FUNDAMANTALS OF DISASTER MANAGEMENT

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Fundamentals of Disaster Management

BY

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Dr. Dasari Vijaya Kumar holds the position of Principal/Professor and boasts an extensive career in educational leadership. He has served as Principal in several Engineering Colleges, both within and outside of his home state. Currently, he is dedicated to his role as Principal/Professor in the Civil Engineering Department at the College of Sri Vaishnavi College of Engineering, which is affiliated with JNTUK, Kakinada.

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DEDICATED TO

My Wife (M. Uma Devi)

And My Daughters

(D. Sahithi & D. Aishwarya)

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Unit-I

Understanding Disaster

- A Disaster is a catastrophic situations causing immense damage to life and property. Disaster management is how we deal with the human, material, economic, environmental impacts of said disaster. It is the process of how we prepare for respond to learn from the effects of major failures through often caused by nature, disasters can have human origins.
- It is also sometimes called an inappropriately managed risk, A situation where individuals (or) communities are unable to cope with the emergent situation and consequent damage.
- Disasters are of many types, but a simple and very broad classification is as

  (a) Natural and Man-made
- Natural disasters are many, like earthquakes, floods, volcanic exemptions, tsunamis and cyclones.

- With improved technological tools available today.

1. Natural Disasters: - is a major adverse event resulting from natural processes of the Earth. Examples include firestorms, dust-storms, floods, hurricanes, tornadoes, volcanic eruptions, earthquakes.

2. Man-made Disasters: - (Anthropogenic) are caused by human action (or) inaction they are contrasted with natural hazards. Anthropogenic hazards may adversely affect other organisms, biomes and ecosystems.

Natural disasters are nit preventable, but their impacts can be reduced with the help of science & engineering.

- Many natural disasters can be predicted reasonably well is advance.
- Which gives time to take preventive actions and cope with their effectively.

The disaster itself cannot be avoid but we are in a better situation to cope with it.

Man made (or) Anthropogenic:

Disaster, in general cannot be predicted. All that can be done is advance assessment (based information) of a hazardous situation and the amount of risk associated with it.

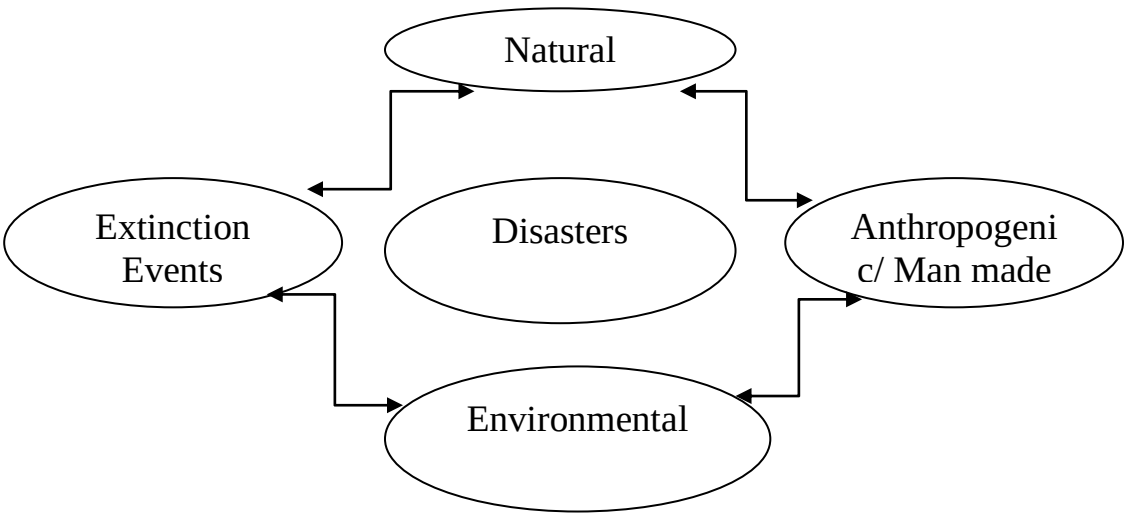
Man made disasters are many, like transport accidents, Industrial Accidents, fire accidents, radiation, hazards etc. Steps can be taken to minimize damage. Both types of Disasters can have high impact on the Environmental and Ecology of a region.

- Some steps can be taken to deal with such situations when they arise. Man-made disasters are many, like transport accidents, industrial accidents/ fire accidents/ radiations/ hazards etc.
- Steps can be taken to minimize damage.
- Both types of disasters can have high impact on the environment and ecology of a region.

Levels of Disaster: - The four phases of Disasters

1. Mitigation
2. Preparedness
3. Response and
4. Recovery

The model helps frame issues related to Disaster preparedness as well as economic and business recovery after a disaster.



- Disasters probably started Millions of years ago.
- Even before human beings appeared on the earth.
- Many studies and research have indicated that disasters have a long history.

SOME MAJOR DISASTERS

	Natural Disasters	**Man-made Disasters**
1)	China, 1931 – Floods, 1 to 4 millions	China 1948 – Ship accident off Shanghai, 3900 died.
2)	Bangladesh 1970 – Bhola Cyclone-5,00,000	Queens USA 2001 – American Airlines Flight Accidents, 275 death
3)	China 1976 – Tangshan earthquake 4,00,000	Panama 2001 – Patients received close of radiation as treatment, 17 people died.
4)	Indian Ocean – 2004 – Tsunami, 2,80,000 in 14 countries	Logos, 2002 – Armoury explosion 1100 died
5)	Haiti 2010 – Earthquake, 1,60,000	Bangladesh 2013 – Collapsed have plague 392 deaths

Concept of Risk

- Risk is the potential loss in terms of assets / health/livelihood / living environment or possibility of loss (or) injury (or) peril (or) is the possibility of something bad happening.
- Risk, in general / (Some one or something that creates (or) suggest a hazard) considers the possibility of harmful consequences in terms of:

(1) Loss of Life (2) Injuries to people (3) Disabilities due to injuries (4) loss of livelihood (5) Loss of property of individual and community (6) damage to essential services (7) loss due to stoppage of economic activities (8) damage to the environment and ecosystem.

Risk involves uncertainly about the effects/ implications of an actively with respect to something that human value (such as health, wellbeing, wealth, property, the environment) often focusing on negative, undesirable consequences. Damage by fire, flood (or) other natural disasters, unexpected financial loss due to an economic downturn or bankruptcy of other businesses that we owe you money. Loss of important suppliers (or) customers decrease in market because new competitors (or) products enter the market.

- In simple terms risk is the possibility of something bad happening.
- Risk involves uncertainty about the effects / implications of an activity with respect to something that human value.

- A Risk is the chance, high (or) low, that any hazard will actually cause somebody harm.

Levels of Disasters:

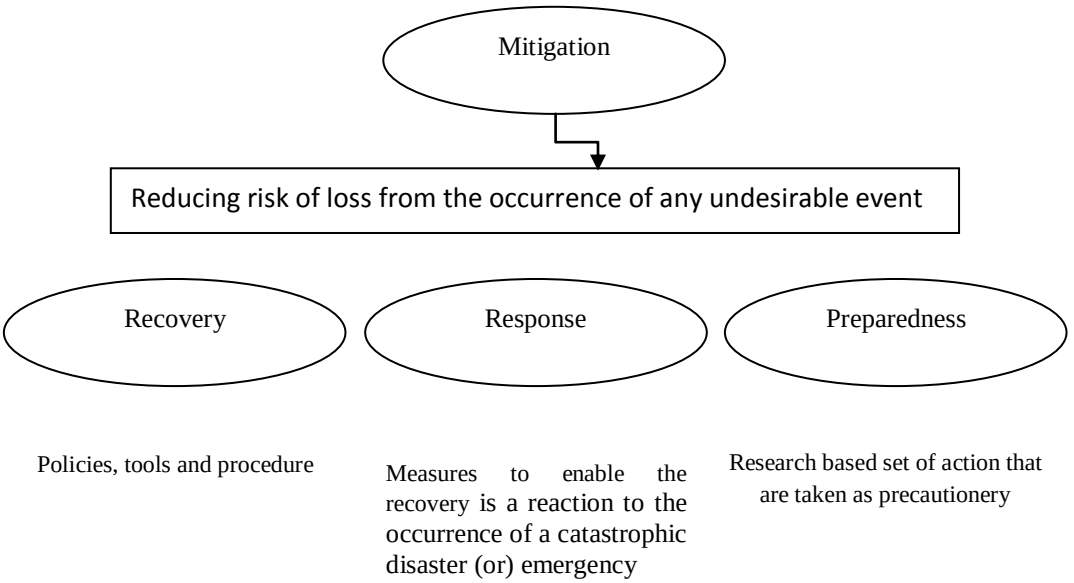
Disaster

1) Mitigation – the process or result of making something less sequel as dangerous, painful, harsh (or) damaging mitigation of suffering mitigation of punishment (or) to cause to become less harsh(or) hostile (or) the action of lessening in severity (or) intensity.

2) Preparedness – a state of readiness (or) the quality (or) state of being prepared the term preparedness refers to the ability of govt., professional response organizations, communities and individuals to anticipate current hazards, events (or) conditions.

3) Response – A response is a reaction to a question, experience (or) something other type of stimulus.

4) Recovery – The act, process (or) an instance of recovering (or) the regaining of (or) possibility of regaining something lost (or) taken away restoration (or) return to health from sickness. Restoration (or) return of any former and better state (or) condition.



Climatologically disasters: Climatic hazards are agents of disaster in terms of what they may do to humans settlements (or) to the environment potentially hazards atmospheric phenomena include tropical cyclones, thunderstorms, tornados, drought, rain, hail grow, righting, fog, wind, temperature extremes air pollution and climate change.

Meteorological disasters: are caused by extreme weather such as rain, drought, grow, extreme heat (or) cold, ice (or) wind. Examples of weather disasters embrace blizzard, cyclones, droughts, hailstorms, hail waves, hurricanes floods (caused by rain) and tornadoes.

Biological Disasters: are natural sceneries involving disease, disability (or) deaths as a large scale among humans, animals and plants due to microorganisms like bacteria (or) virus (or) toxins.

Biological disasters might be caused by epidemics accidental release of virulent microorganisms (or) bioterrorism (BT) with the use of biological agents such as anthrax, small pox etc.

Geophysical disasters: Geophysical hazard is potentially damaging natural event and/or phenomenon, which may cause the loss of life (or) injury, property damage social and economic disruption (or) environmental degradation. Examples are cyclones, lighting storms, drought, floods (including glacial lake outburst floods and landslide clam failures)

Hydrological disasters: is a violent, sharp and harmful amendment either in quality of earth's water (or) in distribution (or) movement powder ashore below the surface (or) in atmosphere. A flood is associate overflow of associate. Expanse of water that submerges land Hydrological hazards may be slow (or) Rapid onset events that occupant or near the earth's surface. Some hydrological hazards such as tornados tend to occur in specific areas while others such as droughts and floods are more widely distributed.

Extra terrestrial disaster: A hazard caused by asteroids, materials, and comets as they pass near earth, enter the earth's atmosphere, and or strike the earth, or change in interplanetary conditions that effect the earth's magnetosphere, atmosphere, and thermosphere.

Mitigation: Means the lessening (or) limitation of the adverse impacts of hazards and related disasters.

The adverse impacts of hazards often cannot be prevented fully, but their scale (or) severity can be substantially lessened by various strategies and actions.

Level-1: A major disaster (or) imminent threat involving the entire surrounding community. Any event (or) for a nature of avalanche, earthquakes, flood, transfers, hurricanes.

Level-2: (Minor Disaster) an incident involving hazardous materials that is beyond the capabilities of the first responders as the situation.

Level-3 :(Normal) Means danger is currently affecting your area (a) is imminent, and you should leave immediately. Normal accidents (or) system accidents are inevitable in extreme complex systems.

Disasters are categorized into three levels. Namely (1) Minor/ (2) Major and (3) Catastrophic disasters. Normal Disasters any disaster that require massive state and federal assistance including immediate military involvement.

- The new classification distinguishes two generic disaster groups 1) Natural and 2) technological disaster
- Natural – six disasters: - Biological/geophysical/meteorological/ hydrological/ climatologically and extraterrestrial.

Disaster Phenomena and Events:

Global, National and Regional (Local)

- Various phenomena like Earthquakes, landslides, Volcanic Eruptions, floods, hurricanes, tornadoes, blizzards, tsunamis, cyclones, wildfires, and pandemics are all natural hazards that kill thousands of people and destroy billions of dollars of habitat and properly each year.

Disaster Phenomena at National Level:

As per the Disaster Management Act 2005 'Disaster' means a catastrophe, Mishap, Calamity (or) grave occurrence in any area, arising from natural (or) manmade causes (or) by accident (or) negligence which results in substantial loss of life (or) human suffering (or) damage, and destruction of properties (1) Hurricanes and tropical storms (2) Landslides debors flow (3) Thunderstorms & lighting, Tornados, Tsunamis, wildfire, winters and ice storms, sink holes.

Global Level: Floods, seasonal disaster is a cyclone and flood and regional disasters is earthquakes and droughts, floods. Floods occur when a large volume of water from heavy rainfall river spill.

Natural Disasters

A natural disaster is a major adverse event resulting from natural processes of the earth. Examples include firestorms, dust storms, floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, tsunamis, storms, geological processes. They are classified as:

Geological: Earthquakes are due to the movement of earth masses relative to each other.

Ex: Volcanic eruptions, landslides and avalanches have similar origins.

Meteorological: (Climatic changes) are caused by extreme weather such as rain, drought, snow, extreme heat (or) cold, ice (or) wind, violent, sudden and damaging violent, sudden and destructive change to the environmental related to produced by (or) affecting the earth's atmosphere, especially the weather forming processes.

Ex: Cyclones, heavy rains, drought, heat waves, cold waves, and so on.

Hydrological: (Excessive water flow as in floods etc, these can happen as a result of other disasters like cyclones, and cloud bursts, tsunami etc.

Medical: (epidemics)

Many of them have occurred recently. Notable being dengue, malaria, swine flu, Ebola-disasters. Recently people have been (2021) facing corona epidemic spreading call over world during (2020-21) people were greatest experience of about the corona viral impacts were died within in proper medical help.

World Health Organization (WHO) definition of disaster - A disaster is an occurrence, disrupting the normal conditions of existence and causing level of suffering that exceeds the capacity of adjustment of the affected community.

Man Made Disasters

(Man Made) Anthropogenic hazards are hazards caused by human actions (or) inaction. Man-Made disasters have an element of human intent, negligence, or error involving a failure of a man made system, as opposed to natural disasters resulting from natural hazards such man-made disasters are crime, arson, civil disaster, terrorism, war, biological / chemical treat, cyber attacks, etc.

Medical Disasters: Disasters and other emergencies often result in significant impacts on people's health, including the loss of many lives, deaths, injuries, diseases, disabilities, psychosocial problems and other health impacts can be avoided (or) reduced by disaster risk management measures involving health and other sectors.

1) Not predictable
2) But avoidable

Social: Group clashes, terror strikes, arson etc. The risks associated with natural disasters exacerbate, existing social and racial / ethnic inequities in health with low income people and members of hacial ethnic minority groups more likely to live in disaster prone areas and in lower quality having that is less safe whom disaster occur.

Technical: Industrial Accidents, structural collapse etc.

- Victims of technological disasters tend to feel anger toward people.
- Who were responsible for accident that may have been prevented?

Chemical: leakage of toxic gases, radiation – hazards etc. A chemical disaster is the unintentional released one (or) more chemical hazard substances which could human health and the environment such events included fires, exposures, leakages or release of toxic (or) hazardous that can cause people illness, injury (or) disability

Transport related: these that happens on roads, in Railways, ships etc.

Hazard

- A hazard is a situation that has the potential to cause damage.
- The word hazard comes from the word "hazard" which Means 'chance'
- A hazard becomes a disaster when the risk associated with it is not managed well.
- People living in coastal areas are in a hazardous situation as a cyclone may strike them any time.
- Construction workers working at heights are in a hazardous situation of falling leading to injuries and even death

Vulnerability

Vulnerability denotes the characteristics and circumstances of an individual, community (or) area that could be subjected to harm from a hazardous situation.

Vulnerability comes from many factors. Physical, Social, Economic, Environmental.

Vulnerability may be due to factors like:

- Poorly designed and maintained infrastructure.
- Inadequate safety awareness and safety, measures for assets.

- Lack of awareness and adequate information about hazards and risk.
- Inappropriate management of risks identified.
- Lack of proper management of resources and environment.

Physical vulnerability

May be determined by aspects such as population density levels, remoteness of settlements the sites, design and materials used for initial infrastructure and for housing.

Ex: Wooden haves are less likely to collapse in a earthquake, but are more vulnerable to fire.

Social vulnerability

Refers to the inability of people, communities, and societies.

Ex: When floods occur, some citizens, such as children, elderly and differently abled – may be unable to protect.

Eco-Vulnerability:

The poor are usually more vulnerable disasters because they lack the resources.

Ex: Poorer family may live in low lying slum areas because they cannot afford to live in safer areas.

Environmental Vulnerability:

Natural resource depletion and resource degradations are key aspects of Environmental Vulnerability.

Ex: People living in hilly areas become vulnerable because of environmental degradation.

Economic status is an important factor in vulnerability because higher monetary resource and secure status provide resilience for people to cope with disasters and recover fast.

Knowing hazard and vulnerability, risk involved can be found from this formula

Risk = Hazard x Vulnerability / Capacity

Capacity:

Capacity is the ability of individuals and groups to face cope with and recover from a disaster.

- Capacity is a part of preparedness of face disasters.
- Providing for cyclone shelters in higher reaches to accommodate people during floods is a part and developing capacity.

Response Time

The length of time taken for a person (or) system to react to a given stimulus (or) event. Response time includes the time taken to transmit the inquiry, process it by the computer.

(Response encompasses the decision and actions taken to deal with the immediate effects of an emergency) prevent fatalities and injuries, reduced damage to buildings, stock, and equipment, protect the environment and the community. Accelerate the resumption of normal operations.

- The first 72 hours after a disaster are crucial response must begin during that time to save lives.
- Efforts to minimize the hazards created by disaster.
- Examples: Search and rescue. Emergency relief, recovery – returning to community to normal conditions.

Examples: Temporary housing/ grants/ medical care

- The response phase is a reaction to the occurrence of a catastrophic disaster.
- It consists of a number elements, for example warning / evacuation, search and rescue, providing immediate assistance, assessing damage, continuing assistance and the immediate restoration (or) construction of infrastructure.

Disaster Risk Reduction (DRR)

Is the concept and practice of reducing disaster risks?

- Through systematic efforts to analyse and manage the causes of disasters.
- Including through reduced risks factors, (DRR).
- The focus in the response phase is on putting / safe, prevent next disasters and meeting the basic needs of the people. Until more permanent and sustainable solutions can be found.

Frequency and fore warming levels of different hazards

- The frequency of a natural hazard event is the number of times it occurs within a specified time interval.
- The magnitude of a natural hazard event is related to the energy released by the event.
- It is distinguished from intensity which is related to the effects to a specific location / Area.
- Most hazards are measured on a scale
  Eg: Richter scale (or) the volcanic explosivity / index (YEI). Generally speaking, the stranger the hazard the more severe the hazard is
- The early warning process, composed of 4 main stages (1) Risk assessment (2) Monitoring and prediction, disseminating and communicating warnings and response

Global Phenomena (Disaster)

Since earthquakes, tropical storms, and floods are the three main global natural disasters:

Causing the biggest loss, they should be the main focus of research in disaster since and disaster mitigation and prevention.

The occurrence (or) imminent throat of widespread (or) severe damage, injury, (or) loss of life (or) property resulting from any natural (or) manmade cause, including fire, flood, earthquake, wind, storm, wave action, oil spill (or) other water contamination, volcanic activity, epidemic, air contamination, drought etc.

National (Natural) Disasters Phenomena:

Natural catastrophe in India, many of them related of life of property, draughts, flash floods, cyclones, avalanches, landslides brought by the great threats – A Natural (Natural) might be caused by earthquakes, flooding, volcanic eruption, landslides hurricanes etc.

- In order to be classified as a disaster, it will need to have a profound environmental effect phenomenon loss and frequently incurs a financial loss.
- Other dangers include frequent summer disasters, which usually they cause extensive property damage in India.
- Hail is also common in parts India, causing severe damage to standing crops such as rice and wheat and many more crops.

Characteristics and damage potential / Natural a hazards

- Natural hazards have the potential to cause a number of primary and second phenomenon.

  Earthquakes may also bring (a) fire, (b) flooding, (c) water pollution (d) landslides (e) tsunamis, and soil liquidation that can be as din sting as the primary hazard.
- Each of those phenomena. May produce physical, social, and economic effects.
- Natural disasters (hazards) can cause great damage on the environment, property, wildlife and human health.
- Those events may include earthquakes/floods/hurricanes and tornadoes, tsunamis, landslides, wildfires, volcanic eruption and extreme temperatures.
- Natural hazard events can be characterized by their magnitude (or) intensity, speed of onset, duration and the area they cover.
- Hazards occur at different intensities (or magnitude) over different time scales / (sometimes known as temporal scales)
- Geological hazards
- Hydrological hazards
- Meteorological hazards
- Biological hazards

Hazard Assessment

- Hazard Assessments are simply a process of identifying hazards.

- Evaluating the risks presented by those hazards, and managing the risks of the hazards of the experiment to be performed by incorporating.

Appropriate hazard controls into the experimental design process.

1) Step-I - Identify hazards (anything that may cause harm)
2) Step-II - Decide who may be harmed and low.
3) Step-III - Assess the risks and taken action.
4) Step-IV - Make a record of the findings
5) Step-V - Review the Risk Assessment
    1) Asset Identification
    2) Risk analysis

Dimensions of vulnerability factors:

- There are three dimensions of vulnerability. Exposure sensitivity and adoptive capacity.
- Physical, Economic, Social, Potential factors determine people's level of vulnerability and the extent of their capacity to resist, cope with the recover from hazards.
- Clearly, poverty is a major contributors to vulnerability. In the literature on the economics of poverty. Three main methods of measuring vulnerability to poverty are to see vulnerability as:

    1) Uninsured exposure to risk
    2) Expected poverty
    3) Low expected utility

The purpose of the hazard assessment is to help develop a plan.

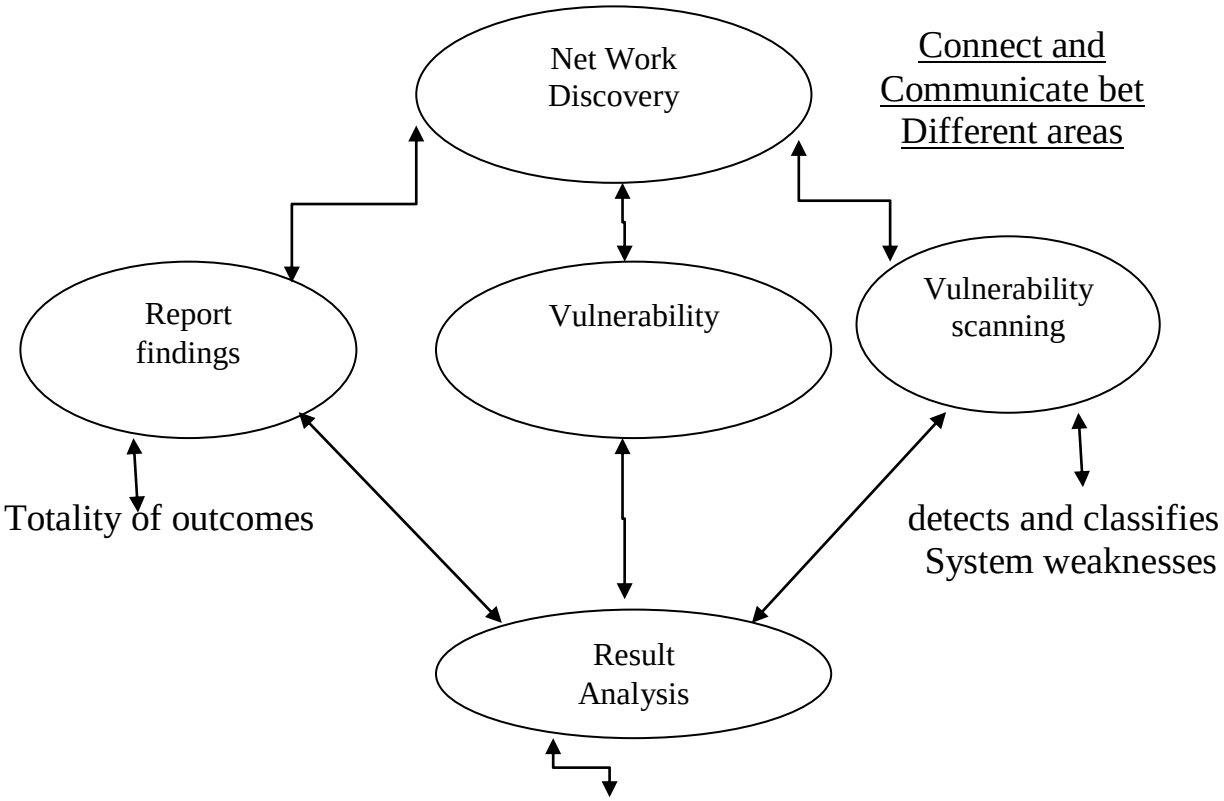
- Is the process used to identify, assess, and control workplace hazards and the Risks to health and safety.
- The purpose of the hazard assessment is to help develop a plan.
- That will identify hazards, assess risks, and develop controls based on specific workplace situations,
- Both employers and workers have a responsibility to point out potential health and safety hazards.

A vulnerability assessment is a systematic.

Review of security weaknesses in an information system.

It evaluates if the system is susceptible to any known vulnerabilities, assigns severity lands to those vulnerabilities, and recommends remediation (or) Mitigation it and whenever needed.

Identifies risks, threats, and vulnerabilities to justify security counter measures.



Results are reported and reveals
Analysis what was done with the data forms
(is the state of being open to injury / appearing as it you are)

Vulnerability and Disaster Risk

Vulnerability comes from the Latin word for "Wound"

Vulnerability :(is the quality of being easily hurt (or) attacked)
This refers to the human condition that is attributed to the physical, social, economic and environmental factors.

- Which determine the livelihood and scale of damage from the impact of a hazard.
- The difference between poverty and vulnerability is that poverty measurement is very static (fixed).
- Depends on income (or), food intake, whereas vulnerability analysis is more dynamic concern passing the physical, social, economic and environmental factors.
- All the poor are vulnerable, but not all the vulnerable are poor.
- Vulnerability and its four types physical, economic, social and environmental.

- Risk is a function of hazard and vulnerability

(Risk = f (Hazard x vulnerability)

Disaster Risk

Vulnerability depends upon many factors:

1) People living in low lying areas are vulnerable to floods from heavy rains / Tsunamis.
2) People living near coastal areas are vulnerable to flooding due to high tides, tsunamis, cyclones and heavy rains.
3) People living on hill slopes (or) at foot hills areas are vulnerable to landslides and avalanches due to heavy rains, earthquakes etc.

4) People living in the flood plains of rivers are vulnerable to flood due to the river breading the banks caused by heavy flow from rains, causing flooding.
5) People who lives in homes not constructed to with stand earthquakes built with wrong materials injuring themselves (or) losing their lives.
6) Among these threatened, the elderly / children and woman are more vulnerable.
7) People without resources, like the poor, more vulnerable,

Vulnerabilities to flood:

1) Flood is the most regularly occurring disaster in India.
2) Water bodies like lakes and river over flowing their banks due to heavy in flow of water from catchment areas.
3) After heavy rainfall in the areas, land getting flooded due to insufficient run off from drains and other obstructions.
4) Breaches in dams (or) release of excess water from the dams
5) Waterways getting reduced due to silting (or) dumping of debris in them, normal water flow not possible leading to flooding.
6) Flooding / occurs when the amount of water flowing in exceeds the capacity of the rivers.
7) Floods can cause loss of life / property etc.
8) The water way of the rivers may get reduced due to silting leading to the river over flowing its banks.
9) Floods can wash away habitats completely, leaving no survivors, many people drown and die in the fast moving flood waters also

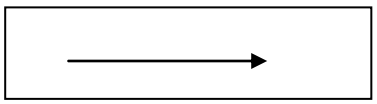
cause damage to standing crops and harvested agricultural produce.

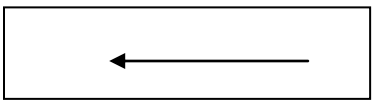
Vulnerabilities to earthquake hazards

- Cannot be predicted, with any degree of accuracy for disaster preparedness.
- Earthquakes are generally the result of movement of the earths crust releasing enormous amount of energy.
- Which creates seismic waves.
- Earthquakes can also happen under the sea.
- And then they are known as submarine quakes.
- These can lead to enormously high waves (ex) tsunami
- Certain areas are more prone to earthquakes than others. A property referred to as 'seismicity'
- Most major earthquakes are followed by aftershocks of smaller intensity of many days.
- The term 'earthquake' in a general sense, is used to describe and seismic event that generates seismic waves.
- This may be due to natural (or) manmade causes.
- The most common origin of earthquakes is from the movement of large land masses across geological faults.
- Seismic waves can also be caused by mine blasts, nuclear explosives landslides and volcanic activity.
- The recent earthquake in Italy (august, 2016) was a very shallow one with focus at a depth 10 km.

- The magnitude of the quake was 6.2 on the Richter scale, but the tremor was very shallow causing extensive damage in nearby areas.

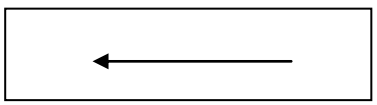
Tectonic plate movements

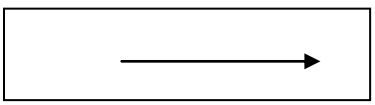




Most powerful earthquakes)

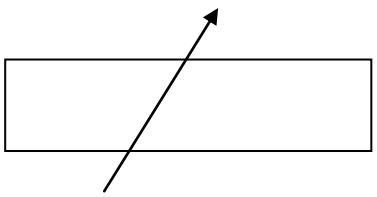
(a) Convergent

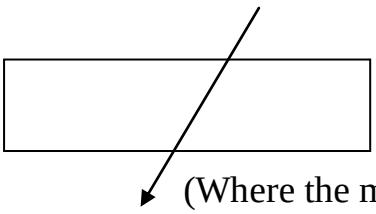




(Earthquakes of Lower magnitude) Then those caused Convergent faults

(b) Divergent





(Where the movement is horizontal along the fault)

the length of Strike Slip fault

(Horizontal and vertical movements of the earth surface and cause buildings and other structures to vibrate)

- In India, the country is divided into earthquake zones 1 to 5. Earthquakes are measured by seismographs.

Unit-II

Disaster Management Mechanism

Natural Disaster Management Mechanisms can include strategies for disasters preventions, early warning (prediction) system, disaster Mitigation, preparedness and response, and human resource development.

- Both governmental administration (public) and private organizations should participate in these programs:

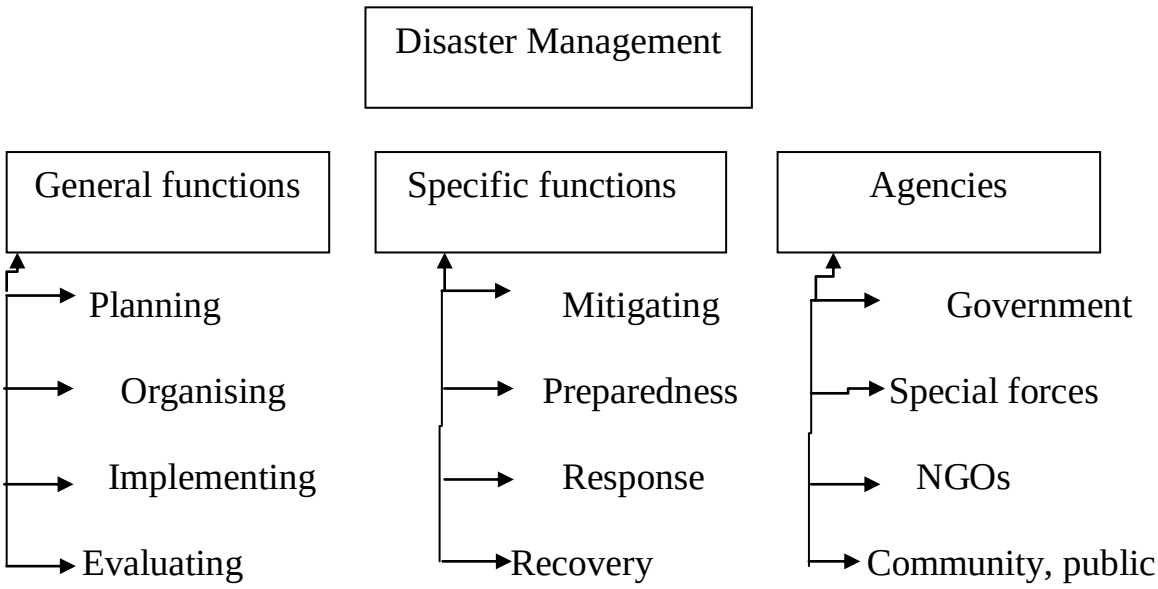
1) Preparing disaster Management plans
2) Organising necessary resources from various agencies.
3) Taking Measures to prevent Disasters
4) Making necessary preparations to reduce risk of disasters.
5) Undertaking relief and recovery operations

- Co-ordinating with all agencies and executing plans effectively, efficiently and ethically.

According to the international federation of Red Cross and Red Crescent (IFRC)

Disaster Management can be defined as the organization and management of Resources and responsibilities for dealing with all

humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.



Concepts of Risk Management

Risk Management refers to the practice of identifying potential risks in advance, analyzing them and taking precautionary steps to reduce / curb the risk.

According to the International organization for Standardization (ISO), the Risk would be defined as a "combination of the probability of an event and its consequences.

Risk Management is the process of identifying, assessing and controlling threats to an organization's capital and earnings. These threats (or) risks could stem from a wide variety of source, including

financial uncertainly, legal liabilities strategic management errors, accidents and natural disasters.

Risk Management Process:-

1) Identify Risk
2) Analyze the Risk
3) Evaluate (or) Rank the Risk
4) Treat the Risk
5) Monitor and Review the Risk
6) The basics of the Risk Management Process
7) Risk Management Evaluation

Crisis Management:

- Crisis Management is the process by which an organization deals with a disruptive and unexpected event that threatens to harm the organization as it stakeholders.
- The study of crisis management originated with large scale industrial and environmental disasters in the 1980's
- The ability of a person to identify and deal with such threats is known as his crisis management skills.
- The goal of crisis management is to have a system in place to effectively/address the coordinated response, resources and internal and external communication requirements.
- Crisis Management can be divided into these (1) pre-crisis (2) crisis responses and (3) post-crisis. Crisis Management is identifying a threat to an organization and its stakeholders in

order to respond effectively to the threat when and if a crisis occurs, the organizational must be able to drastically change course in order to survive.

- Crisis management plan helps the employees to adopt a focused approach during emergency situations.

Disaster Management Cycle

Is the first holistic, multidisciplinary introduction to the dynamic field of Crisis Management theory and practice? Each stage of the crisis cycle is explored in turn: Risk assessment preventing preparedness, response, recovery, and learning.

The Disaster Management Cycle consists of Sex stages

There are six stages within every crisis: (1) Warning (2) Risk assessment (3) Response (4) Management (5) Resolution and (6) Recovery. Learning stretching across disciplines as diverse as safety studies, business studies, security studies, political science and behavioral science. The Crisis Management cycle provide a robust grounding in crisis Management that will be in valuable to both students and practitioners worldwide.

Disaster Management is viewed as a continuous and integrated process of planning organizing, coordinating and implementing and evaluating actors:

- Preventing threat to the community due to any emergency disaster.
- Risk reduction (Mitigation)
- Capacity building to reduce vulnerability
- Preparedness of individuals & communities.
- Immediate response to any threatening
- Assessing the severity and consequent effects of any disaster
- Understanding evacuation, rescue and relief.
- Ensuring rehabilitation of effected community

Response:

- Is the stage immediately after a disaster.
- When the occurrence of the disaster is known.
- The response phase also has component.
- Before the disaster in terms of the preparations.
- This is a critical phase and many agencies are involved in the operations.
- Provide immediate relief and reduce the suffering of the affected people.
- Conduct search operations and rescue factors
- Provide food, water and Accommodation has in temporary shelters to displaced people.
- Provide medical services as may be needed to people injured.
- Take measures to prevent unhygienic conditions.

Response steps may vary according to the disaster three steps are:

1) Search and rescue: - while the local community can also help We need trained people response forces paving the necessary equipment to do the job. The local community can be trained for some of these activities. The survivors will be the first responds in disasters.
2) Medical care: some people may have minor injuries that need first aid immediately
3) Humanitarians relief: Humanitarian aid is a first priority shelters, food, water, will be privacy needs of individuals.

Recovery:

- The recovery phase starts after the immediate threat to human life has subsided.
- To bring the affected area back to normally as quickly as possible.
- To take care of the displaced persons
- To assess the damage to infrastructure and estimate of cost of reconstruction.
- To obtain funding and start the reconstructions of infrastructure and houses.
- To undertake economic rehabilitation of people.
- To ensure that essential services like water/sanitation and power supply.

- Recovery process can be very long and may take years to accomplish.
- Recovery is the responsibility of the government and the local administration.
- Enormous amounts of funding will be required to construct the damaged infrastructure.

Unit-III

CAPACITY BUILDING

Capacity Building : Capacity Building : Concept – Structural and Nonstructural Measures Capacity – Assessment ; Strengthening Capacity for Reducing Risk – Counter Disaster Resources and their utility in Disaster Management – Legislative Support at the state and National levels.

Capacity Building

- Is an ongoing process that equips officials, stakeholders and the community to perform their functions in a better manner during a crisis / disaster.
- The combination of all strengths, attributes and resources available within an organization; community (or) society to Manage and reduce disaster risks and strengthen resilience.
- It can play a leading role in supporting and building the knowledge, capacity and skills of the community in comprehensive risk based disaster management activities ranging from prevention, mitigation and preparedness to response and recovery.

Capacity Building: (1) Improving public relations (2) Development of Corporate Web image (3) Strategic planning and Management (4) Improving work procedure (5) Improving information Technologies (6)

Personnel Management and Training (7) Improving organizational structural (8) Improving Documentation flow (9) Improving Information flow.

- Some of examples of a capacity are : Permanent houses, ownership of land, adequate food and income sources, family and community support in times of crisis, local knowledge, good leadership etc.
- It is an integral part of disaster preparedness and contributes to the creation of community based disaster preparedness programmes at the Rural and Urban gross roots level.
- Capacity Building (or capacity development) is the process by which individual and organizations obtain, improve and retain the skills, knowledge, tools, equipment, and other resources needed to do their jobs competently.
- Capacity Building and capacity development are often used inter changeably.
- Capacity Development for Disaster Risk Management (DRM) and Disaster Risk Reduction (DRR).
- There are a number of definitions of capacity building / development, Disaster Risk Management (DRM) and Disaster Risk Reduction (DRR).
- Disaster Risk Management (DRM): The systematic process of using Administrative Directives, organizations, and operational skills and capacities to implement strategies policies and

improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of Disaster.

- Disaster Risk Reduction (DRR): The concept and practice of reducing disaster risks through systematic efforts to analyse and Manage the casual factors of disasters, including through reduced exposureof hazards, lessened vulnerability of people and property, Wise Management of land and the Environment and improved preparedness for adverse events.

Structural and Nonstructural Capacity for Reducing Risk:

- Mitigation Measures for buildings are essentially aimed at preventing damage and fatalities due to earth quakes, there are generally referred to as structural and non-structural mitigation measures.

a) **Structural Mitigation:**

Essentially Means Ensuring that houses, offices and other commercial building can withstand the likely disaster. In many countries, even though some building regulations exist, it has been found that the implementation of such regulations was limited to big cities and for high rise buildings.

- The large casualty figure in Rural Areas during after earth quakes is due to mainly faulty building construction.

- Even in the latur earthquake, buildings made of stoves, weakly cemented together gave way during the earthquake, bringing the roof down and trapping people under debris.
- Structural vulnerability is also high among the poorer sections of society who live in flimsy homes such as thatched roof huts of fisherman their houses generally get damaged and blown away during a cyclone storm. While big cities, building are designed and constructed - According to building regulations like the Building Code of India, the concept of such resistant building should also penetrate in Rural Areas.

The concept of structural mitigation may also include those structures which have not collapsed but suffered minor damage during earlier disaster. Structural retrofitting is done to strengthen the structure to make it adequately resistant to future disasters.

Non Structural Mitigation:

Non Structural Mitigation can be considered as having two components:

(1) A structure, like a multistory building, has load bearing components such as slabs, beams, columns and foundation elements, walls, partitions, parapets, sun shades etc., are non load bearing components. Failure of a non-structural component will not result in the collapse of building.

(2) Within the building there are many components like – electrical systems (such ducts for wiring, light fitting) AC Dusts, fire protection system etc., which mainly add load to the structure (are not loading bearing).

Then there are amenities like tables, chairs, beds, cup boards, wall mountings etc., which added as comfort components for functionality.

- All non-structural components must be adequately fixed to avoid their falling off, due to vibration, during an earthquake, external elements like parapet walls stone (or) tile facings need to be appropriately braced so that they don't fall off due to vibration. False ceilings and suspended ductingsetc must be adequately secured with nuts (or) screws.
- If there are wall mounted elements like AC, they need to be adequately anchored to the wall to prevent their falling off and injuring people.
- A cup board for example, can fall off during an earthquake and injure people. It is advisable to fix them to the walls; most of the other interior elements like tables etc. tend to move due to vibration and must be secured. Many chairs are as rollers in plush offices and will run on the floor if not secured.
- Structural measures undertake to strengthen buildings, lifeliness and infrastructure to withstand any hazard.

- Non-structural measures emphasis on land use planning programmes for sustaining awareness, dissemination of information, materials on do's and don'ts at the time of disaster.

Capacity Assessment:-

Misanalysis of desired capacities against existing capacities, this generates an understanding of capacity assets and needs which informs the formulation of a capacity development response.

Capacity Assessing serves as input in different – processes and may support interlinked decisions on:

(1) Strategic and operational choices about overall levels focus areas, operational modalities and training of aid.

Vulnerability and Capacity Assessment (VCA) uses various participating tools to gauge people's exposure to and capacity to resist natural hazards. It is an integral part of disaster preparedness and contributes to the creation of community based Disaster preparedness programmes at the Rural and Urban gross roots level:

- It is also discuss how these results lead to the formulation of a capacity development response.
- Capacity refers to the all strengths, attributes, and resources available within a community.
- Organisation / society to manage and reduce disaster risks and strengthen resilience.

Strengthening capacities for Disaster Risk Reduction (DRR):

Has been developed against the backdrop of the United Nations Development Programmes (UNDP's) longstanding commitment to supporting developing and high risk countries through its programmes and services for capacity development and disaster risk reduction.

The combination of all the strengths attributes and resources available within an organization.

For example, planting mangroves to reduce the risk posed by tidal surges (or) raising awareness of natural hazards through school based education projects.

Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness for adverse events are all examples of Disaster Risk Reduction.

Counter Disaster Resources and their utility and Disaster Management:

- Counter disaster networks can be set up where individual resources are minimal.
- Current contact numbers and addresses for emergency services.
- Lists of people you can call on in emergency supplies of materials and equipment lists of suppliers for equipment and materials.

- The National Governor's Association designed a phase of Disasters, Model to help. Emergency Managers prepare for and respond to a disaster also known as the life cycle of comprehensive emergency of management.
- The four phases of disaster (1) Mitigation (2) Preparedness (3) Response (4) Recovery.

Disaster Management (or Emergency Management)

- Is the Discipline of dealing with and avoiding risks.
- It is a discipline that involves preparing, supporting and rebuilding when natural (or) human made Disaster Occur.
- The important elements which are to be considered at all stages, during the Disaster Management and utility of the counter Disaster Resources.
- Counter Disaster Management plans are 'Trying to prevent Disaster by being aware of the risks to collections and acting to minimize them.

- Mitigation:
  - Hazard Mapping
  - Vulnerability Analysis
  - Mitigation Measures
  - Development Control
  - Economic Diversification

- Preparedness
  - DM Plans
  - Early warning systems
  - Evacuation strategies shelters
  - Inventorywarehousinglogistics
  - communication
  - Public Awareness
  - Education &Training
  - Mock Drills

- Response
  - Rescue operations
  - Providing shelters
  - Providing food and water
  - Medical help
  - Information to all
  - Identification of the dead
  - Preserving bodies
  - Special needs

- Recovery
  - Reconstruction of houses
  - Water supply
  - Infrastructure agriculture
  - Commercial
  - Establishments
  - Rehabilitation
  - Livelihood
  - Continued medical help

States are responsible for responding to disaster. To protect a community from the impacts of disaster a state may be required to undertake a range of disaster response activities also known "as counter disaster operations".

Counter Disaster Net works can be set up where individual resources are minimal.

- Current contact numbers and addresses for emergency services.
- Supplies of materials and equipment.
- Clear communication.
- Comprehension training.
- Knowledge of assets.
- Technology (fail safes and protocol) / Technological Tools.
- Health Care leadership involvement.

Supplies of Materials & Equipment:

Three day supply of water, with one gallon of water for person per day, three day supply of non-perishable food, first aid kit, batteries flash lights and whistle to signal for help.

Clear communication:

Purposes of disaster communication include preventing panic, promoting appropriate health behaviours, coordinating response among stakeholders, and Advocating for affected populations and mobilizing resources.

Knowledge is an asset which is fundamental to the efficient and effective delivery of public services, this principle emphasis the importance of an organization recognizing that the seeking and sharing of knowledge leads to better outcomes including increased collaboration.

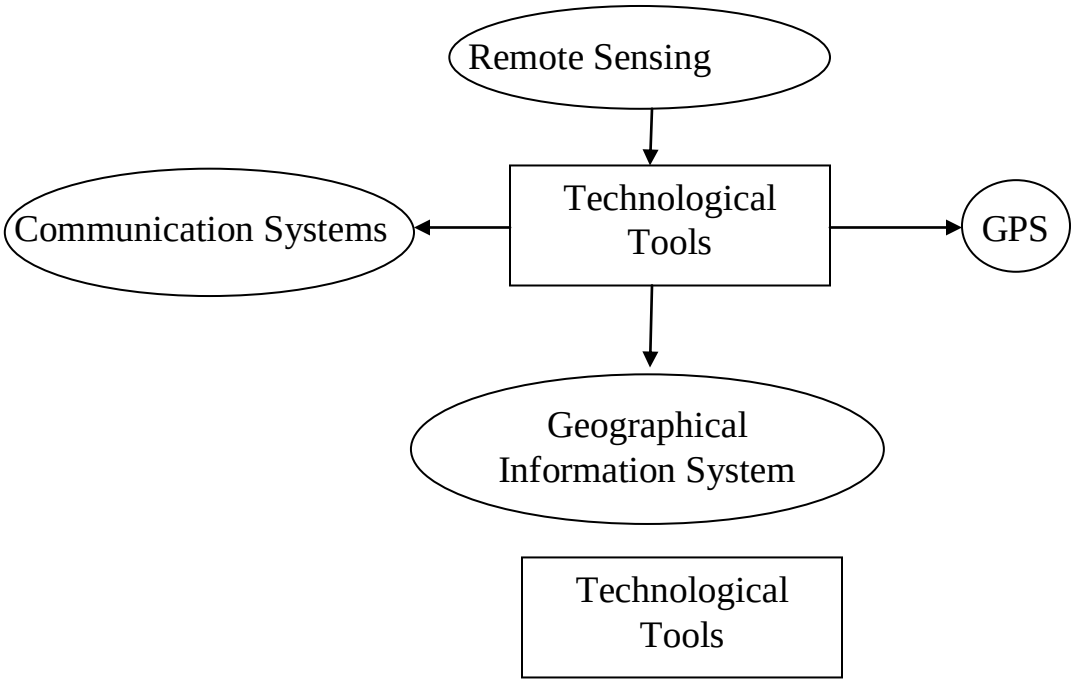
Comprehensive training:

Is meant to build the competencies of disaster relief workers and volunteers in improving the preparedness and response time in all levels before and after disasters.

Technology / Technological Tools:

There are many technological tools that facilitate disaster management. Let us look at these technological developments and their role during a disaster.

Communication tools, remote sensing, Global Positioning Systems (GPS) and Geographical Information System (GIS) are the major technological tools useful for disaster management agencies.



Health Care:

- Some people may have minor injuries that need first aid immediately.
- Some others may have serious injuries requiring hospitalization.

- On field care and ambulance service must be available. Many others may need heavy medication and surgical procedures to save their lives. All this will call for well planned and organized medical services.

Particularly the children and the elderly, to avoid deterioration in their health due to living conditions.

Legislative support at the state and national levels:

- Legislative means involving (or) relating to the process of making and passing laws.
- Legislators are members of the legislative branch of government which is responsible for making laws and changing existing laws.

Legislative support: Aims at (I) promoting a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education.

(II) Encouraging mitigation measures based on technology traditional wisdom and environmental sustainability.

(III) National Disaster Management Authority (NDMA) headed by the Prime Minister of India, is the Apex body for Disaster Management in India.

(IV) Setting up of NDMA and the creation of an Enabling Environment of Institutional Mechanisms at the state and District level is mandated by the Disaster Management Act 2005.

- Role of the state government during a disaster in the state level Disaster Management.
- It is the responsibility of the CM (or) the Chief Secretary of the State, All decisions as relief operations are taken by them.
- The secretary of department of Review is sometimes in charge of relief measures.

- While the primary responsibility of disaster management rests with the states, the Central Government supports the efforts of State Government by providing logistical and financial support.

- All matters related to disaster response, preparedness prevention, mitigation and capacity building.
- The government must set aside funds for disaster management.
- They should build emergency shelters and stock equipments food, clothing and medicines for use in emergencies a disaster management team should be set up and trained to handle disasters and natural calamities official should be trained to react properly.

- Legislative means involving (or) process of making and passing laws.
- Legislators are members of the legislative which is responsible for making laws and changing existing laws.

The objectives of the National Policy on Disaster Management are:

- Promoting a culture of prevention.
- Preparedness and resilience at all levels through knowledge, innovation and education.
- Encouraging mitigation measures based on technology – traditional wisdom and environmental sustainability.

Policies and legislation for Disaster Management:-

(I) To avoid loss of human life and destruction of property by natural disaster.

(II) To incorporate disaster prevention into overall natural development process.

(III) To promote domestic and external matters.

- **International Disaster Relief Law (IDRL)** is an emerging area of international law designed specifically to improve the humanitarian response to natural disasters.
- **Laws and regulations** serve as foundations for building community resilience.
- **They are essential to reducing existing risks** posed by the natural hazards.
- **In 2005,** the "HYOGO framework for action" highlighted the importance of good legislation to support Disaster Risk Reduction (DRR)
- **The sendai framework for Disaster Risk Reduction** adopted in March 2015, calls for a renewed focus on reviewing and strengthening legal framework.

Unit-IV

Coping with Disaster

Coping with Disaster: Coping strategies – Alternative Adjustment Processes – Changing concepts of Disaster Management – Industrial Safety Plan, Safety Norms and Survival Kits – Mass Media and Disaster Management.

Coping means to invest one's own conscious effort to solve personal and interpersonal problems in order to try to master, minimize (or) tolerate stress and conflict.

The term coping generally refers to adaptive (constructive) coping strategies, that is, strategies which reduce stress.

To face and deal with responsibilities, problems (a) difficulties, especially successfully (or) in a calm (a) adequate manner.

Coping Strategies

Ways to cope with Natural Disasters:

a) Seek out and connect with social support.
b) Identify local support groups (or) available counselors to talk to situation.

c) Try to establish a schedule for disaster reliefs.
d) Talk about the effect of the Natural Disasters.
e) Focus on self care.
f) Practice healthy coping strategies.

Now that we've examined common styles of coping or coping strategies. (1) Task oriented (2) Emotion – oriented (3) avoidance oriented.

Coping strategies are psychological patterns that individuals use to manage thoughts, feeling and actions encountered during various stages of all health and treatments.

Typically, people use of mixture of several strategies which change over time, all these strategies can prove useful, but some claim that those using problems focused.

Coping strategies will adjust better to life.

Problem – focused coping mechanisms may allow an individual greater perceived control over their disaster problems.

Alternative Adjustment Processes:

- For most hazards prevention is better than cure.
- Corrective measures for reducing river floods include flood control schemes.

- (Such as dams and reservoirs, channel improvements and watershed land use changes)
- Evacuation, flood forecasting and urban development.
- Hazard adjustments are actions that intentionally (or) unintentionally reduce risk from extreme events in the natural environments.
- When hazard stress reaches the higher threshold of action, the search for effective adjustments begins, action is regarded as necessary, the positive moves are made to reduce losses by seeking to control and hazard event (or) by reducing if not preventing adverse impacts.
- There is a range of options for adjusting to hazards and they can be classified in various ways.
- Corrective (Remedial) Measures

  &
- Preventive measures

Corrective Measures:

Community warning services such as loud speakers, conches, drums (or) any traditional warning system is used to telecast the weather forecast.

As a part of safety measures, the roofs, walls, and window sills of houses near the cyclone prone areas are regularly checked for cracks.

Preventative measures include the measures steps taken for prevention of hazards.

Primary prevention is to reduce avert avoid the risk of the event occurring by getting rid of the hazard (or) vulnerability.

Prevention is to reduce the risk of being affected by a disaster. Even if the hazard cannot be removed, vulnerability can be decreased and in case of an impact, the capacity to withstand, to respond and to recover will be stranger.

- Preventive measures include flood plain regulation (such as by zoning land use) tax adjustments and flood insurance schemes.

Changing concepts of Disaster Management:

An integrated Model of Disaster Management is a tool for organizing the involved activities in order to ensure effective and efficient implementation and four factors can be identified for it:

1) Hazard Assessment
2) Risk Management
3) Mitigation
4) Preparedness

Hazard Assessment: is the process used to identify, assess, and control work place hazards and the risks to worker health and safety.

The assessment is an essential part of an organizations safety culture and safety management system.

Risk Management: Are the identifications, evaluation, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability.

Mitigation is the reduction of something harmful (or) the reduction of its harmful effects, it may refer to measures taken to reduce the harmful effects of hazards.

Sustained action that reduces (or) eliminates long term risk to people and property from natural hazards and their effects.

Preparedness:

In fact, mitigation and preparedness go hand in hand, preparedness is the second phase of the disaster management cycle. Ensure public awareness of and preparedness for disasters, prepare and be ready to implement, ensure standard procedures for evacuation and immediate relief, prepare sheltering plans and ensure physical availability of shelters, identifying teams and availability of medicines:

- Anticipate, cope with, resist and recover from the impact of hazards.

- To minimize deaths and losses.
- Minimum level of preparedness and planning can do it without identification of Risk & vulnerability only knowledge of hazards is of no use.

Disaster Risk: is defined as "the potential loss of life, injury (or) destroyed (or) damaged assets which could occur to a system, society (or) a community in a specific period of time.

Determined probabilistically as a function of hazard, exposure, and capacity in the technical sense.

Preparation, mitigation, preparedness, response, recovery and development are the changing concepts in six disaster management cycles.

Industrial Safety Plan:

The management of all operations and procedure in an industry in order to protect its employees and assets by minimize hazards, risks accidents and near misses called the industrial safety:

- Identity Risks
- Learn your industry's compliance standards development programmes and processes.
- Educate your employees
- Enforce and evaluate your safety plan

- Industrial safety primarily is management policy activity which is concerned with:

a) Reducing
b) Controlling
c) Eliminating hazards from the industrial (or) industrial units.

The fore most mission of industrial safety and disaster prevention management is to prevent unforeseen industrial accidents, including fires, explosions and the leakage of hazardous substances.

At the same time, every effort must be made to minimize damage in the event of a natural disaster such as a major earthquake.

Industrial safety plan is aimed to ensure safety of life, protection of environment. Protection of installation, restoration of production and salvage operations in this same order of priorities.

- Affect the Rescue and Medical treatment of causalities.
- Safeguard other people
- Minimize damage to property and the environment initially bring the incident under control
- Identify any dead
- Provide for the needs of relatives, secure the safe rehabilitation of affected area.
- Provide authoritative information to the News Media

Industrial Safety: refers to the Management of all operations and events within an industry in order to protect its employees and assets by minimizing hazards, risks, accidents and near misses.

Industrial safety is oversees by federal, state and local laws and regulations.

A safety plan is a formal procedure to be followed in case of emergency in a work place. It generally contains the rules and regulations to be followed and the site plan map.

- To prevent permanent disability and the less of e=income of workers.
- To prevent accidents in plant by reducing the hazard to minimum.
- To eliminate accident caused work stoppage and loss production.
- To educate all members of the organization in continuous state of safety to make supervision competent and intensely safety minded.
- To evaluate employees morale by promoting safe work place.

Safety Norms and Survival Kit

- Three day supply of water, with one gallon of water per person per day.
- Three day supply of non perishable food (easy to prepare items) first aid kit

- Radio (Communications)
- Flash lights and lanterns
- Batteries (Battery powered (or) hand crank radio) whistle of signal for help.
- A child safety kit is a pre-emptive measure to find your child if they are ever abducted.
- A child safety kit records your child's height, weight, blood type, eye color, finger prints, and DNA so you can pass it off to authorities and help them find your child faster.

Survival kits should have supplies to tools to provide basic protection against the elements, meet health and first aid needs and signal to rescuers.

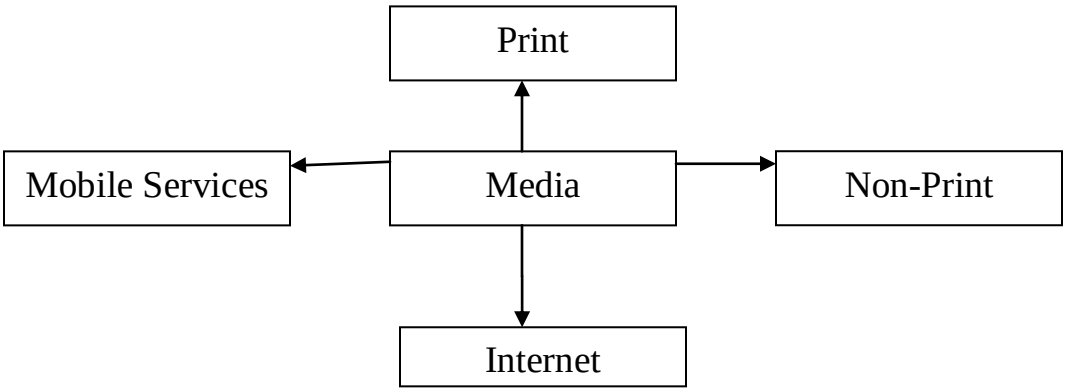
- First aid kit
- (Toiletries) food
- Water container (water purification system)
- Flash light (first aid)
- Whistle (warning signals)
- Blanket (taking rest)
- Water proof case

Mass Medical and Disaster Management

The media plays a vital role in the management of disasters by educating people about consequences, hazard warnings, gathering and transmitting information about affected areas.

Alerting government officials, relief organizations and the public to specific needs and facilitating discussions about disaster preparedness.

- As communicators, you and the media share the same goal during an emergency.
- Getting reliable, updated information out of first and reaching the most people.
- The 24 hrs news is a great way to draw public attention to the issue and provide key safety messages in real time.
- It can serve as an open communication channel for residents to respond,
- Ask questions and provide updates.
- In fact, during a crisis event, social media's greatest value may be in allowing emergency response managers to learn about what is happening during an event in real time through social media.
- Media is now more than ever becoming both an essential and emergency service in addition to being critical in response to Covid-19



Media can play a role in all the phases of disaster management – before during and after the disaster event:

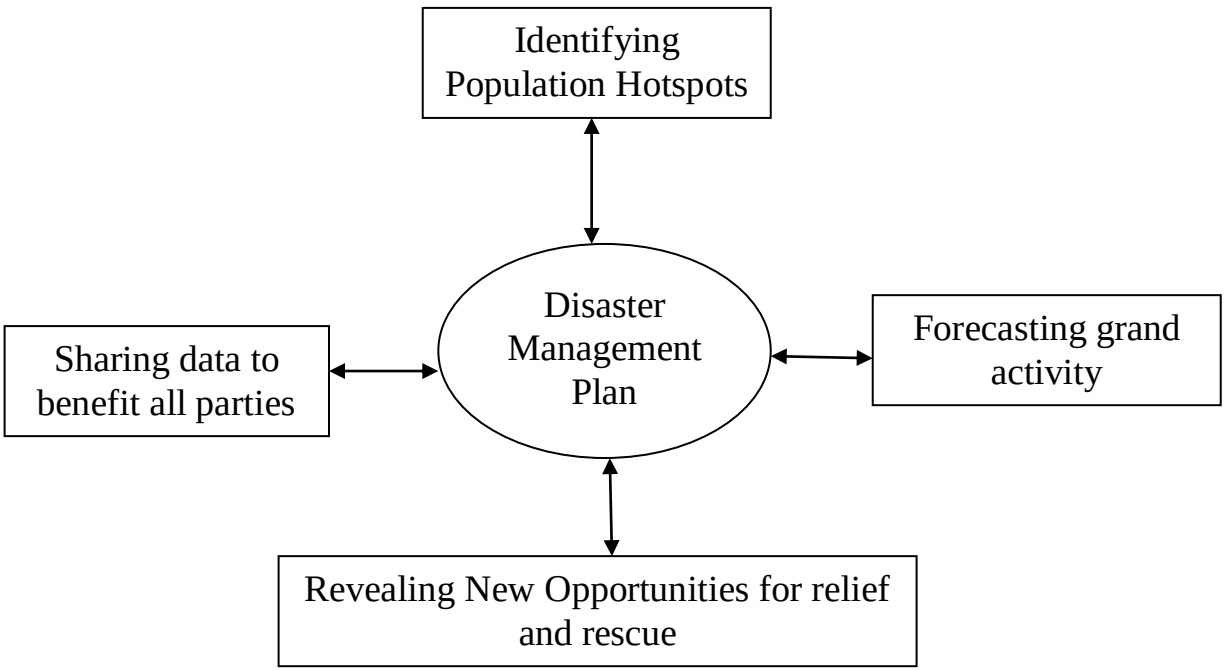
- Spread information to the large number of people through a variety of modes like radio, television, newspaper, internet, wireless phones etc.
- Help in wide dissemination of early warning of disaster.
- Reach the global community through the net work of media.
- Facilitate international help for disaster victims.
- Draw the attention of authorities to the areas where help is needed.
- Point out short coming in rescue and relief effort.
- Ensure equitable distribution of relief and aid.
- Bring out with the help of experts, short comings in mitigation and preparedness.
- Monitor and report the progress of relief and reconstruction.
- Facilitate international assistance for disaster victims.

Unit-V

Planning for Disaster Management

Planning for Disaster Management: Strategies for Disaster Management Planning – Steps for formulating a Disaster Risk Reduction Plan – Disaster Management Act and policy in India – Organizational Structure for Disaster Management in India – Preparation of state and Disaster Management Plans.

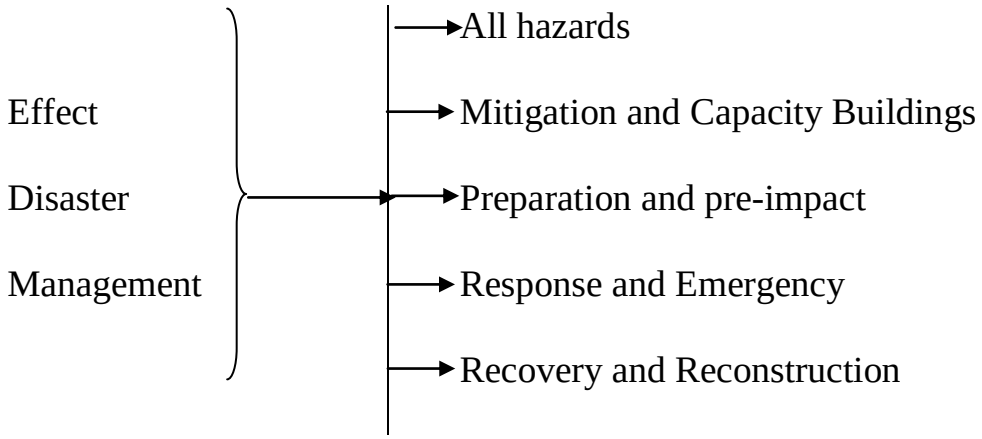
Planning for Disaster Management



- A Disaster Management Plan is a preventative plan designed to reduce the harmful effects of a Disaster like to hurricane (or) Extreme storms.

By creating a Disaster Management Plan ahead of time before a disaster strikes, you can prepare your organization to meet a disaster as it comes.

The three phases of Disaster Management include preparedness response recovery:



Strategies for Disaster Management Planning

Focuses on preventing Destruction from (Natural) Disaster through:

- Advocacy
- Prevention
- Knowledge Management
- Better coordination

- Capacity Building Strategies and better preparedness through advanced
- Emergency response
- It comprises of responding to the needs of victims and survivors of Disaster.
- Prevention to minimize the Risk of Disaster.
- Preparedness to respond effectively to Disasters.
- Hazard specific control activities such as flood levels (or) bushfire mitigation strategies.
- Design improvements to infrastructure (or) services.
- Land use planning and design decisions that avoid developments and community infrastructure in areas prone to hazards.

Several strategies are formulated and applied for general management in day to day life.

Disaster Management has it own set of strategies:-

1) State support by policy for Disaster Management:-

Primary responsibility of the state. The state must provide funds, relief systems. In India, the Central Government has come out with policy budget allocations for Disaster Management.

Disaster Management Information System:

Maps, transportation and communication networks, information about government and private agencies about possible shelters. Warehousing of relief materials etc should be available very easily at the time of disaster.

Risk Management:-

A hazard became a disaster –

- When proper management of Risk is not done.

- This is information will help disaster managers make the appropriate plans.

Use of Modern Technological Tools:

Aerial survey, RS, GIS and GPS. These tools will be of great help in difficult situations.

Cooperation and Collaboration:

Expertise from many disciplines is required for disaster management.

Training:

- Is must for all people connected with Disaster Management.
- Training programmes must be organized as per need.
- There must be a regular plan for training and retraining of people.

Steps for formulating a Disaster

1) Assessing current disaster Risk reduction practices (2) identifying needs not met by the current practice (3) Analyzing institutions to assess their vulnerability in the faced a hazard (4) Identifying needs in capacity development (5) prioritizing training.

Disaster Management Act and Policy in India:

- India is a large country with a population of about 120 crore.
- There are 29 states and 7 union territories.

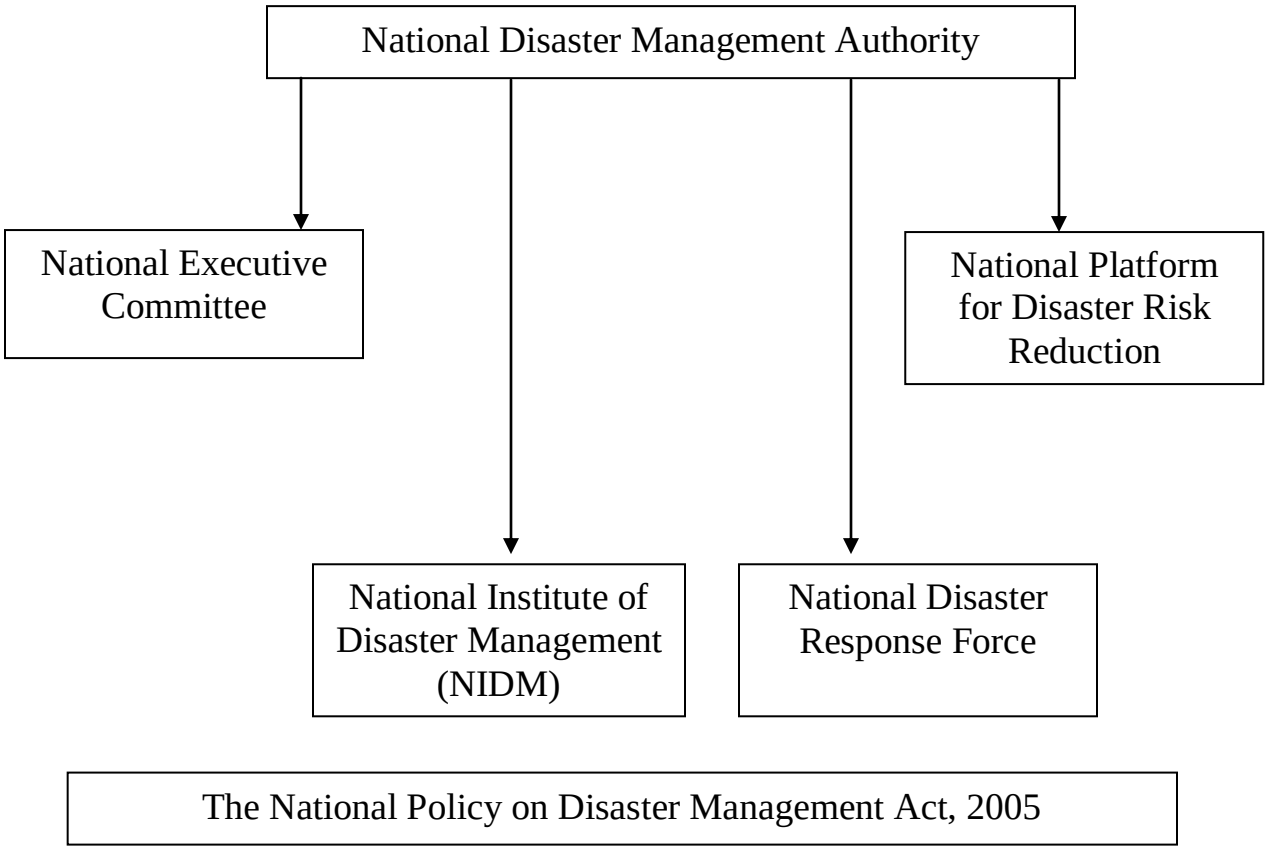
The vision of the National Policy for Disaster Management is to build a safe and disaster Resilient India by developing a holistic, proactive, multi disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response.

- The National Policy on Disaster Management Act 2005 was passed by parliament in the year 2005 to give a legal and institutional frame work to the national policy.

- The National Policy Envisages an organizational structure as follows:

- ➢ There will be a National Disaster Management Authority which will be chaired by the Prime Minister (PM)
- There will be a National Executive Committee chaired by the home Secretary in which Secretaries from relevant Ministries will be members.
- A National Disaster Management Institute will be established for training at various levels in Disaster Management activities.
- A special force called the National Disaster Response force will be formed to take care of the post disaster operations in the case of disasters.
- A similar structure at the state level will be established by the state governments.
- The present existing structure like National Crisis Management Committee will continue to perform its functions.

Organizational Structure for Disaster Management in India



NPDM envisages an approach to "A holistic and integrated approach will be evolved toward Disaster Management with emphasis on building strategic partnership at various levels:

1) Community based DM
2) Capacity development in all spheres
3) Consolidation of post initiatives and best practices
4) Cooperation with agencies at National and International levels

5) Multi sectoral synergy is the concept that the combined value and performance of two companies

(Synergy: potential financial benefit achieved through the combining of companies)

National Disaster Management Authority (NDMA)

The establishment of the NDMA went through a number of stages:

- Government of India set up a high powered committee in August 1999 to make to cope with disasters.
- 2001, A National Committee was set up for the mitigation and response mechanisms.
- The tenth five year plan → financial support for Disaster Management was also mandated in the document.
- The Disaster Management Act (2005) headed by the PM, a similar institution called the state Disaster Management Authority headed by CM of the state.

NDMA is the Apex body, mandated to lay down potexes, plans and guidelines for DM to ensure effective timely response to Disasters.

The National Executive Committee (NEC)

Chaired by the Home Secretary and comprises secretaries in the Ministries and Department of:

1) Agriculture
2) Atomic Energy
3) Defence
4) Water supply
5) Environment & Forests
6) Finance
7) Urban Development
8) Health
9) Power
10) Rural Development
11) Science & Technology
12) Space
13) Telecommunications
14) Water Resource Development

Secretaries to the following Ministries will be special invitees:

1) External Affairs
2) Earth Sciences
3) Human Resource Development
4) Mines
5) Shipping
6) Load Transport & Highways

National Disaster Response Force (NDRF)

- It is a specialized force called the NDRF
- Will provide specialized response to any disaster situation
- General superintendence, direction and control of the NDRF will be with the NDMA.
- The force will be commanded by an officer appointed by the Central Government.
- The head of the force will be called the Director General of Civil Defence and National Disaster Response Force.
- The force is expected to have eight battalions and further expansion will be done as per need.
- These battalions will be positioned at different locations as required.
- NDRF will maintain close liaison with the state government of any Disaster situation.
- Natural Disaster will be dealt with by the NDRF battalions.
- It is also provided to set up a National academy to provide training for training in Disasters.

National Institute of Disaster Management (NIDM):-

- As mandated in the National Disaster Act 2005 has come up recently.
- The genesis for the Institute is the National Centre for Disaster Management (NCDM) Established in 1995.

- National Centre for Disaster Management (NCDM) was under the control of the Ministry of Agriculture and Cooperatives and functioned from the Indian Institute of Public Administration (IIPA).
- The Ministry of Agriculture and cooperatives was the nodal Ministry for Disaster Management at that time.
- With the Formulation of the National Policy on Disaster Management and Enactment of the Disaster Management Act, which mandated the establishment of the Institute?
- It has acquired a statutory with the enactment of the Disaster Management Act.
- The Institute is located at Indraprasthan Estate, New Delhi.

The basic functions of the NIDM are:

- To increase awareness in dealing with disaster and emergency situations.
- To make Disaster Risk Management education available to all stakeholders.
- To conduct training for all stakeholder in various areas of Disaster Management.
- To conduct research in the field of Disaster Management
- To document Disaster Management efforts
- To assist in policy formulation for Disaster Management

National platform for Disaster Reduction:

- The Government of India has constituted a multi stakeholder national platform for Disaster Risk Reduction (NPDRR)
- This was done as per government resolution is February 2013.
- The National Platform aims to bring together the whole range of India's Disaster Risk Management.

Functions of the National Platform:

- To review the progress made in the field of DM from time to time.
- Disaster Management Policy has been implemented by the Central & State Governments.
- To advise on coordination between the Central and State Governments.
- To advise suo-moto (or) on a reference made by the Central Government to Disaster Management.
- To Review of National Disaster Management Policy.
- The first session of National Platform on Disaster Risk Reduction was held for two in May 2013.
- The session was attended by more than 100 delegates from Central & State Governments, NGO's, the Public Sector / Community Based Organizations (CBO's) and other stakeholders.

Preparation of state and Disaster Management Plans:

- The District Disaster Management Plan (DDMP) is guide for achieving the objective i.e. mitigation, preparedness, response and recovery.
- The plan needs to be prepared and respond to Disaster with sense of urgency in a planned way to Minimize Human and property and Environmental loss.
- The objectives of the Disaster Management plan are to ensure that Disaster Management is organized to facilitate planning, preparedness, operational coordination and community participation.
- NDMA's responsible for framing policies, laying down guidelines and best practices for coordinating with the State Disaster Management Authorities (SDMAs) to ensure a holistic and distributed approach to Disaster Management.

➢ The three phases of a disaster program are:

- Disaster Planning
- Disaster Management
- Disaster Recovery

(NDMA)

- It is headed by the Prime Minister of India and can have up to nine other members.

- While the primary responsibility of Disaster Management rests with the states, the Central Government Supports and Efforts of State Government by providing logistical and financial support.
- The main components of Disaster Management are as follows:

(1) Preparedness (2) Disastrous impact (3) Response (4) Recovery (5) Development (6) Mitigation

- Disaster recovery plan and the preventative measures they include are essential for stopping disaster from occurring in the first place and although disaster may not always be available, having a recovery plan helps to reduce the potential damage and quickly restore operations when the occurs.

Disaster Planning: The basic structure for Disaster Planning includes the four phases of comprehensive emergency management: mitigation, preparedness, response and recovery.

Disaster Management: dealing with all humanitarian aspects of emergencies.

Disaster Recovery: is the process of resuming normal operations.

Steps for formulating a Disaster Risk Reduction Plans:

The plan highlights the following steps:

1) Assessing current Disaster Risk Reduction Practice.
2) Identifying needs not met by the current practice.

3) Analyzing Institutions to assess their vulnerability in the face of a hazard.
4) Identifying needs in capacity development.
5) Prioritizing training.

Disaster Risk Reduction (DRR) aims to reduce the damage caused by National hazards like earthquakes, floods, droughts and cyclones, through an ethic of prevention, Disaster often follow natural hazards. Each decision and action makes us more vulnerable to disaster (or) more resilient to them.

- The aim of ethical principles applied to Disaster Risk Reduction is to strengthen the resilience of populations in the event of a likely natural and Technological Disaster.
- By giving an ethical contact of the risk reduction measures.

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