

# MAN MADE AND OTHER DISASTER

**Syllabus:** **Man Made Disaster:** Armed conflicts and civil strife, Technological disasters, Human Settlement, **Slow Disasters** (famine, epidemics)  
**Rapid Onset Disasters** (Air Crash, tidal waves) Risks, Difference between Accidents and Disasters

## MAN MADE OR ANTHROPOGENIC DISASTER

### Introduction:

- A disastrous event which is caused by human negligence or deliberate human actions. Also called **human-made disaster**.
- Human-made disasters resulted from a range of policies and deliberate state actions.
- They produce adverse impacts on the economy and infrastructure of a country and facilitate the breakdown of social networks and community.
- Examples include (i) armed conflicts (war), (ii) actions of repressive regimes, (iii) failure to halt (iv) the spread of preventable disease and epidemics, (v) economic sanctions, (vi) hazardous material, (vii) Nuclear blast, (viii) radiological emergencies, (ix) explosion, (x) Cyber attacks, (xi) chemical threat and (xii) neo-liberal economic strategies.
- They generate a range of adverse conditions that threaten civilian well-being.
- Many of these actions produce immediate adverse outcomes; others may over time lead to social disruption.
- Millions of people were displaced or made refugees from 1990 to 2003 during 59 armed conflicts in 48 separate locations. More

than 1.5 million children were killed in these conflicts (UNICEF, 2004).

- By 2003, the unchecked global spread of HIV/ AIDS caused 20 million deaths and created an estimated 15 million orphans, 80 percent of whom live in sub-Saharan Africa (UNAIDS/ WHO, 2004; UNICEF, 2004).
- Pervasive poverty in developing countries is responsible for the estimated 200 million child laborers aged 5-14 (ILO, 2002).
- Nearly one-fifth of disease in developing countries is linked to environmental risks, where unsafe water, poor sanitation and hygiene are 'leading risk factors, causing 1.7 million premature deaths per year' (World Bank, 2005). The disruption of normal community functioning through human-made disaster should be recognized for its broad-based, long-term impact.

## 1. ARMED CONFLICTS (WAR) AND CIVIL STRIP

### 1.1. Introduction:

- **Armed Conflicts** is a political conflict in which armed battle involves the armed forces of at least one state (or one or more armed factions seeking to gain control of all or part of the state), and in which at least 1,000 people have been killed by the fighting during the course of the **conflict**. (armed conflict of Syria)

Or

An **armed conflict** is a contested incompatibility that concerns government. and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year.

- **Armed conflicts-wars-continue to cause death, displacement and suffering on a massive scale.**
- **Numerous armed conflicts** are currently taking place around the world including those involving **military parties within a single state** (non-international armed conflicts) and those involving **armed forces from two or more states** (international armed conflicts).
- **In 2017, armed conflicts** killed more than a hundred thousand people; countless survivors were maimed, tortured, raped, forcibly displaced, or otherwise seriously abused.
- **By the end of 2017, 70 million people** around the work remained displaced by armed conflict; the largest number ever recorded.

## **1.2. Types of Armed Conflicts:**

- **Non-international armed conflicts (Internal Armed Conflicts):** Non-international armed conflicts are prolonged armed arguments/disagreement occurring between governmental armed forces and the forces of one or more armed groups, or between such groups arising on the territory of a State.
- **International armed conflict:** An international armed conflict is an armed conflict between two or more states. It triggers a state of war and therefore the applicability of the four 1949 Geneva Conventions even when such a declaration is not followed by armed hostilities.

## **1.3. Examples of Civil strife over the recent history:**

### **i. Syria & Iraq:**

After nearly six years of fighting, an estimated 500,000 people killed, and some 12 million uprooted, Syrian President Bashar al-Assad appears likely to maintain power for now, but even with foreign backing his forces cannot end the war and regain total control. In Iraq, the fight against the Islamic State has further undermined the state's ability to govern, caused enormous destruction, militarized youth, and traumatized Iraqi society.

## **vi. Kashmir Valley of INDIA :**

- Kashmir's conflict with India started immediately after the partition of the country in 1947. The protest movements / peaceful struggle for right to Self Determination continued till 1988-89. Thereafter resistance to Indian rule in Kashmir was taken up by some Muslims of the state who very often resorted to violent means to achieve their objective of Independence. By and large people supported the cause.
- In 1990s several mass rallies were conducted which led to the imposition of president's rule. The government of India brought around 700,000 military and paramilitary troops to suppress the movement in Kashmir. The large military presence in the Kashmir Valley, along with suspected human rights abuses, has encouraged separation.
- In 2010, thousands of young Kashmiris took to the streets to protest against Indian rule. They threw stones while the security forces responded with pellet guns and bullets. About 120 Kashmiris were killed over that summer, which contributed to the radicalizing of a new generation. Last year, protests prompted by the killing of a young and popular armed separatist led to another increase of violence.
- President Ram Nath Kovind has approved governor's rule in J&K. The move comes after the BJP pulled out of its three-year alliance with the Peoples Democratic Party (PDP) in Jammu and Kashmir.

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#### **1.4. What is the difference between a conflict and a war?**

- (i) **Conflict:** a fight **between armed** troops (in this context).
- (ii) **War:** a state-of-war/aggression towards other parties issued officially by governments/states.
- (iii) **Conflicts** are part of **war**, though not every **war** sees actual **conflict**, nor is every **conflict** connected to **war**.

#### **1.5. Possible corrective measure to be taken by Ruling Government**

**An armed conflict is supposed to have ended if:**

- there has been a formal ceasefire or peace agreement and, following which, there are no longer fight/combat deaths (or at least fewer than 25 per year); or
- in the absence of a formal ceasefire, a conflict is deemed to have ended after two years of life cycle (in which fewer than 25 combat deaths per year have occurred).

## **2. TECHNOLOGICAL DISASTERS**

### **2.1. Introduction:**

- A technological disaster is an event caused by a malfunction of a technological structure and/or some human error in controlling or handling the technology.
- The effects of a disaster on families and individuals may be long lasting and can endure for years.
- It includes Industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills.

### **2.2. Types of Technological Disaster:**

#### **i. Fires:**

- Fires are events of burning something. They are often destructive taking up toll of life and property.
- It is observed that more people die in a fire than in a cyclone, earthquake, floods and other natural disasters combined.
- Fires are a great threat to forests and wild life because they spread speedily and cause tremendous damage in a short time.
- In cities fires break out in home, jhuggis, buildings specially godowns and factories.
- Fire can spread to a large area. Many people may die of burns and asphyxiation.

- It may also cause contamination of air, water and soil, which may affect the crops, plants and animals, and soil fertility

### Causes of fire hazards:

- During summer months such fires results in casualties and enormous economic losses. There are numerous causes of fires. Some important ones are given here
- Throwing burning matchsticks or cigarettes irresponsibility.
- Heating sources can cause fire in houses e.g. clothes may catch fire while cooking on kerosene stove or gas stove.
- Cooking accidents are a major cause of fire at home. Fire can result due to unattended cooking.
- A short circuit in an electric wiring can cause fire. Overheating of electric appliances, poor wiring connections, use of sub-standard quality appliances can also result in a fire.
- Rubbish and waste materials often lying on roadsides or near houses may catch fire when people throw burning matchstick or cigarette butt.
- Storage and transportation of inflammable material or explosive chemicals without proper precautions may cause fires.
- Forest fires may result from human negligence or carelessness.

### Effects of Fire hazards:

**Casualties:** Death of humans and livestock may occur due to burning or serious injuries from fire. In rural areas often the entire harvested crop stored in securely may catch fire and burn to ashes resulting in heavy loss to the owner.

### Management of Fire Hazards:

Obey fire safety rules and remember the evacuation route in case of fire.

- Keep and handle inflammable materials with utmost care.
- Keep a fire extinguisher in the house and learn how to use it.
- When you leave home, make sure to shut off all electrical and gas appliances.
- Do not plug several devices into one socket.
- Keep matches away from children.
- Do not block access routes by cupboards or any furniture.
- In the event of a fire call the fire department immediately.

- In the smoke filled corridor, crawl on all floors or on your belly as the smoke is less on the floor.
- Find at least two ways to escape from your home.
- Make sure that you remove all the waste material from work place and home on regular basis.
- Hazardous materials such as paints, solvents, adhesives, chemicals or gas cylinders should be kept in separate storage, well away from fire.
- Fire crackers on Diwali is a major cause of fire in our country.
- Use them carefully under supervision of elders.

### ii. **Road accidents:**

Road networks are developed for better connectivity and service. Increased number of vehicles, violation of traffic rules, speeding, drunken driving and poor maintenance of vehicles as well as of roads are some of the main causes of road accidents. In order to avoid accidents following safety measures can be adopted:

- Look on either side of the road before crossing.
- Use zebra crossing while crossing the road by foot.
- Wear helmet while riding a two-wheeler.
- Use seat belt provided in your car.
- Drive only if you possess a proper driving license.
- Be familiar with road markings and honour them.
- Maintain a safety distance from the vehicle in front
- Do not jump lanes. It becomes difficult for other vehicles, on the road to anticipate your move.

### iii. **Rail accident:**

The most common type of rail accident is derailment due to human error, sabotage or natural landslide in a hilly track, or fire. Rail accidents lead to large number of casualties and material damage. Indian Railways incur heavy loss due to such accidents every year. Some of the common safety measures are:

- At railway crossings pay attention to the signal and the swing barrier. Do not get underneath and try to get across.
- In case of a unmanned crossing, get down from the vehicle and look at either sides of the track before crossing.
- Do not stop the train on a bridge or tunnel where evacuation is not possible.
- Do not carry inflammable material in a train.

- Do not lean out of a moving train.

- Do not smoke in train.

- Do not pull the emergency cord unnecessarily.

**iv. Air accidents/Crash:**

Air accidents may occur due to technical problems, fire, poor landing and take-off, weather conditions, hijacking, bombing etc. Some of the common safety measures are:

- Pay attention to the flight crew safety demonstration.
- Carefully read the safety card in the pocket.
- Know where is the nearest emergency exit and learn how to open it
- Always keep your seatbelt fastened when seated.
- Stay calm, listen to the crew members and follow their instructions.
- Before you try to open any emergency door yourself, look outside the window.
- If you see a fire outside the door, do not open it or the flame may spread into the cabin. Try to use an alternate route for escape.
- Remember, smoke rises. So try to stay down if there is smoke in the cabin.
- If you have a cloth, put it over your nose and mouth.
- Do not be rash and do not try to overtake unnecessarily.
- The best way to be safe on roads is to follow "lane driving"
- While driving avoid sudden acceleration and deceleration.
- Replace the worn tyres and faulty headlamps
- Check the tyre pressure, radiator water, brake oil and fuel frequently.
- Dip your beam whenever you spot an oncoming vehicle.
- Follow the maintenance schedule prescribed by the manufacturer
- Overcome impatience, anger and intoxication during driving. Road rage is dangerous.
- In case a mishap occurs stay calm.
- In case of fire, try to get out as early as possible and do not worry about the baggage.

**v. Industrial accidents/Chemical Disaster:**

Industrial accidents can be due to explosion, fire and leakage of toxic or hazardous chemicals and lead to heavy loss of life and material. Leakage of chemicals and explosion may be due to human error, technological failure or geological hazards like earthquakes, flood etc.

Fire in an industry may result from human error or electrical faults  
(short circuit).

### Effects:

- The industrial premises and immediate surroundings are at high risk in the event of an industrial accident. Employees and residents of nearby localities and their live-stock and crops in nearby areas are severely affected.
- The environment over a large area gets polluted. Hazardous chemicals released into the atmosphere or into a water body may travel long distances and may even damage the entire ecosystem around the industrial area.
- This is what has happened in Bhopal in the year 1984, when about 45 tonnes of methyl isocyanide (MIC) gas leaked into the atmosphere killing more than 2500 people.
- Explosion or fire or leakage of corrosive chemicals severely damage structures. If the chemical is in gaseous form the geographical spread is fast and wide.
- Many people may die either due to mechanical damage from explosion or fire or due to toxicity of the poisonous chemicals.
- The routes of exposure to chemical released from accidents are from inhalation, eye exposure, skin contact and ingestion.
- The polluting agents can have both immediate and long term effects.
- The immediate effects include death or other symptoms like dizziness, headache, irritation etc.
- The long term effects may include cancer, heart failure, and brain damage, dysfunction of immune system, deformation, genetic disorders or congenital (by birth) disorders in children.

### Management

- Inventory of hazardous chemicals
- It is important to have an inventory of hazardous chemicals along with their quality, storage locations, characteristics as well as possible hazard associated with hazardous chemicals and this information to be intimated all employees and people living in the neighbourhood should be informed about the potential risk. The inventory as far as possible high risk areas demarcated and displayed along with indicating affected zone and safe routes for evacuation in the event of emergency.

- Location of industries
- Industries should not be sited in residential areas. A large buffer zone, in form of a green belt, for separating an industrial area from residential areas.
- Community preparedness
- The community should be aware of the hazardous installations and know how to combat the situation. Some members of the community should monitor the potential risk and participate in safety training organised by industries.
- Other measures
- Limit storage capacity of the toxic chemicals. Improve firefighting capability, warning systems and measures for preventing pollution dispersion. Develop emergency relief and evacuation planning for employees and nearby settlements. Adopt insurance for employee and surrounding population which is mandatory under the law.

#### vii. Terrorist attacks:

A terrorist attack is an act of crime or violence that is directed towards a certain group or belief system. These attacks are usually provoked by political or religious reasons. These events usually include the use of violence that often occur in bodily injury and even loss of life. Terrorist attacks are the most common occurring type of disasters that affect the human population not only physically but mentally also. Terrorist attacks are the most detrimental to the morality of society and inflict a lot of mental stress and fear. People affected often have horrific flashback and can lead to self-harm and suicide if even possible.

#### Acts of Terrorism:

- threats of terrorism
- assassinations
- kidnappings
- hijackings
- bomb scares and bombings
- cyber attacks (computer-based)
- the use of chemical, biological, nuclear, and radiological weapons

#### High-Risk Targets for Acts of Terrorism:

- military and civilian government facilities
- international airports

- large cities
- high-profile landmarks
- large public gatherings
- water and food supplies
- utilities
- corporate centers
- mailings (explosives or chemical/biological agents may be sent through the mail)

### **The Seven Signs of Terrorism:**

- (i) **Surveillance:** Be on the lookout for someone recording or monitoring activities. The type of recording does not have to be as obvious as a camera or a video camera; the person may be taking notes, drawing diagrams, annotating maps, or using binoculars, etc.
- (ii) **Evacuation/Elicitation:** Be wary of people or groups who attempt to learn information about military operations, capabilities, or people. The attempts do not have to be face-to-face. They may be made by mail, telephone, etc.
- (iii) **Tests of Security:** If someone is attempting to evaluate the strengths and weaknesses of security measures, or if he is attempting to record and analyze reaction times to security breaches, contact your local authorities.
- (iv) **Acquiring Supplies:** Be vigilant about people who purchase or steal explosives, weapons, ammunition, etc. Other supplies that may be needed for a terrorist attack are military uniforms, flight manuals, badges or the equipment to make them, and any other controlled items. And, as we learned in the Boston bombing, materials such as pressure cookers and fireworks also may be supplies that terrorists purchase in large quantities.
- (v) **Suspicious persons out of place:** Of course, we are wary of people who don't seem to belong in our neighborhoods. But, people also may arouse suspicion at work, businesses, or anywhere, for that matter. Also be alert for people who suspiciously cross the border, stay away on board a ship, or jump ship in port if you are traveling.
- (vi) **Dry run/Trial run:** Terrorists may practice their attack prior to carrying it out, so watch for people who move around but don't

seem to have a true purpose. A terrorist also may map out routes or time traffic lights, so be on the lookout for these types of activities.

- (vii) **Deploying Assets:** Terrorists have to get people and supplies positioned prior to committing the terrorist act. If you suspect these activities are occurring, immediately contact the authorities because this may be the last chance you have to do so before the terrorist act takes place.

Some examples are 9/11, Boston marathon bomber and the beheading of multiple American reporters by ISIS

### Protective Measures for an Explosion:

*If your family is trapped in debris, you should:*

- use a flashlight to signal your location to rescuers, if possible.
- avoid unnecessary movement so you don't stir the dust.
- cover your nose and mouth with some sort of material that is nearby, to breathe through. Dense-weave cotton material acts as a good filter, or you may wet the material before breathing through it to help filter the dust.
- tap on a pipe or wall so rescuers can hear where you are.
- use a whistle to signal rescuers, if possible.
- shout as a last resort, only. Shouting can cause you to inhale dangerous amount of dust.

*If your family is near the scene of an explosion, you should:*

- get under a sturdy table or desk if things are falling around you. When the items stop falling, leave quickly. Watch for obviously weakened floors and stairways, and be especially vigilant about falling debris. Do not use elevators.
- follow your family, job, or school emergency disaster plan for leaving and staying away from the explosion. Do not stop to retrieve personal possessions or make any calls or texts. Do not return to the scene because you will increase the risk of danger for rescue workers and your family.
- avoid crowds. Crowds of people may be the target of a second attack.
- avoid unattended cars and trucks, as these may contain explosives.
- do not stand in front of windows, glass doors, or other potentially dangerous areas, including damaged buildings. Move at least 10 blocks or 200 yards away from damaged buildings. Also remember

- to move away from sidewalks or streets that will be used by emergency officials or other people still exiting the building.
- follow directions from people in authority, including police, fire, EMS, military personnel, school supervisors, or workplace supervisors.
- call emergency number once you are in a safe place, but only if police, fire, or EMS has not arrived to help injured people.
- help others who are hurt or need assistance to leave the area if you are able to do so. If you see someone who is seriously injured, seek help. Do not attempt to manage the situation alone.
- listen to your radio or television for news and instructions.

## **Terrorist Attack history:**

### **1. 9/11 terrorist attack:**

- On September 11, 2001, 19 militants associated with the Islamic extremist group al-Qaeda hijacked four airplanes and carried out suicide attacks against targets in the United States.
- Two of the planes were flown into the twin towers of the World Trade Center in New York City, a third plane hit the Pentagon just outside Washington, D.C., and the fourth plane crashed in a field in Pennsylvania.
- Almost 3,000 people were killed during the 9/11 terrorist attacks, which triggered major U.S. initiatives to combat terrorism and defined the presidency of George W. Bush.

### **2. 26/11 Mumbai Attack:**

- On November 23, 2008, ten Lashkar-e-Taiba (LeT) terrorists, trained by Pakistani military and spy agency ISI, left Karachi for Mumbai via sea. They entered India three days later on November 26, hijacking a ship owned by Indian fishermen and killing them en route.
- They targeted high-profile places including Chhatrapati Shivaji Maharaj Terminus, Taj Hotel at the Gateway of India, Cafe Leopold, Chabad House, Rang Bhavan Lane near Cama Hospital and St Xavier's College.
- More than 160 people including 18 police officers and two NSG commandoes were killed. Around 310 others were injured as a fight back by security forces continued for about 60 hours.
- Though, the terrorists were dressed as tourists, the 26/11 Mumbai terror attack of 2008 was considered as a professional commando operation of Pakistani military and ISI by experts.

### **3. Boston Marathon Bombing:**

- The Boston Marathon Bombing was a terrorist attack that occurred on April 15, 2013, when two bombs went off near the finish line of the Boston Marathon, killing three spectators and wounding more than 260 other people.
- After an intense manhunt, police captured one of the bombing suspects, 19-year-old Dzhokhar Tsarnaev, whose older brother and fellow suspect, 26-year-old Tamerlan Tsarnaev, died following a shootout with law enforcement.
- Investigators concluded that the Tsarnaevs, who spent part of their childhoods in the former Soviet republic of Kyrgyzstan, planned and carried out the attack on their own and were not connected to any terrorist groups.

3.1.

#### **Before a terrorist attack:**

- Be attentive. Terrorist attacks usually happen in public places. Keep a watch for suspicious behavior, vehicles or packages.
- If you have any fears or suspicions, tell the police. You can call the confidential Police.
- When you're in buildings and on public transport, make sure you know where the emergency exits are.

(i)

#### **During an incident:**

- Find the safest way to leave the area. Move as quickly and calmly as you can.
- If there's a fire, stay low to the floor and exit as quickly as possible. Cover your nose and mouth with a wet cloth if you can. If a door is hot to the touch, don't open it.
- If there's an explosion outside a building, stay inside. Keep away from windows, lifts and outside doors in case there's another bomb nearby.
- If you saw the explosion or any suspicious behaviour, tell the police.

(ii)

(i)

#### **After an incident:**

- Help others with first aid if it's safe to do so.
- Tell the police if you saw anything that might be useful.
- If you're concerned about a loved one, contact the police.
- You could be suffering from shock but not realise it. See a doctor as soon as possible.

### 3. SLOW DISASTERS

#### 3.1. Epidemics:

Epidemic is defined as occurrence of an illness or other health related event that is unusually affecting a large population. An epidemic can be anticipated by a sudden increase in the number of people suffering from a particular disease, increase in the population disease carrier. In order to control the spread of epidemics urgent measures are essential. Outbreaks of communicable disease to ready epidemic level are potentially high after a disaster.

##### (i) Cause:

- The outbreak of diseases is mainly due to poor sanitary condition leading to contamination of water or spread of disease form breeding of the disease vectors.
- Other factors include seasonal changes that favour breeding of insects.
- Vectors, exposure of a non-immune population (eg tourists or migrants), poverty and overcrowding.

##### (ii) Effects:

- Epidemic may cause mass illness or death.
- There are secondary effects such as disruption in the society and economic losses.
- Vulnerability is high among those who are poorly nourished, people living in unhygienic in sanitary conditions, poor quality of water supply, lack of access to health services.

##### (iii) Management Measures:

- Preventive public health measures needs to be strengthened.
- Personal protection through vaccination is an effective mitigation measure.
- Improvement of sanitary conditions, fumigation of vector breeding sites and proper disposal of domestic and municipal wastes greatly reduce chances of epidemic spread of diseases.
- Contingency plan for dealing with the epidemics that are likely to occur in the region.
- Early warning system and regular surveillance are primary requirements so as to mount an effective control response in early stages to prevent any outbreaks.

## **Corrective measures:**

- There are positive steps that governments can take to ward off famine conditions by insulating the population from psychological or mental damage, migration, impoverishment, loss of assets, and death.
- In order to avoid the haphazardness of last-minute efforts to relieve such widespread suffering, governments must put in place measures to cope with the early stages of an incipient famine.
- Because famines seldom arise overnight, policy-makers must be alert to conditions that threaten the food system or public health. The best indicator of all is the political system itself with its network of politicians sensing conditions at all levels of society.
- Their observations of social distress can be supplemented with statistical analyses of prices, hoarding, smuggling, transportation bottlenecks, food imports, refugees, or malnutrition, and even satellite photography.
- Such indicators are specific to the particular location and require a thorough understanding of the dynamics of the local food system, which is why local politicians are especially well placed.
- But for local government to be heard, a central government must be listening. A free press has a major role in amplifying the messages of distress, carrying them to the capital for action by the bureaucracy, and harassing the bureaucracy for its inattention.
- An early warning system sounds the alert. Once the crisis has been detected and diagnosed, a complementary plan of programs and previously established emergency measures must be quickly implemented.

## **Prevention:**

- Famine preparedness and relief necessarily emphasize distribution.
- In order to prevent famine, both the supply side and the demand side of the food equation must balance at a higher level, one that provides a margin of safety in food supplies, employment, and income for the poor. This process requires economic development and political stability.
- Modern science offers new opportunities for eliminating famine. By radically increasing yields per acre, science can generate food margins adequate to withstand weather shocks.
- Plants can also be bred for drought resistance;
- Development of short-cycle varieties in Senegal, for example, saved the groundnut and millet crops from 30 JANUARY 1987 total devastation by erratic rains in recent years.
- Science can also help generate the employment and hence income needed to buy this food.
- Evidence from India indicates that high-yielding wheat varieties require 60 percent more labor per hectare, but less labor per unit of output, than traditional varieties (46).
- However, technology does not transfer directly. National research institutions must be established in developing countries to speed up the adaptation of technologies from other agricultural zones.