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UNIVERSITY

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FACULTY OF ENGINEERING AND  
TECHNOLOGY

## Lecture-37

# Man-made disaster-part 1



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**Subject : Environmental Studies and Disaster Management**

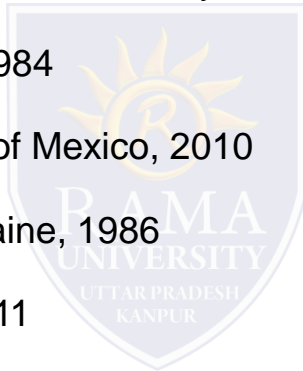
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# Man-made disaster

- **Anthropogenic or man-made hazards** are hazards caused by human activities such as nuclear explosion, wars, fires, industrial accidents, etc.
- These hazards may adversely affect humans, other organisms, biomes, and ecosystems.
- The worst four man-made hazards in human history are:
  1. The Bhopal gas tragedy, India, 1984
  2. Deepwater horizon oil spill, Gulf of Mexico, 2010
  3. Chernobyl nuclear accident, Ukraine, 1986
  4. Fukushima meltdown, Japan, 2011





**TRAIN ACCIDENT/DERAIL**



**AVIATION INCIDENT (Plane crash)**



**SHIPWRECK (Accident)**



**TRAFFIC COLLISION (Road accidents)**



**STRUCTURAL COLLAPSE (Building collapse)**



**BRIDGE COLLAPSE**



**WILDFIRES - Human negligence like discarded cigarettes.**



**SPACE ACCIDENT**



**ARSON-The criminal setting a fire with intent to cause damage.**

## **Man-made disasters**

# Chemical disaster

- A **chemical disaster** is the unintentional release of one or more hazardous substances which could harm human health and the environment.
- **Chemical hazards** are systems where chemical accidents could occur under certain circumstances. Such events include fires, explosions, leakages or release of toxic or hazardous materials that can cause people illness, injury, or disability.
- Chemical accidents may occur whenever toxic materials are stored, transported or used.
- The most severe are industrial accidents, involving major chemical manufacturing and storage facilities.
- The most dangerous chemical accident recorded in history was the 1984 Bhopal gas tragedy in India, in which more than 3,000 people had died after a highly toxic vapors, (methyl isocyanate), was released at a Union Carbide Pesticides factory.

## Causes for chemical hazard

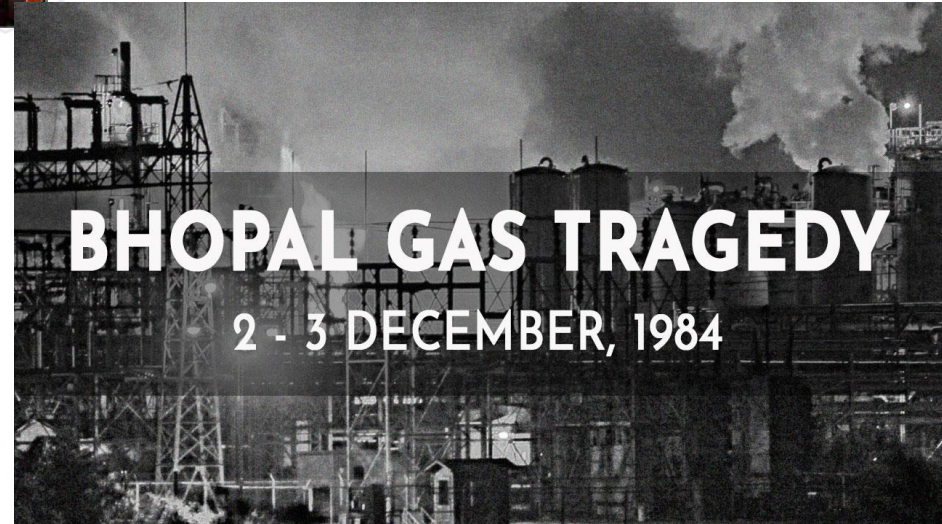
- The major reason for chemical hazards are:
  - Equipment failure
  - Inadequate safety measures
  - Operator error
  - Ignored warnings

## Effects of chemical hazard

- Eye and skin irritation or burning
- Poisoning and death in severe conditions
- Organ damage
- Weakening of immune system
- Reproductive problems and birth defect
- Cancer
- Development of allergies



# CHEMICAL DISASTERS



Sources: <https://images.app.goo.gl/28y3T27YSaaEM5US7>;  
<https://images.app.goo.gl/ahuxdZyWdipPHXLH9>

# Biological disaster

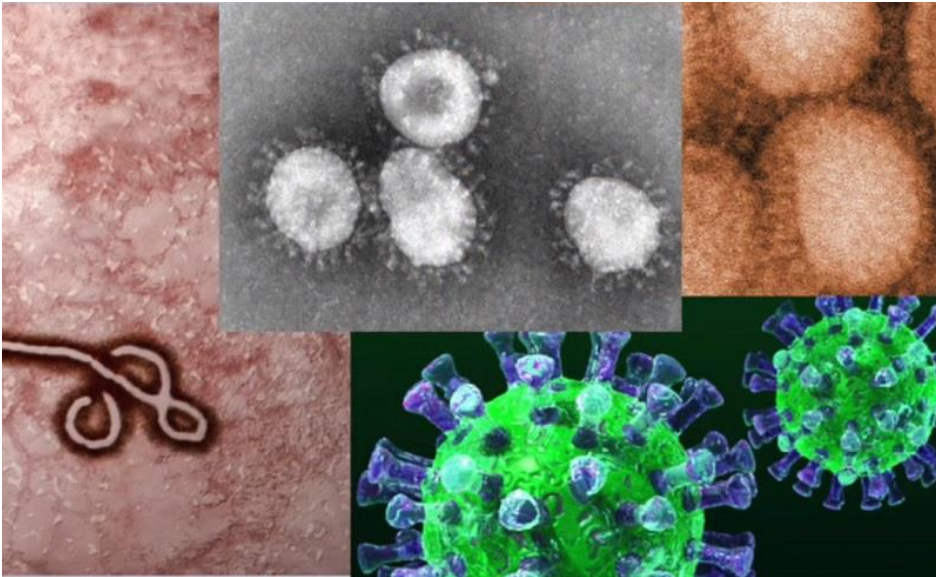
- **Biological disasters** are natural conditions involving disease, disability or death on a large scale among humans, animals and plants due to micro-organisms like bacteria, or virus or toxins. Biological disasters may be in the form of:
  - **Epidemic** affecting a disproportionately large number of individuals within a population, community, or region at the same time, examples being Cholera, Plague; or,
  - **Pandemic** is an epidemic that spreads across a large region, that is, a continent, or even worldwide of existing, emerging or re-emerging diseases and pestilences, example being Influenza H1N1 (Swine Flu), Covid-19.



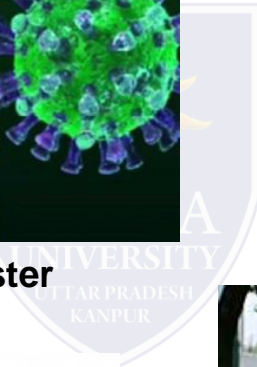
## Safety measures need to be taken

- Maintain personal cleanliness – bath daily, keep hands and nails clean and wear clean clothes. Wash hands with soap and water before preparing food or eating, after passing stools, coughing or sneezing
- Eat balanced immune boosting food.
- Prevent over-crowding.
- Stay in good ventilated areas.
- Protect yourself from change in (hot and cold) weather.
- Stay well aware with health facts.
- Be vigilant for health and environment
- Wear mask and gloves to prevent infections
- Prevent eating contaminated food





Agents causing biological disaster



Effects of biological disaster



Preventive measures

