

Disaster Management

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Hazards and Disasters

- ▶ **Natural hazards** are severe and extreme weather and climate events that occur naturally in all parts of the world, although some regions are more vulnerable to certain hazards than others
- ▶ **Natural hazards** become natural disasters when people's lives and livelihoods are destroyed.

Definitions

- ▶ A **disaster** is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources.
- ▶ **Disaster management** is the creation of plans through which communities reduce vulnerability to hazards and cope with disasters
- ▶ Disaster management does not avert or eliminate the threats; instead, it focuses on creating plans to decrease the effect of disasters
- ▶ Disasters can be natural or human made

Types of Disasters

- ▶ **1. Water and Climate Related Disasters** -- Floods and Drainage Management, Cyclones, Tornadoes and Hurricanes, Hailstorm, Cloud Burst, Heat Wave and Cold Wave, Snow Avalanches, Droughts, Sea Erosion and Thunder and Lightning
- ▶ **2. Geologically related disasters** -- Landslides and Mudflows, Earthquakes, Dam Failures/ Dam Bursts and Mine Fires
- ▶ **3. Chemical , Industrial & Nuclear related disasters** -- Chemical and industrial and nuclear disasters have been included.
- ▶ **4. Accident related disasters** -- Forest Fires, Urban Fires, Mines Flooding Oil Spill, Major Building Collapse, Serial Bomb Blasts, Festival related disasters, Electrical disasters and Fires, Air, Road and Rail Accidents, Boat Capsizing and Village Fire have been included in this sub-group by HPC
- ▶ **5. Biologically related disasters** -- Epidemics, Pest Attacks, Cattle epidemics and Food poisoning.

Risk

- ▶ Risk : The probability of harmful consequences, or expected losses resulting from the interactions between hazards and vulnerable conditions e.g. deaths, injuries, property, livelihoods, economic activity disrupted or environmental damages.
- ▶ Risk Assessment :The process of determining the nature and extent of risk by analyzing potential hazards and evaluating existing condition of vulnerability and capacity
- ▶ The estimation of risk posed by a hazard. Risk assessment consists of the following steps:
 - ▶ Hazard Assessment
 - ▶ Vulnerability Assessment
 - ▶ Capacity Assessment

Vulnerability

- ▶ **Vulnerability** defined as the diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of a natural or man-made hazard. The concept is relative and dynamic
- ▶ **Vulnerability is the human dimension of disasters** and is the result of the range of economic, social, cultural, institutional, political and psychological factors that shape people's lives and the environment that they live in
- ▶ Vulnerability is one of the defining components of disaster risk
- ▶ **RISK = HAZARD X EXPOSURE X VULNERABILITY**

Types of Vulnerability

- ▶ Physical / Environmental
- ▶ Economic
- ▶ Social

Resilience

- ▶ Capacity of a community to resist, absorb, adjust to and recover from the negative impacts of a disaster in a timely and efficient manner
- ▶ The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure - learnings from earlier disasters
- ▶ The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards

Adaptation & Mitigation

- ▶ Adaptation : refers to changes in natural and human systems to reduce risks to the lives and livelihoods of people
- ▶ Adaptation actions can reduce many unavoidable impacts in the near term, although they cannot reduce them to zero
- ▶ Mitigation : Structural and non-structural measures taken to reduce the adverse effects of a disaster, if it occurs e.g. construction of retaining walls, widening of water channels, building codes, early warning systems, etc.

Adaptation & Mitigation.....

- ▶ Mitigation refers to the actions taken to reduce the severity of a disaster, while Adaptation refers to the responsive adjustment to an environmental condition
- ▶ Failure to mitigate will eventually lead to failure of adaptation because the magnitude of the impacts is predicted to become too large to manage even with considerable investment
- ▶ Adaptation and mitigation are not alternative strategies but complementary ones that need to be pursued together

India : Natural Disasters

- ▶ Cyclones, floods, earthquakes, droughts and floods are major threats
- ▶ About 60 percent of the landmass is prone to earthquakes of various intensities, over 40 million hectares is prone to floods and 68 percent of the area is susceptible to drought

India : Major Disasters

- ▶ India disaster prone
- ▶ Bhopal gas tragedy 1984
- ▶ Cyclones (AP)& Orissa
- ▶ Earthquake in Uttarkashi in 1990, Latur 1993 Gujarat 2001, Sikkim 2011
- ▶ Tsunami 2004
- ▶ Train accidents; Bomb blasts

Major Disasters

- ▶ Kashmir Floods. • Year: 2014 - 500 dead
- ▶ Uttarakhand Flash Floods. • Year 2013- 5000 dead
- ▶ The Indian Ocean Tsunami. • Year: 2004. ...
- ▶ Gujarat Earthquake. • Year 2001. ...
- ▶ Coringa Cyclone. • Year: 1839 - 3.2 lakhs people died
- ▶ Calcutta Cyclone. • Year: 1737- 3 lakhs people died
- ▶ The Bengal Famine 1770 & 1943 - > one crore people dead

- ▶ Super Cyclone struck the Orissa Coast on 29th October 1999, killing nearly 10,000 people and affecting over 15 million people across 12 districts of Orissa.

Latur Earthquake

- ▶ **Latur Earthquake -- 1993**
 - Areas affected: Districts of Latur and Osmanabad
 - Death toll: 20,000 plus

Earthquake, Bhuj

- ▶ In 2001, Earthquake with magnitude of 6.9 on the Richter Scale in Bhuj area of Gujarat State. In this disaster, nearly 20,000 people died, over 1,55,000 were injured, and 6 lakhs people were rendered homeless.

Leh - Cloudburst

- ▶ August 5, 2010 Leh and its neighbouring villages saw devastation of a cloudburst that engulfed several lives and rendered many injured, homeless and missing
- ▶ The cold desert was ravaged by a vast river of rock and mud ripping apart houses and razing shops and structures to the ground
- ▶ The destructive floods lasted less than two hours but caused large scale havoc

Cyclone --Hudhud

- ▶ Extremely Severe Cyclonic Storm Hudhud was a strong tropical cyclone that caused extensive damage and loss of life in eastern India and Nepal during October 2014
- ▶ Hudhud caused extensive damage to the city of Visakhapatnam and the neighbouring districts of Vizianagaram and Srikakulam of Andhra Pradesh.

Tsunami

- ▶ Indian Ocean Tsunami of 26th December 2004
- ▶ This disaster struck the country in more than seven states
- ▶ The disaster was the world's deadliest tsunami, with over 230,000 people killed and half a million injured by the waves that battered the low-lying coast

Disaster management

- ▶ In 1994 shift in the strategy for disaster mitigation
- ▶ Stressed that disaster prevention, mitigation, preparedness and relief are four elements for DM



India : Disaster Management Act 2005

- ▶ Tsunami of 2004 trigger for DM Act
- ▶ Disaster Management Act 2005
- ▶ National Disaster Management Authority established under the Chairmanship of the Prime Minister
- ▶ The Act also provide for establishment of State Disaster Management Authorities and District Disaster Management Authorities.

Thank You