UNDERSTANDING OF HAZARDS
Comes in many forms
From forces of nature
Man as the direct cause
Some are slow in onset
Some are rapid in onset
Effect of Disaster

• Affects everyone
• Ensure poor remains poor
• Long term loss to children old age and weaker section
• Middle class losses their well being and becomes poor
• Small businessmen and professionals sustain great losses
Effect of Disaster

• Disaster impact occurs at verity of levels:
  – Individual
  – Family
  – Community
  – Country
  – Global
  – Environment
Effect of Disaster

• Material Losses;
  (Property, Infrastructure, Essential Services, Agriculture and Cattle)

• Human Losses;
  (Death, Injury, Health, Displacement, Psychological, Trauma, Hardship and Disruption of Routine Life)
Effect of Disaster

• Environmental Losses;
  (Biodiversity, Deforestation, Hazardous material release)

• Social and Economical Losses;
  (Weakening Institution and Social Structure, Reduction in employment and Production, Diversion of Funds etc.)
Term Suggest that Earthquakes, Floods, Cyclones etc. are disasters.

It is difficult to decide the disasters by its physical characteristics.

Because;

What happens if, flooding or earthquake occurs in uninhabited area?

or

Landslide occurs in canyon?
Then, what these events are flood, cyclones, eq. etc?

Floods, cyclones, earthquakes, landslides are potential events (called hazards) and, existing condition of the area (called vulnerability) meeting such events are resulting in a disaster.

Such events are known as hazards and, such conditions are known as vulnerability.
Components of Disaster;

- HAZARD
- VULNERABILITY
- DISASTER

\[ \text{disaster} = \text{Hazard} \times \text{Vulnerability} \]
Hazards

The word hazard might have come from French word hasard which means a game of dice.

Clearly, the term is rooted in the concept of chance.
HAZARD

• A rare or extreme, natural or man made Event that has the potential to cause harm or loss to human activity, risk and danger to life or damage to property.
HAZARD

• Hazard is an event, While disaster is its consequences/Final outcome.
Hazards which are exclusively of natural origin like EQ. Cyclone etc. are natural hazards.

Manmade hazards are associated with direct human action like Industrial, Accidents, Explosions etc.
For understanding the Disaster we have to understand the Hazard and its physical and technical aspects like:

- Genesis,
- Potential and its
  - Life cycle

Traditional Knowledge, Science and technology helps us to understand these hazards
Types of Hazards

• HPC appointed by GOI in 1999 identified 31 Disasters and categorized them in two major and five sub-groups

• **Major Groups**;
  - Natural Disasters
  - Manmade Disasters
Natural Hazards

• Occurrence of infrequent hazard

• Impacts on:
  - Vulnerable communities
  - Vulnerable Geographical areas

• Causing:
  - Substantial damage
  - Disruption
  - Causalities

• Leaving foot print on social structure

• Affected community unable to function normally
Major Cause of Natural Hazards

- Geographical location
- Climatic condition
- Population growth
- Urbanization
- Overexploitation of Natural resources
- Settlements in endangered areas
- Lack of
  - knowledge and awareness
  - Lack of financial resources
  - lack of organizational capacity
Man Made (Technological) Hazards

- Occurs all of a sudden
- May have unforeseen consequences
- High potential to damage
- If terrorist attack
  - At unexpected places
  - Target is well chosen with area of high population density, economic, political or religious importance
Types of Hazards

- Sub Groups;
  - Water and climate related
  - Geological
  - Chemical & Industry Related
  - Accident related
  - Biological
What is water and climate related Hazards

- Natural Processes
  - Atmospheric
  - Hydrographical
  - Oceanographic

- Which causes
  - Loss of life or injury
  - Property damage
  - Social and economical disruption
  - Environmental degradation
What is Geological Hazards?

- Natural Earth Process
  - Internal Process (Earthquakes)
  - External Process (Landslides)

- It can be:
  - Single
  - Sequential
  - Combined in their origin and effects

- May cause:
  - Loss of life or injury
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Hazards IDENTIFIED BY
High Powered Committee (HPC)

I. WATER AND CLIMATE RELATED Hazards

1. Floods
2. Cyclones
3. Tornadoes
4. Hailstorm
5. Cloud Burst
6. Heat Wave and Cold Wave
7. Snow Avalanches
8. Droughts
9. Sea Erosion
10. Thunder and Lightning
II. GEOLOGICALLY RELATED Hazards

1. Landslides and Mudflows
2. Earthquakes
3. Dam Failures/ Dam Bursts
4. Mine Fires
5. Tsunami (Added)

III. CHEMICAL, INDUSTRIAL AND NUCLEAR

1. Chemical and Industrial Disasters
2. Nuclear Disasters
IV. ACCIDENT RELATED Hazards

1. Forest Fires
2. Urban Fires
3. Mine Flooding
4. Oil Spill
5. Major Building Collapse
6. Serial Bomb Blasts
7. Festival related disasters
8. Electrical Disasters and Fires
9. Air, Road and Rail Accidents
10. Boat Capsizing
11. Village Fire
V. BIOLOGICALLY RELATED Hazards

1. Biological Disasters and Epidemics
2. Pest Attacks
3. Cattle Epidemics
4. Food Poisoning
Hazard and Vulnerability Profile of Gujarat

• Earthquake; Majority of Gujarat area is falling in zone 3-5
• Floods: Seven perennial major rivers of gujarat makes vulnerable to floods
• Drought: whole of Gujarat except south Gujarat region vulnerable to Drought.
• Cyclone: 1600 Kmtr. Costal area of Gujarat is vulnerable Cyclone and Floods
• Ind. Chem. Accident: Industrial Development has made Gujarat vulnerable to this Hazard. Major highways are vulnerable to Transport Accident of Chemicals leakages.
Thanks for Listening me.