6th sem. Hons., CC-14,
Types of Disaster
Study material prepared by SurajitLet

TYPES OF DISASTERS

As per High Powered Committee Report (2001), disasters can be classified into two major categories (both natural and man-made) and several sub-categories. Overview of the disasters categorises them into:

i) Water and Climate Related Disasters

- Floods
- Cyclones
- Tornadoes and Hurricanes
- Hailstorm
- Cloud Burst
- Heat Wave and Cold Wave
- Snow Avalanches
- Droughts
- Sea Erosion
- Thunder and Lightning
- Tsunami

i) Geologically Related Disasters

- Landslides and Mudflows
- Earthquakes
- Dam Failures/ Dam Bursts

ii) Chemical, Industrial and Nuclear Related Disasters

- Chemical and Industrial Disasters
- Nuclear Disasters

iii) Accident Related Disasters

- Forest Fires
- Urban Fires
- Mine Fires
- Mine Flooding
- Oil Spill
- Major Building Collapse
- Serial Bomb Blasts
- Festival Related Disasters
- Electrical Disasters and Fires
- Boat Capsizing
- Village Fire

iv) Biological Disasters Introduction

- Biological hazards
- Epidemics

- Pest Attacks
- Cattle Epidemics
- Food Poisoning

There are many different ways of classifying hazards. One is to consider the extent to which hazards are natural.

ii. **Natural hazards** such as earthquakes or floods arise from purely natural processes in the environment.

iii. **Quasi-natural hazards** such as smog or desertification arise through the interaction of natural processes and human activities.

iv. **Technological (or man-made) hazards** such as the toxicity of pesticides to fauna, accidental release of chemicals or radiation from a nuclear plant. These arise directly as a result of human activities.

Hewitt and Burton (1971):

A typology based on Hewitt and Burton (1971) would appear as follows.

1. Atmospheric *Single element* Excess rainfall Freezing rain (glaze) Hail Heavy snowfalls High wind speeds Extreme temperatures	**Atmospheric** *Combined elements/events* Hurricanes 'Glaze' storms Thunderstorms Blizzards Tornadoes Heat/cold stress
2. Hydrologic Floods – river and coastal Wave action Drought Rapid glacier advance	**3. Geologic** Mass-movement Landslides Mudslides Avalanches Earthquake Volcanic eruption Rapid sediment movement
4. Biologic Epidemic in humans Epidemic in plants Epidemic in animals Locusts	**5. Technologic** Transport accidents Industrial explosions and fires Accidental release of toxic chemicals Nuclear accidents Collapse of public buildings

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i. NATURAL DISASTERS

Natural disasters are naturally occurring physical phenomena caused either by rapid or slow onset of events which can be geophysical, hydrological, climatological and biological.

a. Earthquakes

Earthquake is the result of forces responsible for the structural deformation deep within the earth's interior. Sudden break within the upper layers of the earth, resulting in the vibration of the ground, which when strong enough causes the collapse of buildings and destruction of life and property. Earthquakes usually happen at faults along plate boundaries. Earthquakes often trigger landslides, tidal waves and tsunamis.

b. Volcanic Eruptions:

Volcanic eruptions happen when lava and gas are discharged from a volcanic vent. The most dangerous type of volcanic eruption is referred to as a 'glowing avalanche'. This is when freshly erupted magma forms hot pyroclastic flows which have temperatures of up to 1,200 C. The pyroclastic flow is formed from rock fragments following a volcanic explosion, the flow surges down the flanks of the volcano at speeds of up to several hundred kilometers per hour, to distances often up to 10km and occasionally as far as 40 km from the original disaster site.

c. Landslides:

A landslide is the movement of soil or rock controlled by gravity and the speed of the movement usually ranges between slow and rapid.

d. Tsunami :

Tsunamis (Japanese for "harbour wave"), also known as a seismic sea wave, are a series of very large waves with extremely long wavelength, in the deep ocean, the length from crest to crest may be 100 km and more. It is usually generated by sudden displacements in the sea floor caused by earthquake, landslides, or volcanic activity (Government of India, 2016).

e. Floods :

Floods are also a regular phenomenon of the country and almost every year, one or the other parts of the country is frequently affected by floods (Kanal, 2013). A flood is an overflow of water on land which is usually dry. Sometimes a water resource (river, lake or pond) gets flushed too much with water, resulting in floods in the nearby regions. The National Disaster Management Division of the Ministry of Home Affairs defines that "floods are a temporary inundation of large regions as the result of an increase in reservoir, or of rivers flooding their banks because of heavy rains, high winds, cyclones, storm surge along coast, tsunami, melting snow or dam bursts". Flash floods are defined as floods which occur within six hours of the beginning of heavy rainfall, and are usually associated

with cloud bursts, storms and cyclones requiring rapid localised warnings and immediate response if damage is to be mitigated (NDMA, 2008).

f. Drought

Drought is defined as a deficiency of rainfall over an extended period – a season, a year or several years – relative to the statistical multi-year average for the region. Droughts can occur due to long spells of water shortage as a result of scanty rainfall, inadequate water management techniques, and sheer government neglect. The severity of drought depends on the degree of moisture deficiency, duration of dry spells, extent of irrigation facilities; and size of the affected area. An erratic pattern, both low (less than 750 mm) and medium (750-1125 mm) makes 68 per cent of the total area in India vulnerable to periodic droughts.

g. Wildfires

Wildfire is a general term which includes forest fires, grassland fires, bushfires, brush fires and any other vegetation fire.

h. Epidemics :

An epidemic is the unusual increase in the number of cases of an infectious disease which already exists in a certain region or population.Epidemics may be the consequence of disasters of another kind, such as tropical storms, floods, earthquakes, droughts, etc. Epidemics may also attack animals, causing local economic disasters. The types of diseases generally recognised as communicable or transmissible include: hepatitis, typhoid, diphtheria, malaria, cholera, influenza, enteritis, diarrhea, skin diseases, food poisoning, etc.

ii. MAN-MADE DISASTERS

Technological or man-made disasters are events that are caused by humans. This can include environmental degradation, pollution and accidents. Some disasters can result from several different hazards or, more often, from a complex combination of both natural and man-made causes of vulnerability. Food insecurity, epidemics, conflicts and displaced populations are some of the examples.

a. Famines

Food-security emergencies are complex disasters with multiple root causes. Severe drought and/or conflict can produce an acute food emergency, whereas chronic food insecurity is often a reflection of poverty, In such cases, food can be both unavailable (insufficient production) and inaccessible (distribution problems, beyond consumers' purchasing power). Poor nutrition, brought on by food shortages, reduces people's resistance to disease, and makes outbreaks of preventable diseases likely. Water shortages, which force people to use polluted water, increase the risk of waterborne

diseases. Food- security problems may drive populations to other areas, such as the outskirts of towns, in search of better living conditions.

b. **Transport Accidents**:

These are used to describe technological transport accidents involving mechanised modes of transport. It comprises four disaster subsets: accidents involving air, boat, rail transport and accidents involving motor vehicles on roads and tracks.

c. Industrial Accidents:

These accidents include explosions such as chemical explosion, nuclear explosion and mine explosion.