



# Basics of Disaster Risk Management

## GIDM

A state-of-the-art premier institute for  
Capacity Building in Disaster Management



# What is Disaster?

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- Which Events can be called as Disaster?
- Any Example of Disaster in Gujarat?
- Have you witnessed Disaster?

## Was 2001 Bhuj Earthquake a Disaster?





# What is Disaster: Gujarat

This has been taken from the **Gujarat Disaster Management Act of 2003.**

An actual or imminent event, whether natural or otherwise occurring in any part of the State which causes, or threatens to cause all or any of the following:

1. Widespread loss or damage to property, both immovable and movable; or
2. Widespread loss of human life or injury or illness to human beings; or
3. Damage or degradation of environment

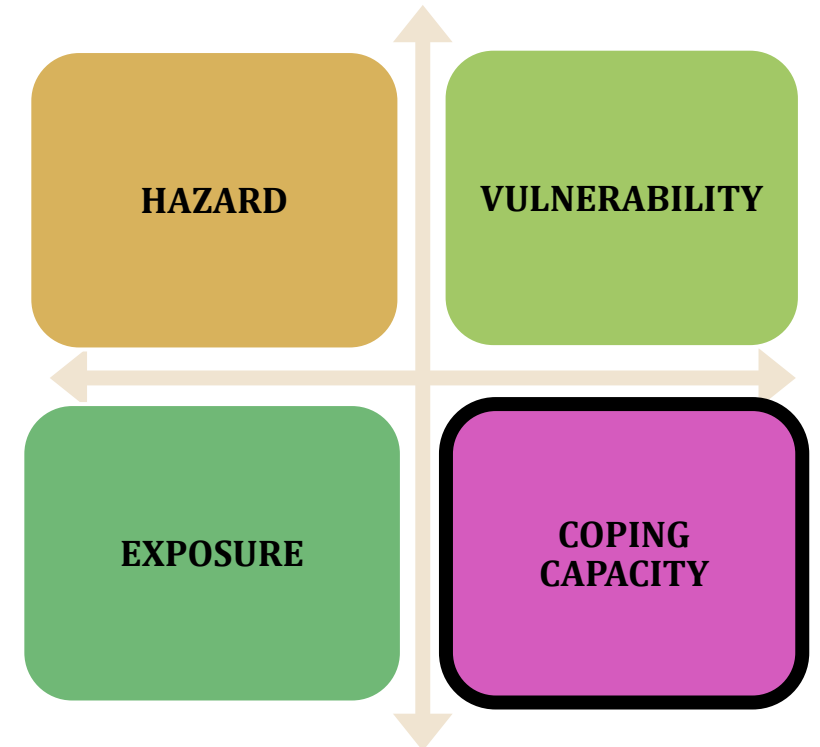
And any of the effects specified in sub-clauses (1) to (3) is such as to be **beyond the capacity of the affected community to cope up with using its own resources** and which disrupts the normal functioning of the community.





# What is 'disaster risk'?

- To actually understand what a **disaster** is, we must understand what **disaster risk** is!
- To understand disaster risk, we need to thoroughly understand few terms!
- The words that we need to know and understand are:





# What is a 'hazard'?

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A process, phenomenon or human activity that **may cause**  
loss of life, injury or other health impacts, property damage, social  
and economic disruption or environmental degradation.



# What is a 'hazard'?

## Hazards can be:

1. Natural
  2. Man-made (anthropogenic)
- For example, natural hazards are Earthquake, Flood, etc., while, man-made hazards are all those events which takes place due to human causes or in fact, negligence, like explosions or oil-spills.



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# What are the major **hazards** in Gujarat?





Flood



Tsunami

**Hazards can be called Disasters?**



Disasters are not Natural



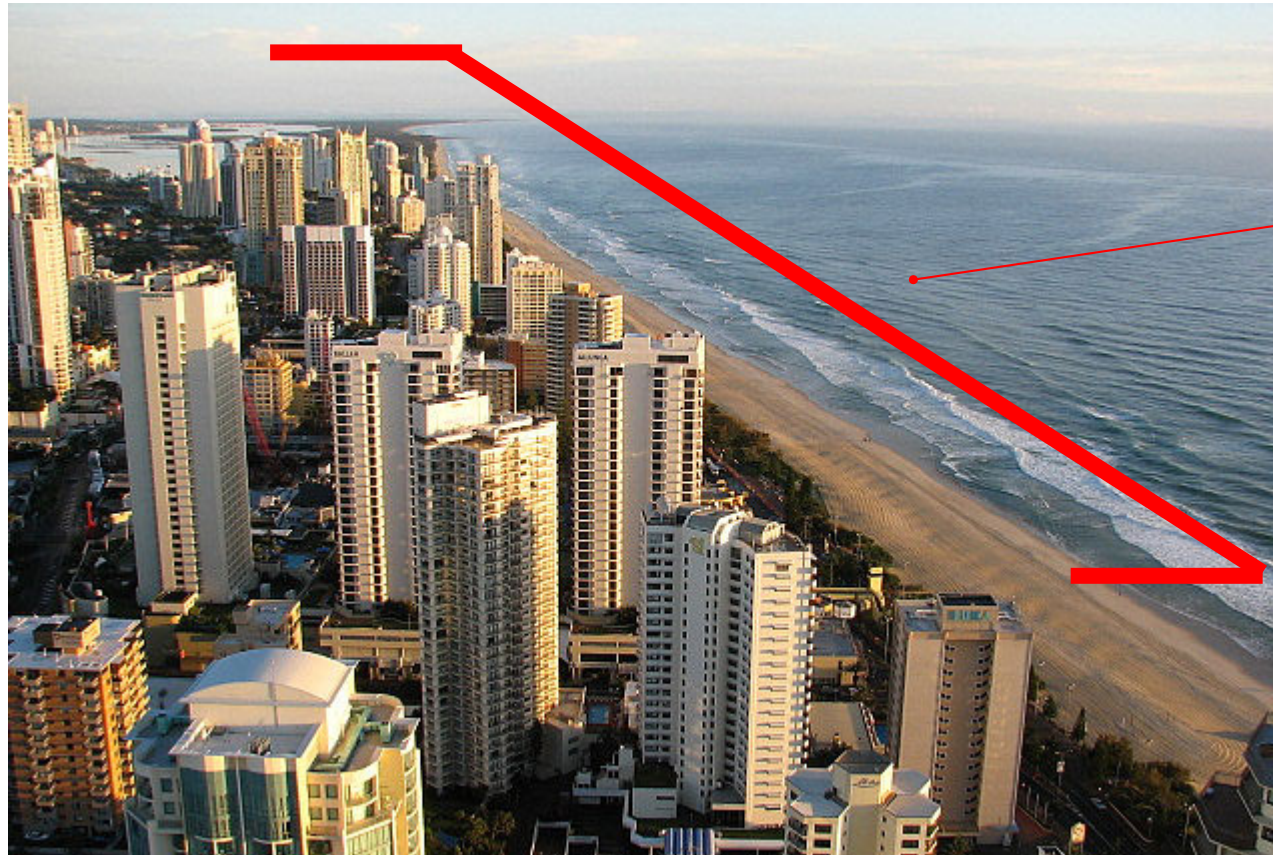
**#NoNaturalDisasters**





# What is 'exposure'?

The **situation** of people, infrastructure, housing, production capacities and other tangible human assets **located in hazard-prone areas**



**Exposed!**



# What is 'exposure'?

*To put it simply, if you feel that you can be affected by a hazard, you are exposed!*

**Are you Exposed??**





# What is 'Vulnerability'?

The **conditions** determined by physical, social, economic and environmental factors or processes which **increase the susceptibility** of an individual, a community, assets or systems **to the impacts of hazards**

Vulnerability is a characteristic of those 'assets' which are exposed!

-If you build your house in an area which is prone to flood or earthquake, you are **vulnerable**.

-Let's say that you have built your house no matter what, but if you have not taken any measure to deal with it, then you are **more vulnerable**!





# What is 'Vulnerability'?

## Factors of Vulnerability:

1. **Physical** (poor design and construction of buildings)
2. **Social** (poverty and inequality, marginalisation, social exclusion etc.)
3. **Economic** (uninsured informal sector, vulnerable rural livelihood)
4. **Environmental** (poor environmental management, overconsumption of natural resources)

**Who were more Vulnerable during COVID -19 Pandemic?**





# What is 'disaster risk'?

Now that we know few of the important terms, let us try to understand what a **disaster risk** is.

- Hazard, which can be natural or man-made, will occur at some point of time, whether we want it or not. So basically, it is a probability of occurrence.
- Given this probability of occurrence of a hazard, there will be 'something' which will be exposed to the impending effects.
- Now this exposed assets will have vulnerabilities to different extents. Some may be highly vulnerable, while, some will be very less vulnerable.

$$\text{Disaster Risk} = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerability}}{\text{Coping Capacity}}$$



# What is 'disaster risk'?

$$\text{Disaster Risk} = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerability}}{\text{Coping Capacity}}$$

**Is it possible to reduce Disaster Risk?**



# So what is a 'Disaster' then?

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When the '**disaster risk**' exceeds the '**coping capacity**' of the '**exposed**' assets, the incident of a hazard turns into a '**disaster**'.

**So, what is Coping Capacity?**



# What is 'coping capacity'?

The **ability** of people, organizations and systems, using available skills and resources, **to manage adverse conditions, risk or disasters.**

- The capacity to cope requires continuing **awareness**, **resources** and **good management**, both in normal times as well as during disasters or adverse conditions.
- Coping capacities contribute to the reduction of disaster risks.

**If you have the capacity to deal with the disaster risk, you are good to go, else it is a disaster!**



# What is a 'disaster'?

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- There will always be a **disaster risk** owing to the **hazards** we are surrounded by, the **vulnerabilities** of the **exposed assets**.
- But, if we have the capacity to deal with it, there will be no disaster. It will merely be a 'hazardous' event which would require immediate attention!
- Thus, disaster is an event where the lurking **disaster risks exceeds the coping capacities**.



# Definition of a Disaster: Legal Connotation

- This has been taken from the **Disaster Management Act of India, 2005**

“**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, 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.”





# We need to manage disasters, but how?

According to Disaster Management Act (DM Act), 2003:

**Disaster Management means a continuous and integrated process of planning and implementation of measures with a view to:**

- 1. Mitigating or reducing the risk of disasters;**
- 2. Mitigating the severity or consequence of disasters;**
- 3. Capacity - building;**
- 4. Emergency preparedness;**
- 5. Assessing the effects of disasters;**
- 6. Providing emergency relief and rescue; and**
- 7. Post-disaster rehabilitation and reconstruction**



# Managing disasters: Disaster Management Cycle

## Prevention

Measures the object of which is to **avoid** the occurrence of a disaster

## Mitigation

Measure aimed at **reducing** the impact or effect of disaster

## Preparedness

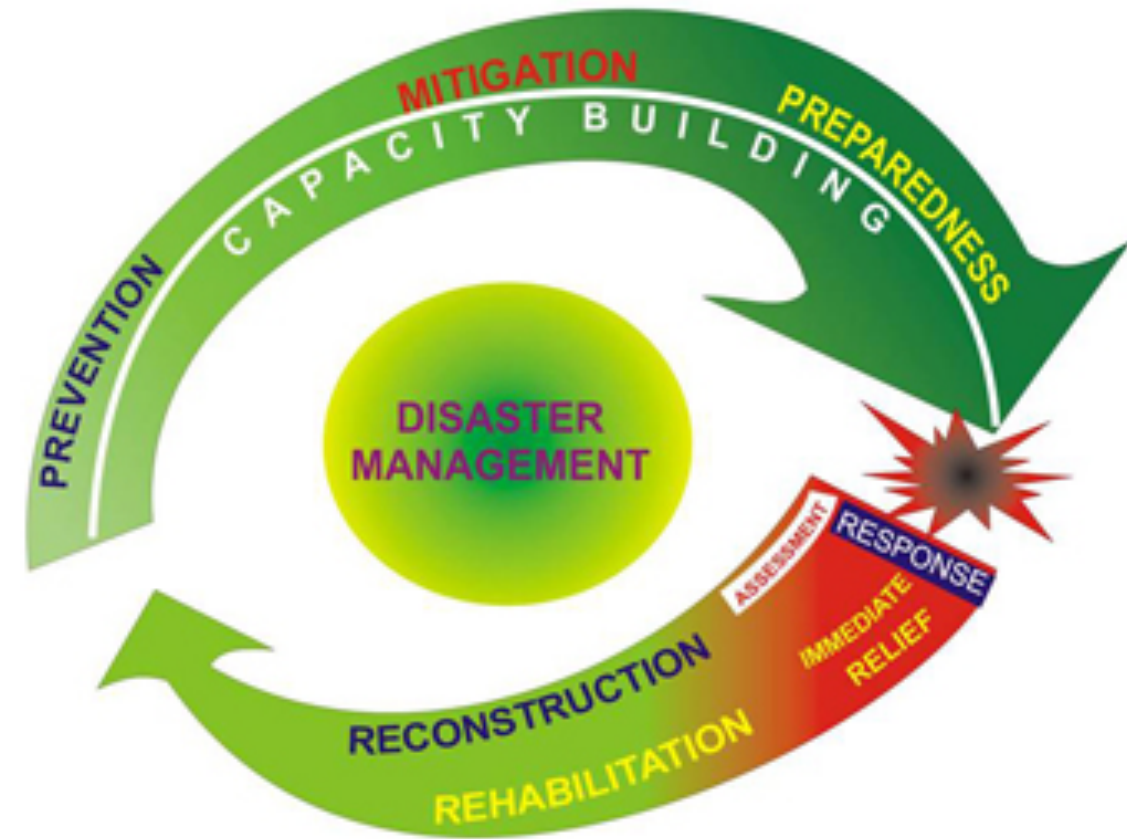
State of **readiness** which enables stakeholders to mobilize, organize and provide relief to deal with an impending or actual disaster or the effect of a disaster

## Response

Measures taken **during or immediate after** a declaration of disaster to diminish, or alleviate any suffering, pain, injury or distress or hardship caused on account of the disaster

## Recovery

The actions taken by the community and all the government and the non-government agencies to **reset the condition** after disaster and minimise the vulnerability of the same kind of disaster in future





# From Disaster Management to Disaster Risk Management

- Don't you think disaster management is more of a reactive measure? You are right!
- We are slowly shifting towards disaster risk management.
- **Disaster Risk Management (DRM) is primarily the management of disaster risks in a way such that those risks never become a disaster!**
- You may have heard of a term, Disaster Risk Reduction. What is disaster risk reduction?
- **Disaster Risk Reduction (DRR) is all that we do to ensure that we have managed the risks that we know about and be prepared to deal with the ones that we do not know about.**



# From disaster management to disaster risk management

- Disaster Risk Reduction is aimed at **preventing new** and **reducing existing** disaster risk and **managing residual** risk, all of which contribute to strengthening resilience and therefore to the achievement of Sustainable Development.
- It can be achieved by -
  - ▣ Reduce Exposure to Hazards;
  - ▣ Lessen Vulnerability of People and Property;
  - ▣ Wise Management of Land and the Environment;
  - ▣ Improve Preparedness and Early Warning for adverse events;
  - ▣ Thus, overall, we need to **develop our coping capacity!**



# Sendai Framework for Disaster Risk Reduction: Latest Framework of DRM

- 3<sup>rd</sup> World Conference on Disaster Risk Reduction (March 2015, Sendai)
- Adopted the Sendai Framework for Disaster Risk Reduction (SFDRR) (2015 – 2030)

## 1 OUTCOME

The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries

## 1 GOAL

Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience

## 4 PRIORITIES

Understanding disaster risk

Strengthening disaster risk governance to manage disaster risk

Investing in disaster risk reduction for resilience

Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction

## 7 TARGETS

- ↓ DISASTER MORTALITY BY 2030
- ↓ NUMBER OF AFFECTED PEOPLE BY 2030
- ↓ ECONOMIC LOSS BY 2030
- ↓ INFRASTRUCTURE DAMAGE BY 2030
- ↑ DRR NATIONAL/LOCAL STRATEGIES BY 2020
- ↑ INTERNATIONAL COOPERATION BY 2030
- ↑ EWS AND DR INFORMATION BY 2030





# Resilience to disaster: Way forward

- **Resilience** is the ability of a system, community or society exposed to hazards to
  - ▣ resist,
  - ▣ absorb,
  - ▣ accommodate to and
  - ▣ recover fromthe effects of the hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions
- Just to get an idea of how this will work:
  - ▣ Hazard -> Early warning -> Information dissemination -> Impact -> Rescue & Relief -> Reconstruction & Rehabilitation -> Building back better (All this is according to DM Cycle and SFDRR) **(Can you relate?)**





# Thank You

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