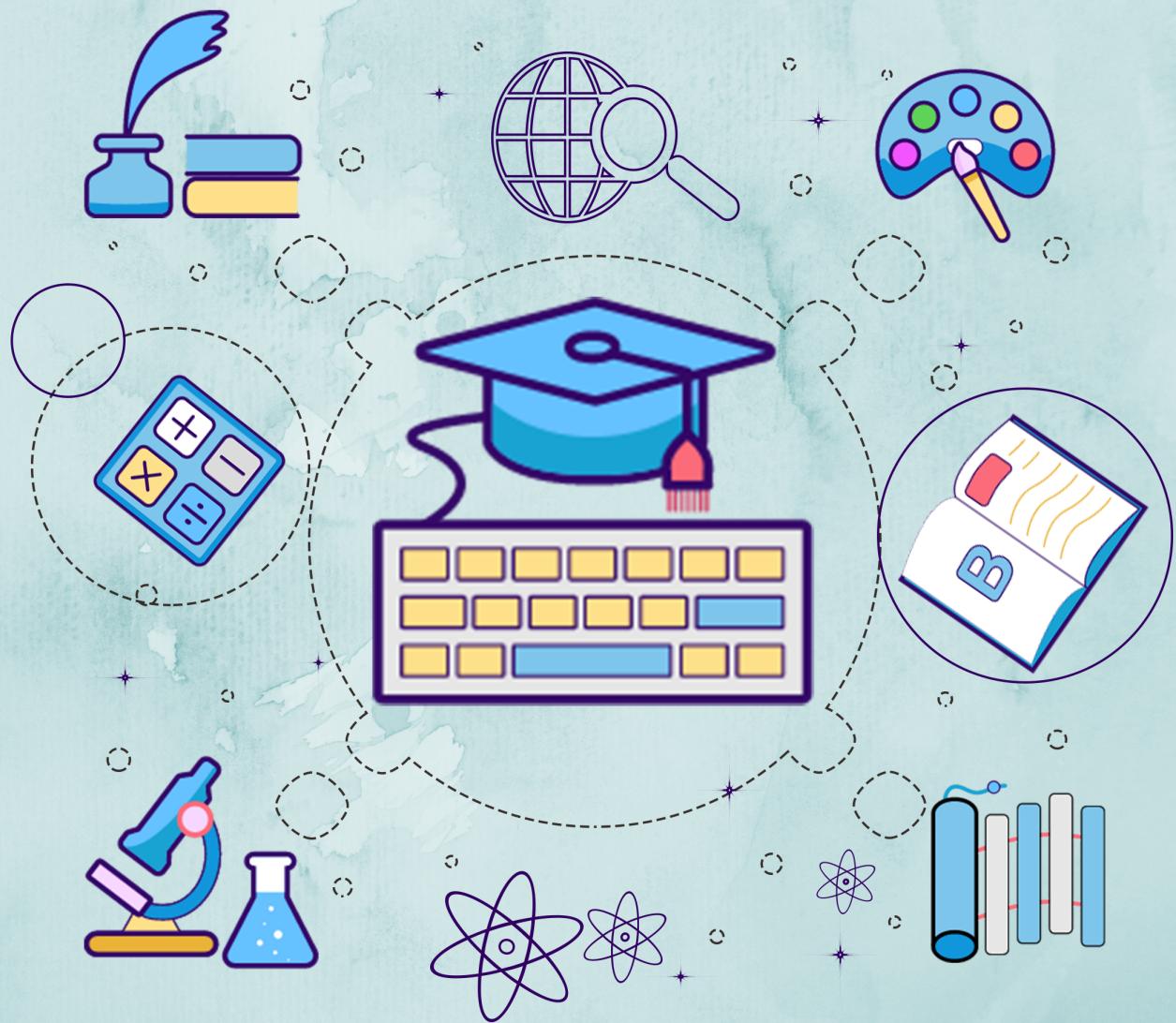


# Kerala Notes



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## KTU STUDY MATERIALS

# DISASTER MANAGEMENT

## MCN301

# Module 5

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## MODULE 5

### COMMON TYPES OF DISASTERS IN INDIA

#### Natural Disasters:

##### **1. Droughts**

- The primary cause of any drought is deficiency of rainfall and in particular, the timing, distribution and intensity of this deficiency in relation to existing reserves.
- A prolonged period of relatively dry weather leading to drought is a widely recognized climate anomaly.
- Drought can be devastating as water supplies dry up, crops fail to grow, animals die, and malnutrition and ill health become widespread
- The environmental effects of drought, including salinization of soil and groundwater decline, increased pollution of freshwater ecosystems and regional extinction of animal species.

##### **2. Floods**

- Flood destructions have always brought miseries to numerous people, especially in rural areas. Flood results in the outbreak of serious epidemics, specially malaria and cholera.
- Simultaneously, scarcity of water also arises.
- It has a drastic effect on agricultural produce.
- Sometimes, water remains standing over large areas for long span of time hampering the Rabi crops
- India is one of the most flood prone countries in the world. The principal reasons for flood lie in the very nature of natural ecological systems in this country, namely, the monsoon, the highly silted river systems and the steep and highly erodible mountains, particularly those of the Himalayan ranges. The average rainfall in India is 1150 mm with significant variation across the country. The annual rainfall along the western coast and Western Ghats, Khasi hills and over most of the Brahmaputra valley amounts to more than 2500 mm. Most of the floods occur during the monsoon period and are usually associated with tropical storms or depressions, active monsoon conditions and break monsoon situations.

##### **3. Tropical Cyclones:**

- The major natural disaster that affects the coastal regions of India is cyclone and as India has a coastline of about 7516 kms, it is exposed to nearly 10 percent of the world's tropical cyclones. About 71 percent of this area is in ten states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Puducherry, Andhra Pradesh, Orissa and West Bengal). The islands of Andaman, Nicobar and Lakshadweep are also prone to cyclones.
- When a cyclone approaches to coast, a risk of serious loss or damage arises from severe winds, heavy rainfall, storm surges and river floods. The effect of a storm surge is most pronounced in wide and shallow bays exposed to cyclones such as in the northern part of Bay of Bengal. On an average, five or six tropical cyclones occur every year, of which two or three could be severe. Most cyclones occur in the Bay of Bengal followed by those in the Arabian Sea and the ratio is approximately 4:1.

##### **4. Heat Waves:**

- Extreme positive departures from the normal maximum temperature result in a heat wave during the summer season. The rising maximum temperature during the pre-monsoon months often continues till June, in rare cases till July, over the north western parts of the country
- Decrease in the Diurnal Temperature Range (DTR) due to urbanisation is a new factor leading to human mortality and discomfort. Increased minimum temperatures in summer do not allow the necessary nocturnal cooling to neutralize the high maximum temperature during a heat wave epoch

##### **5. Cold wave and fog**

- Occurrences of extreme low temperature in association with incursion of dry cold winds from north into the sub continent are known as cold waves. The northern parts of India, specially the hilly regions and

the adjoining plains, are influenced by transient disturbances in the mid latitude westerlies which often have weak frontal characteristics. These are known as western disturbances. The cold waves mainly affect the areas to the north of 20°N but in association with large amplitude troughs, cold wave conditions are sometimes reported from states like Maharashtra and Karnataka.

## 6. Thunderstorm, hailstorm, dust storm

- As winter season transforms into spring, the temperature rises initially in the southern parts of India, giving rise to thunderstorms and squally weather which are hazardous in nature. While the southernmost part of the country is free from dust storms and hailstorms, such hazardous weather affects the central, north eastern, north and north western parts of the country. The hailstorm frequencies are highest in the Assam valley, followed by hills of Uttarakhand, Jharkhand and Vidarbha Maharashtra. However, thunderstorms also occur in Kolkata, Delhi, Jaipur and Ahmedabad. Tornadoes are rare in India but some of them are quite devastating

## 7. Earthquakes

- The Indian sub-continent situated on the boundaries of two continental plates is very prone to earthquakes. Some of the most intense earthquakes of the world have occurred in India. Fortunately, none of these have occurred in any of the major cities. According to latest seismic zoning map brought out by the Bureau of Indian Standard (BIS), over 65 percent of the country is prone to earthquake of intensity Modified Mercalli Intensity Scale (MSK) VII or more.
- India has been divided into four seismic zones according to the maximum intensity of earthquake expected. Of these, zone V is the most active which comprises of whole of Northeast India, the northern portion of Bihar, Uttarakhand, Himachal Pradesh, J&K, Gujarat and Andaman & Nicobar Islands.
- The entire Himalayan Region is considered to be vulnerable to high intensity earthquakes of a magnitude exceeding 8.0 on the Richter Scale, and in a relatively short span of about 50 years, four such major earthquakes have occurred in the region.

## 8. Landslides

- Landslides mainly affect the Himalayan region and the western ghats of India. Landslides are also common in the Nilgiri range. It is estimated that 30 percent of the world's landslides occur in the Himalayas.
- The Himalayan mountains, which constitute the youngest and most dominating mountain system in the world, are not a single long landmass but comprises a series of seven curvilinear parallel folds running along a grand arc for a total of 3400 kilometers. Due to its unique nature, the Himalayas have a history of landslides that has no comparison with any other mountain range in the world. Landslides are also common in western ghat.
- In the Nilgiris, in 1978 alone, unprecedented rains in the region triggered about one hundred landslides which caused severe damage to communication lines, tea gardens and other cultivated crops. A valley in Nilgiris is called "Avalanches Valley". Scientific observation in north Sikkim and Garhwal regions in the Himalayas clearly reveal that there is an average of two landslides per sq. km. The mean rate of land loss is to the tune of 120 meter per km per year and annual soil loss is about 2500 tones per sq km.
- Landslides constitute a major natural hazard in our country, which accounts for considerable loss of life and damage to communication routes, human settlements, agricultural fields and forest lands. Based on the general experience with landslides, a rough estimate of monetary loss is of the order of 100 crore to 150 crore per annum at the current prices for the country as a whole.

## 9. Tsunami

- Tsunamis and earthquakes happen after centuries of energy build up within the earth. A tsunami (in Japanese ‘tsu’ means harbor and ‘nami’ means wave) is a series of water waves caused by the displacement of a large volume of a body of water, usually an ocean.
- Seismicity generated tsunamis are result of abrupt deformation of sea floor resulting vertical displacement of the overlying water.
- Earthquakes occurring beneath the sea level, the water above the reformed area is displaced from its equilibrium position. The release of energy produces tsunami waves which have small amplitude but a very long wavelength (often hundreds of kilometer long). It may be caused by non-seismic event also such as a landslide or impact of a meteor.
- Characteristics: Tsunami in the deep ocean may have very long waves length of hundred of kilometer and travels at about 800 km per hour, but an amplitude of only about 1 km. It remains undetected by ships in the deep sea. However when it approaches the coast its wavelength diminishes but amplitude grows enormously, and it takes very little time to reach its full height. Computer model can provide tsunami arrival, usually within minutes of the arrival time. Tsunamis have great erosion potential, stripping beaches of sand, coastal vegetation and dissipating its energy through the destruction of houses and coastal structure.
- For Tsunami to hit the Indian coast according to INCOIS, it is necessary that the earthquake of magnitude more than 7.0 on Richter scale should normally occur. The possible zones for such an event to occur are Andaman - Sumatra or Makran (Pakistan). Not all the major earthquakes are Tsunamigenic

## Manmade Disasters:

### 1. Industrial and chemical Disaster:

- Industrial disaster: Industrial disasters are disasters caused by chemical, mechanical, civil, electrical or other process failures due to accident, negligence or incompetence, in an industrial plant which may spill over to the areas outside the plant or within causing damage to life, property and environment.
- Chemical disaster: Chemical disasters are occurrence of emission, fire or explosion involving one or more hazardous chemicals in the course of industrial activity (handling), storage or transportation or due to natural events leading to serious effects inside or outside the installation likely to cause loss of life and property including adverse effects on the environment. “Chemical accident or emergency can result in extensive damage to the environment with considerable human and economic costs.

### 2. Stampede:

- The term stampede is applied to a sudden rush of a crowd of people, usually resulting in many injuries and death from suffocation and trampling. In stampede, the term mob or crowd is used to refer to a congregated, active, polarized aggregate of people, which is basically heterogeneous and complex. Its most salient features include homogeneity of thought and action among its participants and their impulsive and irrational actions.
- Causes: Incidents of stampedes can occur in numerous socio-cultural situations. These stampede incidents can be categorized into the following types, where the causes and the impact are described in the incident. Though the list is not exhaustive, it provides a fair idea about various types of situations where stampedes can occur: **Entertainment events, Escalator and moving walkways, Food distribution, Processions, Natural disasters, Power failure, Religious events, Fire incidents during religious/other events, Riots, Sports events, Weather related**

### 3. Road Accidents:

- The rapid expansion of road transport has brought with it the challenge of addressing adverse factors such as the increase in road accidents. Road accidents are a human tragedy. It involves high human suffering and monetary costs in terms of premature deaths, injuries, loss of productivity etc. Most deaths and injuries due to road accidents are invisible to society. They are a hidden epidemic. In India, motor vehicles including two wheelers are growing at a faster rate than the economic and population growth.

### 4. Rail Accidents:

- Railway Disaster is a serious train accident or an untoward event of grave nature, either on railway premises or arising out of railway activity, due to natural or human-made causes, that may lead to loss of many lives and /or grievous injuries to a large number of people, and/or severe disruption of traffic etc, necessitating large scale help from other government/non-government and private organizations.”

### 5. Air Accidents:

- Air accidents are by and large of four types; mid-air collisions, forced landings, crash due to technical snags and air-crash in mountainous terrain due to poor visibility. While air accidents can occur at any time and at any place, areas within about 30 – 40 kms. radius of airports are most vulnerable. Experience shows that a majority of air accidents occur either during take-off or landing near major airports where flight paths get congested. In addition, air accidents also take place at remote inaccessible places like forests, hilly and mountainous regions, high seas, etc.
- Causes of air accidents are either human failure of pilots, air traffic controllers or technical failures of on board, landing instruments. In rare cases, it may also be the result of terrorist activities.

### 6. Mine Accidents:

- Mines Act, 1965 defines Disaster as an act Accident (unexpected event) causing loss of more than 10 lives. A mining accident is an accident that occurs in the process of mining minerals. The Act categories an accident involving loss of lives less than 10 major accident. Thousands of miners die from mining accidents each year, especially in the process of coal mining and hard rock mining.
- Side fall (slope failure) disaster in opencast mines, Roof and side falls in underground mines, Collapse of mine pillars, Air Blast, Failure of rope haulage, Accident due to electricity, Mine fires, Accidents due to explosive, Inundations, Explosions in mines. Rock burst and bumps,

### 7. Nuclear Disasters:

- Nuclear emergency /Disaster is caused due to an extraordinary release of radioactive material or radiation either in the operation of nuclear reactors or other nuclear events like explosion of a Radiological Dispersal Device (RDD) or Improvised Nuclear Device (IND) or explosion of a nuclear weapon. It is accompanied with sudden release of harmful radiations or radioactive materials or both together in to the environment.
- Nuclear emergency may be encountered in the following situations: Intentional use of nuclear weapons in the event of war: Nuclear attacks may make use of nuclear weapons, which are extremely destructive and powerful enough to destroy an entire city.
- Accidents in nuclear power project: The nuclear Power Plants take care of safety by Engineered safety features by design and redundancy in safety systems to prevent any mal-operations and to bring the system to a safe shut down in case of any abnormalities. However, in case of a major malfunction, there is a remote possibility of release of radioactivity/ radiation to the environment. The area affected would depend on the amount of the release, and wind direction, speed and weather conditions.

### 8. Epidemics in India:

- Infectious diseases are a major public health problem in India.
- While many infectious diseases like tuberculosis and malaria are endemic, some of them occasionally attain epidemic proportion.
- An epidemic refers to an increase, often sudden, in number of cases of a disease in a community clearly in excess of what is normally expected in that population.
- Epidemics are public health emergencies which disrupt routine health services and are major drain on resources.
- Epidemics include viral infections disease (meningitis, measles, dengue, polio, typhoid fever etc.) and Bacterial infectious diseases (cholera, diarrhoea etc.)
- The main causes for epidemic are non availability of clean and hygienic drinking water contamination of drinking water sources, lack of awareness about sanitation, unhygienic food, overcrowding, biological conditions in addition to ecological factors.

## DISASTER MANAGEMENT IN INDIA

- A permanent and institutionalised setup for DM was **initialised in India in the early 1990s**.
- A few instances that prompted institutionalisation included the declaration of **1990 as the 'International Decade for Natural Disaster Reduction'** (IDNDR) by the UN General Assembly, the Latur (1993) and Bhuj (2001) earthquakes, the Orissa super cyclone (2001), and so on.
- Institutionalised activities in India for DM started with the setting up of **Disaster Management Cell under the Ministry of Agriculture**.
- This followed the report of the **J.C. Pant Committee**, constituted to draw up a systematic, comprehensive and holistic approach towards disasters.
- From a relief through financial aid, the policy evolved into a **holistic DM approach**.
- In 2002 the DM Division was shifted from Ministry of Agriculture to **Home Affairs (MHA)**, and an institutionalised and hierarchical structure was established for DM.
- Under this structure, the DM Division is headed by **Joint Secretary (DM) in MHA**. The Joint Secretary (DM) is assisted by three Directors, with a host of officials including Under Secretaries, Section Officers, Technical Officers, Senior Economic Investigators, Consultants and other supporting staff.
- The Division is overseen by the **Secretary (Border Management), Home Secretary, Minister of State and the Home Minister**.
- The focus of DM now shifted to early warning systems, forecasting and monitoring of various hazards

### Present DM Structure

- The present DM Structure in India has National Disaster Management Authority (**NDMA**) at the helm.
- The **Prime Minister heads NDMA**.
- The State Disaster Management Authorities (**SDMA**) functions under the NDMA. This is followed by district and local level authorities.
- The activities of NDMA are also supplemented by the **National Crisis Management Committee**.
- A **number of nodal ministries** are identified for different types of disasters, who function under the overall guidance of the MHA. Thus, there are now various levels of institutional setup within the DM framework.

## LEGAL ARRANGEMENTS IN INDIA ON DISASTER MANAGEMENT

### **THE DISASTER MANAGEMENT ACT, 2005**

- The Disaster Management Act was passed on **23 December 2005**, by the Government of India. The Act was a remarkable step towards holistic disaster management.

- It lays down the **institutional, legal, financial and coordination** mechanism at various levels— National, State, District and Local Levels.
- Rather than a response and relief-centric approach, the Act provides for a **proactive and comprehensive mindset** towards disaster management.

The highlights of the Act include:

- Creation of a **policy, legal and institutional framework** that is backed by statutory and financial support.
- Integrating the **disaster management concerns of various sectors** into the developmental process and mitigation measures.
- Involving in a continuous and integrated process of **planning, organising, coordinating and implementing disaster management policies** and plans in a holistic, community based participatory, inclusive and sustainable manner.

Authorities Under the Act

- The Act provides for setting up of **NDMA, SDMAs, DDMAs** Executive Committees at national and state levels, National Institute of Disaster Management (**NIDM**) which engages in capacity building, and the National Disaster Response Force (**NDRF**). The various Ministries and Departments are also expected to draw up their own plans within the general guidelines of the National Plan.
- Other provisions of the Act include:
  1. Provisions for financial mechanisms like **creation of funds** for response,
  2. Setting up of **National Disaster Mitigation Fund** and similar funds at various levels, and
  3. Providing **specific roles to local bodies** in disaster management.

## INSTITUTIONAL ARRANGEMENTS IN INDIA

National Disaster Management Authority (NDMA)

- The National Disaster Management Authority (NDMA) was initially constituted on May 30, 2005 under the Chairmanship of Prime Minister
- The NDMA has been mandated with laying down policies on disaster management and guidelines which would be followed by different Ministries, Departments of the Government of India and State Government in taking measures for disaster risk reduction.
- It has also laid down guidelines to be followed by the State Authorities in drawing up the State Plans and to take such measures for the management of disasters, Details of these responsibilities are given as under:-
  1. Lay down policies on disaster management;
  2. Approve the National Plan;
  3. Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;
  4. Lay down guidelines to be followed by the State Authorities in drawing up the State Plan;
  5. Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
  6. Coordinate the enforcement and implementation of the policy and plan for disaster management;
  7. Recommend provision of funds for the purpose of mitigation;
  8. Provide such support to other countries affected by major disasters as may be determined by the Central Government;
  9. Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;
  10. Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

- Besides the nine members nominated by the Prime Minister, Chairperson of the Authority, the Organisational structure consists of a Secretary and five Joint Secretaries including one Financial Advisor. There are 10 posts of Joint Advisors and Directors, 14 Assistant Advisors, Under Secretaries and Assistant Financial Advisor and Duty Officer along with supporting staff.

#### National Executive Committee

- NEC is constituted as per Section 8 of the Act.
- It assists NDMA in the performance of its functions.
- It is the responsibility of the NEC to prepare the National Plan for Disaster Management.
- This should be based on the broad guidelines of the National Policy on Disaster Management.
- The NEC also monitors the implementation of the various guidelines issued by the NDMA.
- As per **Section 10** of the Act, NEC has the responsibility to:
  - ☐Act as the **coordinating and monitoring** body for DM,
  - ☐Prepare a **National Plan**,
  - ☐Monitor the **implementation of National Policy**, etc.
- **The Home Secretary is the ex-officio Chairperson of NEC.** Other members include Secretaries to the Government of India in the Ministries or Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Water Resources, Environment and Forest, Finance (Expenditure), Health, Power, Rural Development, Urban Development, Science and Technology, Space, Telecommunication.

#### State Disaster Management Authorities (SDMA)

- **Section 23** of the Act provides for constitution of SDMAs and DDMAs in all states and Union Territories.
- The SDMAs are **headed by the Chief Minister** of the respective states.
- The SDMA lays down **policies and plans for DM pertaining to the State**, in accordance with the guidelines laid down by the NDMA.
- It is the responsibility of SDMA to coordinate activities like:
  - ✓ ☐**Implementation of the State Plan**,
  - ✓ ☐Recommendations regarding **provisioning of required funds** for mitigation and preparedness measures, and
  - ✓ ☐**Reviewing the developmental plans** of various departments of the State so that there is a harmonious integration of activities leading to prevention, preparedness and mitigation of disasters.
  - ✓

#### State Executive Committee (SEC)

- **Section 20** of the Act prescribes establishing of SECs.
- The SEC is **constituted by the State Government** to assist in the functions of the SDMA.
- The SEC coordinates and monitors the **implementation of the National Policy, the National and State Plans**.
- The SEC is **headed by the Chief Secretary to the State Government**. The Chief Secretary is assisted by four other Secretaries of such departments as decided by the State Government.
- As per provisions of **Section 22** of the Act, the responsibility of SEC includes coordinating and monitoring the implementation of the National Policy and Plan, and the State Plan.

#### District Disaster Management Authority (DDMA)

- **Section 25** of the Act provides for constitution of DDMAs at the district level.
- **All districts** are expected to have DDMAs.
- The DDMA is **headed by the District Collector**, Deputy Commissioner or District Magistrate.
- The **Co-chairperson would be an elected representative** of the local authority.

- Other members of DDMA include the CEO of the District Authority, Superintendent of Police, Chief Medical Officer and two district level officers as designated by the State Government.
- The responsibility of DDMA includes:
  - ✓ □ Acting as the planning, coordinating and implementing body for **DM at the District level**,
  - ✓ □ Taking all the required measures for DM in accordance with the **guidelines laid down by the NDMA and SDMA**, and
  - ✓ □ Ensuring that all the **guidelines** and directives provided by the Departments at the **State and District Level** are followed as intended.

#### National Institute of Disaster Management (NIDM)

- The National Centre for Disaster Management (NCDM) was **established in New Delhi**, within the Indian Institute for Public Administration (IIPA) campus in **1995**.
- It was established in the backdrop of the International Decade for Natural Disaster Reduction (IDNDR).
- The NCDM was on **October 16, 2003 upgraded** and designated as the National Institute of Disaster Management (**NIDM**).
- The responsibilities of the Institute are contained in Section 42 (Chapter VII) of the Act.
- A few of the responsibilities include:
  - developing **training modules**,
  - undertaking **research and documentation** in the area of DM,
  - organising **training programmes**,
  - undertaking and **organising various study courses, conferences, lectures and seminars** for promoting and institutionalising disaster management,
  - **publication** of journals, research papers, books, etc.
- The **Union Home Minister is the President** of the Institute, with 42 general body members.
- The Institute is **headed by a Director**, who is assisted by faculty and staff.
- Presently the Institute has **four academic divisions**:
  1. Geo-Hazard Division
  2. Hydro-met Hazard Division
  3. Policy Planning and Cross Cutting Issues Division
  4. Response Division

#### National Disaster Response Force (NDRF)

- **Section 44** of the Act contains the provisions pertaining to the National Disaster Response Force (NDRF).
- The force has been constituted by **upgradation/conversion of eight standard battalions** (consisting of over 1000 members each) of Central Para Military Forces.
- This included two battalions each from the Border Security Force (BSF), the Indo—Tibetan Border Police (ITBP), the Central Industrial Security Force (CISF) and Central Reserve Police Force (CRPF).
- They were converted as a **specialist force to respond to disaster** or disaster like situations.
- The eight battalions consist of **144 specialised teams** that are trained in dealing with various types of natural disasters.
- While all these eight battalions are being trained in natural disasters, **four of them are additionally trained for handling Chemical, Biological, Radiological and Nuclear (CBRN) disasters**.
- Out of the 144 teams **72 are trained to cater to disasters-related CBRN**.
- Each NDRF battalion consists of over **1000 personnel organised in 18 teams comprising of 45 personnel**.
- All the personnel are equipped and trained for rendering effective response to any threatening disaster situation or disaster, either natural or manmade.
- These battalions are **stationed in eight different regions** of the country, based on vulnerability.

- As per the Act, the general superintendence, direction and **control of NDRF are vested with the NDMA.**
- The NDRF units will also impart basic training to all the stakeholders identified by the State Governments in their respective locations.
- Further, a National Academy will be set up to provide training for trainers in disaster management and to meet related national and international commitments

### **NATIONAL POLICY ON DISASTER MANAGEMENT**

- The National Policy on Disaster Management (NPDM) has been prepared in tune with and in pursuance of the Disaster Management Act, 2005. National Policy on Disaster Management (NPDM) will provide the framework/roadmap for handling disasters in a holistic manner.
- The Policy covers all aspects of disaster management covering institutional, legal and financial arrangements; disaster prevention, mitigation and preparedness, techno-legal regime; response, relief and rehabilitation; reconstruction and recovery; capacity development; knowledge management and research and development.
- It focuses on the areas where action is needed and the institutional mechanism through which such action can be channelized.
- The NPDM addresses the concerns of all the sections of the society including differently abled persons, women, children and other disadvantaged groups. In terms of grant of relief and formulating measures for rehabilitation of the affected persons due to disasters, the issue of equity/inclusiveness has been accorded due consideration.
- The NPDM aims to bring in transparency and accountability in all aspects of disaster management through involvement of community, community based organizations, Panchayati Raj Institutions (PRIs), local bodies and civil society.

**Vision:** 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.

**Approach:** A holistic and integrated approach will be evolved toward disaster management with emphasis on building strategic partnerships at various levels. The themes underpinning the policy are:

- Community based DM, including last mile integration of the policy, plans and execution.
- -Capacity development in all spheres.
- -Consolidation of past initiatives and best practices.
- -Cooperation with agencies at national and international levels.
- - Multi-sectoral synergy.

**Objectives:** 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.
  - - Mainstreaming disaster management into the developmental planning process.
  - -Establishing institutional and techno-legal frame works to create an enabling regulatory environment and a compliance regime.
- Ensuring efficient mechanism for identification, assessment and monitoring of disaster risks.
- -Developing contemporary forecasting and early warning systems backed by responsive and failsafe communication with information technology support.

- -Promoting a productive partnership with the media to create awareness and contributing towards capacity development.
- -Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society.
- -Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat for ensuring safer living.
- -Promoting productive and proactive partnership with media in disaster management.

## **THE SENDAI FRAMEWORK**

The Sendai Framework for Disaster Risk Reduction 2015-2030 outlines seven clear targets and four priorities for action to prevent new and reduce existing disaster risks: (i) Understanding disaster risk; (ii) Strengthening disaster risk governance to manage disaster risk; (iii) Investing in disaster reduction for resilience and; (iv) Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

It aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years.

The Framework was adopted at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, on March 18, 2015.

### Targets

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015
- Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015
- Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030
- Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030

### Guiding Principles

1. Primary responsibility of States to prevent and reduce disaster risk, including through cooperation
2. Shared responsibility between central Government and national authorities, sectors and stakeholders as appropriate to national circumstances
3. Protection of persons and their assets while promoting and protecting all human rights including the right to development
4. Engagement from all of society
5. Full engagement of all State institutions of an executive and legislative nature at national and local levels
6. Empowerment of local authorities and communities through resources, incentives and decision making responsibilities as appropriate

7. Decision-making to be inclusive and risk-informed while using a multi-hazard approach
8. Coherence of disaster risk reduction and sustainable development policies, plans, practices and mechanisms, across different sectors
9. Accounting of local and specific characteristics of disaster risks when determining measures to reduce risk
10. Addressing underlying risk factors cost-effectively through investment versus relying primarily on post disaster response and recovery
11. «Build Back Better» for preventing the creation of, and reducing existing, disaster risk
12. The quality of global partnership and international cooperation to be effective, meaningful and strong
13. Support from developed countries and partners to developing countries to be tailored according to needs and priorities as identified by them

#### Priorities for Action

There is a need for focused action within and across sectors by States at local, national, regional and global levels in the following four priority areas.

- **Priority 1: Understanding disaster risk :** Disaster risk management needs to be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment
- **Priority 2: Strengthening disaster risk governance to manage disaster risk:** Disaster risk governance at the national, regional and global levels is vital to the management of disaster risk reduction in all sectors and ensuring the coherence of national and local frameworks of laws, regulations and public policies that, by defining roles and responsibilities, guide, encourage and incentivize the public and private sectors to take action and address disaster risk
- **Priority 3: Investing in disaster risk reduction for resilience:** Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets, as well as the environment. These can be drivers of innovation, growth and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses and ensure effective recovery and rehabilitation
- **Priority 4 Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation and reconstruction:** be strengthened for more effective response and ensure capacities are in place for effective recovery. Disasters have also demonstrated that the recovery, rehabilitation and reconstruction phase, which needs to be prepared ahead of the disaster, is an opportunity to «Build Back Better» through integrating disaster risk reduction measures. Women and persons with disabilities should publicly lead and promote gender-equitable and universally accessible approaches during the response and reconstruction phases