EQ. CITATION: BNWJ-1020-049

7.

Laws Related to Bioterrorism: A Comparative Analysis of USA, UK, and India

By: Pariyal Gupta

Pg. No.: 104-122

EQ. CITATION: BNWJ-1020-049

Abstract

Over the years the weapons used by the terrorists globally have shifted from sword to bullets and bombs and are now heading towards biological weapons. Bioterrorism is emerging as a looming global security threat. It refers to the intentional release of biological agents such as viruses, bacteria, toxins, and other pathogens to spread fatal diseases on a mass scale in pursuance of political, or social objectives. Biological agents are typically found in nature but their intensity can be modified to make them more harmful and resistant to available medications. Biological weapons if used in a densely populated area can cause large scale mortality, morbidity, and civil unrest. The rapid development of technology and the advancement of biotechnology have smoothed the way for terrorist groups to access resources and provides them with the necessary expertise for developing a biological weapon. With cutting-edge biotechnology available to large masses, the danger of bioterrorism is now greater than ever and this necessitates the need for strict and effective bio-defense and legal measures. Laws such as the Model State Emergency Health Powers Act and the USA PATRIOT Act were enacted in the United States to control disease outbreaks and respond to bioterrorism. In India, standard operating procedure which indicates the operational procedure for averting and responding to a public emergency situation or a bioterrorist attack has been laid down by the National Crisis Management Committee. Governments and agencies across the globe continue to work towards curbing the problem of this bio-threat. This research paper focuses on identifying, comprehending, and making a comparative analysis of the laws and policies in India, the USA, and the UK to counteract bioterrorism.

Keywords: Bioterrorism, biological weapons, international regimes, comparative analysis, India, USA, UK.

Table of Contents

1. Introduction

Bioterrorism is defined as the deliberate or threatened use of biological agents such as viruses, bacteria, and other germs with an intention to cause injury to people, animals, and plants by causing death so as to achieve a political or social agenda. [127] Biological agents may be tailored to suit a wide number of terrorist options from tactical to strategic. Based on their accessibility and the ease with which they can be disseminated, scientists have recognized certain agents that may be more conveniently utilized for terrorism. Pathogens that can be employed for terrorism include anthrax and plague causing bacteria, viruses that can cause smallpox and ebolavirus, and other toxins.[128] These diversified groups of agents may more expediently infect people considering their distinct characteristic of having minute particles which can perforate the bronchioles.[129]Bioterrorism has the potential to result in higher rates of morbidities and mortalities as minute particles of biological agents have the potential to infect and endanger huge masses.

Bioterrorism can be prejudicial to society and can take a toll on human life while disrupting the society. Over recent years, though the numbers of terrorist acts have decreased around the globe, an increase in the lethality of such attacks remains of great concern. Advances in biotechnology and microbiology, especially the increased understanding of pathogenesis and genome sequencing have offered unparalleled opportunities for using technology to counter bioterrorist threats. Unfortunately, these advances are being misused to create newer agents of mass extermination. The global approach to combat bioterrorism focuses on the five key areas- Preparedness and Prevention, Detection, Diagnosis, and Response.[130] Early detection and preparedness is the key to success in tackling the threat of bioterrorism. Although the governments across the globe continue to create policies and laws to identify and respond to a bioterrorism attack, none of these systems have been perfected. Public health infrastructures must be well prepared to respond to an outbreak caused by chemical or biological weapons.

---

[127] Hooker, E. (n.d.). *Bioterrorism definition and agents used*. MedicineNet. Retrieved August 18, 2020, from https://www.medicinenet.com/bioterrorism/article.htm#what_is_bioterrorism.
[128] Abrol, S. (2016). Countering Bioterrorism Threat to India: Employing Global Best Practices and Technology as Force Multiplier. *India Quarterly*, *72*(2), 146–162. https://doi.org/10.2307/48505493.
[129] *CDC | bioterrorism agents/diseases (by category) | emergency preparedness & response*. (2018). Cdc.Gov. https://emergency.cdc.gov/agent/agentlist-category.asp.
[130] Ibid.

Combating bioterrorism will require the coordination and assistance of information systems, medical sciences, and technology.

2. Historical Background

Biological terrorism is not a present-day threat, it dates as far back as 600 BC when the Greeks used animal carcass to infect the wells of their enemies. This approach was also put to use by the Romans and the Persians. [131]The use of biological toxins that were extracted from plants and animals and applied on arrowheads or poison darts to kill enemies in games and reality certainly predates history. Historical studies reveal the use of arrows infected with animal and plant waste to harm the enemy. Similarly, the use of arrows for transmission of plague was also reported by some historical reports.

During the battle of Tortona, Italy in 1155, Emperor Barbarossa's troops used human bodies to contaminate the water wells.[132]In the medieval times, the military leaders acknowledged the use of humans infected with diseases as weapons. Owing to this form of early biological warfare, the city of Kaffa became pestilent. During the siege of Kaffa under Tartar in 1346, the plague was spread by the Mongols by throwing deceased carcasses using catapults into the beleaguered city. This plague turned into an epidemic that claimed the lives of more than 25 million people when the Genovese soldiers escaped the city spreading and contaminating people along their way. [133] This strategy continued to be used in the future, there were incidents of human corpses being thrown at their enemies in Karolstein in 1422, corpses of plague-infected victims were used to spread diseases during the battle between Russian and Swedish troops. Historical recordings cite the use of human and animal carcass and various biological agents to spread diseases on several occasions in the past 2000 years. During the French- Indian War in America, the distribution of smallpox contaminated blankets to the Native American

[131] Block, S. M. (2001). *The growing threat of biological weapons*. American Scientists. https://www.americanscientist.org/sites/americanscientist.org/files/20051220155539_306.pdf.
[132] Frischknecht, F. (2003). The history of biological warfare. *EMBO Reports*, *4*(Supp1), S47–S52. https://doi.org/10.1038/sj.embor.embor849.
[133] Wheelis, M. (2002). Biological warfare at the 1346 siege of Kaffa. *Emerging Infectious Diseases*, *8*(9), 971–975. https://doi.org/10.3201/eid0809.010536.

tribes who were allied with the French was ordered. This type of practice became an effective military tactic and was put to use during the Revolutionary War.

The advancement of modern microbiology during the 19th century has made the employment of biological warfare more sophisticated. Biological vandalism in the form of anthrax was taken up by the German government during World War I, to disrupt economic and political life by targeting enemy livestock. The international revulsion of the horrors of World War I resulted in the enactment of the Geneva Protocol of 1925 which prohibited the use of biological weapons but did not put a ban on their research and production. In the Second World War, nations conducted several research programs to develop bio-weapons. In the Japanese program to produce bio-weapons, the prisoners were subjected to numerous bio-weapon tests such as the Yersinia pestis, Vibrio cholera, Neisseria meningitides, and Bacillus anthracis during which thousands of prisoners died. During this period many other nations also carried out experimentation and research of biological agents. In the Vietnam War, the Viet Cong guerillas used needles dipped in feces to attack the enemy soldiers which caused severe infections to the injured soldiers after he had been stabbed. In 1979, there was an accidental anthrax release from an armory in the USSR which claimed the lives of more than 66 people.

Today, nations are eager to acquire biological warfare as they can be utilized to gain an advantage over the enemy but are concerned about terrorist groups gaining expertise and technology to use them as destructive agents. Biological warfare is no longer ancient history and remains a serious concern, locally and globally, particularly in the light of their use by non-state sponsored biological weapons.

3. International Legal Regimes to Combat Bioterrorism

In the 1900s, International Law was recognized as an indispensable component of the set of measures serving to protect against the malicious release of biological or chemical agents which could help mitigate the impact therefrom. Over the years a binding legal mechanism was developed at an international level to eliminate the threat of bioterrorism. The existing international regime mechanism is an aggregation of international agreements that focuses on prevention and non-proliferation.

3.1. The 1907 Hague Convention

The ban on the use of chemical weapons was first extensively codified in the Hague Convention. The Hague Peace Conference of 1899 adopted a Convention which contained rules and regulations concerning land warfare. These regulations in the Convention were revised at the International Peace Conference in 1907. The regulations and provisions of the two conventions of 1899 and 1907 have been regarded as the embodying rules of customary international law.[134]The 1907 Convention prohibits the deployment and utilization of poisonous weapons as well as other weapons which may cause mass suffering. Unfortunately, these provisions did not dissuade the use of chemical weapons in World War I. With the development of biological weapons being nascent in the early 1900s this ban on chemical weapons is as close as the 1907 convention came to barring biological weapons.

3.2. The 1925 Geneva Protocol

The first agreement to explicitly and significantly address biological weapons was the 1925 Geneva Protocol. The Geneva Protocol was ratified as a response to the shortcomings of the 1907 Hague Convention. This Protocol prohibited the use of poisonous, virulent gases and other warfare. [135] The treaty could not prevent the use of chemical weapons during World War II. The Protocol proved to be as ineffective as the Hague Convention of 1907 because of the many gaping loopholes in the coverage. Although the Protocol banned the use of biological methods of warfare, it did not put a ban on the testing, stockpiling, or production of chemical and biological weapons, which incited the countries to continue producing and stockpiling these weapons. Some State Parties reserved their right to use these weapons against those states which were not a party to the protocol. In light of these weaknesses, it became apparent that the Geneva Protocol was not the ideal solution for this growing problem of biological terrorism.

---

[134] *Treaties, states parties, and commentaries - hague convention (IV) on war on land and its annexed regulations, 1907*. (2019). Icrc.Org. https://ihl-databases.icrc.org/ihl/INTRO/195.
[135] Protocol: For the prohibition of the use in war of asphyxiating, poisonous or other gases, and of bacteriological methods of warfare. (1931). *The American Journal of International Law*, *25*(2), 94. https://doi.org/10.2307/2212913.

3.3. The Biological Weapons Convention, 1972

The prolonged efforts of the global community to create an agreement that would supplement the shortcomings of the Geneva Protocol led to the adoption of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. The Biological Weapons Convention was the first treaty that banned the development, production, and stockpiling of biological weapons of mass destruction. The Biological Weapons Convention opened for signature on 10th April 1972 and came into force on 26th March 1975. [136] Provisions of the Convention ban the State Parties under any circumstance from developing, producing, stockpiling and acquiring biological weapons. This solved two primary shortcomings of the Geneva Protocol. Firstly, the Geneva Protocol did not forbid the use of biological weapons in peacetime and internal conflict; this was resolved by adding the term 'never in any circumstance' which completely bans the use of biological weapons under any circumstance. Secondly, the term 'bacteriological' was broadened and replaced by the term 'biological agents, or toxins regardless of their origin or mode of production'. The scope of this Convention was to adopt an approach so as not to obstruct the bio-medical and non-hostile applications of biological agents and other toxins while also identifying and covering biological agents and toxins which may find use as weapons owing to bio-technology.

3.4. UN Security Council Resolution 1540, 2004

Resolution 1540 was adopted by the United Nations Security Council on 28th April 2004. The Resolution aimed at stopping nations from providing support to the non-state actors that acquire, develop, and make use of chemical, biological, and nuclear weapons for terrorist activities. The resolution mandates the member states to adopt and enforce effective laws and measures to prevent the proliferation of chemical, biological, and nuclear weapons.[137] This resolution filled the lacuna in international law by addressing the mortal danger of terrorists

[136] *Biological weapons - unoda*. (2017). Un.Org. https://www.un.org/disarmament/wmd/bio.
[137] *UN security council resolution 1540 (2004) - unoda*. (2012). Un.Org. https://www.un.org/disarmament/wmd/sc1540.

using, obtaining, and proliferating weapons of mass destruction. It reiterated the importance of maintaining and promoting existing non-proliferation treaties and agreements and recognizes it non-interference with state obligations under such treaties. To strengthen the implementation of Resolution 1540, the United Nations Security Council adopted Resolution 2325 in December 2016.

3.5. Other International Law Mechanisms

Other international law mechanisms include the International Convention for the Suppression of Terrorist Bombings of 1997, the Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (the SUA Protocol) of 2005, and the Beijing Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (Beijing Convention) of 2010. These instruments also concern and affect bioterrorism but at a much lesser degree than those mentioned previously.

International Convention for the Suppression of Terrorist Bombings was adopted on 15th December 1997 by the United Nations General Assembly. The Convention establishes a regime for international cooperation in matters concerning wrongful and deliberate utilization of explosives and other deadly weapons in various defined public places, with an intention to kill or cause serious bodily injury or to cause extensive destruction of the defined public place.[138]

The Beijing Convention offers a legal basis for criminalizing counter-terrorism and other criminal acts that target civil aviation.

The Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (the SUA Protocol) was adopted on 14th October 2005. The SUA Protocol provides important ship boarding procedures in case of suspected terrorist activity including illegally transporting weapons which may cause mass destruction with an aim to prevent international peace and security.[139]

[138] Witten, S. M. (1998). The international convention for the suppression of terrorist bombings. *The American Journal of International Law*, *92*(4), 774. https://doi.org/10.2307/2998146.
[139] *Convention for the suppression of unlawful acts of violence against the safety of maritime navigation*. (n.d.) http://oceansbeyondpiracy.org/sites/default/files/SUA_Convention_and_Protocol.pdf.

4. Laws related to Bioterrorism in the United States of America

The terrorist attack of 11 September 2001 and the subsequent bioterrorist attacks in October and November of 2001 highlighted the need for strengthening the overall security of the US. Although over 150 nations have signed the Biological and Toxin Weapons Convention of 1972, which forbids nations from producing, developing, and stockpiling biological agents, it is believed that several nations are violating the provisions of this agreement by stockpiling biological agents which may later be utilized for terrorist activities. Moreover, after the downfall of the Soviet Union, the biological weapons of the Soviet Union Program were left with no security and have been reported to be lost or stolen. It is feared that these biological weapons are in the hands of the non-state actor Al-Qaeda which raises security concerns for the United States. The United States Government took concrete steps to combat this threat of bio-terrorism by bringing in force acts such as the USA PATRIOT Act of 2001, Model State Emergency Health Powers Act, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Project Bio-Shield Act of 2004, and the Pandemic and All-Hazards Preparedness Act of 2006.

4.1. USA PATRIOT Act of 2001

The Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act was enacted into law on 26 October 2001. The purpose of this Act is to punish and stop terrorist activities across the United States. The Act penalizes the possession of biological agents, toxins, or delivery systems, especially by certain restricted persons. [140]

4.2. Model State Emergency Health Powers Act (Model Act)

The MSEHP or Model Act was drafted with an effort to avoid the problems of inconsistency, inadequacy, and obsolescence by updating and modernizing the state public statutes. This Act provides state actors the power to take necessary steps in order to identify and respond to a

[140] *USA PATRIOT act | fincen.gov*. (2019). Fincen.Gov. https://www.fincen.gov/resources/statutes-regulations/usa-patriot-act.

disease outbreak or a bioterrorist attack. It aims to facilitate five key public health functions- preparedness, surveillance, management of property, protection of persons, and communication.[141]

4.3. Public Health Security and Bioterrorism Preparedness and Response Act of 2002

Public Health Security and Bioterrorism Preparedness and Response Act also known as The Bioterrorism Act was promulgated into law on 12 June 2002. US Centre for Disease Control along with the government organizations implemented this bioterrorism preparedness and response program to detect and appropriately respond to a potential bioterrorist attack. This Act aims at strengthening the capabilities of the country in order to effectively prevent, prepare, and respond to a public health emergency or biological attack. The Act contains provisions concerning the control of biological toxins and agents and for the development of counter-terrorism measures to combat bioterrorism.[142]

4.4. Project BioShield Act of 2004

Project BioShield was enacted into law by President George W Bush on 21 July 2004. It was created as a special project to help fund the general countermeasures program and to help develop new anthrax vaccinations. This Act amends the Public Health Security Act of 2002 and provides countermeasures to deal with an attack by chemical or nuclear agents. It establishes an annual budget to fund for countermeasures against biological weapons and other weapons which may cause mass destruction.[143]

---

[141] *Overview of potential agents of biological terrorism | SIU school of medicine*. (n.d.). Www.Siumed.Edu. https://www.siumed.edu/im/overview-potential-agents-biological-terrorism.html.
[142] *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*. (n.d.). https://www.govinfo.gov/content/pkg/PLAW-107publ188/pdf/PLAW-107publ188.pdf.
[143] Dudley, G., & McFee, R. B. (2005). Preparedness for biological terrorism in the united states: Project bioshield and beyond. *The Journal of the American Osteopathic Association*, *105*(9), 417–424. https://doi.org/10.7556/jaoa.2005.105.9.417.

4.5 All-Hazards Preparedness Act of 2006

The All-Hazards Preparedness Act which was promulgated into law on 19 December 2006 recognizes the Secretary of Health and Human Services as the federal officer responsible for public health and medical response for emergencies. It also establishes standards of preparedness that are required to be met by each state.

5. Laws related to bioterrorism in the United Kingdom

The United Kingdom once possessed a large number of biological and chemical warfare programs. It was actively involved in biological research on various types of pathogens and toxins and had also weaponized anthrax. The British Government progressively reduced its biological weapons research programs after signing the Biological and Toxins Weapons Convention in March 1975. Today, the United Kingdom has a strong biological defense program. There was a significant shift in the UK Government to respond to disease outbreak and biological incidents after the foot and mouth disease outbreak in 2001. To keep up with the rapidly evolving world, the Government seeks to focus on realizing their full capabilities by learning from their response to past disease outbreaks and biological incidents. They spend millions of pounds annually to prepare and protect against such outbreaks.

The UK bio-defense regime for meeting the challenges of bioterrorism includes a wide range of national and international programs and strategies such as the 2015 National Security Strategy and Strategic Defense and Security Review, Global Health Security and UK Antimicrobial Resistance Strategy, CONTEST- counterterrorism strategy, the National Counter-Proliferation Strategy to 2020, the UK Influenza Preparedness Strategy, UK International Biological Security Program and the Global Health Security Initiative. Most of these strategies are governed by a cross-governmental body comprising of the Ministry of Defense, Home Office, Department of Health and Social Care, Department for Environment Food and Rural Affairs (DEFRA), Foreign and Commonwealth Office (FC0), Agri-food and Biosciences Institute, Department for Business Energy and Industrial Strategy, Government Office for Science, Cabinet Office, Health and Safety Executive, Office for Life Science, Department for International Trade and the Devolved Administrations.

5.1. National Security Strategy and Strategic Defense and Security Review

The National Security Strategy and Strategic Defense and Security Review was published on 23 November 2015 by the British Government to develop and execute the defense strategy for the country up to 2025. This strategy intends to develop counter-terrorism ideologies to tackle terrorism, to strengthen their armed forces and security and intelligence agencies, to strengthen their law enforcement capabilities, and to strengthen the implementation of international orders and reforms.

5.2. CONTEST-United Kingdom's Strategy for Counterterrorism

CONTEST is a framework that allows the British Government to ensure the safety of all British citizens and overseas interest from terrorism. This Strategy is built on the vision of the 2015 National Security Strategy and Strategic Defense and Security Review which identifies terrorism as a high priority risk to the United Kingdom. This strategic framework is built on four work strands of Prevent, Pursue, Protect, and Prepare. This well organized and comprehensive approach has proved effective and continues to plan and guide many agencies and departments in the UK.[144]

5.3. UK International Biological Security Program

The United Kingdom International Biological Security Program (IBSP) is overseen by a cross-governmental body that includes the Ministry of Defense, Department of Health, Foreign and Commonwealth Office, and the Department of Science. It aims at reducing the risk of disease outbreaks caused by toxins and biological agents by improving international biological security and safety. This program establishes measures to address deliberate biological threats. It

[144] *The United Kingdom's Strategy for Countering Terrorism Cm 9608*. (2018). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716907/140618_CCS207_CCS0218929798-1_CONTEST_3.0_WEB.pdf.

represents the UK's contribution to Global Partnership concerning biological security and also supports the UK's Biological Security Strategy which provides a comprehensive approach to bioterrorism threats.[145]

The UK is actively engaged in international organizations and forums that work to strengthen biosecurity and biosafety across the world. These include the Biological and Toxin Weapons Convention, United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons (UNGSM), the G7 Global Partnership against the Spread of Weapons and Materials of Mass Destruction, Australia Group, Global Health Security Agenda and the Global Health Security Initiative. The membership and association of these international organizations enhance their ability to counter deliberate biological threats.[146]

6. Laws related to bioterrorism in India

India has not been faced with any major bioterrorism attack until now. However, there have been several suspicious incidents over the past decades. In 1965, during the Indo-Pakistan war of 1965, there was a suspicious outbreak of scrub typhus in northeastern India. The plague outbreak of 1994 in Gujarat and Maharashtra and the dengue outbreak of 1996 in Delhi which killed thousands of people were also some of the suspicious outbreaks which raised biosecurity concerns in India. The anthrax scare reached India when suspicious packages covered in white powder reached Mumbai, the government then issued guidelines on biological and chemical attacks to various hospitals and health care centers.

The Indian legal regime to combat bioterrorism includes several acts and nodal ministries. The Ministry of Home Affairs, which works in conjunction with the Ministry of Health and Family Welfare, assess the threat perspective, sets up prevention mechanism, and provides intelligence inputs for the effectively managing a bioterrorist threat. The Ministry of Health and Family Welfare employs Rapid Response Teams and manpower to deal with an epidemic or other

[145] *UK International Chemical, Biological, Radiological and Nuclear Security Assistance Programmes and their Contribution to the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction*. (n.d.). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/473876/FCO859_CBRN_Security_Report_-_PRINT__1_.pdf.

[146] *UK Biological Security Stratergy*. (n.d.). Assets Publshing Service, Government of UK. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730213/2018_UK_Biological_Security_Strategy.pdf.

emergencies. Ministry of Defense is responsible for managing the consequences of a biological attack. It coordinates war-related activities, conducts casualty evacuations, and provides for medical assistance through a countrywide network of army hospitals. Biological disasters by animals, livestock, and plants are dealt with by the Ministry of Agriculture.

On an international level, India is party to the International Health Regime which was adopted by the World Health Organization in May 2005. The International Health Regime mandates the member states to strengthen their ability to detect and respond to a health emergency. India is also party to the Biological Weapons Convention of 1975 which prohibits the use and possession of biological agents and weapons for any purpose whatsoever. India has entered into a US-India biosecurity dialogue to enhance prevention and response efforts to deal with a natural or deliberate biological attack. In 2018 India entered the Australia Group which works towards limiting the spread of biological and chemical weapons by means of export controls on chemical equipment and agents.

The laws and policies in India which deal with bioterrorism include the Epidemic Diseases Act of 1897, the National Security Act of 1980, the Disaster Management Act of 2005, and the Prevention of Terrorism Act of 2002. The National Disaster Management Authority has issued guidelines for the management of biological disasters. It has also set out a Standard Operating Procedure which lays down the steps required to be taken by agencies when responding to a terrorist attack using chemical or biological weapons[147].

6.1. Epidemic Diseases Act of 1897

The Epidemic Diseases Act aims to provide provisions to prevent the spread of epidemic diseases. It empowers the Government to undertake and prescribe any such regulations to be followed by people to prevent and curb the outbreak of a disease. The Act also provides provisions for inspection of people traveling from one state to another during such an outbreak and for the segregation of people suspected to have been affected by the disease. Public Health Emergencies Bill of 2017 was introduced to replace the Epidemic Diseases Act and to provide

[147] *National Disaster Management Guidelines- Management of Biological Disasters*. (2008). National Disaster Management Authority, Government of India. https://nidm.gov.in/pdf/guidelines/new/biological_disasters.pdf.

for effective management, prevention, and control of epidemics and biological disasters but the bill lapsed and never became an Act.

6.2. National Security Act of 1980

The National Security Act gives the Central and State Government the power to detain a person who is acting detrimentally towards national security or disrupting public order.

6.3. Disaster Management Act of 2005

The Disaster Management Act became effective in January 2006. It seeks to provide effective administration and management of disasters through mitigation strategies and capacity building. The Act advocated the establishment of a three-tiered Disaster Management system- National Disaster Management Authority at the center, State Disaster Management Authority in every state, and District Disaster Management Authority in every district. The act calls for the creation of a National Disaster Mitigation Fund to provide funds for the mitigation process.[148]

6.4. Prevention of Terrorism Act (POTA) of 2002

The Prevention of Terrorism Act was passed by the Indian Parliament in the year 2002 after an attack on the Parliament by Pakistani terrorists. It replaced the previous anti-terrorism law- Terrorists and Disruptive Activities Act (TADA). The objective of this act is to strengthen anti-terrorism operations in the country. This is the only Indian Act that mentions and penalizes the use of biological warfare. Article 4 of this Act provides that a person found in unauthorized possession of chemical or biological warfare or any other lethal weapon which is capable of

[148] *The Disaster Management Act, 2005*. (2017). Ndmindia.Nic.In. https://www.ndmindia.nic.in/images/The%20Disaster%20Management%20Act.

mass destruction shall be guilty of a terrorist act. Article 3 provides that whoever uses lethal weapons, noxious gases or other chemicals or by any other substance (whether biological or otherwise) shall be punished for such terrorist acts.[149]

7. Comparative analysis of bioterrorism laws of US, UK, and India

In order to tackle the growing threat of bioterrorism, countries must focus on three key objectives- preventing an increase in the number of nations possessing biological weapon programs, verifying the peaceful use of biological research, and eliminating the possibility of bio-weapon possession by terrorists. The laws, policies, and strategies of nations and the various international regimes are serving as a deterrent and prevent the terrorist from executing bioterrorist attacks.

As a consequence of the 9/11 and anthrax attacks in the year 2001, the United States realized its vulnerability to having a bioterrorist attack. It introduced several programs and legislations to combat this threat. The National Bio-defense Analysis and Countermeasures Centre (NBACC) was established to conduct research and to fill the gaps in bio-defense. Legislations such as the USA PATRIOT Act, Model State Emergency Health Powers Act, the Public Health Security and Bioterrorism Preparedness and Response Act, Project Bio-Shield Act of 2004, and the Pandemic and All-Hazards Preparedness Act were introduced to prevent and plan for a bioterrorist attack. The Covid-19 pandemic, which is considered to be a bioterrorist attack by China against the world in furtherance of an economic agenda, has caused heavy damage to the US not only in terms of health security but also in term of national security by allowing the terrorists to unleash a bioterrorism attack by taking advantage of the situation. Despite several legislations, the US seems unprepared to deal with a biological attack. It lacks coordination between various sectors and departments of the Government. Although enough laws exist there is no proper implementation of these laws. To stop the spread of a biological attack each state must enact a law for bioterrorism detection and response. Moreover, the Government must review the preparedness of emergency services and work out its coordination program from time to time.

[149] admin. (2014, September 1). *Bioterrorism*. Academike. https://www.lawctopus.com/academike/bioterrorism.

Legal Regime of the United Kingdom includes several Acts and Strategy Programs such as the National Security Strategy and Strategic Defense and Security Review, Global Health Security, UK Antimicrobial Resistance Strategy, the counter-terrorism strategy, and the National Counter-Proliferation Strategy. The UK is renowned for its preparedness and strategies to address emergencies and biological risks. This can be observed through their quick implementation of The Coronavirus Act during the Coivd-19 pandemic. This Act modified the public health legislation to give powers to the Government to adopt necessary measures to decelerate the spread of the virus. The UK Government aims to make a coordinated use of resources and legislation to combat the threat of bioterrorism. Its bio-defense strategy also includes creating awareness about bio-security and ways to respond to a bioterrorist attack by educating the undergraduate students of biological sciences and related fields under the UK International Biological Security Program. However, the Covid-19 pandemic has made the Western Countries, such as the US and UK, more vulnerable to a bioterrorist attack. Although the UK has effective legislation for research and response to a biological attack, it needs to establish strong anti-terrorism laws.

India's dense population and poor hygienic conditions make it more vulnerable to a biological attack. The impact of a biological attack in an Indian city could be devastating as the symptoms usually take hours and days to manifest and considering the increased mobility of the masses the disease could become highly contagious before the authorities are informed of such an attack. The threat of bioterrorism in India is the responsibility of the Ministry of Home Affairs and the Ministry of Health and Family Welfare. The legislative framework to deal with bioterrorism includes acts such as the Epidemic Diseases Act of 1897, the National Security Act of 1980, the Disaster Management Act of 2005, and the Prevention of Terrorism Act of 2002. Bioterrorism has not been covered extensively in any of the above-named acts but only finds a small mention in the Prevention of Terrorism Act. Although guidelines have been issued by the National Disaster Management Authority there is no legislation that covers these guidelines. There is an urgent need to introduce new mechanisms and to renew and amend the old laws to monitor the threat of bioterrorism as the old laws are proving to be obsolete are not fit to be implemented in this modern era. For instance, the provisions provided in the outdated Epidemic Diseases Act along with the provisions contained in the Indian Penal Code were implemented to tackle the Covid-19 pandemic.

8. Conclusion

Bioterrorism is a grave and a growing potential threat to the world. The Covid-19 pandemic has made the world more vulnerable to biological attacks by critically impairing the healthcare systems and economies. The existing international regimes for bio-warfare and biological research have proved ineffective in curbing the spread of bio-weapons across nations. Presently, governments and agencies across nations have adequate biological research agencies, policies, and legislation to deal with biological attacks but such laws and policies are proving counterproductive due to their non-implementation. Countering bioterrorism would require the utmost preparedness and response to an attack along with the proper implementation of existing laws. Public engagement and education of the masses about the threat of bioterrorism and ways to respond to a biological attack is necessary to ensure preparedness if faced with a biological attack.