Impacts of Disaster

- ➔ Environmental
- ➔ Physical
- ➔ Social
- ➔ Ecological
- ➔ Economical
- ➔ Political
- ➔ Health issues
- ➔ Psycho-social issues

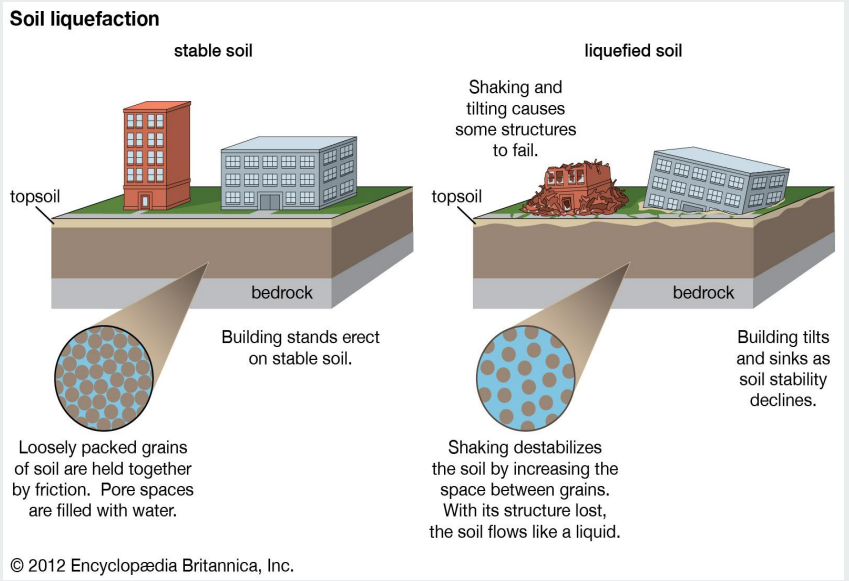
Impacts of disaster on environment

Content:

Impacts of earthquake
Impacts of hurricanes
Impacts of volcanic eruptions
Impacts of floods
Impacts of drought

Impacts of earthquakes on environment

- Liquefaction:- earthquakes can result into soil losing its strength and stiffness which can result into Collapsing of buildings and bridges etc.
- It causes Damage and Destruction of property
- Fires:- Fire breakouts due to ruptured gas pipelines or electricity lines



Impacts of hurricane on environment

- ➔ Affected area is bound to heavy rainfall and surge of sea water which can cause heavy flood
- ➔ It can cause soil erosion
- ➔ Destruction of property
- ➔ Contamination of water supply: seawater upsurge can contaminate lakes,rivers etc around the area which results into contamination of water supply
- ➔ Loss of power
- ➔ Tornadoes:- when hurricanes reach the land it can turn into a tornado and cause heavy destruction

Impacts of volcanic eruptions on environment

- ➔ Releasing of toxic gases in atmosphere (co2,so2,h2s,co etc)
- ➔ Destruction of flora and fauna
- ➔ Destruction of property
- ➔ Co2 released adds up to greenhouse effect
- ➔ Volcanic ashes can cause Wildfires in vegetation nearby
- ➔ Volcanic ashes can enter any water body around the which results in Contamination of water bodies

Impacts of Flood on environment

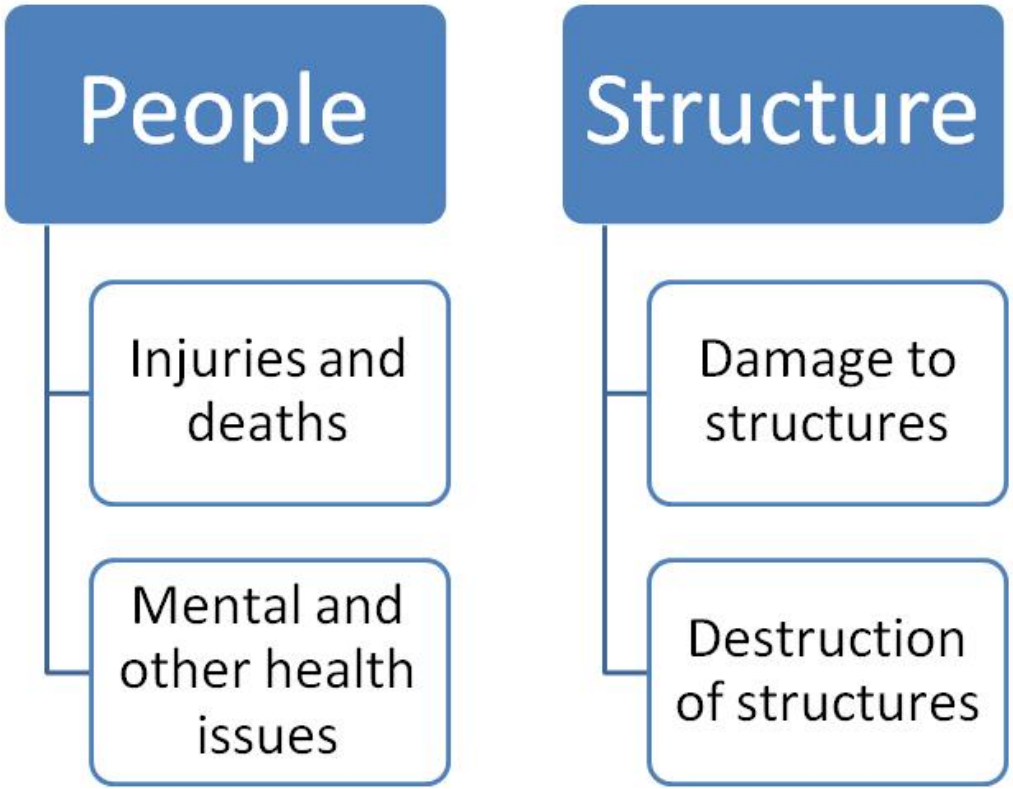
- ➔ Floods can cause spread of water-borne diseases such as typhoid cholera etc.
- ➔ Wildlife habitat and forests are often destroyed.
- ➔ Man Made structures like buildings, bridges, roads, sewer lines, power lines, etc. are damaged.
- ➔ Floods can cause soil erosion.
- ➔ Floods cause widespread damage to the standing crops and degrade the agricultural land.
- ➔ Floods can damage of crops which results into famine

Impacts of droughts on environment

- ➔ Water shortage :-dried up lakes and other water sources can cause water shortage
- ➔ Crops are dried up which can cause food shortages
- ➔ Dried up vegetation is prone to wildfires
- ➔ Groundwater level decreases because less recharge
- ➔ Desiccation of soil:- due to extreme state of dryness the shrinks and cracks up

Eg. of desiccation

Physical Impacts of Disaster



Injuries and Deaths

Injuries due to lightning, crushing under buildings, getting hit by objects due to high speed winds, burns.

Injuries and Deaths

Deaths due to lightning, Drowning, Inhaling harmful gases, Crushed under buildings and various reasons are the impacts of disasters.

INDIA TODAY

Kerala floods: Toll goes up to 35, 27 injured, 7 missing

People being shifted to safer Grounds

sify news

Uttarkashi cloudburst: 20 people missing in Arakot, search ops underway

Uttarkashi (Uttarakhand) [India], Aug 21 (ANI): Twenty people are missing in the Sanel village of Mori block in Uttarkashi district on Wednesday, following an incident of cloudburst and heavy rainfall in the area.

News article on Uttrakhand Catastrophe

Mental and other health issues

- Epidemic Spread
- Weakness/ Tiredness
- Loss of Appetite
- Various contagious infections
- Degraded Reproductive health, may cause miscarriage

Damage to properties

Kristen Painter
@KristenPainter

Follow

River still rising: looking north on Pratt Pkwy in Longmont as St. Vrain gushes over. #cowx #coflood

4:59 PM - 12 Sep 2013

1

MEME!!


HURRICANES, FLOODS, EARTHQUAKES
AND OUT OF ALL THE NATURAL DISASTERS, YOU ARE THE WORST
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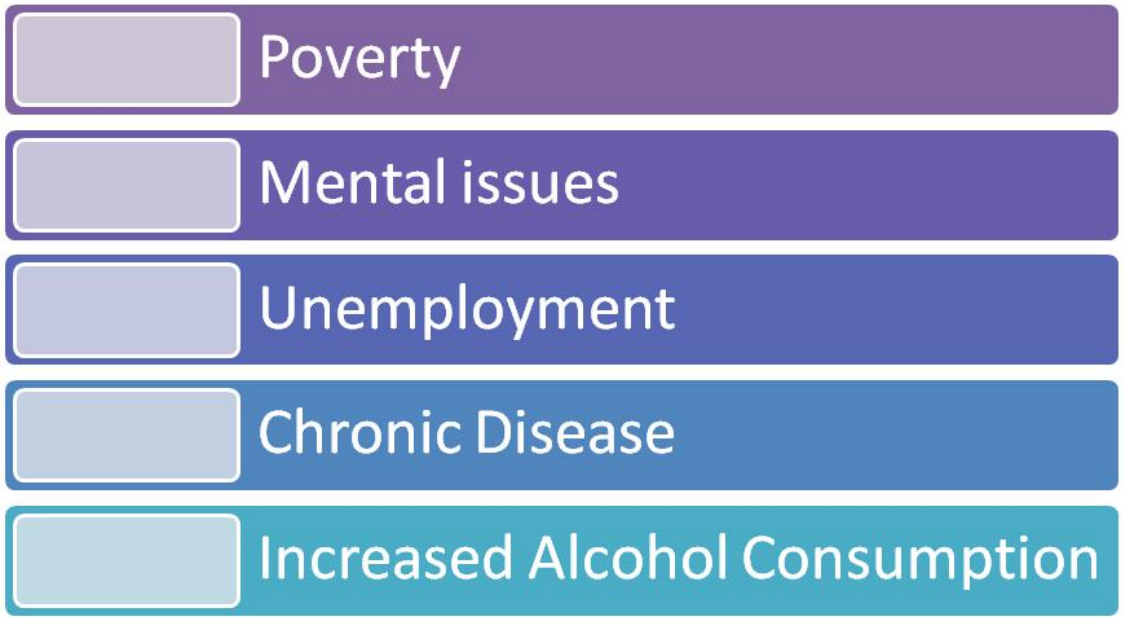
Social Impacts of Disaster

The impacts of disaster, which are related to the entire community are known as Social Impacts

Social Impacts of Disaster



Unemployment

Causes:

- Due to transportation issues
- Destruction of workplace
- Temporary termination of work
- Due to sickness of families' earning members

Poverty

Due to unemployment

Washing off savings money

Inaccessibility of banks

Chronic Disease

Causes like:

- Degraded Sanitation
- Inflow of various bacteria and viruses
- Unhealthy food consumption
- Epidemic spread

Can cause diseases like:

Malaria, Jaundice, Typhoid, various skin and viral diseases

Mental issues

Issues like:

Grief, anger, trauma, disbelief, shame, guilt, etc.

Can be caused by:

- Unemployment
- Divided family or missing family members
- Death of loved ones
- Hiked prices among the affected area

Increased Alcohol Consumption

Due to various mental issues, reports show that the drug-use, alcohol consumption and self harm activities increase among the population of the affected areas.

Social Impacts

The estimated social costs associated with the Black Saturday Bushfires were larger than the financial costs – at least $3.9b in social impacts

Ecological Impacts

How do disasters affect living organisms and their surrounding environment?

- Displacement - Loss of Natural Habitat
- Extinction of Species
- Land Degradation
- Increase in Pollution
- Loss of Human Life

Economical Impacts

How do disasters affect the economic situation of a region?

- Destruction of Property
- Loss of Revenue
- Decrease in FDI
- Restoration
- Decrease in Human Well-being

Political Impacts

- Disaster response is a function of the government
- Any visible efforts can increase voters' support, hence a disaster is the perfect opportunity for **publicity**
- Policies adopted to deal with the disaster vary
- There may be conflict in the government about:
  - Roles and responsibilities in policy matters
  - Financial commitments
  - Information sharing and communication
  - Issues related to implementation

Political Impacts

Sometimes the wrong leaders at the wrong time can make disaster management not only difficult but impossible.

- Authorities step in after a disaster occurs
  - not concerned with **prevention**
  - prevention efforts may be less visible to the voters
- Political parties become sensitive and responsive to disasters during election years
- They may ignore electorally insignificant areas in their time of need

Case In Point: Burning Amazon Rainforest

The Amazon rainforest has been suffering a **forest fire** for three weeks due to the Brazillian President Jair Bolsonaro who rolled back the forest's protections and increased access for agriculture and mining.

Health Issues

Disasters expose people to various physical risks and dangers. Different disasters present different challenges to their victims.

- Earthquakes:
  - High level of mortality due to crush injurie
  - Greatest risk of injury is indoors or near building
  - Injury severity is inversely related to the distance from the epicentre of the earthquak
  - Victims trapped in fallen rubble may have infected wounds, interrupted blood supply, kidney failure etc.

Health Issues

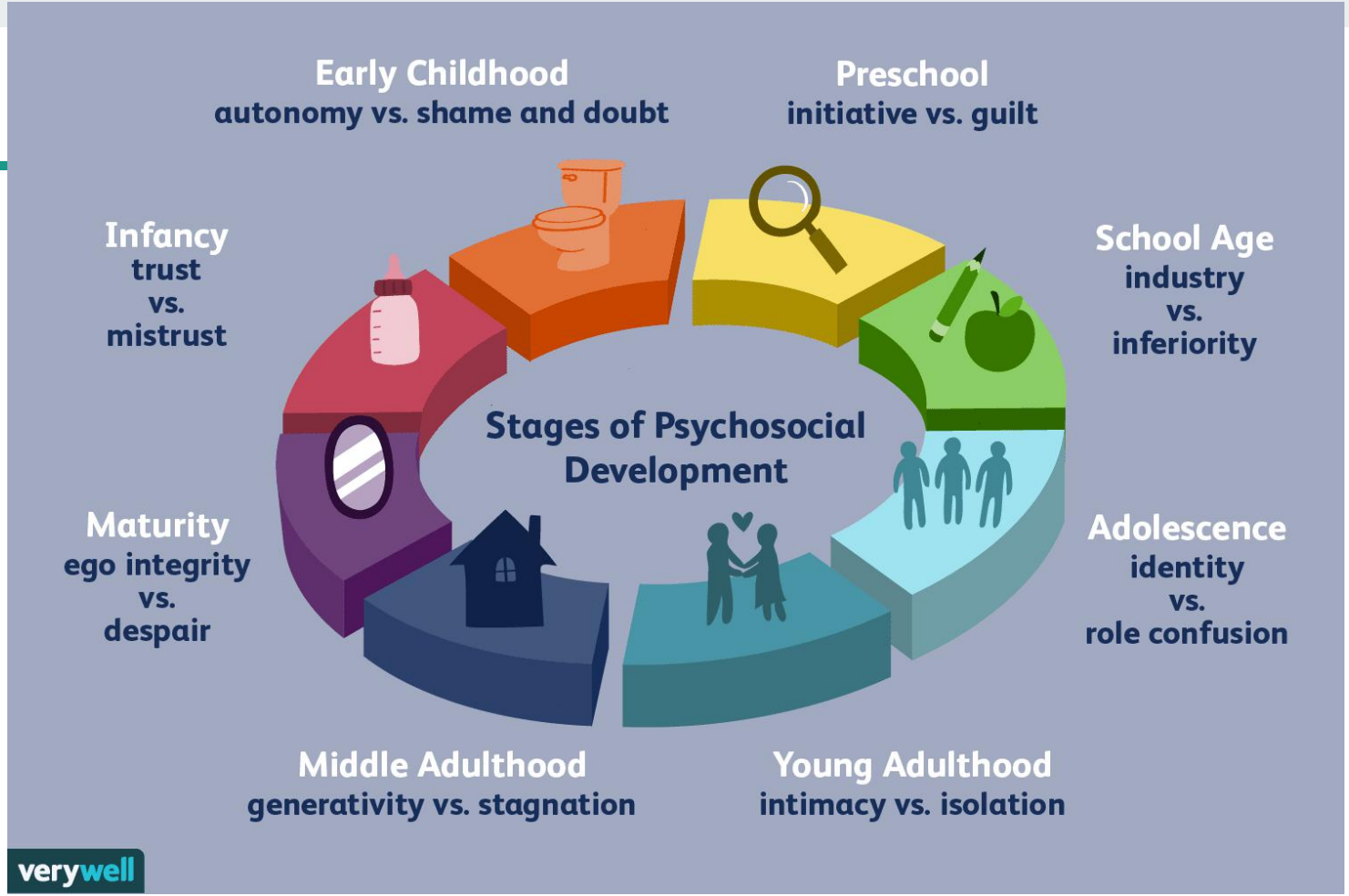
- Floods:
  - Risk of mortality from drowning
  - Many victims take refuge in trees, terraces etc. where they are exposed to the elements
  - Blunt trauma injuries occur due to debris caught in the floodwater
- Cyclones:
  - Risk of mortality from flash floods and storms caused by the cyclone
  - Strong winds cause collapse of houses, properties
  - Injuries include crush injuries, being hit by large airborne objects, glass shattering, etc.

Health Issues

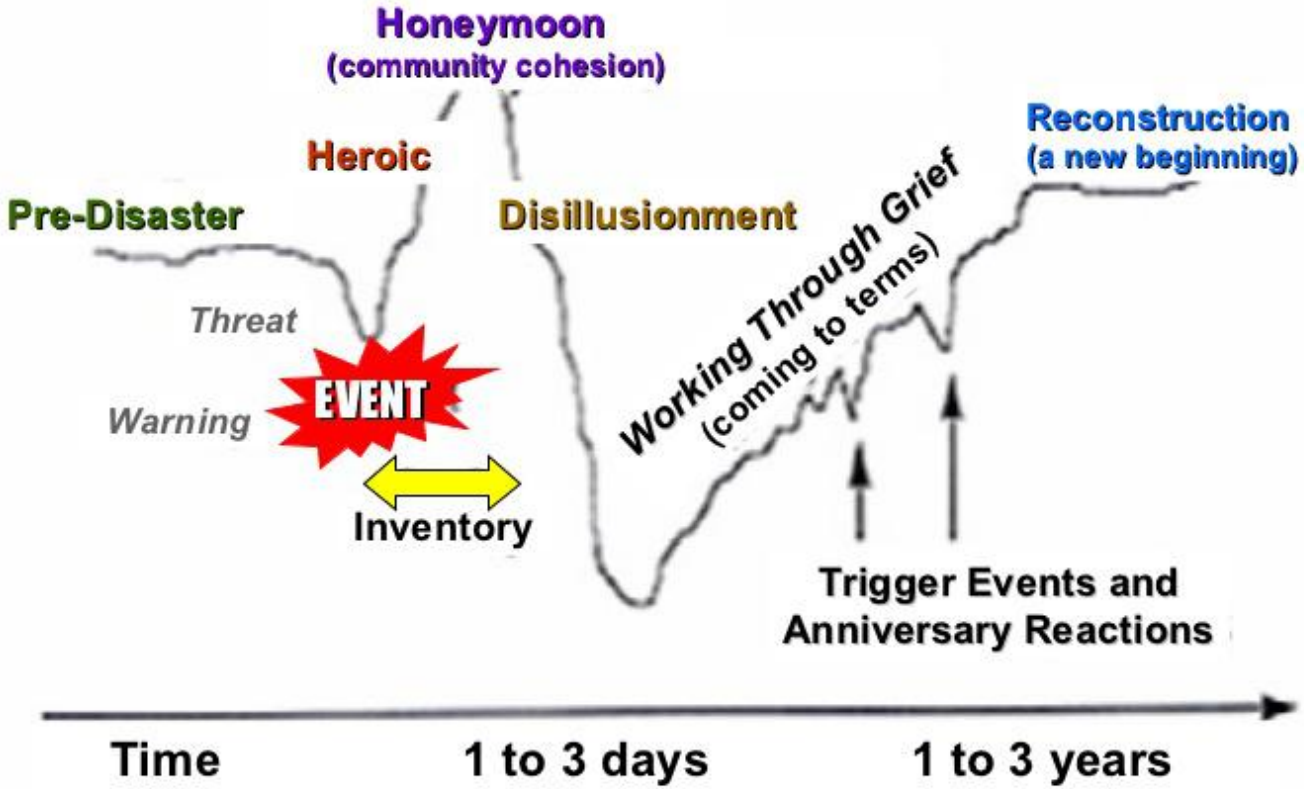
- Droughts:
  - Mortality may increase due to malnutrition
  - Movement of people for water and food supply leads to over crowding and collectively poor hygiene
- Fires:
  - Cause burn injuries and deaths by asphyxiation
  - Respiratory health is affected by poor air quality
  - Large forest fires can lead to escape of wild animals and attacking humans

What is Psycho–social behaviour ?

- Psycho-social is a theory given by Erik Erikson
- This theory is depending on behaviour
- It shows the development of a personality since childhood to late adulthood.
- He divided it into 8 stages


Early Childhood
autonomy vs. shame and doubt
Preschool
initiative vs. guilt
Infancy
trust
vs.
mistrust
School Age
industry
vs.
inferiority
Stages of Psychosocial Development
Maturity
ego integrity
vs.
despair
Adolescence
identity
vs.
role confusion
Middle Adulthood
generativity vs. stagnation
Young Adulthood
intimacy vs. isolation
verywell

Phases of Disaster



Address victims with psycho-social issues

- Good Listening skills
- Patient
- Caring attitude
- Trustworthy
- Approachable
- Culturally aware

Demographic Aspects

- Many studies have considered the economic, social, and psychological effects of hurricanes, earthquakes, floods, tornadoes, and other natural disasters, but few have considered their demographic effects.
- Demographic aspects can be on:
- Gender
- Age
- Special needs

Demographic Aspects on gender

- While disasters do not make decisions, people most certainly can and do. Before, during and after disasters, human beings continue social patterns of discrimination, and these patterns cause certain groups of people to suffer more than others
- It is recognized worldwide that people's vulnerability to risks depends to a large extent on the assets they have available.
- In general, women tend to have more limited access to assets — physical, financial, human, social, and natural capital such as land, technology etc.

Demographic Aspects on age

- Children and Old-age groups are the most affected during disaster due to lower strength.
- Students’ education is disrupted due to destruction of schools and educational institutes.
- Age group between 22-55 is largely affected due to disruption of businesses and infrastructure.
- Family finance also gets affected due to this.

Demographic Aspects on special needs

- Special needs such as medical needs, transportation of goods, commute of basic necessities, technology and research is hugely affected due to disasters such as flood, earthquakes etc.

DISASTER RISK REDUCTION

What is Disaster Risk Reduction (DRR)?

- **Disaster Risk Reduction** (DRR) aims to reduce the damage caused by natural hazards like earthquakes, floods, cyclones, through an ethic of prevention. **Disasters** often follow natural hazards. A **disaster's** severity depends on how much impact a hazard has on society and the environment.
- The scale of the impact in turn depends on the choices we make for our lives and for our environment. These choices relate to how we grow our food, where and how we build our homes, what kind of government we have, how our financial system works and even what we teach in schools.

Steps for Implementing DRR Strategy

- Ensure that DRR is a national and local priority with strong institutional basis

for implementation.

- Identify and monitor disaster risks – and enhance early warning.
- Use knowledge, innovation, and education to build a culture of safety and

resilience at all levels.

- Reduce the underlying risk factors.
- Strengthen disaster preparedness for effective at all levels.

Components of Disaster Risk Reduction

- Mitigation
  - Primary Mitigation
  - Secondary Mitigation
- Response
- Recovery
- Preparedness

Mitigation

- Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.
- It is permanent reduction of the risk of a disaster.

Types of Mitigation

- Primary Mitigation: Primary mitigation refers to increasing the resistance to the hazard and reducing vulnerability.
- Secondary Mitigation: Secondary mitigation refers to reducing the effects of the hazard

Various Strategies of Disaster Mitigation

- Risk Identification
- Land-Use Planning
- Structural and Non-Structural
- Disaster relief and Rehabilitation
- Disaster Management Training and Education
- Role ofMedia in Disaster Risk Reduction
- Institutional Capacity Building

Disaster Preparedness

- Preparedness refers the measures that ensure the organized mobilization of personnel, funds, equipment, and supplies within a safe environment for effective relief.

Preparedness Includes:

1. Forecasting and Warning for Different Hazards.
2. Emergency Preparedness
3. Education, Training and Public Awareness

Weather Forecast and Early Warning

- **Tasks Related to Early Warning**

  1) Communication

  2) Indigenous Knowledge

  3) Media

  4) Instruction

- **Types of Early Weather and Forecasting: Based on Purposes**

  1) Aviation

  2) Shipping

  3) Local

Level of Preparedness

- Community
  - Volunteering activities
  - Protesting environmental degradation
  - Awareness building
  - Emergency steps
- National: Developing principles and laws, executing rules, funding etc.
- International / Regional: Seminar, Conference, Exchange of Technology and knowledge

Response

- Disaster response is the implementing phase of the disaster preparedness step.
- To be ready for response with capability to provide rapid and efficient medical, rescue and emergency supplies, and equipment to those in need, following steps of task should be implemented:
    - Mobilization
    - Assessment
    - Requirement Analysis
    - Rescue and Evacuation

Recovery

- Disaster recovery (DR) involves a set of policies and procedures to enable the recovery or continuation of vital technology infrastructure and systems following a natural disaster.

Recovery consists of:

- Reconstruction
- Psychological counselling
- Long-term assistance to rebuild the community.

VULNERABILITY ANALYSIS AND RISK ASSESSMENT

Topics to be covered:-

1) Risk Assesment
2) Vulnerability and capacity assesment
3) Early warning system
4) Post Disaster Environmental Response

1) Risk Assesment

- Disaster Risk assessment is a process to determine the nature and extent of such risk, by analyzing hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

- In this way, informed decisions can be made regarding steps to reduce the impacts of disasters.

- Steps in Risk Assesment are:-

i. Vulnerability Assesment
ii. Capacity Assesment

2) Vulnerability Assesment

- This step is performed to determine the elements at risk, degree of vulnerability and the causes of the elements at risk.
- Critical facility analysis is also performed by determining the critical facilities (that play major role in daily routine life e.g. schools, hospitals, mosques, civic centers etc.) at risk, causes of their vulnerabilities and analyzing historical records of hazard occurence in the identified facilities.
- It preceds the disaster event and contributes to their sverity and may continue long after disaster has struck.

Capacity Assesment

- Capacity assessment means to identify the strengths and resources available to reduce the level of risk, or the effects of a disaster.

- In this step, resources of a community are evaluated by analyzing the available strengths like skills, expertise, equipment, infrastructure etc.

- Analyzing which resources are available and used by the community to reduce disaster risk and controller who has access and control over these resources.

3) Early Warning System

- An Early Warning System (EWS) can be defined as set of capacities needed to generate meaningful warning informationof possible extreme events or disasters (e.g. flood, drought, fire, earthquakes and tsunamis) that threatens people's lives.

- The purpose of this information is to enable individuals, communities and organizations threatened to prepare and act appropriately and in sufficient time to reduce the possibility of harm, loss or risk.

- The purpose of early warning systems is to detect, forecast, and when necessary, issue alerts related to impending hazard

Characteristics of EWS

- Effective early warning system requires strong technical foundations and good knowledge of risks.
- They must be strongly people centered with clear messages, dissemination systems.
- Public awareness and education are critical; in addition many sectors must be involved.
- Effective EWS must be embedded in understandable manner and relevant to communities which they serve.

Earthquakes

- Eathquake early warning systems use earthquake science and technology of montioring systems to alert devices and people when shaking waves generated by an earthquake are expected to arrive at their locations.
- For this purpose USA California developed a machine called 'ShakeAlert' which gives the exact time of arrival of shaking to the stations.
- With help of this technology we can save so many lives and also reduce damage to buildings to some extent.
- This can be done by detecting first energy to radiate from an


Strong Shaking Expected
1
S-wave
P-wave
2
3
28
4
VI
5
7.8
6
7

4) Post Disaster environmental response

Water:-

- After a disaster, it is safest to drink bottled water until you are certain that your water is free of contaminants and safe to drink.

- If extensive flooding has occurred or you suspect that the well may be contaminated, DO NOT drink the water. Use a safe water supply like bottled or treated water.

- Contact your local, state, or tribal health department for specific advice on wells and testing.

Food:-

- Throw away food that may have come in contact with flood or storm water; perishable foods that have not been refrigerated properly due to power outages; and those with an unusual odor, color, or texture.

- Unsafe food can make you sick even if it looks, smells, and tastes normal. When in doubt, throw it out.

Sanitation:-

- Sanitation solutions are often needed to minimize the spread of disease during emergencies, and should include sanitation facilities, hand washing facilities with soap and water.