

# Disaster management

# Definition --disaster

- Disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to **life, property and loss in quality of environment**
- Losses exceed the ability of affected to cope/handle with it using its own resources

# DM act 2005 --defines

**(d) "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;**

# Definitions—Disaster/ emergency management

- As the discipline of dealing with and avoiding risks
- Involves
  - Preparing for disaster
  - Disaster response
  - Supporting and rebuilding post disaster

# DM act defines

**(e) "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 of any disaster or its severity or consequences;**

**(iii) capacity-building;**

**(iv) preparedness to deal with any disaster;**

**(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 and reconstruction;**

# Disaster management

- Is a continuous process
- Managed at all levels— interlinked
  - Individual
  - Groups
  - Communities
- Actions based on risk perception
- Integration of plans – government/ private

# Disaster management

- Commonly responsibility with government
- Replaced civil defense activities
- Emphasis more on prevention
  - Called disaster risk reduction
  - Focus on preparedness, mitigation
- Covers both war and peace times

# Characteristics of disaster

- Unpredictability
- Unfamiliarity
- Speed
- Urgency
- Uncertainty
- Threat



# Types of disasters

<p><b>Major natural disasters:</b></p> <ul style="list-style-type: none"><li>• Flood</li><li>• Cyclone</li><li>• Drought</li><li>• Earthquake</li></ul>	<p><b>Minor natural disasters:</b></p> <ul style="list-style-type: none"><li>• Cold wave</li><li>• Thunderstorms</li><li>• Heat waves</li><li>• Mud slides</li><li>• Storm</li></ul>
<p><b>Major manmade disaster:</b></p> <ol style="list-style-type: none"><li>1. Setting of fires</li><li>2. Epidemic /ex plague</li><li>3. Deforestation</li><li>4. Pollution due to prawn cultivation</li><li>5. Chemical pollution.</li><li>6. Wars</li></ol>	<p><b>Minor manmade disaster:</b></p> <ul style="list-style-type: none"><li>• Road / train accidents, riots</li><li>• Food poisoning</li><li>• Industrial disaster/ crisis</li><li>• Environmental pollution</li></ul>

# Associated terms

- **Risk:**

- Risk is a measure of the expected losses due to a hazardous event . The level of risk depends on:
  - Nature of the Hazard
  - Vulnerability of the elements which are affected
  - Economic value of those elements

- **Vulnerability:**

- Predisposition of a community, structure, service, and/or geographic area to damage on account of their nature, construction and proximity to hazardous terrain or a disaster prone area”

- **Hazards:**


- “Phenomena that pose a threat to people, structures, or economic assets and which may cause a disaster.

# Cyclones & Mitigation Measures

# CYCLONES

- Tropical cyclones are the worst natural hazards in the tropics.
- They are large revolving vortices in the atmosphere extending horizontally from 150 to 1000 km and vertically from the surface to 12 to 14 km.
- These are intense low-pressure areas. Strong winds spiraling anti clockwise (in the Northern Hemisphere) blow around the cyclone center at the lower level.

- At the higher levels the sense of rotation is just opposite to that at the lower level.
- They generally move 300 to 5000 km per day over the ocean.
- While moving over the ocean they pick up energy from the warm water of the ocean and some of them grow into a devastating intensity.

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- On an average about 5 to 6 tropical cyclones form in the Bay of Bengal and the Arabian Sea every year out of which 2 to 3 may be severe.
  - More cyclones form in the Bay of Bengal than in the Arabian Sea.

# Mitigation Measures

- Installation of early warning systems
- Developing communication infrastructure
- Developing shelter belts
- Developing community cyclone shelters
- Construction of permanent houses
- Training and education
- Land use control and settlement planning

# Floods

- Generally the stream channels accommodate some maximum stream flow. However, due to heavy rains or sudden snow melt the quantity of water in streams exceeds their capacity and water overflows the banks and causes inundation/flood of the surrounding land. This situation is called flood.



# Causes

- Construction of roads, parking space and buildings that cover the earth's surface hardly allows infiltration of water into the soil and speeds up the runoff.
- Clearing of forests for agriculture has also increased the severity of floods.



*Holistic approach to flood management: pre-, “during-”  
and post-flood activities*

<i>Pre-flood activities</i>	<i>"During-flood" activities</i>	<i>Post-flood activities</i>
Flood risk management for all causes of flooding and disaster contingency planning.	Detection of the likelihood of a flood forming (hydro-meteorology).	Relief for the immediate needs of those affected by the disaster.
Construction of physical flood defense infrastructure and implementation of forecasting and warning systems.	Forecasting of future river flow conditions from the hydro-meteorological observations.	Reconstruction of damaged buildings, infrastructure and flood defenses.
Land-use planning and management within the whole catchment.	Warning issued to the appropriate authorities and the public on the extent, severity and timing of the flood.	Recovery and regeneration of the environment and the economic activities in the flooded area.
Discouragement of inappropriate development within the flood plains.	Response by the public and the authorities.	Review of the flood management activities to improve the process and planning for future events in the area affected and more generally, elsewhere.
Public communication and education of flood risk and actions to take in a flood emergency.		

- To check the floods, efforts need to be made to restore wetlands, replace ground cover on water-courses, build check-dams on small streams, move buildings off the flood plains etc.
- Instead of raising buildings on flood plains, it is suggested that floodplains should be used for wildlife habitat, parks, recreational areas and other uses, which are not susceptible to flood damage.
- River-networking in the country is also being proposed to deal with the flood problem.



**THANK YOU**