

# Biological Warfare and Bioterrorism – Global Perspective and Need for Reforms in Legislation

Saaketh Jammi

Damodaram Sanjivayya National Law University, Visakhapatnam, Andhra Pradesh, India

## ARTICLE INFO

### \*Correspondence:

saakethsai13@gmail.com

Damodaram Sanjivayya  
National Law University,  
Visakhapatnam,  
Andhra Pradesh, India

### Dates:

Received: 04-10-2022

Accepted: 29-11-2022

Published: 28-12-2022

### Keywords:

COVID-19, Biological  
Weapons Convention,  
Biological Weapons,  
Chemical Weapons,  
Geneva Protocol.

### How to Cite:

Jammi S. (2022)  
*Biological Warfare  
and Bioterrorism –  
Global Perspective  
and Need for Reforms  
in Legislation. DME  
Journal of Law, 3(1), 1-7.*  
doi: 10.53361/dmejl.  
v3i01.01

## Abstract

The covid-19 Pandemic has shown us the major flaws in our country's health sector especially during the 2nd wave, recent parliamentary panel found the possibility of weaponizing the novel corona virus by terrorist entities and governments to their enemies. The Department of Health and Family has presented that an all-encompassing methodology is required for protection from biological weapons, The government needs to incorporate methodology for deterrence, counteraction against any biological weapons.

Contagious biological components such as weaponized rapidly contagious viruses and non-contagious toxins such as sarin and nerve gas, are the two types of biological weapons which can be classified at our own ease, both types of biological weapons have their own adverse effects on the society. stringent national and international laws are needed to counter the threat of bio terrorism.

The Convention on the prohibition of the development, production, stockpiling and use of chemical weapons shortly the chemical weapons Convention, which was signed in 1993, belongs to the category of international law which is a multilateral Treaty that bans chemical weapons and also requires the proper disposing within the stipulated time.

The use of biological weapons was banned at the Geneva Protocol in 1925 but many countries still produced and stockpiled them. A special charter and Convention was created towards the ban of biological weapons, in 1972 the biological weapons Convention was successfully signed even in the midst of the cold war between Russia and America.

Understanding the various international laws on bioterrorism and the history behind the framing of those laws are essential to understand the bioterrorism concept as a whole.

## INTRODUCTION

**B**ioterrorism is defined as an act of terror by using infectious agents or other harmful biological or biochemical substances as weapons.

Bioterrorism sounds like a modern terminology, but it dates back to even the 1300s when the Mongol forces catapulted dead bodies infested with the Plague into the black sea towards the port of Caffa, a trade Centre in Ukraine's the Crimean Peninsula.

Many international organizations condemned the use of bioweapons as the acts end up affecting innocent civilians.

## Historical Overview

Infectious diseases were recognized as a potential weapon against people and armies in the Middle Ages, military leaders recognized victims of infectious diseases as a weapon.

The port of Caffa is a well-fortified Genoese-controlled seaport that is now in Ukraine, which was seized by the Mongol forces

Gabriel de Mussis, a native of Piacenza which is in the north of Genoa, witnessed the Caffa incident he made two major claims, he said that the Plague was spread over the residents in the port area due to the diseased bodies which were catapulted by the Mongol forces.<sup>1</sup> The Plague crossed the waters of the Mediterranean sea as Italians fled out of Caffa due to the outbreak, ships transported the infected people and also rats into Genoa, Venice, and other Mediterranean seaports which facilitated the second Plague.<sup>2</sup>

It would be an exaggeration to say that a single attack was the primary cause of the Caffa attack, the cause of the Plague pandemic in Europe will be an oversimplification.<sup>3</sup>

Despite its historical insignificance, the biological warfare attack in Caffa is feasible and consistent with the technology available at that period. The seizure of Caffa is a vivid reminder of the horrific results when diseases are used as weapons.

In the same 14th-century midst of the Plague pandemic, which accounted for more than 25 million deaths in Europe alone, there was much biological warfare used during the time of war, for example, The infected dead soldiers' bodies were catapulted into the ranks of the enemy in Karolstein in 1422. In similar incidents in 1710 at the battle between Russian troops and Swedish forces in Reval, cadavers of Plague victims were thrown into the enemy water

1 Derbes V.J, 'de Mussis and the great Plague of 1348' (1966) 196(1) *Jama*, 59.

2 Norris John, 'East or West? The geographical origin of the Black Death' (1977) 51(1) *Bulletin of the History of Medicine*, 1.

3 Wheelis Mark, 'Biological warfare at the 1346 siege of Caffa' (2002) 8(9) *Emerging infectious diseases*, 971.

wells to contaminate their waters. The historical attempts of using pathogens as a weapon, make us confused between a naturally occurring epidemic and an artificially generated bio-attack.

## Biological Warfare in 19 and 20 Centuries

After Robert Koch gave the Koch's postulates which are the 4 necessary criteria required to establish a relationship between a microbe and pathogen, the use of biological warfare is now much more sophisticated than in the 19th century.

With the help of modern microbiology it is now possible to isolate and produce specific pathogens for bio weaponization.

During World War I many historical pieces of evidence show the existence of a biological warfare program, development of biological weapons was done by many countries during the period of World War I, and several countries had active large-scale programs, USA, UK, Canada, Japan, and the Soviet Union.<sup>4</sup>

But neither of these countries had an active research program as Germany does. Many covert operations were conducted by Germans in the field of biological warfare, there were many reports that the Germans used to ship horses and cattle affected with diseases such as *Bacillus anthracis* famously known as anthrax and *Pseudomonas pseudo mallei* (glanders), to USA and other allied countries in numerous instances.<sup>5</sup> However, Germany denied all such allegations and said that Germany is not carrying out any secret biowarfare program including the other accusations such as the biological weapons were used at prime Britain's military positions and the other allegations of attempts to spread cholera in Italy and Plague in Petrograd in Russia.<sup>6</sup>

4 R. Roffey, A. Tegnell, F. Elgh, 'Biological warfare in a historical perspective' (*Clinical Microbiology and Infection*, 2002) < <https://doi.org/10.1046/j.1469-0691.2002.00501.x> > accessed on 31st October.

5 Hugh-Jones M, "Wickham Steed and German Biological Warfare Research" (1992) 7 *Intelligence and National Security* 379

6 Robinson Jperry and Leitenberg M, *The Rise of CB Weapons*, vol 1 (1st edn, Almqvist & Wiksell, 1971)

Allied countries tried to use Germany's biological programs and portray them as war crimes to increase the war reparations. A subcommittee of the Temporary Mixed Commission of the league of nations failed to find any hard evidence that biological weapons had been employed in war. Despite many documents indicating the use of biological arms, the committee found Germany not guilty of any kind of bio warfare. The subcommittee's verdict resulted in less war reparations, but it is quite inevitable for Germany to fall into economic decline and hyper-Inflation.

On June 17<sup>th</sup>, 1925, the "Protocol for the prohibition of the use in war of asphyxiating, poisonous or other gases and bacteriological methods of warfare" which is famously known as Geneva Protocol of 1925, was signed by 108 member countries and 5 permanent members under the auspices of league of nations, which entered into force on 8<sup>th</sup> February 1928. The major disadvantage in the Geneva Protocol is that it never clearly addressed the verification or compliance, which made it "toothless" and a meaningless document.<sup>7</sup>

Due to the softly laid rules and regulations which had many loopholes caused many countries to continue their biological programs, Belgium, Canada, France, Great Britain, Italy, The Netherlands, Poland, Japan, and the Soviet Union continued their biological programs.

With the above stated we can conclude that Germany is the major country that used biological warfare in World War 1, apart from other countries' biological warfare programs like Japan which were not worth mentioning due to the lack of historical evidence to prove that Japan has been involved in any bio weaponization program.

But during World War 2 some of the above-mentioned countries started ambitious biological warfare programs. Initial research showed that Japan conducted biological weapons research from 1932 until the end of World War 2, various accusations surfaced during and after the World War 2, the Japanese biowarfare research program was under the direction of Shiro Ishii from 1932 to

1942 and then led by Kitano Misaji from 1942 to 1945. The Centre for Japanese biological warfare program was called "unit 731" and was in Manchuria near the town of Pingfan.

With 150 buildings, 5 satellite camps, and a staff of more than 3000 scientist's unit 731 was the most ambiguous weapons program ever led by the Japanese.

Unit 731 developed *B. anthracis*, *Neisseria meningitidis*, *Vibro cholerae*, *Shigella spp* and *yesiniapestis*.<sup>8</sup>

Reports have shown that more than 10000 prisoners were used for experiments which mostly included war prisoners who are citizens of Magnolia, Korea, China, America and Britain soldiers between the time frame of 1932 to 1945. direct effects of experiments such as inoculation of agents causing gas gangrene, anthrax, meningocoele infection were seen. later, Japanese officials considered these experiments as "most regrettable from the viewpoint of humanity"<sup>9</sup>

In December 1949, a soviet military tribunal in Khabarovsk had put 12 Japanese prisoners under trial for preparing biological weapons. Major General Kawashima, former head of unit 731's First, third, and fourth sections, testified in this trial that no fewer than 600 prisoners were killed yearly at unit 731. In turn the Japanese government accused the Russians of experimentation with biological weapons, referring to examples of *B. anthracis*, *shigella*, and *V. cholerae* organisms recovered from Russian spies.

On the other hand, the German medical researchers still conducted research on infected prisoners with hepatitis and malaria, surprisingly no charges were pressed on Germany for conducting such tests.<sup>10</sup>

It has been said that Hitler condemned the use of biological weapons due to his devastating experience with the effects of chemical agents

8 Harris SH, *Factories of Death: Japan's Secret Biological Warfare 1932-45 and the American Cover-Up* (Routledge 1994)

9 Harris SH, *Factories of Death: Japan's Secret Biological Warfare 1932-45 and the American Cover-Up* (Routledge 1994)

10 Christopher LTGC, "Biological Warfare" (1997) 278 JAMA 412

7 United States arms control and disarmament agency, *Arms Control and Disarmament Agreements: Texts and Histories of the Negotiations* (US Government Printing Office 1996)

when he was a soldier during World War I. However, with the support of other high-ranking officials in Nazi regime, German scientists continued with biological weapons experiment.

Taking account of the secrecy of the project in between them, the weapons program never made any real progress, hence it was never materialized.

In the allied powers, the USA started an offensive biological program in 1942 under the direction of 'the war reserve service' which is a civilian led agency which had its research facility at camp Detrick, which is now famously known as the US Army Medical Research Institute of Infectious Diseases with several testing sites in Mississippi and Utah.

However, the facilities lacked the institutional sight and several safety measures due to this they never did any large-scale production except for 5000 bombs filled with anthrax spores.

After the two world wars almost every country and international organization condemned the use of bioweapons, some condemned due to their devastating experience and some stated that for the sake, during the Korean war the United States was accused of using biological weapons on north Korea, however America denied the possibility of a biological attack on Korean troops by US. That doesn't keep America from facing hate on the world stage, soon after using biological warfare was no more an option for nations.

## **Surat Plague Outbreak**

In September 1994, Surat, a city in India had a patient die with symptoms of pneumonic Plague, Surat deputy commissioner of health received a report that 56 people had died with the same symptoms. The outbreak in the region of Surat and Beed led to such a widespread panic that nearly half of the population fled from Surat with the fear of Plague. Due to various reasons medical authorities failed to culture the bacteria at that time, after a year later Indian council of medical research declared it as a pneumonic Plague, many suspicions were created over the origin and the nature of the occurrence of the disease.<sup>11</sup>

<sup>11</sup> Sharma R, "India Wakes up to Threat of Bioterrorism" (BMJ (Clinical research ed.) September 29, 2001) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1121283/> accessed November 1, 2021

Various questions were raised after Santam Singh, former program director at WHO office in Delhi gave various reports on no contributing evidence of Plague in Surat and Beed which was also stated in the committee formed by Gujarat state government under the chairmanship of N.R.Mehta is a retired professor of community medicine at Surat medical college.

An extra protein ring was found in the Surat germ sample which astonished a lot of scientists as it can only be possible with an artificial insertion.<sup>12</sup>

Yet, there is no evidence except that. Many scientists stroked out the possibility not because of the nature of the germ but because of the plausibility behind a bioterror attack on a normal city in India.

## **Amerithrax Biological Attack**

Out of all biological weapons, anthrax is recognized as the deadliest biological weapon and CDC has classified anthrax as a tier 1 biological agent. The anthrax attack that happened in the USA is said to be the biggest biological terror attack ever happened.

The Inhalation of anthrax was last recorded in the United States in 1976. Following the September 11 attacks on the World Trade Center and the Pentagon, envelopes containing powder containing anthrax spores were sent to two US Senators' offices and news media outlets on the East Coast. Four letters, dated September 18, 2001, and October 9, 2001, were discovered by authorities. due to the aerosolized transmission of anthrax, it could float in the air and be breathed in since it was in powder form. The powder from these letters polluted both the postal facility and the buildings where they were opened.<sup>13</sup>

Americans were completely unaware of the attack until a few people fell ill with anthrax. On October 4, 2001, the first case of inhalation anthrax was detected. 11 cases were confirmed positive of cutaneous anthrax. Seven of the 11 cases of inhalation

<sup>12</sup> Abrol S, "Countering Bioterrorism Threat to India: Employing Global Best Practices and Technology as Force Multiplier" (2016) 72 *India Quarterly: A Journal of International Affairs* 146

<sup>13</sup> Counterterrorism FBI, "Amerithrax or Anthrax Investigation" (FBIMay 17, 2016) <<https://www.fbi.gov/history/famous-cases/amerithrax-or-anthrax-investigation>> accessed November 10, 2021

anthrax included postal workers who handled the letters or worked in a postal facility that processes the mail. Five of the 22 persons who were ill with anthrax in 2001 died. The patients who died all had inhalation anthrax, in total, 43 persons tested positive for anthrax, and a further 10,000 people were considered at risk of anthrax exposure.

There has never been a premeditated release of anthrax in the United States before this. The FBI carried out a seven-year inquiry on who could have sent the infected letters. Recent advancements in DNA profiling and pathogen tests after years of the incident made it possible to do more elaborate tests on the anthrax spores.

After analyzing the spores, it was discovered that they were from the Ames strain and a particular spore batch known as RMR-1029 from a specific research lab. Amerithrax was the name given to the incident and the inquiry that followed. On February 19, 2010, the FBI concluded the investigation on the anthrax attack. The initial suspicion was that the terrorist organization Al-Qaeda was responsible for the anthrax attacks due to its close association with the 9/11 attacks.

Upon further investigations, the FBI searched the residence of Steven Hatfill, a scientist who worked at the Fort Detrick biodefense labs, after that he was named as a person of interest by the FBI after investigation FBI cleared out Hatfill's name.

Bruce E. Ivins is another government scientist suspected of the attack, who attempted suicide.

In 2011, nearly 10 years after the attack, the FBI and the Department of Justice concluded the investigation that Bruce Ivins was the sole perpetrator.<sup>14</sup>

Meanwhile many accusations were raised that Ivins was a recruit of Al-Qaeda no corroborating evidence was found to link the attacks with the alleged terror group.

## **Biological Weapons Convention**

The public is unaware of the biological programs conducted by nations during World Wars I and II. After World War II, hundreds of news articles were published about the disease outbreaks caused by foreign entities armed with biological weapons.

<sup>14</sup> Ibid

It is quite evident that the Geneva Protocol is not effective enough to control the biological programs carried out by countries.

Disarmament of both chemical weapons and biological weapons were addressed together shortly after the Second World War. Due to various reasons the Disarmament talks were incomplete. After the states finalized the Nuclear Non-Proliferation Treaty in 1968, the United Kingdom pushed an initiative to make a separate disarmament discussion for biological weapons.<sup>15</sup> The BWC was negotiated in Geneva, Switzerland from 1969 and continued for 2 years by the Eighteen Nation Committee of Disarmament.

On 16<sup>th</sup> December 1971, the Convention was proposed by the United Nations General Assembly after the agreement between US and the Soviet Union to merge their 2 separate drafts into one.

After the ratification of 22 governments, including the depositaries of the Convention, the Convention would have to come into force.

After the depositing of the ratification, the Convention entered into force on 26<sup>th</sup> March 1975.

With enormous concerns raised by the public for a ban on biological weapons due to its unpredictable nature, the Biological Weapons Convention came into force with the hope that it will control the biological weapons in a better way than its predecessor.

"Convention on the prohibition of the development, production, and stockpiling of bacteriological and toxin weapons and on their destruction" shortly called the bioweapons Convention.

The Treaty mainly deals with the prohibition of the development, production, and stockpiling of specific pathogens or toxins.

The Convention required states to not develop, stockpile, acquire any types of biological warfare, and also required to discard said biological weapons or convert them into peaceful uses.

Transfer of biological warfare technology and expertise is also prohibited in this Treaty. The Convention further required parties to the BWC to destroy stockpiles and delivery systems in 9 months

<sup>15</sup> UN Office of Disarmament affairs, "Biological Weapons Convention – UNODA" (United Nations 2020) <https://www.un.org/disarmament/biological-weapons/> accessed November 1, 2021



of ratifying the Treaty along with an undertaking from the states to ensure necessary precautions to prevent stockpiling and producing and acquiring biological weapons.<sup>16</sup>

BWC doesn't provide firm guidelines for inspections and control of disarming, adding to that there are no specific set of guidelines for law enforcement and how to deal with violations. The definition of "defensive research" and the quantities of pathogens necessary for the research.<sup>17</sup>

In case of any violations, the alleged violations need to be submitted to the UN Security Council, which will initiate an investigation, but the permanent member's veto right will make this provision inefficient.

The BWC is mainly concerned with biological weapons programs conducted by countries but there are no specific set of guidelines to control biological weapons programs conducted by terrorist organizations as terrorism was not a pressing issue at the time of the 1970s. However, there are no notable changes in the Convention even after many experts warned of the possibility of a bioweapon attack by terrorist organizations.

## India's Preparedness Towards Biological Attacks

As far as the position in our country is concerned, India has enacted the "WEAPONS OF MASS DESTRUCTION ACT" to control terrorism, which prohibits the manufacturing, acquiring, possession, development, and transport of any kind of biological and chemical weapons.<sup>18</sup>

The above-mentioned act also prohibits the export of biological weapons or biological agents to any non-state person or entity.<sup>19</sup>

On the occasion of the 45th BWC ratification, the Ministry of External Affairs proposed to bring changes in the BWC to control biowarfare and bioterrorism in a more efficient way.<sup>20</sup> As the 9th review

conference happening in 2021, India pressed the fact that BWC is not efficient in the newly emerging global events considering the concerns raised by experts around the world regarding the allegations of China engineering the novel coronavirus in order to manufacture a biological weapon.

The Weapons of Mass Destruction Act also includes the prohibition of nuclear and chemical weapons, a separate act to control biological terrorism is much needed considering the recent escalations at the global level, which was also stated in the parliamentary commission.

Apart from the Weapons of Mass Destruction Act, the Unlawful Activities Prevention Act gives punishment of not less than 5 years and up to life imprisonment for manufacturing, possessing, acquiring, and transportation of biological weapons.

Apart from the Indian laws to control biological weapons, the Indian defense industry's integral part

Defense Research and Development Organization, commonly known as DRDO, has a research facility at Gwalior which mainly studies biological pharmacology and toxicology and also focuses on countering bioterrorism such as anthrax, plague, smallpox, and other viruses and germs which can be a possible biological agent used in bioweapons. The National Disaster Management Authority and Government of India proposed a model stating that combined efforts of both government and private sectors is an important aspect to manage and if possible mitigate biological disasters, better testing methods and swift action towards them is needed at the time of an epidemic outbreak.<sup>21</sup>

Only a carefully crafted national biosecurity and biosafety protocol may be used to raise any biological catastrophe response policy. The primary grass-roots implementers of such a strategy, including health officials, private and public hospital doctors, paramedics, the general public, and most crucially, the gram panchayats, district, state, and national health authorities work within a judicial framework. They need to be periodically reviewed and monitored carefully. There should be enough protections built into the laws or policies to avoid abuse.

and\_Toxin\_Weapons\_Convention\_BWC> accessed 2nd November.

21 Kewal Krishna, Baljinder Kaur, Anshula Sharma 'India's preparedness against bioterrorism: biodefense strategies and policy measures' (2017) 113(9) Current Science

16 UN Office of Disarmament Affairs, "Biological Weapons Convention – UNODA" (United Nations 2020) <https://www.un.org/disarmament/biological-weapons/> accessed November 1, 2021

17 Robinson J Perry and Leitenberg M, *The Rise of Chemical Weapons*, vol 1 (1st edn, Almqvist & Wiksell, 1971)

18 Weapons of Mass Destruction Act 2005, s8/ss3.

19 Weapons of Mass Destruction Act 2005, s11.

20 Ministry of External Affairs, '45th Anniversary of entry into force of the Biological and Toxin Weapons Convention (BWC)' (Ministry of External Affairs, March 27th 2020) <[https://mea.gov.in/press-releases.htm?dtl/32604/45th\\_Anniversary\\_of\\_entry\\_into\\_force\\_of\\_the\\_Biological\\_](https://mea.gov.in/press-releases.htm?dtl/32604/45th_Anniversary_of_entry_into_force_of_the_Biological_)

To give defence against any dangerous bug, fungus, or other pests that ruin crops, the Plant Quarantine Regulatory Act was enacted. The destructive insects and pests act of 1914 in India made this law operative. The importance of the Plant Quarantine Act has grown as a result of the current globalisation and liberalisation in the trading of plants and plant materials internationally. The National Security Act of 1980 was passed to bolster national security by enabling the government to detain someone whose acts are believed to endanger the nation's defence or negatively impact its international relations. A state, the general public, or any community's security can all be protected through such preemptive arrests.

The Terrorist and Disruptive Actions (Prevention) Act of 1985 regulates terrorist and disruptive activities. Due to an upsurge in terrorist activity in various regions of the country, this act was passed in May 1985. This statute was continued and improved as terrorist incidents increased, particularly in places like Punjab. The Terrorist and Disruptive Activities (Prevention) Act of 1987 was passed to further enhance its authority in order to counter the threat of terrorism. The Prevention of Terrorism Act (POTA) 2002 was adopted by the Indian Parliament to bolster counterterrorism efforts. In particular, this act was created shortly after the attack on the Parliament.

The Epidemic Diseases Act, often known as the EDA (Act 111 of 1897), was created to stop the spread of severe epidemic diseases by empowering the states to implement stringent controls and preventative measures. For the prevention, control, and mitigation of water and air pollution, respectively, the Water (Prevention and Control of Pollution) Act of 1974 and the Air (Prevention and Control of Pollution) Act of 1981 were established. The Environment Protection Act was created in 1986 with the goals of enhancing environmental protection and demonstrating the safety of all human races, other living things, plants, and property. The Livestock Importation Act of

2001 governed the import of livestock and livestock products. Additionally, this law offers methods for international animal health certification, in order to reduce animals being used as biological vector agents to carry viruses and bacterias.

## **CONCLUSION**

Biological weapons are unlike any other weapon, it has no friend and foe, In scientific terms it's just a biological entity trying to make a home inside a person which kills them in the process. It is condemned by every international body due to its unpredictable nature. It's a bullet that may affect people at both ends of the gun.

The Biological Weapons Convention prohibits the use of biological weapons and their development. Many countries still find themselves doing the exact same thing which was prohibited in the Convention they signed on.

Better oversight, strict laws, and frequent amendments are needed to fight bioterrorism at the world stage. Even after that controlling biological weapons is based upon the morals and values that are carried by the state.

India's "Weapons of mass destruction act" prohibits stockpiling, manufacturing, transportation, and development of biological, chemical, nuclear weapons. Recent escalations with the Covid 19 pandemic have provided us with vivid details on how a biological attack is more possible than a nuclear attack, separate acts and rules are necessary to avoid a biological attack.

The guidelines given by NDMA in case of a biological disaster stated the importance of a joint effort between private and public sector is needed to mitigate the disaster.

A country like India with dense population, high illiteracy, and poor hygiene is the perfect breeding ground for a biological disaster, so educating people about the germs and diseases is important to mitigate a disaster from the grass roots.