²² How Does Law Protect in War- Online Casebook, *available at*: <https://casebook.icrc.org> (last visited on May 26 2020).

²³ R.R. Baxter, Thomas Buerdenthal, “Legal Aspects of Geneva Protocol of 1925” 64 *American Journal of International Law* (1970).

fifty years later in 1975.²⁴ The Geneva Protocol only prohibited the use of biological weapons and not their research and development. Hence, even though various countries ratified the Geneva Protocol, they continued to conduct research on the same.²⁵ There were many other drawbacks of the Geneva Protocol and therefore, States were enabled to circumvent the provisions of the protocol without attracting any liabilities for violation.

Firstly, the definition and composition of “bacteriological methods” of warfare was vague in the Geneva Protocol. This ambiguity led to the requirement of several debates and deliberations to determine whether certain substances fell within the category of “bacteriological weapons”. Such equivocation can also be seen with respect to “Irritant chemicals and anti-plant chemicals”. Relying on the textual ambiguity of the Geneva Protocol, countries tried to defend the use of various chemical substances, such as tear gas and herbicides, contending that these substances did not come within the scope of the Geneva Protocol.²⁶

Secondly, the preamble of the Geneva Protocol highlights the use of biological weapons only “in times of war.” Furthermore, the declaration indicates ‘bacteriological methods of warfare’.²⁷ ‘War’, in factual sense involves an armed conflict between two or more hostile States.²⁸ This interpretation limits the scope of biological weapons only against other States, and only during a war. Although, the meaning of war encompasses a wide interpretation,²⁹ it would be essential to broaden and specify the prohibitions within the text of the Geneva Protocol.³⁰

Thirdly, the Geneva Protocol lacked strong remedies, in case of violation, and systematic rules to ensure that the Protocol was implemented in a bona-fide manner. For most of the developed countries, such protocols were merely used to advance their political agendas.³¹ This would inevitably lead to the exploitation of the developing countries by the developed countries. The latter had more independence to ascribe or abstain from treaties and conventions that did not benefit them. The deficiency in enforcement and accountability led to the violation of the Protocol on several technical grounds, as mentioned above and eventually paved the path for the use of biological and chemical weapons in the Second World War.

²⁴ *Supra* note 17 at 500.

²⁵ *Ibid.*

²⁶ *Supra* note 23 at 857.

²⁷ *Supra* note 23 at 868.

²⁸ Christopher Greenwood, "The Concept of War in Modern International Law" 36 *The International and Comparative Law Quarterly* (1987).

²⁹ *Supra* note 23 at 868.

³⁰ SIPRI, "The Geneva Protocol of 1925 and the Ban on Chemical Weapons" (1986)

³¹ David Zierler, *The Invention of Ecocide* (University of Georgia Press, Georgia, 2011).

In the Second World War, countries such as USA, Russia, the UK, Canada, France, Italy, Germany, Japan, and Hungary tried to acquire biological weapons capability.³² Although there are stipulations regarding the use of biological weapons during the war itself, there is no evidence according to the United Nations that such biological weapons have been used as modern military weapons.³³ This is due to the difficulty in categorising such agents as weapons and differentiating them from naturally occurring outbreaks of epidemics or infectious diseases. Yet, the damage had been done. The setting up of research centres highlighted the motive of nations towards initiating biological weapons programs and contributed to the stockpiling of biological agents. Furthermore, various allegations were made against predominantly developed nations for the use of biological and chemical weapons.³⁴ Hence, the validity and effectiveness of the Geneva Protocol were questioned due to its failure in universalising the prohibition on biological and chemical weapons.

Eventually, through various Resolutions, States tried to increase the effectiveness and mitigate the shortcomings of the Geneva Protocol, by passing various Resolutions in the United Nations. In Resolution 2162(XXI) B³⁵ passed in 1966, the United Nations General Assembly called for strict observance of the Geneva Protocol. This was one of the first few times the Protocol was mentioned after the fall of the League of Nations. In Resolution 2454(XXIII) A³⁶, the General Assembly recommended that a report ought to be prepared by the United Nations Secretary General on chemical and bacteriological (biological) weapons.

The report was entitled ‘Chemical and Bacteriological (biological) Weapons and the Effects of Their Possible Use’³⁷, and submitted in 1969. It sought to bring to the notice of nations the need to accede to the Geneva Protocol and the dangers that arise from the use of chemical and bacteriological (biological) weapons, and its impact on mankind, plants, animals and the environment. It assessed and analysed various chemical and biological agents, that were or could be used as weapons. The increased potential of chemical and bacteriological (biological) weapons, due the advances in science and technology was addressed, as it could lead to casualties on a scale greater than one would associate with conventional warfare.³⁸ The Report extensively classified various kinds of chemical and bacteriological (biological) weapons to

³² R. Roffey, A. Tegnell, *et.al.*, “Biological warfare in a historical perspective” 8 *Clinical Microbiology and Infection* (2002).

³³ *Ibid.*

³⁴ *Ibid.*

³⁵ UN General Assembly, *Question of general and complete disarmament*, GA Res 2162(XXI) B, GAOR, UN Doc A/PV.1484 (December 5, 1966).

³⁶ UN General Assembly, *Question of general and complete disarmament*, GA Res 2454 (XXIII) A, GAOR, UN Doc A/PV.1750 (December 20, 1968).

³⁷ UN Secretary General, *Chemical and bacteriological (biological) weapons and the effects of their possible use-Report of the Secretary General*, UN Doc A/7575/REV_1 (1969).

³⁸ *Ibid.*

eliminate ambiguity or confusion in case of overlap between chemical and biological weapons. More specifically, the Report highlighted the probable effects of the use and protective measures against such attacks.³⁹ A holistic analysis was provided on the impact of biological warfare on life, property, economy, etcetera and the long-term demerits of the same. The Report classified chemical and biological weapons as weapons of mass destruction as they blanket large areas and cities, and cause massive loss of human life, affecting non-combatants in the same way as combatants.⁴⁰ It concluded by condemning the use and the proliferation of such class of weapons.

Subsequently, Resolution 2603(XXIV) A⁴¹ recognized that the Geneva Protocol embodied general rules of international law that prohibited the use of chemical and biological weapons in international armed conflicts, regardless of the technical developments of the weapons. This broadened the scope of the Geneva Protocol to include all newly developed and to be developed, biological weapons. Furthermore, Resolution 2603 (XXIV) B⁴² accepted the Report by the United Nations Secretary General as an authoritative statement on biological weapons. To eradicate other problems associated with biological weapons, not just their use, Resolution 2662 (XXV)⁴³ stated the urgency for the prohibition of development, production, stockpiling and effective elimination of biological and chemical weapons from the arsenals of States.

Simultaneously, the next authority under international law to prohibit the use of biological weapons was in the making. In the 1960's the world reached a consensus to prohibit the use of weapons of mass destruction.⁴⁴ Biological weapons were classified as weapons of mass destruction; however, they did not possess the significance that was given to nuclear and chemical weapons,⁴⁵ until 1972, when the *Convention of the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, which is usually referred to as 'Biological Weapons Convention' (BWC), came into existence.

³⁹ *Ibid.*

⁴⁰ *Ibid.*

⁴¹ UN General Assembly, *Question of chemical and bacteriological (biological) weapons*, GA Res 2603(XXIV) A, GAOR, UN Doc A/PV.1836 (December 16, 1969).

⁴² UN General Assembly, *Question of chemical and bacteriological (biological) weapons*, GA Res 2603(XXIV) B, GAOR, UN Doc A/PV.1836 (December 16, 1969).

⁴³ UN General Assembly, *Question of chemical and bacteriological (biological) weapons*, GA Res 2662 (XXV), GAOR, UN Doc A/PV.1919 (December 7, 1970).

⁴⁴ Bohan Meng, "The Historical Significance of the Biological Weapons Convention (BWC)" (2017) (Unpublished Paper).

⁴⁵ *Ibid.*

The Biological Weapons Convention sought to achieve complete disarmament of an entire class of weapons of mass destruction, i.e., bacteriological (biological) weapons.⁴⁶ This objective is accentuated in the preamble of the Convention, wherein references are drawn to the Geneva Protocol and the Charter of the United Nations, further emphasising upon the common aim - disarmament. The preamble also highlights the dangers that could arise from the use of biological weapons and the threat it bestows upon mankind. The Biological Weapons Convention comprises of fifteen Articles that are ever-expanding through Review Conferences, to update and upgrade the Convention to suit evolving requirements.

Article I of the BWC covers a wide spectrum from the use, development, stockpiling and production of microbial or other biological agents and other weapons or equipment designed to use such agents in armed conflict, and extends a prohibition upon the same. States party to the Convention are directed to divert the use of agents and toxins to peaceful purposes or destroy the same.⁴⁷ The aim of this provision is to protect populations and the environment from the dangers accrued from biological weapons. States party to this Convention must also take necessary measures to prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery, within their territory and in accordance with their respective constitutional provisions.⁴⁸

One of the most important provisions vests within Article VI, as it provides for remedial measure in case of violation of this Convention. Accordingly, complaints must be lodged with the United Nations Security Council, and States party to the Convention must co-operate, should the Security Council decide to initiate investigations regarding alleged violations.⁴⁹ States are also encouraged to partake in exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes, reiterating that the Convention will be implemented in a manner so as to not hamper the economic and technological development of States.⁵⁰ The dynamic nature of the Convention vests within Article XI, which allows for amendments of the Convention. The BWC seeks to impose an infinite prohibition of biological weapons as it is of unlimited duration, however allows States to withdraw from the Convention, should the provisions jeopardise the supreme interests of the country.⁵¹

Needless to say, the BWC was far more exhaustive and elaborate as compared to its predecessors. However, the BWC's initial efficacy was weakened during the Cold War, due to

⁴⁶ The Convention of the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, 1972.

⁴⁷ *Id.* at art. II.

⁴⁸ *Id.* at art. IV.

⁴⁹ *Id.* at art. VII.

⁵⁰ *Id.* at art. X.

⁵¹ *Id.* at art. XIII.

the non-observance by the USSR, that secretly engaged in maintaining and strengthening its bio-capacity.⁵² Other countries party to the Warsaw Pact such as Hungary, Romania, former Czechoslovakia, Poland, and the former German Democratic Republic, were influenced by the USSR and developed biological weapons programs.⁵³ Despite the violations of the BWC, no prohibition or sanction was imposed on the Soviet program for more than a decade.⁵⁴ Hence, although the BWC laid down remedies, it lacked the necessary enforceability to ensure compliance.

The BWC was also violated by South Africa in 1981. It is speculated that biological weapons were racially motivated during apartheid, and were used to sterilize black women to eliminate the entire race.⁵⁵ There is some evidence that both the USA and USSR had some knowledge about the biological weapons program in South Africa, but no action was taken.⁵⁶

Since the inception of the BWC, Review Conferences have been conducted by State Parties to improve and expand upon the provisions of the BWC. Moreover, since the BWC was easily susceptible to such violations, there was a dire need to strengthen the Convention.

In 1980, the First Review Conference was held in Geneva to discuss the importance of verification when suspected violations of the BWC arose.⁵⁷ The Conference, in order to ensure compliance of Article IX of the Convention, which encouraged States to carry out negotiations with each other to establish measures in consonance with the provisions of the BWC, recommended the establishment of an *ad hoc* working group.⁵⁸ In compliance, States party to the Convention adopted and implemented certain Confidence Building Measures (CBMs) in 1986, which reflected their willingness to negotiate measures to effectively implement the BWC.⁵⁹ Confidence-building measures (CBMs) are planned procedures to prevent hostilities, to avert escalation, to reduce military tension, and to build mutual trust between countries.⁶⁰

The Third Review Conference took a more ambitious path to ensure the BWC's effectiveness in 1991. This Conference came at a time when the Cold War was at its conclusion, and hence there was need to put an end to the biological weapons programmes that were allegedly established

⁵² *Supra* note 44 at 13.

⁵³ *Ibid.*

⁵⁴ *Supra* note 44 at 14.

⁵⁵ *Ibid.*

⁵⁶ *Ibid.*

⁵⁷ Kristen Paris "The Expansion of The Biological Weapons Convention: The History and Problems of a Verification Regime" 24 *Houston Journal of International Law* (2002).

⁵⁸ Review Conference, Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, *Report of the First Review Conference, Held in Geneva from 3 to 17 March 1980, Final Declaration by the Review Meet*, UN Doc BWC/CONF.I/10 (1980).

⁵⁹ Jez Littlewood, "The Biological Weapons Convention", in Guy Olivier Faure, *Unfinished Business* (University of Georgia Press, 2012).

⁶⁰ Military Confidence Building, *available at*: <https://www.un.org/disarmament/cbms/> (Last visited May 20, 2020).

during the Cold War.⁶¹ In the conference, a number of States proposed an additional protocol to the BWC to add verification provisions to the Convention.⁶² Various confidence-building measures were recommended to strengthen the authority of the Convention.⁶³ The Conference also set up an ad hoc group of Verification Experts (VEREX) to examine potential verification measures from a scientific and technical standpoint.⁶⁴ The VEREX met four times from March 1992 to September 1993. However, the VEREX had a very limited mandate, due to political reservations.⁶⁵ The VEREX's final report recommended that "some of the potential verification measures would contribute to strengthening the effectiveness and improving the implementation of the Convention, while also recognizing that appropriate and effective verification could reinforce the Convention."⁶⁶

In lieu of the same, in 1994 a Special Conference was set up to consider the final report of the VEREX. An Ad Hoc body was established to consider appropriate measures, including verification measures, and submit a draft proposal to strengthen the Convention that could be legally binding.⁶⁷ In the Fourth Review Conference held in 1996, the States officially showcased its support towards the Ad Hoc Body and requested for a draft verification protocol that was to be submitted by the body before the next Review Conference.⁶⁸

The draft verification protocol required States to submit declarations initially and thereafter, annually on their biological weapons programs. The draft protocol also comprised of stringent verification procedures which included on-site visits, field and facility investigations to address specific violations of the BWC.⁶⁹ Furthermore, States were required to control and monitor its exports of agents, toxins, equipment and technologies relevant to Article III of the BWC.⁷⁰ The negotiations for the protocol carried on for six and a half years. However, in July, 2001, at the Ad Hoc body's last scheduled meeting, the US rejected the draft protocol and any further negotiations claiming that such a protocol would not strengthen the BWC and could hurt US national security interests.⁷¹

⁶¹ *Supra* note 44 at 19.

⁶² *Supra* note 59 at 109.

⁶³ Review Conference, Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, *Report of the Third Review Conference, Held in Geneva from 9 to 27 September 1991, Final Declaration by the Third Review Meet*, UN Doc. BWC/CONF.III/01 (1991).

⁶⁴ *Supra* note 57 at 524.

⁶⁵ *Supra* note 59 at 109.

⁶⁶ *Supra* note 57 at 526.

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*

⁷¹ The Biological Weapons Convention (BWC) at a glance, *available at*: <https://www.armscontrol.org/factsheets/bwc> (Last visited on May 27, 2020).

The Fifth Review Conference took place in December 2001. The Conference did not contribute successfully to strengthen the BWC.⁷² Experts believed that this Conference could resolve the matters on the fate of the draft verification protocol submitted by the Ad Hoc body.⁷³ However, the Ad Hoc body and the draft verification protocol met an abrupt end due to lack of support from the U.S. Other BWC States Parties responded angrily to the move by U.S., and the Fifth Review Conference was suspended without the States Parties issuing a final declaration.⁷⁴

Almost five years later, in 2006, the Sixth Review Conference took place. The achievements of the Conference were four-fold. Firstly, completion of an article-by-article review of the BWC. Secondly, the agreement on promoting universalization of BWC membership. Thirdly, the establishment of intersessional meetings from 2007-2010 on topics of importance to the BWC and fourthly, creation of an Implementation Support Unit (ISU) to provide administrative assistance for the BWC process.⁷⁵ The intersessional meetings were to be carried on various topics such as effective implementation of the BWC, spreading education and awareness on various biological weapons, improving coordination between States to mitigate the problem of biological weapons and enhancing international coordination.⁷⁶ The ISUs were tasked with the mandate of providing administrative assistance to States, working towards enhancing transparency and trust between States by aiding the process and outcome of confidence-building measures, providing assistance for national implementation and domestic action to meet the ends of the BWC, seeking to obtain a universal ban on biological weapons, facilitating assistance to any State with regard to the BWC and increasing the participation of developing States in the annual BWC meetings.⁷⁷

The Seventh Review Conference was conducted in 2011, with the objective to strengthen the implementation of the BWC. The Review Conference sought to monitor the development in science and technology so as to ensure that the laws were up to date and consistent with the levels of development.⁷⁸ In specific, provisions of Article IV of the BWC were discussed in

⁷² Guy B. Roberts, "Arms Control without Arms Control: The Failure of the Biological Weapons Convention Protocol and a New Paradigm for Fighting the Threat of Biological Weapons" 49 *USAF Institute for National Security Studies* (2003).

⁷³ *Supra* note 71.

⁷⁴ Outcome of the Sixth Review Conference of the Biological Weapons Convention, November, December 2006, available at: <https://www.asil.org/insights/volume/11/issue/3/outcome-sixth-review-conference-biological-weapons-convention-november> (Last visited on May 27, 2020).

⁷⁵ *Ibid.*

⁷⁶ *Ibid.*

⁷⁷ Rule of the Implementation Support Unit, available at: [https://www.unog.ch/80256EE600585943/\(httpPages\)/F8521A510F455706C12573A6003F49F2?OpenDocument](https://www.unog.ch/80256EE600585943/(httpPages)/F8521A510F455706C12573A6003F49F2?OpenDocument) (Last visited on May 27, 2020).

⁷⁸ Review Conference, Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, *Report of the Seventh Review*

depth and substantially expanded, in order to encourage States to incorporate and strengthen domestic laws with respect to the prohibition of biological weapons. Furthermore, the Review Conference sought to strengthen the provisions under Article V of the BWC, by emphasising on the need for States to exchange information among each other, through various confidence building mechanisms. This would ensure at a bilateral level, compliance of the BWC. A significant outcome of the Review Conference was the strengthening of existing international organisations such as World Health Organization (WHO), the World Organisation for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO), and the International Plant Protection Convention (IPPC) that work in the fields of vaccine and drug production, disease surveillance, detection, diagnosis, and containment of infectious diseases as well as biological risk management, in consonance with Article X of the BWC.⁷⁹ In the Seventh Review Conference, the mandate of the ISU was extended up until the Eight Review Conference.⁸⁰

The most recent review conference was the Eighth Review Conference, which was conducted in 2016. In the Conference, the declaration of the Seventh Review Conference was reaffirmed, and similar provisions were further strengthened.⁸¹ States were encouraged to continue to establish confidence building measures and hence, contribute to increase cooperation among States. Moreover, the Conference took note of the significant development in the field of science and technology and reaffirmed that the BWC included all modern-day biological agents. The prohibition on biological weapons was also extended to any kind of experimentation by releasing harmful toxin.⁸² The Ninth Review Conference is scheduled to be held in 2021, and the mandate of the ISU has been extended until the next conference.⁸³

Critical Analysis of the Biological Weapons Convention:

The Biological Weapons Convention has been in existence for around 48 years, during which there has been a significant decrease in the use of biological weapons during the times of war. As per the revelations from the various Review Conferences, provisions under Article VI and

Conference, Held in Geneva from 5 to 22 December 2011, Final Declaration by the Seventh Review Meet, UN Doc. BWC/CONF.VII/7 (2011).

⁷⁹ *Ibid.*

⁸⁰ Implementation Support Unit, available at: [https://www.unog.ch/80256EE600585943/\(httpPages\)/16C37624830EDAE5C12572BC0044DFC1?OpenDocument](https://www.unog.ch/80256EE600585943/(httpPages)/16C37624830EDAE5C12572BC0044DFC1?OpenDocument) (Last visited on May 27, 2020).

⁸¹ Review Conference, Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, *Report of the Eighth Review Conference, Held in Geneva from 7 to 25 November 2016, Final Declaration by the Eighth Review Meet*, UN Doc. BWC/CONF.VIII/4 (2016).

⁸² *Ibid.*

⁸³ *Supra* note 80.

Article VII of the BWC, have not been invoked.⁸⁴ These Articles pertain to the procedure to be followed in case any State party to the Convention, breaches any of the provisions. Hence, the Review Conference displays satisfaction at the non-invocation of such provisions.

It is of great significance that as of 2020, 183 States are Party to the BWC.⁸⁵ The number of States has substantially increased over time. However, there are still ten States that yet have to accede to or ratify the Convention in order to claim complete universalisation on the prohibition of biological weapons. There is also a deficiency with respect to verifying if the States party to the Convention have violated any of its provisions.

It must be remembered that in 1981, although States such as USA and USSR may have been aware of the biological weapons program in South Africa, no steps were taken against the latter.⁸⁶ This reflects the discretionary power of certain States to invoke the provisions of the BWC. Therefore, there arises a need for an unbiased body to administer such Conventions. One of the major drawbacks of the BWC is the absence of a structured verification regime to monitor the use, development and stockpiling of toxic biological agents in States. Necessary deliberations have taken place time and again within the Review Conferences, however, a substantial verification regime is still a distant reality. The BWC was used a tool to further political propaganda, rather than an instrument to rid the world from such a weapon of mass destruction. This has contributed to the lax in bringing a strict verification protocol.

The need of the hour is a strong verification protocol to check and monitor the supply and stock of dangerous biological toxins in States. This would contribute to bringing about accountability and vigilance among States to the United Nations. The use and development of these toxins must also be verified so as to limit the possibility of biological warfare. The notable threat with regard to biological weapons is that, even if a biological war is not intentional, accidental leaks of such harmful toxins, could be just as lethal. Moreover, even with the development in biotechnology, there is significant difficulty in developing vaccines for genetically engineered and improved agents. Therefore, rather than risking all of humanity, in case of such accidents or even in the event of an all-out biological war, a strict verification protocol could considerably improve the effectiveness of the BWC.

It is also imperative for States to monitor imports and exports rigidly, especially with respect to the trade biological toxins. This would be in consonance with Article X of the Convention. Along with confidence building measures, States must be encouraged to incorporate laws to strictly monitor the same. However, there must also exist external cross-checking mechanisms to monitor such trade. The difficulty that arises here is the aspect of overstepping into the

⁸⁴ *Supra* note 81.

⁸⁵ *Supra* note 71.

⁸⁶ *Supra* note 54.

sovereignty of the States. Hence, such decisions can only be made with the full consent of the States. Unmonitored trade could also lead to the misuse of such biological agents by non-state actors.

The Biological Weapons Convention comprises of remedies in case of any breach of the Convention, under Article VI. The aforementioned article states that wherein a violation of the BWC is observed by any State, a complaint must be lodged with the Security Council. The Security Council is a powerful organ of the United Nations with a very wide mandate.⁸⁷ It is competent to take necessary enforcement action for the establishment of peace and security. The Security Council has the power to impose non-violent measures such as interruption of economic relations, diplomatic relations and communications.⁸⁸ In significantly more desperate times, violent measures such as military force can be used to remove the threat and restore peace.⁸⁹ Any such action by the Security Council must be voted up on by members of the Security Council. The permanent members have a veto power over resolutions, which renders the resolution unenforceable. Therefore, in case of a complaint against another States, with respect to a violation of the BWC, all the members of the Security Council must affirmatively vote on that matter. This also includes the prospect to conduct BWC investigations.⁹⁰ If a resolution is vetoed by a permanent member, neither investigations nor enforcement action can be imposed upon the violator. Although this system ensures a check-and-balance on States, it may fall prey to arbitrariness or political propaganda, hence depriving the victims of biological weapons from any kind of justice. Moreover, the BWC does not explicitly entail what would be the consequence if biological weapons were to be used. The penalty is ambiguous and at the discretion of the Security Council. A definite penalty could further deter States from using and stockpiling biological weapons.

Development in science and technology are taking place rapidly, with new toxins found more often and novel methods to modify bacteria and viruses. There is not only a void between new founded toxins and vaccines to mitigate the same, but also within the legal framework to prohibit such harmful toxins. Research on such substances cannot be stopped or restricted as it contributes to the advancement of the society as a whole. This however, does not cancel out the risks involved. In globalised community, infection can spread from country-to-country very rapidly, sharply increasing the possibility for epidemics and pandemics. Furthermore, in case of leaks of such agents, natural factors such as wind, water or animals play a major role as carriers of diseases. It would be imperative for the BWC to monitor such labs and facilities dealing with

⁸⁷ What is the Security Council, *available at*: <https://www.un.org/securitycouncil/content/what-security-council> (Last visited on 27 May 2020).

⁸⁸ BS Murthy, *International Relations and Organisation* 192 (Eastern Book Company, Lucknow, 7th edn., 2017).

⁸⁹ *Ibid.*

⁹⁰ *Supra* note 71.

harmful biological toxins, and ensure that they are sufficiently secure, in order to reduce the risk of infection in case of accidents.

Comparative Analysis of the Biological Weapons Convention:

The United Nation Office for Disarmament Affairs defines ‘Weapons of Mass Destruction’ as “a class of weaponry with the potential to, in a single moment, kill millions of civilians, jeopardize the natural environment, and fundamentally alter the world and the lives of future generations through their catastrophic effects.”⁹¹ The global community has recognised several weapons of mass destruction, over which a universal prohibition has sought to be extended. They include – Biological Weapons Convention, Chemical Weapons Convention, Treaty on the Non-Proliferation of Nuclear Weapons, etc.⁹²

The most relevant comparison to the BWC is its counterpart, the Chemical Weapons Convention. Both of these conventions have born out of the Geneva Protocol of 1925. The Geneva Protocol also sought to ban the use and not the possession of chemical weapons.⁹³ Therefore, in 1980, negotiations for a comprehensive treaty to ban chemical weapons began, and in 1997 the *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* or the ‘Chemical Weapons Convention’ (CWC) came into force.⁹⁴ There are 193 States party to the Convention,⁹⁵ which is the entirety of States recognized by the United Nations. Hence, the CWC has achieved universalisation on the prohibition of chemical weapons. The CWC is very comprehensive comprising of twenty-four Articles and three Annexes.

The CWC aims at prohibiting the development, production, stockpiling, transfer, directly or indirectly and use of chemical weapons under any circumstance.⁹⁶ States are directed to destroy any chemical weapons it owns or possesses, or that are located in any place under its jurisdiction or control, and any chemical weapons production facilities within the State’s jurisdiction or control.⁹⁷ The CWC also consists of an exhaustive Article of relevant definitions⁹⁸ to understand the comprehensively the scope of the Convention. Moreover, the Annex on Chemicals of the

⁹¹ Weapons of Mass Destruction, *available at*: <https://www.un.org/securitycouncil/content/what-security-council-http://unrcpd.org/wmd/> (Last visited on May 27, 2020).

⁹² *Ibid.*

⁹³ The Chemical Weapons Convention (CWC) at a glance, *available at*: <https://www.armscontrol.org/factsheets/cwcglance> (Last visited on May 27, 2020).

⁹⁴ *Ibid.*

⁹⁵ Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, 1992.

⁹⁶ *Id.* at art. I cl. 1.

⁹⁷ *Id.* at art. I cl. 2. and cl. 4.

⁹⁸ *Id.* at art. II.

Convention consists of three Schedules of toxic chemicals prohibited under the Convention, to eliminate any scope of ambiguity in its application.

The foundational framework of the BWC and CWC are identical in essence as they seek to prohibit biological and chemical weapons, respectively. They direct States to follow different methods to meet that end goal. However, there are various aspects of the CWC that are more comprehensive and effective. The provisions of the two conventions differ in their approach, and certain provisions of the CWC are considerably unique.

The CWC establishes the Organization for the Prohibition of Chemical Weapons (OPCW) to achieve the objectives of the CWC.⁹⁹ All States party to the Convention are members of the OPCW.¹⁰⁰ The OPCW is tasked with verification activities for the purpose of ensuring that the Convention is not violated. The verification process shall be confidential and non-intrusive.¹⁰¹ There are three organs of the CWC - the Conference of the States Parties, the Executive Council, and the Technical Secretariat. The ‘Conference for the States Parties or Conference’ is the principal organ of the CWC, with the power to consider any matter or question with respect to this Convention and monitor its implementation.¹⁰² The ‘Executive Council’ shall submit draft programmes and the budget to the Conference of the OPCW.¹⁰³ It can also conclude agreements with States on behalf of the OPCW and approve agreements and arrangements for the purpose of verification activities.¹⁰⁴ Finally, the Technical Secretariat shall assist the other two organs in carrying out their functions and it shall also carry out the verification measures provided in the Convention.¹⁰⁵ The BWC lacks such an organised body to carry out any kind of verification.

The terms of the CWC also specifies that ‘Assistance and Protection’ that would be given to State Parties against chemical weapons by providing detection equipment and alarm systems; protective equipment; decontamination equipment and decontaminants; medical antidotes and treatments; and advice on any of these protective measures.¹⁰⁶ Such protection is not guaranteed under the BWC. Furthermore, in case of violation of the CWC, in particular Article I of the same, the Conference may recommend collective measures, in conformity with international law.¹⁰⁷ In more serious cases, the issue may be brought before the United Nations General Assembly or the Security Council.¹⁰⁸ The CWC also comprises of comprehensive methods for the settlement of disputes between States with respect to application and interpretation of the

⁹⁹ *Id.* at art. VIII.

¹⁰⁰ *Id.* at art. VIII A.

¹⁰¹ *Ibid.*

¹⁰² *Id.* at art. VIII B.

¹⁰³ *Id.* At art. VIII C.

¹⁰⁴ *Ibid.*

¹⁰⁵ *Id.* At art. VIII D.

¹⁰⁶ *Id.* at art. X.

¹⁰⁷ *Id.* at art. XII.

¹⁰⁸ *Ibid.*

Convention.¹⁰⁹ These provisions are strikingly unique as compared to the BWC. The other provisions of the CWC are also significantly more exhaustive, as they provide detailed procedures for the implementation of the CWC.

The Annexes to the CWC are also what sets this Convention apart, from its complement, the BWC. There are three Annexes – the Annex on Chemicals, the Confidentiality Annex, and the Verification Annex. The Annex on Chemicals comprises of Guidelines to the Schedule of Chemicals and the Schedule of Chemicals. There are three Schedules of Chemicals, that consists of a list of chemicals that fall within the scope of the CWC. There are three Guidelines to the Schedule of Chemicals, one for each of the Schedule. The Guidelines comprise of a list of criteria that have to be taken into account while interpreting and considering the respective Schedules.¹¹⁰

The Confidentiality Annex entails the obligation towards State Parties with regard to confidentiality of information pertaining to civil and military activities and facilities that fall within the scope of the CWC.¹¹¹ General principles are meted out that have to be followed by the Technical Secretariat, in order to prevent the disclosure of confidential information of States. Furthermore, this Annex also comprises of procedures to be followed in case of breach of confidentiality.¹¹²

The Verification Annex is a comprehensive protocol established to look into the verification for the compliance of the CWC. The Annex comprises of eleven Parts to exhaustively monitor and lays guidelines for the verification process. Part I consists of definitions relevant to the verification procedure. There are also an exhaustive set of rules laid out for the Inspectors and Inspection Agents responsible to carry out the verification.¹¹³ The Annex elaborates on the procedure and steps to be followed for the verification of possession of chemical weapons¹¹⁴, old and abandoned chemical weapons¹¹⁵, and chemical weapons production facilities¹¹⁶. State Parties are expected to provide a declaration regarding the amount and type and amount of toxic chemicals present within its jurisdiction.¹¹⁷ A comprehensive plan is also laid out within the Annex for the safe destruction of harmful chemicals.¹¹⁸ For the purpose of ensuring compliance with Article IX, wherein, the procedure for consultations, clarifications and challenge inspections are laid out, the Annex comprises of a definitive procedure to be followed by the Inspectors and

¹⁰⁹ *Id.* at art. XIV.

¹¹⁰ *Id.* at annex. I.

¹¹¹ *Id.* at annex. II.

¹¹² *Ibid.*

¹¹³ *Id.* at annex. III.

¹¹⁴ *Ibid.*

¹¹⁵ *Ibid.*

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.*

¹¹⁸ *Ibid.*

Inspection Assistants.¹¹⁹ There are also regimes for the verification of the three Schedules of Chemicals, to ensure effective monitoring of these substances.¹²⁰ The Verification Annex also establishes the need to safely secure chemical facilities, that are not taking part in activities contrary to the CWC, to limit fatalities.¹²¹ In case of allegation of the use of chemical weapons, Part XI of the Annex establishes the procedure to carry out investigation over the same, from the pre-investigative stage till the submission of the report.¹²²

The CWC is significantly more effective and definitive as opposed to the BWC. The Verification Annex substantially improves the implementation and enforceability of the CWC. Staring at the face of development, biological weapons can soon pose to be more dangerous than its chemical counterpart, and hence, there is a necessity to nip its progress in the bud, before devastation strikes humanity. The BWC is a strong legal document, however lacks proper implementation. There is a need to modify the BWC on the lines of the CWC, to ensure compliance. Incorporating a verification protocol in the BWC, such as the Verification Annex, would strengthen the BWC considerably by strictly monitoring the amount and types of biological agents present within the jurisdiction and control of State Parties. There is also a need for the constitution of an organisation similar to that of the OPCW, that will exclusively look into the implementation aspects of the BWC.

Biological Weapons and terrorism:

The United Nations has always sought to tackle terrorism in a comprehensive manner, and through the *Declaration on Measures to Eliminate International Terrorism*, condemned "all acts, methods, practises of terrorism, as criminal and unjustifiable, wherever and by whomever committed", noting that "criminal acts to provoke a state of terror in general public, a group of person or persons or particular person for political purposes are in any circumstance unjustifiable."¹²³

The probability of non-state actors acquiring weapons of mass destruction has significantly increased since the turn of the century.¹²⁴ This is due to the increased availability of weapons of mass destruction technology, the vital role played by the internet technology and the prospect of greater media attention.¹²⁵ The use of weapons of mass destruction or – Chemical, Biological, Radiological and Nuclear (CBRN) weapons by such groups can depend on context, ideology,

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² *Ibid.*

¹²³ Malcolm N Shaw, *International Law* 885 (Cambridge University Press, 8 ed., 2019).

¹²⁴ Kazi, Reshmi. "The Correlation Between Non-State Actors and Weapons of Mass Destruction." 10 *Connections* (2011).

¹²⁵ *Ibid.*

objectives and characteristics of that group.¹²⁶ There are significantly fewer hurdles for such groups to acquire the knowledge, technique and necessary know-how on CBRN weapons as a result of knowledge diffusion and globalisation.¹²⁷

As compared to other forms of weapons of mass destruction, chemical and biological weapons are at a higher risk of falling into the hands of non-state actors as they are relatively cheaper and more easily available as opposed to their nuclear or radiological counterparts. Biological and chemical weapons have come to be known as the “poor man’s atomic bomb”.¹²⁸ These weapons have a relative advantage as they can be utilized not just for the purpose of mass killing, but also sabotage, media attention and disruption.¹²⁹ Biological weapons are getting easier to acquire, however they are still complex to develop in status quo.¹³⁰ It is argued that weaponizing pathogens are technically difficult as pathogens are very delicate and must be a certain particle size to actually cause harm.¹³¹ Yet, the development in information technology and biotechnology have significantly eased these hurdles as they can be overcome even with the use of cheaper forms of equipment.¹³² Biological weapons lack significant visibility when disseminated through aerosols, as compared to chemical weapons; hence they are more optimal to use by such non-state actors.¹³³ They can also be used by contaminating food and water supply.¹³⁴

To prevent the loss of lives of humans, animals and plants, and protect the environment from the dissemination of such biological agents, it is imperative for States to ensure that these substances do not fall into the wrong hands. The United Nations has stressed on the need for non-proliferation of weapons of mass destruction and has encouraged States to step up their efforts to check the spread of weapons of mass destruction.¹³⁵ States have also been encouraged to initiate national action plans, designating point persons and conducting peer reviews to combat the threat of non-state actors acquiring such weaponry.¹³⁶

¹²⁶ Stephanie Meulenbelt, Maarten Nieuwenhuizen, “Non-State actors’ pursuit of CBRN weapons: From motivation to potential humanitarian consequences.” 1 *International Review of the Red Cross* (2016).

¹²⁷ *Ibid.*

¹²⁸ North Atlantic Assembly International Secretariat, *Chemical and Biological Weapons: The Poor Man’s Bomb* (1996).

¹²⁹ James Reville, “Past as Prologue? The Risk of Adoption of Chemical and Biological Weapons by Non-State Actors in the EU” 8 *European Journal of Risk Regulation* (2017).

¹³⁰ *Ibid.*

¹³¹ *Supra* note 125 at 850.

¹³² *Ibid.*

¹³³ *Supra* note 128 at 638.

¹³⁴ *Supra* note 125 at 849.

¹³⁵ Staff, “States Must Step Up Efforts to Check Spread of Deadly Weapons as Non-State Actors Exploit Rapid Technological Advances, Speakers Tell Security Council”, *UN Press*, 28th June 2017, available at: <https://www.un.org/press/en/2017/sc12888.doc.htm> (Last visited on May 27, 2020).

¹³⁶ Staff, “National Action Plans Can Help States Prevent Terrorists from Acquiring Weapons of Mass Destruction, 1540 Committee Chair Tells Security Council”, *UN Press*, 19th March 2019, available at: <https://www.un.org/press/en/2019/sc13742.doc.htm> (Last Visited on May 27 2020).

Biological weapons in itself are a threat to humanity and all other life forms. Although, they are exponentially more dangerous in the hands of groups that resort to the use of violence and terror to spread their ideology or beliefs. It becomes imperative to limit and restrict the possibility of any such occurrence. Hence, it would be essential for States to strictly monitor their supply and the trade of biological agents and avoid proliferation of the same. The provisions of the BWC must be strictly followed to curb any kind of threat that would arise from the inherent barbaric tendencies of man.

Conclusion:

Biological weapons are at the doorstep to disaster. Biological weapons pose a significant threat to all of mankind, yet, at this stage, with steps in the right direction, the threat can be considerably diffused. Such weapons slowly yet effectively degrade and destroy the society by blatantly murdering life forms. The Biological Weapons Convention is a very important treaty that aims at prohibiting the use of biological weapons, however lacks the necessary enforceability even to this day. A weak legal framework allows States to flout rules and act as they please under the garb of sovereignty. Furthermore, with the existence of armed non-states actors, the danger of using, developing and stocking biological weapons is magnified. Eradicating biological agents completely is neither possible nor beneficial, as they also serve to help and aid humanity, through the development of vaccines and other anti-bodies to fight diseases. Therefore, there is only a necessity to strengthen the regulatory measures and verification measures to ensure that States are observing the such laws. Laboratories and facilities that work on developing and examining biological agents must be monitored to an extent to ensure that very harmful agents are not misused and that safety protocols are followed to limit the scope of fatalities arising out of accidents and human errors. Research and development have indeed positively changed the course of humanity, but if left unchecked would direct all of life force to its inevitable end.