- **FACULTY NAME:**
  - **KANHAIYA JHA**
- **SUBJECT**
  - **DISASTER MANAGEMENT**
- **TOPIC NAME:**
  - **ORIENTATION OF DM**

DISASTER MANAGEMENT AN INTRODUCTION

What is a Disaster?

- Disaster is an undesirable occurrence resulting from forces that are **largely outside human control**, strikes quickly with little or no warning, which causes or threatens serious **disruption of life and property** including death and injury to a large number of people, and requires therefore, mobilisation of efforts in excess of that which are normally provided by statutory emergency services".
- Disasters in general and natural disasters in particular, are some such changes that are always disliked and feared by humankind.

- Disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to life and property.

- The term disaster comes from French word “Desastre” which is a combination of two words ‘des’ meaning "bad" and ‘aster’ meaning "star". Thus the term refers to ‘Bad or Evil star’.

- A disaster can be defined as “A serious disruption in the functioning of the community or a society causing widespread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources”.

- A disaster is a result of the combination of hazard, vulnerability and insufficient capacity to reduce the potential chances of risk

Natural Hazards

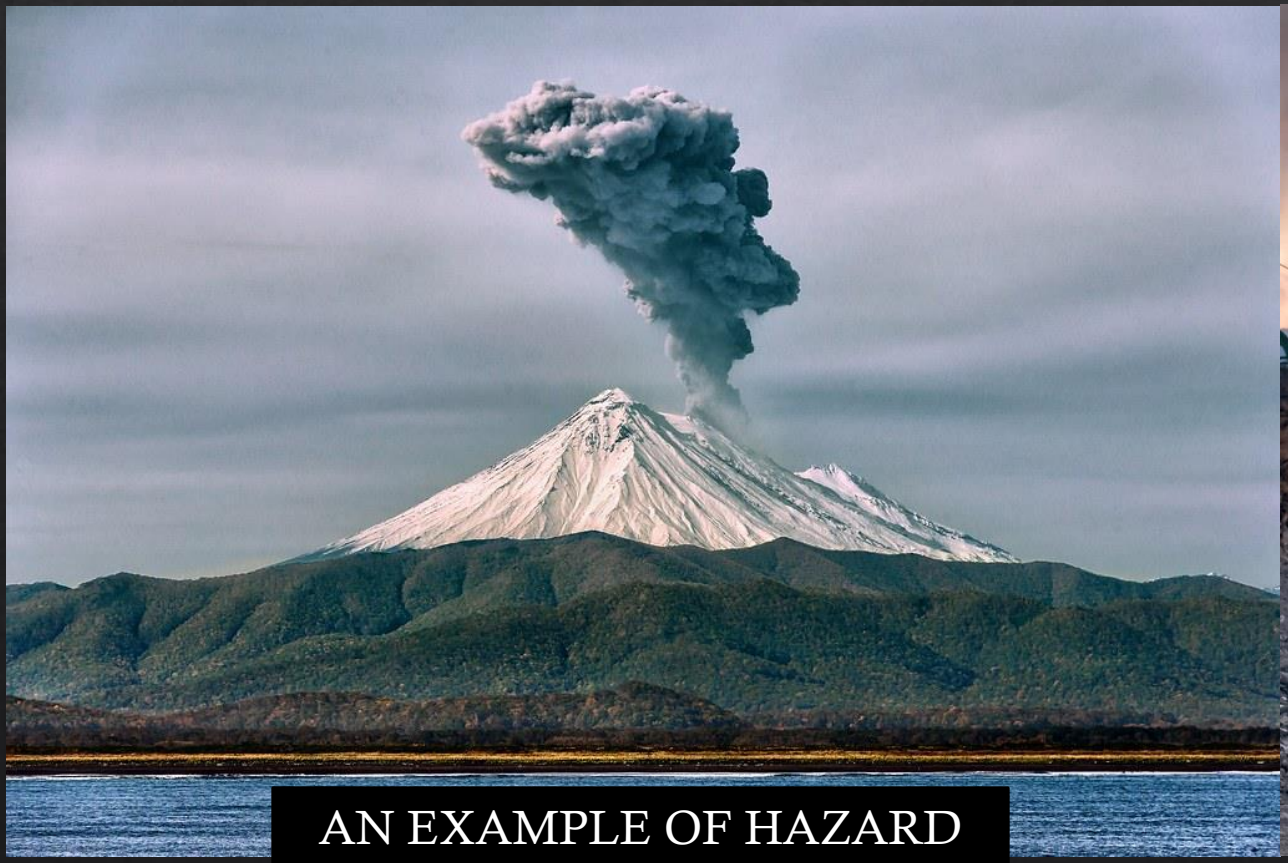
- Are elements of circumstances in the **Natural environment** that have the potential to cause harm to people or property or both.
- The word ‘hazard’ owes its origin to the word ‘hasard’ in old French and ‘az-zahr’ in Arabic meaning ‘chance’ or ‘luck’.
- These may be **swift or permanent aspects** of the respective environmental settings like currents in the oceans, steep slope and unstable structural features in the Himalayas or extreme climatic conditions in deserts or glaciated areas.

Table 1.2: Various types of hazards

Types	Hazards	
Geological Hazards	1. Earthquake 2. Tsunami 3. Volcanic eruption	4. Landslide 5. Dam burst 6. Mine Fire
Water & Climatic Hazards	1. Tropical Cyclone 2. Tornado and Hurricane 3. Floods 4. Drought 5. Hailstorm	6. Cloudburst 7. Landslide 8. Heat & Cold wave 9. Snow Avalanche 10. Sea erosion
Environmental Hazards Biological	1. Environmental pollutions 2. Deforestation 1. Human / Animal Epidemics 2. Pest attacks	3. Desertification 4. Pest Infection 3. Food poisoning 4. Weapons of Mass Destruction
Chemical, Industrial and Nuclear Accidents	1. Chemical disasters 2. Industrial disasters	3. Oil spills/Fires 4. Nuclear
Accident related	1. Boat / Road / Train accidents / air crash Rural / Urban fires Bomb /serial bomb blasts 2. Forest fires	3. Building collapse 4. Electric Accidents 5. Festival related disasters 6. Mine flooding

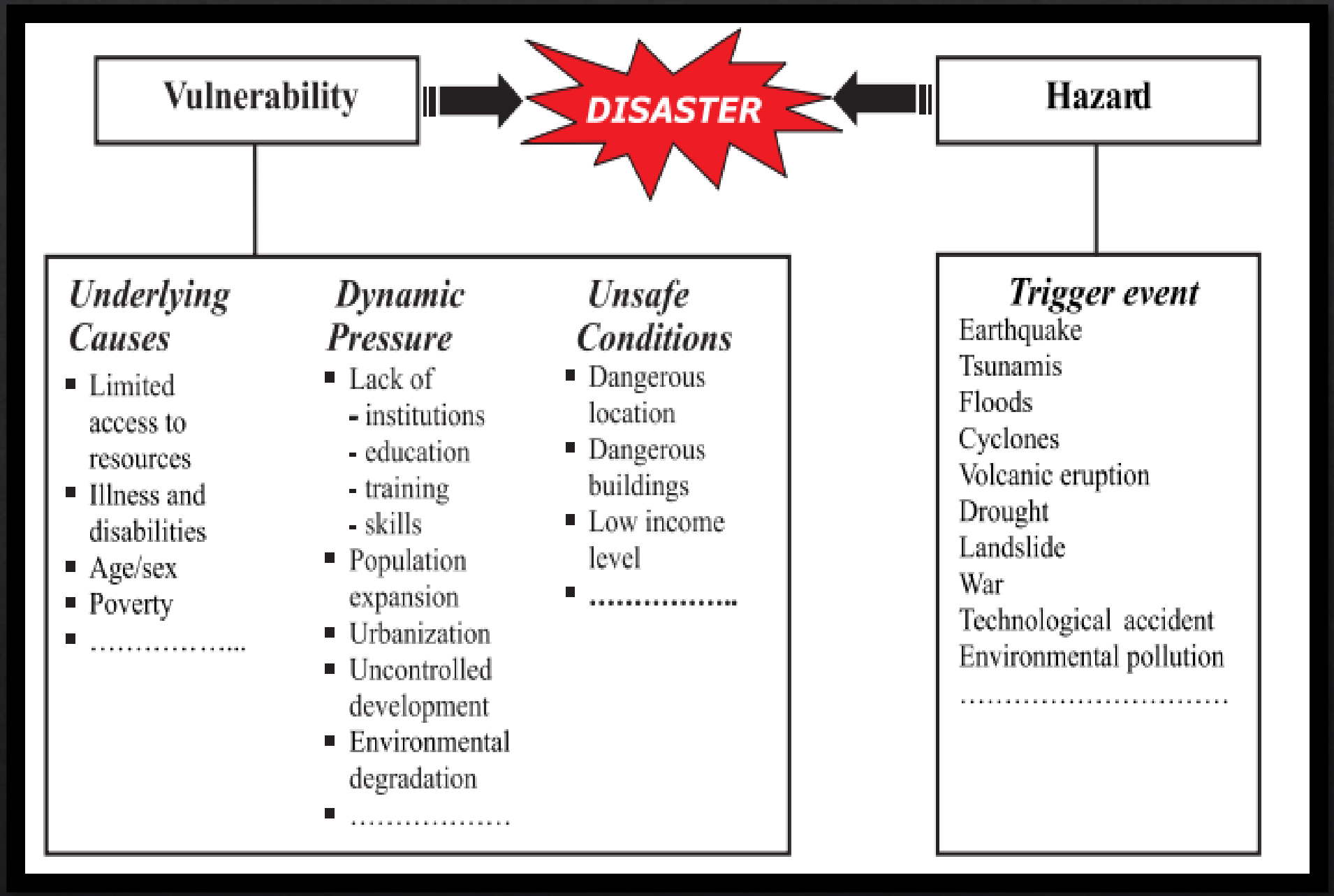
Hazard	Disaster
➢ Hazard is a threat.	➢ Disaster is an event.
➢ A hazard is a dangerous physical condition or event.	➢ It is a consequence of a hazard and disrupts the normal function of the society
➢ It may cause injury, loss of life or damage of property or may not.	➢ It causes wide spread loss to life and property
➢ Earthquakes, floods, volcanoes, tsunami, land slide, drought etc. are natural hazards.	➢ It affects the society to such an extent .

- **DISASTER Vs HAZARD**
- A disaster takes place when a community is affected by a hazard. Disaster is basically the consequence of hazard.
- A hazardous geophysical event becomes a disaster only when there is interaction with the humans. If there is no interaction there would not be any disaster. For example, **a volcanic eruption in a remote unpopulated area or a landslide in an unsettled land.**
- A hazard is perceived event which threatens both life and property. A disaster is a realization of this hazard.
- Hazards may be inevitable but disasters can be prevented.



AN EXAMPLE OF HAZARD

AN EXAMPLE OF DISASTER

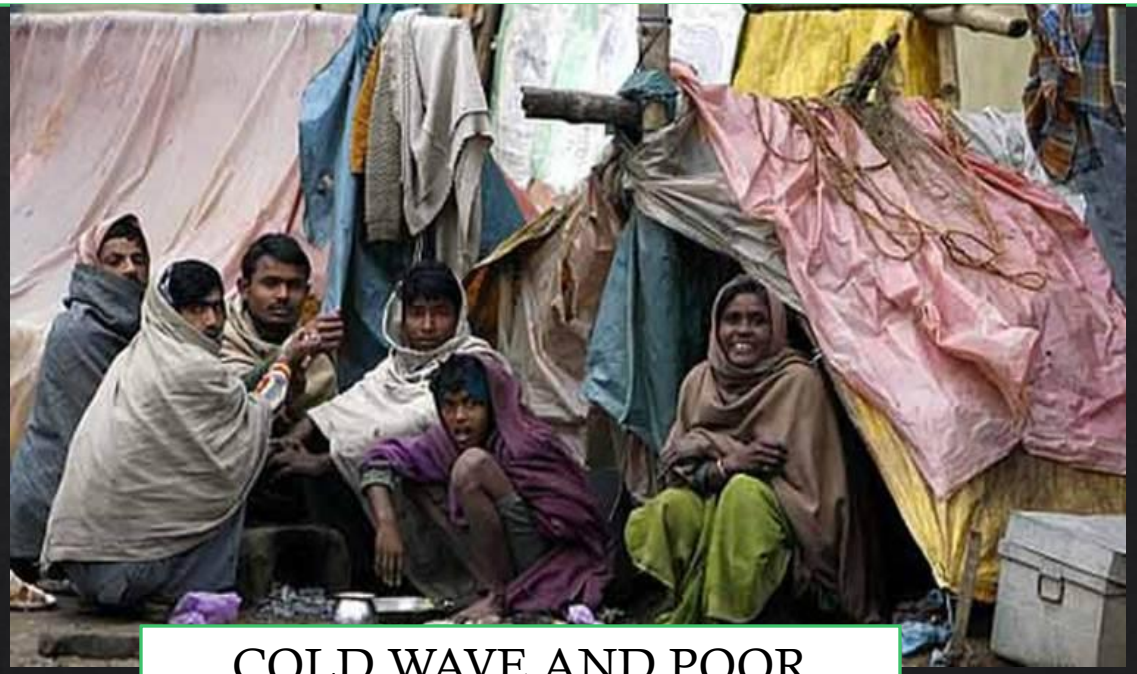

Vulnerability
DISASTER
Hazard
Underlying Causes
Limited access to resources
Illness and disabilities
Age/sex
Poverty
……..
Dynamic Pressure
Lack of
- institutions
- education
- training
- skills
Population expansion
Urbanization
Uncontrolled development
Environmental degradation
……
Unsafe Conditions
Dangerous location
Dangerous buildings
Low income level
……..
Trigger event
Earthquake
Tsunamis
Floods
Cyclones
Volcanic eruption
Drought
Landslide
War
Technological accident
Environmental pollution
……


Hazard
chances of risk
Vulnerability
Disaster
Measures to reduce the potential
Insufficient capacity

- **VULNERABILITY**
- ***Vulnerability refers to the inability to withstand the effects of a hostile environment i.e. the propensity of things to be damaged by a hazard.***

- Vulnerability may be defined as "conditions determined by physical, social, economic, and environmental factors or processes, **which increase the susceptibility / sensitivity of a community to the impact of hazards**."

- Vulnerability may be of different forms, such as:
  - **Economic Vulnerability**:
    - Poorer families may live in squatter settlements because they cannot afford to live in safer (more expensive) areas.
  - **Physical Vulnerability**:
    - **Wooden homes** which are less likely to collapse in an earthquake, but are more vulnerable to fire.
  - **Social Vulnerability**:
    - When flooding occurs some citizens, such as children, elderly and differently able, may be unable to protect themselves or evacuate if necessary.



COLD WAVE AND POOR FAMILY

FOREST FIRE AND WOODEN HOUSE

Figure 1.3 : Site after pressures from population growth and urbanization

➢Risk

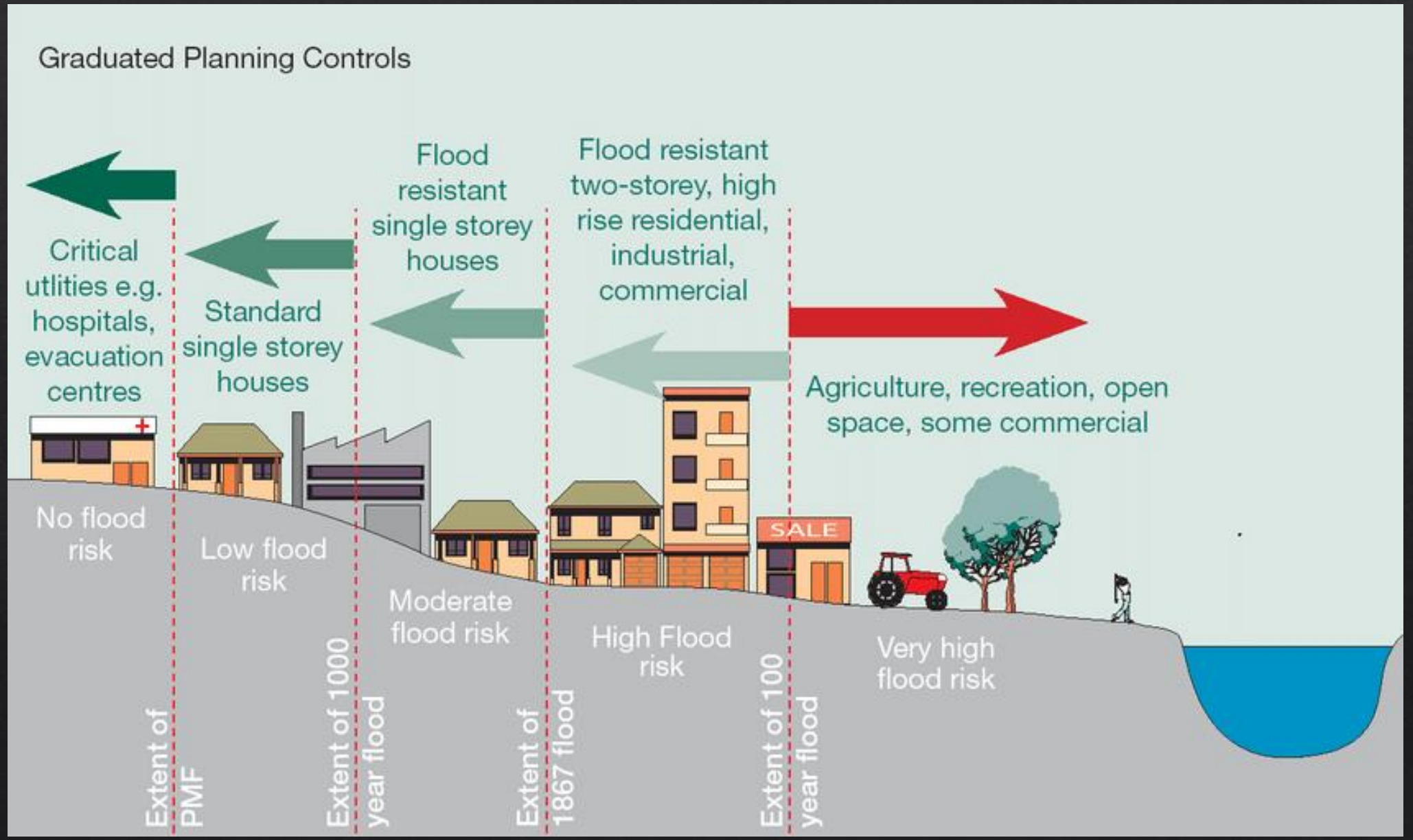
- Risk is a "***measure of the expected losses*** due to a hazard event occurring in a given area over a specific time period.
- Risk is a function of the probability of particular hazardous event and the losses each would cause."

> ➢ ***Risk = Hazard x Vulnerability***

- The ***level of risk depends upon nature of the hazard,*** vulnerability of the elements which are affected and economic value of those elements.

EXPOSURE

- Exposure is defined as “the situation of people, infrastructure, housing, production capacities and other tangible human assets **located in hazard-prone areas”.**
- As stated in the UNDRR glossary, “measures of exposure can include the number of people or types of assets in an area. These can be combined with the **specific vulnerability and capacity** of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest”.


Graduated Planning Controls
Critical utlities e.g. hospitals, evacuation centres
Standard single storey houses
Flood resistant single storey houses
Flood resistant two-storey, high rise residential, industrial, commercial
Agriculture, recreation, open space, some commercial
SALE
No flood risk
Low flood risk
Moderate flood risk
High Flood risk
Very high flood risk
Extent of PMF
Extent of 1000 year flood
Extent of 1867 flood
Extent of 100 year flood

- **CAPACITY**
- The combination of **all the strengths, attributes and resources** available within an organization, community or society to manage and reduce disaster risks and strengthen resilience.
- **Includes** infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management.
- **Coping capacity** is the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters.
- Coping capacities contribute to the reduction of disaster risks.


KEEP AREA CLEAR
BEST


NDRF

CLASSIFICATION OF DISASTERS

Natural Disasters:

- Consequences natural hazards
- Earthquake, landslides, cyclones, floods

Man- made disasters:

- Anthropogenic disasters
- Urban fire, rail and road accidents, bomb blasts

CLASSIFICATION OF DISASTERS:

Disasters are broadly classified into **Natural disasters** and **Man-made Disasters**

1. **Natural Disasters:** are the consequences or effects of natural hazards on human life. They represent a serious breakdown in sustainability and disruption of economic and social progress**.**

Example: Earthquake, landslides, cyclones, floods etc.

2. Man- made disasters: are also known as anthropogenic disasters and they occur as a result of human intent, error or as a result of failed systems.

Example: Urban fire, rail and road accidents, bomb blasts etc.


DECEMBER 3,1984


CORONAVIRUS
GREATEST DANGER
(COVID-19)