

DISASTER RISK MANAGEMENT IN INDIA

Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, and Waste Management, Institutional arrangements (Mitigation, Response and Preparedness), Disaster Management Act and Policy - Other related policies, plans, programmes and legislation - Role of GIS and Information Technology Components in Preparedness, Risk Assessment, Response and Recovery Phases of Disaster - Disaster Damage Assessment

7.1. Components of Disaster Relief:

Disaster relief (or emergency management) refers to the process of responding to a disastrous situation, providing caring aid to persons and communities who have suffered from some form of disaster. It involves dealing with and avoiding risks and preparing, supporting, and rebuilding society when natural or human-made disasters occur.

Immediate Relief shall be provided to all the affected families without any discrimination of caste, creed, religion or community. The Relief Packages should be need based and customized to the specifics of the affected community and adhered to the minimum standards set for relief distribution. Attention will be given to the culture concerns of different communities and to eliminate religion/gender based discrimination in relief distribution.

The State government shall explore additional sources of funding from central government agencies, if budgetary allocations of the State government for relief activities and funds available under Calamity

Relief Fund and National Calamity Contingency Fund are inadequate to meet the requirements.

Disaster relief is an important function post-disaster response.

Typically the tasks of relief include the following:

i. **Emergency medical response:**

- Medical response has to be quick and effective.
- The execution of medical response plans and deployment of medical resources warrant special attention at the State and District level in most of the situations.
- The voluntary consumption of the nearest medical resources to the disaster site, irrespective of the administrative boundaries, will be emphasized.
- Mobile medical hospitals and other resources available with the centre will also be provided to the states/UTs in a proactive manner.
- In disaster-affected populations, all children of 6 months to 12 years old receive a dose of measles vaccine and an appropriate dose of vitamin A as soon as possible.
- The occurrence of communicable diseases is monitored.
- Diseases of epidemic potential are investigated and controlled according to internationally accepted norms and standards.
- Depending on the disease, this may involve the prompt diagnosis and treatment of cases (e.g. cholera), isolation of cases (e.g. viral hemorrhagic fevers, Ebola) and controlling animal reservoirs (e.g. plague).
- Emergency health care for disaster-affected populations is based on an initial assessment and data from an ongoing health information system, and serves to reduce excess mortality and morbidity through appropriate medical care.
- Health care in emergencies follows primary health care (PHC) principles and targets health problems that cause excess morbidity and mortality.
- Emergency health care, including treatment of disease and injuries, is provided to the population largely at community level. Some treatment occurs at health facilities and a smaller number of serious cases is sent to referral centres.

- ii. **Sanitation:** Post-disaster management of health, sanitation and hygiene services is crucial to prevent an outbreak of epidemics.

Therefore a constant monitoring of any such possibilities will be necessary.

- People must have sufficient numbers of toilets, sufficiently close to their dwellings to allow them rapid, safe and acceptable access at all times of the day and night.
- People have access to toilets which are designed, constructed and maintained in such a way as to be comfortable, hygienic and safe to use.
- All sections of the affected population are aware of priority hygiene practices that create the greatest risk to health and are able to change them.
- They have adequate information and resources for the use of water and sanitation facilities to protect their health and dignity.

Key indicators are:

- Maximum of 20 people per toilet.
- Use of toilets is arranged by household(s) and/or segregated by sex.
- Toilets are no more than 50 metres from dwellings, or no more than one minute's walk.
- Separate toilets for women and men are available in public places (markets, distribution centres, health centres etc)

ii. Food and Nutrition: The nutritional needs of the population are met.

- **Food Quality and Safety:** Food that is distributed is of sufficient quality and is safely handled so as to be fit for human consumption.
- **Food Acceptability:** Foods that are provided are appropriate and acceptable to the entire population.
- **Food Handling and Safety:** Food is stored, prepared and consumed in a safe and appropriate manner, both at household and community level.
- **Targeting Standard:** Recipients of food aid are selected on the basis of food need and/or vulnerability to food insecurity.
- **Food aid requirements:**
 - **A general ration:** to provide a complete basket of food commodities in quantities sufficient to meet requirements.
 - **A complementary ration:** to provide one or two food commodities to complement existing foods available and accessible to the

affected population (for example, pulses and oil might be provided to complement locally accessible cereals).

- **A supplementary ration:** to provide specific foods as a supplement to the general ration, in order to cover the needs of particular groups. Typically such groups would include malnourished individuals, young children and/or pregnant or nursing mothers.

iv. **Water:**

- All people have safe access to a sufficient quantity of water for drinking, cooking and personal and domestic hygiene.
- Public water points are sufficiently close to shelters to allow use of the minimum water requirement.
- Water at the point of collection is palatable, and of sufficient quality to be drunk and used for personal and domestic hygiene without causing significant risk to health due to water-borne diseases, or to chemical or radiological contamination from short term use.

v. **Shelter:**

- Multipurpose Permanent Community Shelters shall be constructed in vulnerable villages with due provisions for accommodating displaced families.
- These shelters may be used as Community Centres during normalcy.
- Shelters for domestic animals especially milk animals shall also be arranged, if necessary.
- People have sufficient covered space to provide protection from adverse effects of the climate. They have sufficient warmth, fresh air, security and privacy to ensure their dignity, health and well-being.

vi. **Management of relief camps:**

- The temporary relief camps will have adequate provision of drinking water and bathing, sanitation and essential health-care facilities.
- The affected community and local authorities need to work in tandem in managing the relief camps.

vii. **Clothing Standard:** The people affected by the disaster have sufficient blankets and clothing to provide protection from the climate and to ensure their dignity, safety and wellbeing.

viii. **Items for Households and Livelihood Support:** Families have access to household utensils, soap for personal hygiene and tools for their dignity and wellbeing.

7.2. Solid Waste Management Standards:

i. **Solid Waste Collection and Disposal:** People have an environment that is acceptably free of solid waste contamination, including medical wastes.

Key indicators are:

- Domestic refuse is removed from the settlement or buried on site before it becomes a nuisance or a health risk.
- There are no contaminated or dangerous medical wastes (needles, glass, dressings, drugs etc) at any time in the living area or public spaces.
- There is a correctly designed, constructed and operated incinerator with deep ash pit within the boundaries of each health facility.
- There are refuse pits, bins or specified areas at markets and slaughtering areas, with a daily collection system.
- Final disposal of solid waste is carried out in such a place and in such a way as to avoid creating health and environmental problems.

ii. **Solid Waste Containers/Pits:** People have the means to dispose of their domestic waste conveniently and effectively.

Key indicators being:

- No dwelling is more than 15 meters from a refuse container or household refuse pit, or 100 metres from a communal refuse pit.
- One 100 litre refuse container is available per 10 families, where domestic refuse is not buried on site.

7.3. Drainage Standards:

i. **Drainage Works:** People have an environment that is acceptably free from risk of water erosion and from standing water, including storm water, flood water, domestic wastewater and wastewater from medical facilities.

Key indicators are:

- There is no standing wastewater around water points or elsewhere in the settlement.

- Storm water flows away.
- Shelters, paths and water and sanitation facilities are not flooded or eroded by water.

ii. **Installations and Tools:** People have the means (installations, tools etc) to dispose of domestic wastewater and water point wastewater conveniently and effectively, and to protect their shelters and other family or communal facilities from flooding and erosion.

Key indicators:

- Sufficient numbers of appropriately designed tools are provided to people for small drainage works and maintenance where necessary.
- Water point drainage is well planned, built and maintained. This includes drainage from washing and bathing areas as well as water collection points.

7.4. Disaster Management Act, 2005:

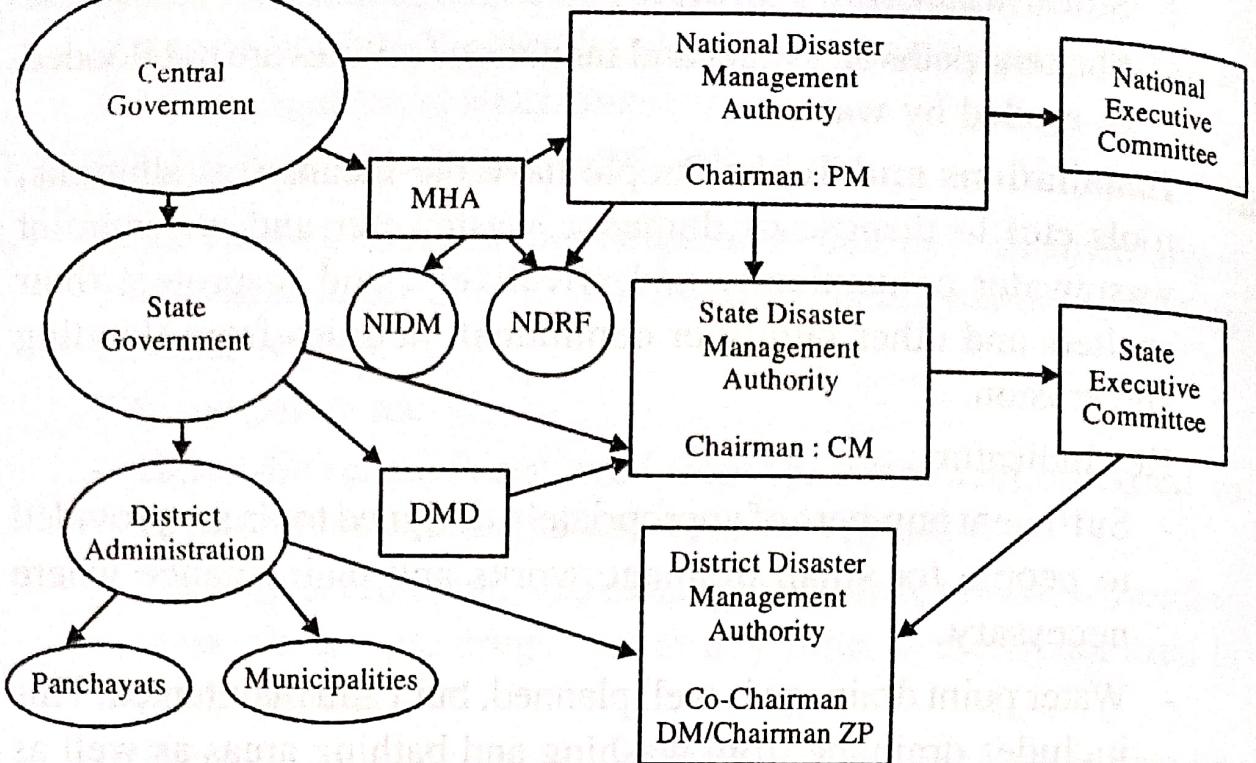
- The Act lays down institutional, legal, financial and coordination mechanisms at the national, state, district and local levels.
- These institutions are not parallel structures and will work in close harmony.
- The new institutional framework is expected to guide in a pattern shift in DM from relief-centric approach to a positive government that lays greater emphasis on preparedness, prevention and mitigation.

7.4.1. Institutional Framework under the DM Act, 2005:

Evolution of Disaster Management in India Disaster management in India has evolved from an activity-based reactive setup to a proactive institutionalized structure;

- from single faculty domain to a multi-stakeholder setup; and
- from a relief-based approach to a 'multi-dimensional pro-active holistic approach for reducing risk'

The beginnings of an institutional structure for disaster management can be traced to the British period. Over the past century, the disaster management in India has undergone substantive changes in its composition, nature and policy.



i. National Disaster Management Authority (NDMA)

The NDMA, as the top body for disaster management, is headed by the Prime Minister. NMDA has the responsibility for laying down policies, plans and guidelines for DM (and coordinating their enforcement and implementation for ensuring timely and effective response to disasters).

Functions:

- To assist the Central Ministries, Departments and States to formulate their respective DM plans.
- To approve the National Disaster Management and DM plans of the Central Ministries/Departments.
- It considers necessary measures for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster.
- Central ministries/ departments and State Governments will extend necessary cooperation and assistance to NDMA for carrying out its mandate.
- It will supervise the provision and application of funds for mitigation and preparedness measures.
- NDMA has the power to authorize the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster.

- The general superintendence, direction and control of National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA.
- Provide guidelines to National Institute of Disaster Management (NIDM) which works within the framework of broad policies laid down by NDMA.
- NDMA is authorized to deal with all types of disasters, natural or man-made.
- NDMA may, however, formulate guidelines and facilitate training and preparedness activities in respect of Chemical, Biological, Radiological and Nuclear (CBRN) emergencies. Cross cutting themes like medical preparedness, psycho-social care and trauma, community based disaster preparedness, information & communication technology, training, preparedness, awareness generation etc. for natural and manmade disasters will also engage the attention of NDMA in partnership with the stakeholders concerned.
- Resources available with the disaster management authorities at all level, which are capable of discharging emergency support functions, will be made available to the nodal Ministries/Agencies dealing with the emergencies at times of impending disasters/disasters.

ii. The National Executive Committee (NEC) of NMDA

The National Executive Committee (NEC) comprises the Union Home Secretary as the Chairperson, and the Secretaries to the GOI in the Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee as members.

Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and Secretary, NDMA will be special invitees to the meetings of the NEC.

Structure of National Executive Committee (NEC) of NMDA

Functions of NEC:

- To assist NDMA in the discharge of its functions and also ensures compliance of the directions issued by the Central Government.
- To coordinate the response in the event of any threatening disaster situation or disaster.
- To prepare the National Plan for Disaster Management based on the National Policy on Disaster Management.
- To monitor the implementation of guidelines issued by NDMA.

iii. State Disaster Management Authority (SDMA)

At the State level, the SDMA, headed by the Chief Minister, will lay down policies and plans for DM in the State.

Functions:

- To approve the State Plan in accordance with the guidelines laid down by the NDMA,
- To coordinate the implementation of the State Plan,
- To recommend provision of funds for mitigation and preparedness measures and
- To review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures.
- To constitute a State Executive Committee (SEC)

SEC: The SEC will be headed by the Chief Secretary to the State Government.

Functions of SEC:

- To assist the SDMA in the performance of its functions
- To coordinate and monitor the implementation of the National Policy, the National Plan and the State Plan.
- To provide information to the NDMA relating to different aspects of DM.
- To provide emergency communication with a vulnerable or affected area;
- Transporting personnel and relief goods to and from the affected area;
- Providing evacuation, rescue, temporary shelter or other immediate relief;
- Carrying out evacuation of persons or live-stock from an area of any

- Threatening disaster situation or disaster;
- setting up temporary bridges, jetties and landing places;
- providing drinking water, essential provisions, healthcare and services in an affected area;

District Disaster Management Authority (DDMA)

iv. The DDMA will be headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as the Co-Chairperson.

DDMA will act as the planning, coordinating and implementing body for DM at District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA.

Functions:

- To prepare the District DM plan for the district
- To monitor the implementation of the National Policy, the State Policy, the National Plan, the State Plan and the District Plan.
- To ensure the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the SDMA are followed by all Departments of the State Government at the District level and the local authorities in the district

Local Authorities

For the purpose of this policy, local authorities would include Panchayati Raj Institutions (PRI), Urban Local Bodies (ULBs), Municipalities, District and Cantonment Boards and Town Planning Authorities which control and manage civic services. These authorities are closest to the communities and therefore provide crucial role in implementing sectoral plans at the grassroots. These institutions are a watershed in the history of democratic decentralization and participatory development in India and have got enough teeth in terms of financial and structural autonomy with the implementation of the 73rd Constitutional Amendment Act 1992.

Functions of Local Authorities:

- To ensure capacity building of their officers and employees for managing disasters,
- To carry out relief, rehabilitation and reconstruction activities in the affected areas

- To prepare DM Plans in consonance with guidelines of the NDMA, SDMAs and DDMAs.
- PRIs/ ULBs involves - Zila Parishads, Panchayat Samitis and village Panchayats in the implementation of Disaster management programmes
- The Panchayati Raj Institutions can play an important role in Information Education and Communication (IEC) activities.
- Being from within the same geographical area, they can identify the vulnerable groups, work with them,
- To enable people to identify their own needs and problems, and evolve ways of resolving them.
- To take the initiative in helping the external agencies in the relief and rescue process.
- To spread the warning to areas likely to be affected.
- To command the task of preparing the basics required for rescue work
- To respond immediately when a disaster strikes its area in order to reduce loss of lives, injury and damage
- They can help reduce the adverse impact of disasters through spreading warnings of the impending disaster and evacuation, extending a helping hand to women, children, old and sick people, and assisting the affected with the distribution of relief.

vi. National Institute of Disaster Management (NIDM)

The NIDM, in partnership with other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a national level information base.

Functions:

- It coordinate with other knowledge-based institutions and function within the broad policies and guidelines laid down by the NDMA.
- It organizes training of trainers, DM officials and other stakeholders.
- The NIDM attempt to emerge as a 'Centre of Excellence' in the field of Disaster Management

vii. National Disaster Response Force (NDRF)

Disaster Management Act has mandated the constitution of a National Disaster Response Force (NDRF) to deal with a

threatening disaster situation or disasters/emergencies both natural and man-made such as those of Chemical, Biological, Radiological and Nuclear origin.

The general supervision, direction and control of this force are carried out by the Director General of Civil Defense and National Disaster Response Force. Presently, the NDRF comprises eight battalions and further expansion may be considered in due course. These battalions positioned at different locations as may be required.

Functions:

- To maintain close link with the designated State Governments and
- To remain available in the event of any serious threatening disaster situation
- While the handling of natural disasters rests with all the NDRF battalions, four battalions will also be equipped and trained to respond to situations arising out of Chemical, Biological, and Radiological and Nuclear emergencies.
- To impart basic training to all the stakeholders identified by the State Governments in their respective locations.
- To set up a National Academy in order to provide training for trainers in disaster management and to meet related national and international commitments.
- Mitigation reserves are placed at the disposal of National Disaster Response Force for enhancing their emergency responding capabilities for assisting the State Governments during a disaster or disaster like situation.

viii. Role and Responsibilities of Central Government

- To take into consideration the recommendations of the State Government departments while deciding upon the various pre-disaster requirements and for deciding upon the measures for prevention and mitigation of disaster.
- To ensure that Central Ministries and Departments integrate measures for the prevention and mitigation of disasters into their developmental plans and projects,
- To make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness
- To effectively respond to any disaster situation or disaster

7.5. Institutional arrangements (Mitigation, Response and Preparedness)

7.5.1. Disaster Prevention and Mitigation:

Following approach needs to be adopted to undertake mitigation measures:

- Building mitigation measures into all development projects.
- Initiating of national level mitigation projects by the NDMA, in high priority areas, with the help of the Central Ministries and Departments concerned and the States.
- Encouraging and assisting State level mitigation projects in accordance with the guidelines.
- Indigenous knowledge on disaster and coping mechanisms adopted by various States will be given due weightage with special focus on protection of heritage structures.

Risk Assessment and Vulnerability Mapping

- Hazard zonation, mapping and vulnerability analysis in a multi-hazard framework will be carried out utilising Geographic Information System (GIS) based databases such as the National Database for Emergency Management (NDEM) and National Spatial Data Infrastructure (NSDI).
- As a first step towards addressing disaster vulnerabilities, Central Ministries and Departments, national agencies, knowledge-based institutions and DM authorities at the State and District levels need to carry out risk and vulnerability assessment of all disaster prone areas.
- Hazard zonation mapping and vulnerability analysis based on GIS and remote sensing data, needs to mandatorily include a ground check component.
- Hazard and Consequence Mapping on GIS platforms prepared for chemical accident prone districts.
- The increasing use of GIS, remote sensing and applications of Global Positioning Systems (GPS) in DM, has made it imperative to set up a mechanism for sharing thematic and spatial data through a designated electronic clearing house.
- The NSDI has been set up by the Survey of India, to collect, compile, analyse and prepare value-added maps for use by various agencies in the field of DM; for management of natural resources, industrial applications etc.

- The NSDI need to work towards inter-operability of data and information sharing protocols to facilitate effective policy analysis.
- A two-way inter-operable link will be established between NSDI and the National Disaster Emergency Communication network proposed in the Policy for easy and quick sharing.
- The programme designed to have spatial and non-spatial databases in a secure environment under the NDEM will derive the data sets through NSDI for addressing the information needs for disaster management.

ii. **Critical Infrastructure**

- It is of utmost importance that critical infrastructure like dams, roads, bridges, flyovers, railway lines, power stations, water storage towers, irrigation canals, delta water distributor network, river and coastal embankments, ports and other civic utilities are constantly monitored for safety standards in consonance with worldwide safety benchmarks and strengthened where deficient.
- The building standards for these infrastructures need to be aligned to the safety norms and concerned Departments/Authorities would ensure the requisite actions and measures to ensure this.

iii. **Environmentally Sustainable Development**

- Environmental considerations and developmental efforts need to go hand in hand for ensuring sustainability.
- Restoration of ecological balance in the Himalayan regions and raising coastal shelter belt plantations need to be incorporated wherever necessary in DM plans.
- Eco Systems of forests, islands, coastal areas, rivers, agricultural urban environment and industrial environment are also to be considered for restoration of ecological balances and sustainable development.
- Zonal regulation must ensure the preservation of natural habitats.

iv. **Climate Change Adaptation**

- Climate change is impacting on our glacial reserves, water balance, agriculture, forestry, coastal ecology, bio- diversity and human and animal health.
- There are definite indications that climate change would increase

the frequency and intensity of natural disasters like cyclone, flood and drought in the coming years.

- In order to meet these challenges in a sustained and effective manner, synergies in our approach and strategies for climate change adaptation and disaster risk reduction shall be encouraged and promoted.

7.5.2. Preparedness

i. Role of Forecasting and Early Warning Systems

- It is most essential to establish, upgrade and modernize the forecasting and early-warning systems for all types of disasters.
- The nodal agencies responsible for monitoring and carrying out surveillance, for specific natural disasters, will identify technological gaps and formulate projects for their upgradation, in a time bound manner.
- All States should provide to India Meteorological Department the required infrastructure for upgradation/establishment of meteorological observation systems.
- Partnership with the World Meteorological Organisation (WMO), Pacific Tsunami Warning System and other regional and global institutions may also be considered.
- ICT tools need to be used for data receptions, forecasting and timely dissemination.

ii. Communications and Information Technology (IT) Support

The basic communications and IT support requirements for disaster management correspond to the following levels:

- Decision makers and disaster managers at all levels.
- Real time distribution of advance warnings and information to the concerned authorities at various levels and threatened community. For broadcasting of advance warning and information through broadcasting mediums such as television and radio shall be used significantly as it has higher geographical reach. For coastal and hilly regions, network of meteorological department may be used.
- Last mile connectivity at the disaster site for control and conduct of rescue and relief operations.

7.5.3. Response:

- Prompt and effective response minimizes loss of life and property.
- A caring approach for the special needs of vulnerable sections is also important.
- The existing and the new institutional arrangements need to ensure an integrated, synergized and proactive approach in dealing with any disaster.
- This is possible through contemporary forecasting and early warning systems, fail-safe communication and anticipatory deployment of the specialized response forces.
- A well informed and prepared community can mitigate the impact of disasters

i. Role of National Executive Committee (NEC) in Response:

NEC coordinates response in the event of any threatening disaster situation or disaster. While disaster specific guidelines are formulated by NDMA, NEC may give directions to the concerned Ministries/Departments of the Govt. of India, the State Governments and the State Authorities regarding measures to be taken by them in response to any specific threatening disaster situation or disaster.

ii. Role of the Nodal and Other Central Ministries and Departments

For various types of disasters, the nodal Ministry concerned prepares a chart of detailed Response Plans which will be integrated into the National Response Plan. The NEC may coordinate response in the event of any threatening disaster situation or disaster.

iii. Role of State, District and Local Authorities

- It is the primary responsibility of the State Governments/ SDMAs to monitor and assess any developing situation and keep NDMA and NEC apprised of the same.
- They will also be responsible to constantly evaluate their own capabilities to handle that situation and project the anticipated requirements for the central resources well in time. Inter-State assistance and cooperation will be encouraged.
- Local authorities, Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) will play a significant role in the entire process, particularly in response and rescue operation, relief

and rehabilitation, awareness generation and disaster preparedness, restoration of livelihood options and coordination with Non-Governmental Organisations and civil society.

Key Steps in Response:

- i. **Levels of Disasters:** The Standard Operating Procedures (SOPs) for determining the levels of disasters and for issuing alerts to electronic messaging systems to various agencies about disasters have been formulated by Ministry of Home Affairs. These SOPs will be reviewed periodically for disaster response management in case of natural and manmade disasters.
- ii. **Medical Response:** Medical response has to be quick and effective. The execution of medical response plans and deployment of medical resources warrant special attention at the State and District level in most of the situations.
- iii. **Animal Care:** Animals both domestic as well as wild are exposed to the effects of natural and man-made disasters. It is necessary to devise appropriate measures to protect animals and find means to shelter and feed them during disasters and their aftermath, through a community effort, to the extent possible. The Departments/Ministries of the GoI such as Animal Husbandry and Dairy Department, Social Justice & Empowerment and the States concerned should devise such measures at all levels.

7.5.4. Relief and Rehabilitation:

i. Approach

Relief is no longer perceived only as needless assistance or provision of emergency relief supplies on time. It is on the contrary, viewed as an overarching system of facilitation of assistance to the victims of disaster for their rehabilitation in States and ensuring social safety and security of the affected persons. The relief needs to be prompt, adequate and of approved standards. Guidelines defining minimum standards of relief will be prepared by the NDMA.

ii. Setting up of Temporary Relief Camps

- DDMA, especially in frequent disaster prone areas, may identify locations for setting up temporary camps. Agencies to supply the necessary stores will be identified in the pre-disaster phase. The use of premises of educational institutions for setting up relief camps need to be discouraged.

- The temporary relief camps will have adequate provision of drinking water and bathing, sanitation and essential health-care facilities.

Efficient governance systems like entitlement cards, laminated identification cards etc., will be developed as a part of a uniform humanitarian governance practices through the respective DDMAs.

iii. Management of Relief Supplies

- Ensuring minimum standards of relief and speedy management of supplies are important features of relief operations.
- SOPs will be put in place for ensuring the procurement, packaging, transportation, storage and distribution of relief items, which need to be carried out in an organized manner.
- The affected community and local authorities need to work in tandem in managing the relief camps.
- Guidelines will be evolved to manage the donations received in cash or kind to ensure transparency and accountability.

iv. Temporary Livelihood Options and Socio-Economic Rehabilitation

- In the aftermath of any major disaster, generally a demand always arises to generate temporary livelihood options for the affected community and the State Governments should recognize this aspect in their DM planning process.
- Any such option must ensure that assets, infrastructure and the amenities created are hazard resistant, durable, sustainable, and cost-efficient.

7.5.5. Reconstruction and Recovery:

- This phase requires the most patient and painstaking effort by all concerned.
- The administration, the stakeholders and the communities need to stay focused on the needs of this phase as, with the passage of time, the sense of urgency gets diluted.
- The appropriate choice of technology and project impact assessment needs to be carried out to establish that the projects contemplated do not create any side effects on the physical, socio-cultural or economic environment of the communities in the affected areas or in their neighborhood.