

HAZARDS AND DISASTER: MEANING, CONCEPTS & TYPES

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HAZARD: DEFINITION

- “THOSE ELEMENTS OF THE PHYSICAL ENVIRONMENT, HARMFUL TO MAN AND CAUSED BY FORCES EXTRANEIOUS TO HIM” (BURTON et al 1978)
- “ A SOURCE OF POTENTIAL HARM OR A SITUATION WITH A POTENTIAL TO CAUSE LOSS” (STANDARDS AUSTRALIA, 2000)
- “ A NATURAL EVENT THAT HAS THE POTENTIAL TO CAUSE HARM OR LOSS” (ASIAN DISASTER PREPAREDNESS CENTER)

- A HAZARD IS A THREAT. A FUTURE SOURCE OF DANGER. IT HAS THE POTENTIAL TO CAUSE HARM TO
- ›PEOPLE- DEATH, INJURY, DISEASE AND STRESS
- ›HUMAN ACTIVITY- ECONOMIC, EDUCATIONAL ETC
- ›PROPERTY-PROPERTY DAMAGE, ECONOMIC LOSS ETC
- ›ENVIRONMENT-LOSS OF FAUNA AND FLORA, POLLUTION, LOSS OF AMENITIES

TYPES OF HAZARD

- **NATURAL HAZARDS-** ARISE FROM PURELY NATURAL PROCESSES SUCH AS EARTHQUAKES OR FLOODS
- **QUASI-NATURAL HAZARDS-** ARISE THROUGH THE INTERACTION OF NATURAL PROCESSES AND HUMAN ACTIVITIES SUCH AS SMOG OR DESERTIFICATION
- **TECHNOLOGICAL OR MAN-MADE HAZARDS-** ARISE DIRECTLY AS A RESULT OF HUMAN ACTIVITIES SUCH AS TOXICITY OF PESTICIDES TO FAUNA, ACCIDENTAL RELEASE OF CHEMICALS OR RADIATION FROM A NUCLEAR PLANT

DISASTER: CONCEPT

- A HAZARDOUS EVENT THAT CAUSES UNACCEPTABLY LARGE NUMBERS OF FATALITIES AND OVERWHELMING PROPERTY DAMAGE IS A NATURAL DISASTER. IN AREAS WHERE THERE ARE NO HUMAN INTERESTS, NATURAL PHENOMENA DO NOT CONSTITUTE HAZARDS NOR DO THEY RESULT IN DISASTERS

DISASTER: DEFINITION

- A serious disruption of the functioning of a society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using only its own resources
- The United Nation defines disaster as “the occurrence of a sudden or major misfortune which disrupts the basic fabric and normal functioning of a society(*community*).”
- “Disaster” means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area(DM Act, 2005, 2 [d])

- The extent of damage from a disaster depends on:
- 1. The impact, intensity and characteristics of the phenomenon, and
- 2. How people, environment and infrastructure are affected by that phenomenon
- The relationship between hazard and vulnerability is best represented as an equation:
- $\text{Hazard} > \text{Disaster} < \text{Vulnerability}$
- Or
- $\text{Disaster Risk} = \text{Hazard} + \text{Vulnerability}$
- *Vulnerability is defined as “The extent to which a community, structure, service or geographical area is likely to be damaged or disrupted by the impact of particular hazard, on the account of their nature, construction and proximity to hazardous terrain or a disaster prone area”*

TYPES OF VULNERABILITY

- **Physical Vulnerability** (infrastructure, buildings and agriculture)
- **Social Vulnerability** (identification of the vulnerable groups like poor, women, children, disabled person etc.)
- **Economic Vulnerability** (measures the risk of hazard causing losses to economic assets directly or indirectly)
- **RELATIONSHIP BETWEEN HAZARD AND VULNERABILITY**
- **HAZARD x VULNERABILITY = DISASTER**

- **Disaster risk:** The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over
- some specified future time period.
- **Disaster risk management:** The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.
- **Disaster risk reduction:** The concept and practice of reducing disaster risks through systematic efforts, to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.
- **Early warning system:** The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.
- **Emergency management:** The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

TYPES OF DISASTERS

- High Powered Committee (HPC) identified 32 disasters in the country, categorized into five subgroups:
- Water and Climate related disasters.
- Geologically related disasters.
- Chemical, Industrial & Nuclear related disasters.
- Accident related disasters.
- Biologically related disasters.

- **WATER AND CLIMATE RELATED DISASTERS**

- 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
- 11. Tsunami

- **GEOLOGICALLY RELATED DISASTERS**

- 1. Landslides and Mudflows
- 2. Earthquakes
- 3. Dam Failures/ Dam Bursts
- 4. Mine Fires

- **CHEMICAL, INDUSTRIAL AND NUCLEAR**

- - Chemical and Industrial Disasters
- - Nuclear Disasters

- **ACCIDENT RELATED DISASTERS**

- 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

- **BIOLOGICALLY RELATED DISASTERS**

- 1. Biological Disasters and Epidemics
- 2. Pest Attacks
- 3. Cattle Epidemics
- 4. Food Poisoning

DISASTER MANAGEMENT

- *According to DM Act, – DM defined as:*
- **“Disaster Management” means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for:**
- (i) Prevention of danger or threat of any disaster
- (ii) Mitigation or reduction of risk, impact or effects of any disaster or threatening disaster situation or its severity or consequences;
- (iii) Capacity building;
- (iv) Preparedness – the state of readiness to deal with any disaster, threatening situation or disaster and the effects thereof;
- (v) Prompt response to any threatening disaster situation or disaster;
- (vi) Assessing the severity or magnitude of effects of any disaster;
- (vii) Evacuation, rescue and relief;
- (viii) Rehabilitation / reconstruction means restoration of any property after a disaster;
- (ix) Resources includes manpower, services, materials & provisions

STAGES OF DISASTER MANAGEMENT

- **Pre – Disaster:** Before a disaster to reduce the potential for human, material or environmental losses caused by hazards and to ensure that these losses are minimised when the disaster actually strikes.
- **During Disaster:** It is to ensure that the needs and provisions of victims are met to alleviate and minimise suffering.
- **Post Disaster:** After a disaster to achieve rapid and durable recovery which does not reproduce the original vulnerable conditions

DISASTER MANAGEMENT CYCLE

