

Countering bio terrorism

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Mankind is at war using non conventional weapons. Biological warfare is one of its kind. Although chemical and biological terrorism have been banned by the United Nations, it has been used by adversaries in recent times. One should know more about bio terrorism for UPSC which is in news post COVID-19 pandemic.

In news: Parliamentary Panel bats for laws to counter bioterrorism.

Placing it in syllabus: Internal security

Static dimensions

1. What is Bioterrorism?
2. Historical Instances
3. Challenges of Bioterrorism
4. International Laws against Bioterrorism

Current dimensions

1. In news
2. COVID and Bioterrorism
3. What has India done?

Content:

In news:

- According to Parliamentary Standing Committee on Health report, "**The Outbreak of Pandemic COVID-19 And its Management**", formulating effective laws to counter bio-terrorism is one of the important lessons to be learnt from the COVID-19 pandemic.
- The report said that **low testing and shoddy contact tracing were responsible for the spike in cases.**
- The adverse effects of COVID-19 pandemic have taught the

lesson on the importance of controlling biological agents and the need for strategic partnerships among different nations.

- The government has to **formulate effective laws to counter bio-terrorism.**
- The report has suggested that the Health Ministry should engage with agencies and actively participate in ongoing international treaties.
- However, the **report does not explicitly state that the COVID-19 virus itself was a bio-weapon.**
- Many of the guidelines issued by the Health ministry were contradictory and different quarantine rules imposed by the State governments added to the panic.
- The committee also pulled up the Union Health Ministry for the “grossly inadequate” number of hospital beds in government hospitals.

COVID and Bioterrorism:

China recently allowed international reporters into the Wuhan Institute of Virology laboratory in a belated attempt to disprove conspiracy theories that the SARS-CoV-2 virus, which causes Covid-19, originated in the lab.

The highest threat agents for bioterrorism are categorised as **“Category A.”** Diseases in this category have the ability to exact a large public health toll, thus requiring an investment in response measures. This is certainly the case for SARS-CoV-2, currently readily available across the world.

Making biological weapons requires either fermentation technology or production in cell culture. Viruses like SARS-CoV-2 are harder to grow than bacteria, but it can be done.

The key property for a bioweapon is its stability in the atmosphere in order for it to be used on a battlefield or against a large population. SARS-CoV-2 fails when it comes to this criterion. Although it appears to spread very efficiently

in indoor environments, it does not appear to survive well outdoors, especially in sunlight.

One key aspect of biological weapons is predictability. If only a few people who are infected become ill, the effect of the pathogen is not reliable enough to base military response plans on it. In case of SARS-CoV-2 virus up to 40% or so, appear to have asymptomatic infection.

A bio weapon is contagious. Once released, as it spreads efficiently through the opposing army or nation, it also means the pathogen can spread back to the country that released it if it doesn't have a countermeasure. This scenario has been witnessed with SARS-CoV-2.

Overall, though the SARS-CoV-2 virus has some "desirable" properties as a bioweapon, more research is required to prove it a means of bio terrorism.

What has India done?

- As far back as in December 1998, India began to train its medical personnel to deal with the eventualities of bioterror attacks.
- Since **India had ratified the 1972 United Nation's Biological and Toxin Weapons Convention**, India has not executed a bioweapon programme.
- However, the Army does maintain defensive biological warfare equipment at protected sites.
- With extensive help from the advanced dual-use pharmaceutical industry and defence labs, the military is researching ways to counter germ warfare.
- **India has the scientific capability to carry out a bio-offensive in case of a first strike**, using delivery systems ranging from crop dusters to ballistic missiles.
- **DRDO is India's biodefense industry's core**, whose top laboratory is the **Defence Research and Development Establishment (DRDE) located at Gwalior in Madhya**

Pradesh.

- It is India's go-to institution for studies in toxicology, biochemical pharmacology and the development of antibodies against bacterial and viral agents.
- The DRDO works and focuses on countering biothreats such as anthrax, brucellosis, cholera, plague, smallpox, viral hemorrhagic fever and botulism.
- Additionally, the government has established nuclear, biological, and chemical (NBC) warfare directorates in the armed forces, as well as an inter-services coordination committee to monitor their training and preparation.
- The military has set up an NBC cell at Army Headquarters as well.
- **CISF has been enabled to deploy specially trained first responders.**
- India has stringent export control regulations outlined in the Special Chemicals, Organisms, Materials, Equipment, and Technologies (SCOMET) guidelines.
- Its national export product control list, which identifies goods, technologies and services are subject to **dual-use licensing requirements.**
- In June 2015, India and the US signed a 10-year defence framework agreement for cooperation in the development of defence capabilities, including "a lightweight protective suit effective in chemical and biological hazard environments."

What is Bioterrorism?

- Bioterrorism is the deliberate, private use of biological agents to harm and frighten the people of a state or society.
- Attacks could go undetected for a long time, potentially exposing a vast number of people, who are unaware of the threat.
- Although often humans are considered as the targets,

bioweapons can also be employed with devastating economic effects on animals or plants.

- It covers a very broad spectrum of concerns, from catastrophic terrorism with mass casualties, to microevents using low technology but producing civil unrest, disruption, disease, disabilities, and death.

Historical Instances:

- In 650 B.C, armies besieging a town relied on increased disease among the defending population and threw dead animals into water supplies, to spread it.
- During the 14th century, bubonic plague was spread by catapulting diseased corpses into towns.
- In World War I, the United States and Germany developed biological weapons to contaminate animal fodder.
- In the Cold War, the United States and Soviet Union created arsenals of biological agents for use in battle and against civilian populations.
- In 1984, pseudo-Buddhist Rajneeshee cult distributed Salmonella in restaurants and grocery stores in Oregon to poison civic leaders and gain control of the local Government.
- In 1992, Russia had the ability to launch missiles containing weapons-grade smallpox.
- A number of terrorist organizations, including Al-Qaeda, have explored the use of biological agents.
- In 1995, Sarin gas was released in a Tokyo subway, by the religious sect Aum Shinrikyo, which immediately killed 12 and hospitalized 5000 people.
- In 2001, letters containing anthrax spores were mailed to a television news anchor, US senator, and others, leading to the death of a few people and hospitalization of a few others.
- Syrian ruler Bashar al-Assad has used choking agents, such as chlorine gas and sarin gas in 2013 which killed over 1,400 non-combatants in Damascus.

- A UN-sponsored organisation has discovered that the ISIS used sulfur mustard gas in Syria against civilians, first time an Islamist group used bioweapons.

Challenges of Bioterrorism:

- Biological agents are in some ways the perfect weapons of terror as they can be spread through the air, water, or food.
- Terrorists may choose these agents because they can be **extremely difficult to detect** and do not cause illness for several hours to several days after exposure.
- The public health officials may not notice the attack until it is too late.
- Deadly pathogens are highly accessible. With the exception of smallpox, they all occur naturally in the wild – soil, air, water, and animals.
- The skills and equipment for making a biological weapon are widely known because they are the same as those required for cutting-edge work in medicine, agriculture, and other fields.
- In addition, there is growing concern about the intentional development of pathogens with pandemic potential that could be used by adversaries to inflict widespread harm.

Risk Categories of Biologic Agents:

Based on the priority of the agents to pose a risk to the national security and the ease with which they can be disseminated, these biologic agents are classified and labeled as **Categories A through C.**

Category	Agents		
A • easily spread or transmitted from person to person, • resulting in high death rates and having the potential for major public health impact, • potentially causing public panic, • requiring special preparedness from public services (mainly public healthcare).	Variola vera Bacillus anthracis Yersinia pestis Clostridium botulinum toxin		
	Francisella tularensis Filoviridae: Ebola, Marburg virus Arenaviridae: Lassa, Junin virus		
	B • moderately easy to spread, • resulting in moderate illness rates and low death rates, • requiring enhancements in diagnostic capacity and enhanced disease monitoring.	Coxiella burnetii Brucella spp Burkholderia mallei Alphavirus Ricin Clostridium perfringens epsilon toxin Staphylococcus aureus enterotoxin B Salmonella spp Shigella dysenteriae Escherichia coli O157:H7 Vibrio cholerae Cryptosporidium parvum	
		C • easily available, • easily spread.	Nipahvirus Hantavirus Arboviridae Flavivirus Mycobacterium tuberculosis Filoviridae: Ebola, Marburg and other haemorrhagic fever viruses

- **Category A** agents are the highest priority agents and include organisms that can be disseminated easily or transmitted person-to-person. They have the potential for major public health impact as they can cause high mortality and create public panic and social disruption and require special action for public health preparedness.
- **Category B** agents are the second highest priority agents and include organisms that are moderately easy to disseminate, cause moderate morbidity and low mortality and require enhanced disease surveillance.
- **Category C** agents are the third highest priority agents and include emerging pathogens that could be engineered for mass dissemination in the future because of availability, ease of production and dissemination and have the potential for high morbidity and mortality and can cause major health impact.

International Laws against Bioterrorism:

- The **Geneva Protocol signed in 1925** is a customary international law that prohibits the use of asphyxiating, poisonous or other gases and of bacteriological methods of warfare.
- **Biological and toxin weapons convention of 1972** was the first multilateral disarmament treaty signed by about 170 countries that forbids nations from developing, producing, stockpiling or otherwise acquiring biological agents or toxins that have no justification for peaceful or defensive purposes.
- In 2001, **Model State Emergency Health Powers Act (MSEHPA or Model Act)** was drafted to help America's state legislatures in revising their public health laws to control epidemics and respond to bioterrorism.
- The **Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act** was signed into law in 2001.
- The "**Public Health Security and Bioterrorism Preparedness and Response Act**" was passed in the US in 2002 which deals with national preparedness for bioterrorism and other public health emergencies, enhancing controls on dangerous biological agents and toxins.
- In 2004, US Congress passed the Project Bioshield Act, which funds the government to purchase and stockpile new vaccines and drugs to fight anthrax, smallpox and other potential agents of bioterrorism.
- The **Indian National Crisis Management Committee** approved a model of standard operating procedures for preventing and responding to a bioterrorism attack in March 2007.
- According to this model, the **Ministry of Home Affairs (MHA) is in charge of coordinating command, control and preparedness measures** as well as post-attack response mechanisms, but **primary responsibility for responding to attacks lies with the State governments.**

Mould your thought:

1. Define bio terrorism. What has India done to tackle the threat of biological warfare?

Approach to the answer:

- Write about bio terrorism
- Write about recent Parliamentary Standing Committee on Health report
- Write steps taken by India to counter biological warfare
- Conclusion