

Chapter 3

National Disaster Preparedness

Background

The current disaster management system in India has its roots in drought response and famine management in the late eighteenth century. The earliest initiatives in developing an institutional mechanism for disaster management began in 1883 with the First Famine Code formulated by a Famine Commission. After 1947, the initial focus was on food scarcity and famine so a Scarcity Relief Division within the Ministry of Agriculture was put in charge of drought and scarcity management and gradually given the responsibility for managing all natural disasters when it was upgraded to a Natural Disaster Management Division (NDMD) within the Ministry of Agriculture. It was perceived subsequently that each disaster created complex emergencies that called for a holistic approach to effective management. As a result, the responsibility for disaster management, excluding drought, was shifted to the Ministry of Home Affairs in June 2002.

The increasing frequency and magnitude of disasters notwithstanding, the management process has always been traditional and disasters looked upon as aberrations or interruptions in normal day-to-day functioning of society, to be responded to primarily with relief. The cultural ethos of the most vulnerable people, facing frequent disasters with little resilience and a poor quality of life, was one of fatalism and acceptance of loss as the wrath of nature. A similar attitude prevailed within the administrative machinery too, with a focus only on post-disaster relief and rehabilitation. The prevalent nomenclature of the nodal officials and departments dealing with disaster management; viz., relief commissioners and departments of relief, indicate the significance of relief in the administrative system. Even now, the fund earmarked for disaster management is called the Calamity Relief Fund (CRF).

Current disaster management structure

In the federal structure of the Indian administration, disaster management is the responsibility of the states, with the national government playing a supportive role. The basic responsibility for undertaking rescue, relief, and rehabilitation measures in

the event of natural disasters is that of the state governments concerned, particularly the district administration. The role of the central government is supportive, in terms of supplementing physical and financial resources and complementary measures in sectors such as warning, transport, and inter-state movement of staple foods.

National level

After 1947, the country has had a fairly well-structured institutional system that has been required to respond to all crises and disasters. At the national level, the Ministry of Home Affairs is the focal agency for managing disasters generally. Disasters that require special technical responses are to be dealt with by the relevant department or ministry.

Within the Ministry of Home Affairs, the Central Relief Commissioner is responsible for coordinating relief operations during natural disasters. The Central Relief Commissioner receives early warnings and forecasts from the Indian Meteorological Department (IMD) and Central Water Commission on a continuing basis. Other ministries, departments, and organisations, with primary and secondary functions for disaster management, constitute a Crisis Management Group (CMG). A nodal officer, nominated from each ministry or department, is responsible for preparing a sectoral action plan or emergency support function plan for disaster management. The CMG's functions are to review the contingency plans, devise measures for dealing with natural disasters, and coordinate the activities of the central ministries and state governments in relation to disaster preparedness and relief. In the event of a disaster, the CMG should meet frequently to review the relief operations and extend all possible assistance to the states affected. Table 9 lists the nodal ministries managing different types of disaster, and Figure 1 illustrates the disaster management set-up at national level.

Table 9: Nodal ministries managing different types of disaster

Type of disaster/ crisis	Nodal ministry
Natural and man-made disasters	Ministry of Home Affairs
Drought	Ministry of Agriculture
Air Accidents	Ministry of Civil Aviation
Railway Accidents	Ministry of Railways
Chemical Disasters	Ministry of Environment
Biological Disasters	Ministry of Health
Nuclear accidents inside or outside the country which pose a threat to the people of India	Department of Atomic Energy
Source: NCDM 2001	

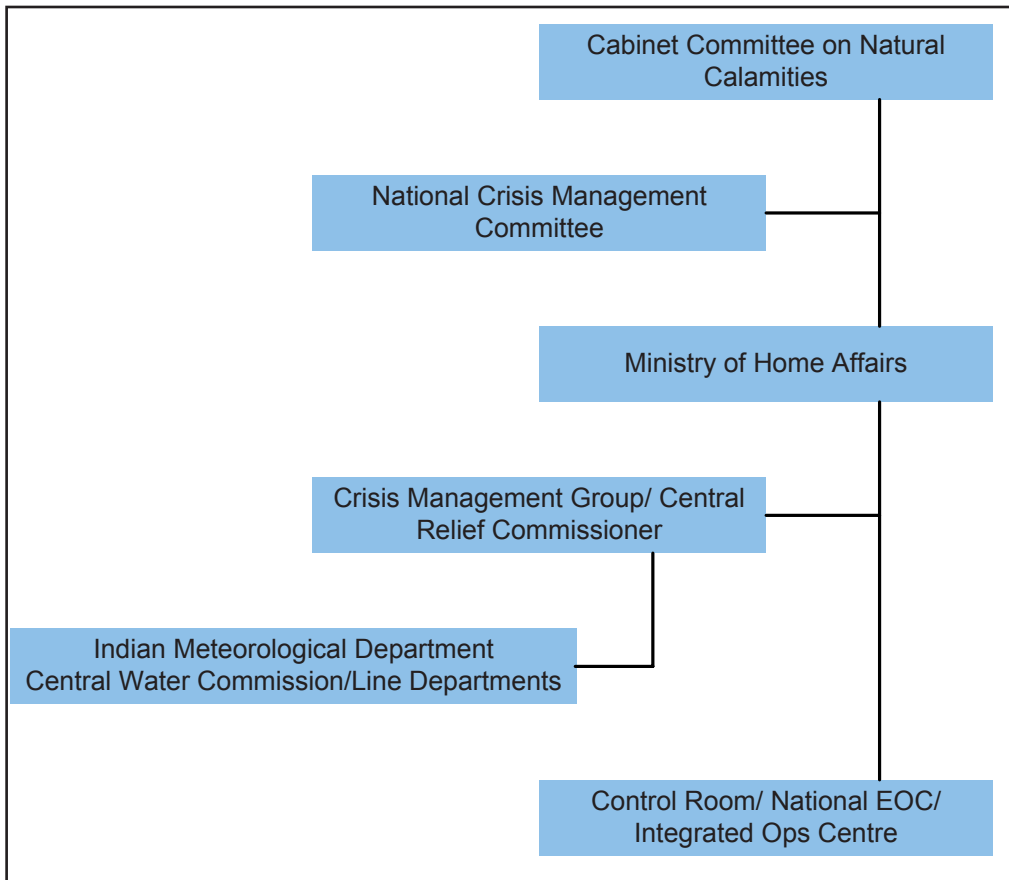


Figure 1: Disaster management set-up at national level

At a higher government level, there is a National Crisis Management Committee (NCMC) headed by the Cabinet Secretary. Membership is composed of secretaries from all relevant ministries and departments. The NCMC gives directions to the CMG as and when necessary. The NCMC can give directions to any ministry, department, or organisation to carry out specific actions in a crisis situation.

At the apex level, there are two cabinet committees; viz., the Cabinet Committee on Natural Calamities (originally the Cabinet Committee on Drought Management) and the Cabinet Committee on Security. The principal issues relating to natural disasters, primarily those pertaining to institutional and legislative measures needed to promote an effective strategy for natural disaster management, are placed before the Cabinet Committee on Natural Calamities.

State and district levels

A similar structure to the one at national level exists at state level. Relief commissioners are in charge of relief and rehabilitation measures in the wake of natural disasters in

their respective states. The Chief Secretary is in overall charge of relief operations in the state. The relief commissioner and the additional relief commissioners function under his or her direction and control. In many states, the secretary of the revenue department is also in charge of relief. The response at state level is governed by annual contingency plans. The Contingency Action Plan identifies the initiatives to be taken by various central ministries and public departments in the wake of natural calamities. It sets down the procedures and determines the focal points in the administrative machinery to facilitate relief and rescue operations, especially in perennially flood-prone states. Prepared with a response and relief-oriented approach, these plans have limited scope for mitigation and preparedness activities. Relief codes or manuals in different states determine the amount of and procedure for relief distribution.

The District Magistrate or Collector is responsible for overall management of disasters in his or her particular district. All disaster management activities are undertaken by the state and district administration and are put into operation on the basis of provisions laid down in state disaster management manuals. In the event of a disaster, a district collector has the authority to mobilise the response machinery immediately and enjoys absolute financial autonomy to withdraw money under the provisions of the general financial rules or treasury code. The district collector has the authority also to request the armed forces for assistance if circumstances demand. Thus the nodal authority to respond to a disaster rests with the district collector of the affected district. Other bodies, such as the armed forces and non-government organisations, complement the efforts of the state government. The armed forces can mobilise and coordinate rescue and relief in the shortest possible time and non-government organisations are useful for communicating with the community.

Schemes for financing relief expenditure in the wake of natural calamities are governed by a Finance Commission appointed by the Government of India every five years. Under the existing scheme, each state has a fund called the Calamity Relief Fund (CRF), administered by a state-level committee, and headed by the Chief Secretary of each state. The size of fund is determined by taking into consideration the expenditure normally incurred by relief and rehabilitation over the previous ten years. In case the funds in the CRF are not sufficient to meet the specific requirements, state governments can seek assistance from the National Calamity Contingency Fund (NCCF) – a fund established at national level. This is still the overall organisation but, since 2000, attempts at changes in institutional approach began.

The new paradigm and institutional changes

The prevailing approach to disaster management focused on post-disaster response and relief began to give way to a more holistic prevention-based approach during the International Decade for Natural Disaster Reduction (IDNDR) 1990-2000. India took

note of IDNDR objectives and introduced measures to reduce loss of life and property. The experience of disasters over the years augmented by the deliberations of the global community on disaster risk reduction brought attention to the need for prevention, preparedness, and mitigation aspects of disaster management.

With the progress of IDNDR, concern for a comprehensive approach to disaster management in India gained ground, focusing on the huge development losses from each disaster, which the country could ill afford. This concern was buttressed by a series of disasters that struck the country during IDNDR (see Tables, 4, 5, and 8). Together with the Asian Tsunami of 2004 these had a profound effect on the national psyche and focused the thinking towards the two-way link between disasters and development.

Early initiatives

Central Sector Scheme on Disaster Management – One of the earliest institutional initiatives in terms of a changing approach was the Central Sector Scheme on Disaster Management, implemented from 1993-94, and focused on disaster preparedness with an emphasis on mitigation and preparedness measures and improving the national capacity to reduce the adverse impacts of natural disasters. The principal activities undertaken involved hazard mapping and vulnerability assessment (e.g., preparation of the Vulnerability Atlas of India); human resource development (establishment of a National Centre for Disaster Management (NCDM) in New Delhi and disaster management cells with dedicated faculties in all the administrative training institutes in the states); upgrading the early warning system and strengthening the seismological instrumentation network; awareness generation; and other related activities.

Committees and commissions: recommendations and directions

High-powered Committee on Disaster Management – A High Powered Committee (HPC) on disaster management was established in August 1999 to recommend an institutional system for managing disasters. The committee studied the disaster management system globally and had a series of consultations with all stakeholders. Recommendations were made in 2001 which focused on the need for a holistic effort considering all disasters within a coordinated system of governance. It is this recommendation from the HPC that possibly provided the impetus for the Act of 2005 and gradual establishment of national-level authorities and committees. HPC also provided a model district plan. The HPC also focused on instilling a culture of prevention into the national psyche.

Finance Commission – The Finance Commission is a constitutional body set up every five years to deliberate and recommend measures for devolution of funds, revenues,

and taxes between the central and state governments. Past Finance Commissions had addressed issues and concerns of calamity relief, leading to the establishment of mechanisms like the Calamity Relief Fund and National Fund for Calamity Relief over the years. The Eleventh Finance Commission (2000 – 2005) stressed proactive, pre-disaster preparedness planning rather than a mere relief funding mechanism. The Twelfth Finance Commission continued in a similar vein, emphasising the necessity for integrating disaster preparedness and mitigation provisions into state plans, rather than as part of calamity relief. This commission also emphasised hazard mapping and a transparent relief distribution process and provided states with a total allocation of Rs 21,333.33 crore (\$US 4,848.5 million) for calamity relief and Rs 500 crore (\$US 1,136,364 approx) for the National Calamity Contingency Fund (NCCF) to be replenished by special duties and surcharges.

Planning Commission – The Planning Commission of India incorporated a separate chapter on ‘Disaster Management – The Development Perspective’ in the 10th Five Year Plan (2002-2007), with the objective of informing, guiding, and providing specific strategies for all state governments on disaster management. The Tenth Five Year Plan emphasised that development cannot be sustainable without mitigation being built into the development process. It provided for preparation of a plan for disaster mitigation for all states and mandated that each development initiative in a hazard-prone area should have disaster prevention or mitigation as a term of reference. This helped bring about a shift in approach from national development to ‘safe national development’ and laid down broad parameters and strategies for information dissemination and research initiatives, capacity building, training and education, community-level initiatives, and institutional arrangements. The Eleventh Five Year Plan reiterated the aim of safe development with integration of mitigation measures into development initiatives.

A chain of disasters brought a shift from a relief-based to a proactive preparedness and mitigation-based approach. It was realised that the apparent loss of human life and assets masked insurmountable losses in livelihood, social capital, and economic development. The cost of rehabilitation and reconstruction of a shattered infrastructure and economy can be enormous and carry over for years.

The paradigm shift in public policy from a disaster-specific to a comprehensive and holistic approach in a multisectoral and multidisciplinary format gained momentum. This approach proceeded from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process and investments in mitigation are more cost-effective than expenditure on relief and rehabilitation.

National disaster management framework

The shifting paradigm is currently being institutionalised through a National Disaster Management Framework (NDMF) which highlights the ‘interdependence of economy, environment, and development and links the issues of poverty alleviation, capacity building, and community empowerment as well as other structural and non-structural issues of prevention and preparedness, response and recovery for effective disaster risk mitigation and management” (Dhar Chakrabarti 2006). The underlying premise behind this framework is that, whereas hazards are inevitable, they need not become disasters every time.

The National Disaster Management Framework proposes initiatives pertaining to institutional mechanisms, disaster prevention strategy, early warning systems, disaster mitigation, preparedness, response, and human resource development. The NDMF is given in Figure 2.

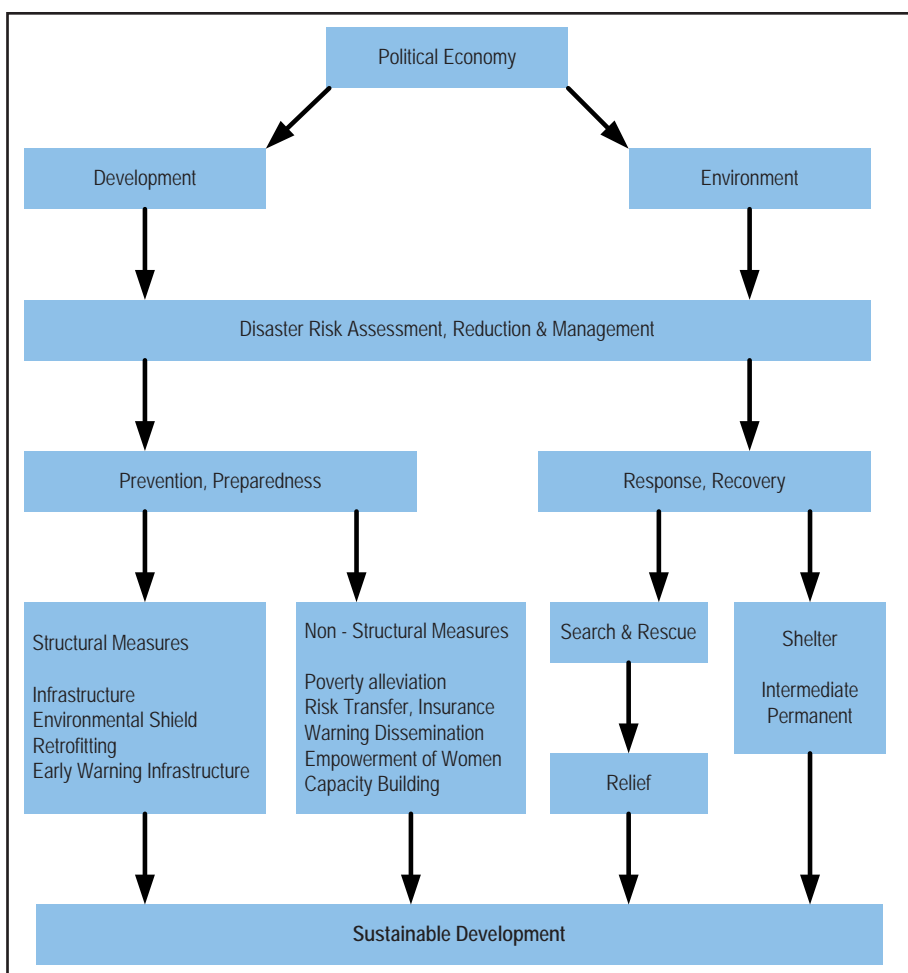


Figure 2: National disaster management framework

Although the response, relief, and rehabilitation mechanisms for disasters have been well-established since Independence, the new framework gives priority to the pre-disaster aspects of mitigation, prevention, and preparedness. Establishment of legal back-up for activities undertaken in the name of disaster management is one of the first steps in an efficient institutional framework. The framework is being put into operation through a techno-legal framework and preparedness, mitigation, and risk reduction initiatives. The National Disaster Management Act of 2005 enacted recently provides for an elaborate system for managing disasters.

National Disaster Management Act 2005

The National Disaster Management Act, 2005, which came into the statutes on 26th December, 2005, provided a legal and institutional framework for “the effective management of disasters and for matters connected therewith or incidental thereto.” The Act provided for an institutional mechanism at the national, state, and local levels for comprehensive disaster management. It also provided for establishment of the following institutions and mechanisms to deal with disaster management.

National Disaster Management Authority (NDMA) – The NDMA is entrusted with formulating policies, plans, and guidelines to ensure timely and effective response to disasters. The Prime Minister is Chair of the NDMA, and it has seven members. It is expected to frame guidelines for provision of minimum standards of relief, special provisions to be extended to widows and orphans, and ex gratia assistance for restoration. The NDMA is authorised to constitute an expert committee of professionals in the field of disaster management with practical experience of disaster management at the national, state, and district levels to recommend measures for different aspects of disaster management.

National Executive Committee (NEC) – The Act provides for the constitution of this committee, under the chairmanship of the Home Secretary, to assist the NDMA in performance of its functions. The committee assists the NDMA and ensures compliance with and implementation of the directions of the government and NDMA. The NEC members include secretaries of the ministries or departments of agriculture, defence, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, telecommunications, space, science and technology, urban development, and water resources as well as the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee, ex officio. The NEC is empowered to constitute sub-committees and nominate experts to dispense with its functions.

The responsibility for preparing the National Plan for Disaster Management lies with the NEC with regard to national policy. This is to be done in consultation with state governments and other expert bodies and organisations. The plan is to be approved by the NDMA and should include disaster prevention and mitigation measures to be taken

at national level, measures for integration of such measures into development plans, preparedness and capacity-building measures for effective response to disasters, and the roles and responsibilities of ministries and departments in delivering these activities. The NEC recently began preparing the National Plan.

National Policy on Disaster Management (NPDM) – This policy was prepared by the NDMA and is currently being considered by the government. The draft policy envisions a safer and disaster-resilient India than heretofore through development of a holistic, multisectoral, multi-stakeholder, and technology- driven approach which will ensure that hazards of nature and negligence of human beings do not endanger the lives and property of citizens; that economic growth and development take place without damaging natural and built-up environments; and that the interests of the poor, women, and other disadvantaged sections of society are protected from future natural or human-induced calamities. This is to be achieved through a culture of prevention, mitigation, and preparedness to pre-empt disasters to the greatest extent possible and to generate prompt and efficient responses to disasters. The entire process will focus on the community and will be given momentum through the collective efforts of all government agencies, non-government organisations (NGOs), and the private sector.

The objectives of the National Policy on Disaster Management are given in Box 2.

Box 2: Objectives of the national policy on disaster management

- To promote a culture of prevention and preparedness by focusing on disaster risk reduction as an overriding priority at all levels
- To encourage mitigation measures based on state-of-the-art technology and environmental sustainability
- To mainstream disaster management concerns into the development planning process
- To put in place a streamlined institutional techno-legal framework in order to create and preserve the integrity of an enabling regulatory environment and a compliance regime
- To develop contemporary forecasting and early warning systems backed by responsive and fail-safe communications and information technology (IT)
- To promote a productive partnership with the corporate sector and media to create awareness and contribute to capacity development
- To ensure efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society
- To undertake reconstruction as an opportunity to build disaster-resilient structures and habitat
- To undertake recovery to bring back the community to a better level than in the pre-disaster stage

National Institute of Disaster Management (NIDM) – The NIDM was founded from its predecessor the National Centre for Disaster Management (NCDM) with the aim of creating an institute of excellence in disaster management studies in India. As per the provisions of the Act, the NIDM is required to design, develop, and implement training programmes; undertake research; formulate and implement a comprehensive human resource development plan; provide assistance in national policy formulation; assist other research and training institutes, state governments, and other organisations in discharging their responsibilities effectively; develop educational materials for dissemination; and promote awareness among stakeholders in addition to any other function as assigned by the Central Government. The NIDM is also required to network with various research and training institutions to share knowledge and resources.

National Disaster Response Force – The National Disaster Response Force (NDRF) was established by upgrading and converting eight standard battalions of the central paramilitary forces as a specialist force to respond to disaster situations. These battalions consist of two battalions each from the Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), and Central Reserve Police Force (CRPF). Based on the vulnerability profile of different regions, these battalions are to be stationed in nine different locations to be deployed instantly in the event of any serious disaster situation. The NDRF is expected to be fully operational by the end of 2007. Four battalions will be trained specifically to respond to human-induced disasters. Units of this force will work under the general superintendence, direction, and control of the NDMA. They will liaise closely with the state governments and be available to them proactively.

State Disaster Response Forces (SDRF) – The states have been advised to set up their own specialist response forces. The existing resources of the state armed police, fire, and rescue services, home guards, civil defence, and others will be the sources from which the SDRFs are constituted to generate specialist response. They will also include women members to look after the needs of women and children. NDRF battalions and their training institutions will assist the states and UTs in this effort.

State Disaster Management Authorities (SDMAs) – The Act provides for establishment of state disaster management authorities under the chairpersonship of each Chief Minister. They will lay down disaster management plans and policies for the state; coordinate implementation; provide guidelines; recommend provision of funds for mitigation and preparedness; and review measures taken for preparedness, mitigation, and disaster risk reduction. Twenty-three states have already notified their SDMAs.

State Executive Committee (SEC) – The state governments are empowered to constitute a State Executive Committee under the chairpersonship of the Chief Secretary and four secretaries from relevant departments. These committees are responsible

for implementing the national and state plans and for acting as the coordinating and monitoring body for management of disasters in the state. They will prepare state disaster management plans as per the guidelines of the national authority after consultation with local authorities, departments, and people's representatives as each committee deems fit.

District Disaster Management Authorities (DDMAs) – Every state will constitute a District Disaster Management Authority under the co-chairpersonship of the District Magistrate and the President of the Zilla Parishad (district council), providing for integration of the executive and legislative focal points at the district level. The District Disaster Management Plan is to be prepared by the District Authority. The process of notifying these district authorities is currently under way in most states. Figure 3 gives the institutional framework for disaster management in India.

Disaster mitigation initiatives

The Departments of Relief are being restructured to incorporate mitigation and preparedness within their responsibilities and are being renamed Departments of

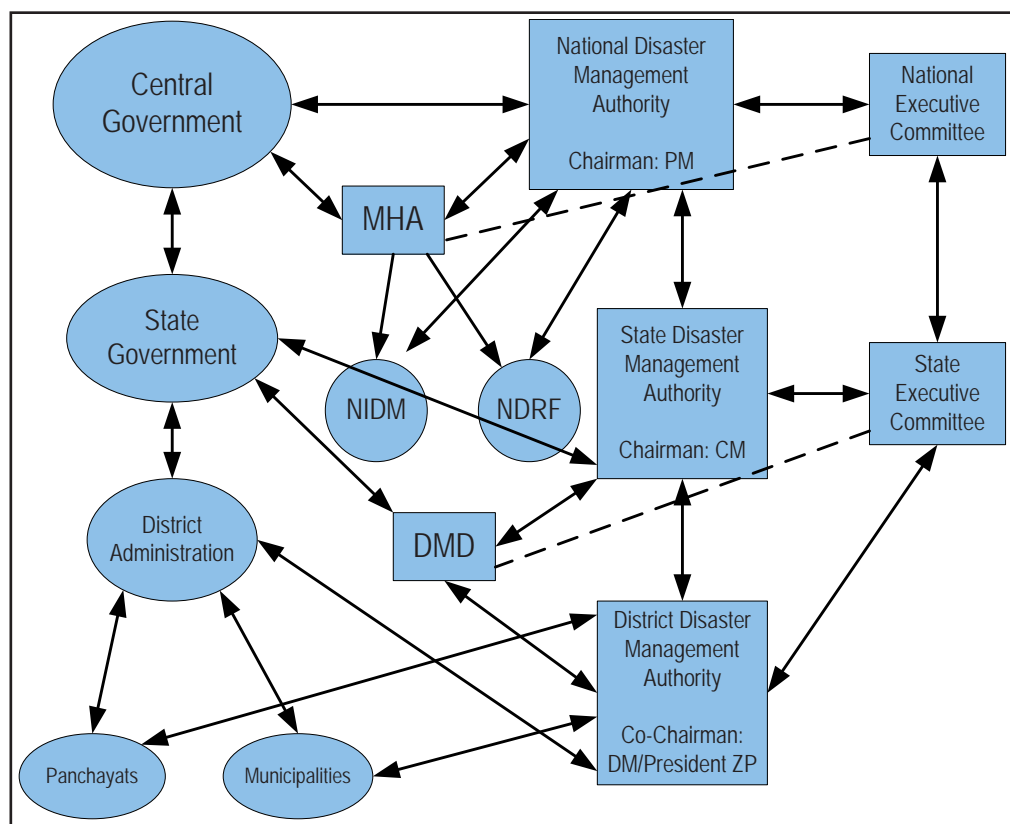


Figure 3: Institutional framework for disaster management in India

(Source: Dhar Chakrabarti 2006)

Disaster Management (DDMs). The objective of renaming the departments was to institutionalise risk management into the system. In eleven states, the offices of the relief commissioners have already been converted and put into operation as the 'Office of Secretary, Disaster Management and Relief'. Relief codes and manuals at the state level which provided the basis for disaster management are being reframed to incorporate all components of the disaster management cycle.

Techno-legal regime for mitigation – An expert committee was constituted to formulate model building bye-laws, town and country planning legislation, and zoning and building regulations for incorporating disaster-resistant features. This committee finalised the model building bye-laws for town and country planning legislation, land-use zonation, and development control legislation. The municipalities and city development authorities all over the country have been advised to make necessary changes in their respective bye-laws and regulations in accordance with the model laws.

The Bureau of Indian Standards has issued new building codes for construction of buildings in different seismic zones in the country. The National Building Code has also been revised, taking into consideration the natural hazards and risks of various regions.

Earthquake and cyclone mitigation – Two national programmes for capacity building in earthquake risk management to impart training to 10,000 engineers and 10,000 architects on safe architectural and construction practices are being implemented.

A National Earthquake Mitigation Project has been developed for detailed evaluation and retrofitting of buildings and training of masons in earthquake-resistant construction as well as providing assistance to states to put in place appropriate techno-legal regimes. A pilot project for detailed evaluation and retrofitting of five, key public buildings has been undertaken in Delhi. Retrofitting construction plans for two buildings are ready and construction is expected to begin in June 2007. The Accelerated Urban Earthquake Vulnerability Reduction Programme is being undertaken in 38 cities with populations of over 500,000 in seismic zones III, IV, and V. The programme incorporates orientation for senior officials and representatives of the local planning and development bodies and sensitises them about earthquake preparedness and mitigation measures, training for engineers and architects, education programmes for schools and colleges, and awareness programmes at the community level.

A National Core Group on Cyclone Monitoring and Mitigation comprised of experts in the field has been assigned the responsibility of looking at warning protocols for cyclones, upgrading technology, coordinating mechanisms between central and state governments, early warning and dissemination mechanisms, and cyclone mitigation measures.

Disaster risk management programme (DRMP) – A community-based disaster risk management programme is being implemented with UNDP assistance in 169 out of 604 districts in 17 multi-hazard prone states. In this programme, the states are being helped to draw up local-level disaster management plans, set up multi-hazard resistant emergency operation centres (EOCs), form village-level volunteer teams, and undertake training and capacity-building, mock drills, and so on. This programme has been introduced in all flood-prone states that are emphasising preparation of disaster management plans at the state, district, block, and village levels.

Civil defence and fire services – The Civil Defence is being revamped and strengthened to supplement local efforts for disaster response and relief. As an important part of the disaster management structure, it is envisaged that Civil Defence and Fire Services will contribute to community preparedness and public awareness at the grass-root level. Under the aegis of the SDMAs and DDMAs, the Civil Defence and Home Guards will be key responders. Similarly, the Fire Services are being modernised to convert them into multi-hazard response units.

Emergency medical preparedness – Medical preparedness is the most basic and crucial component of any disaster management plan. The NDMA, in close coordination with the Ministry of Health and Family Welfare, states, and premier medical research institutes has constituted a task force to formulate guidelines to improve capacities in emergency medical response and mass casualty management. Medical emergency plans for disasters for hospitals will include developing and training medical teams and paramedics, capacity building, trauma and psycho-social care, mass casualty management, and triage. The triage and casualty-handling capacity of all hospitals at the time of disasters will be worked out and recorded through a consultative process by all the states and union territories in the pre-disaster phase. Integration of private medical facilities with government ones will be ensured through legal and procedural support. These plans will also address post-disaster, disease surveillance systems, networking with hospitals, referral institutions, and accessing services and facilities such as availability of ambulances and blood banks.

Mobile hospitals – Equipped with state-of-the-art medical and emergency facilities, these units will be located in different parts of the country. During normal periods, they will be attached to different hospitals in the country to provide medical assistance. Hospital preparedness for mass emergencies is being incorporated into medical curricula, and in-service training for medical response professionals is being conducted.

Incident Command System (ICS) – The current command structure in the administrative hierarchy for managing disasters in India is traditional. The Government of India has

taken measures to strengthen and professionalise the same by drawing upon the principles of the ICS with suitable adaptations. Developed by the United States Forest Department (USFD), initially for managing forest fires, the ICS system has proved to be effective in providing an effective and systematic response to disasters. The ICS is essentially a system for organising emergency functions in a standardised manner while responding to any disaster. It will provide for specialist incident management teams with an incident commander and officers trained in different aspects of incident management, logistics, operations, planning, safety, and media management.

The government aims to put in place such teams in each district by imparting training in different facets of incident management to district-level functionaries. The emphasis will be on use of state-of-the-art technologies and equipment and on contemporary systems of planning and execution with connectivity to the joint operations' room at all levels. The initial ICS trainers received training in the United States, and they are training other officers of the central and state governments in different modules of ICS. A pilot study is currently being undertaken by NIDM to make the module suitable for the Indian system.

Flood preparedness and response – Floods continue to be a menace, mainly due to the huge amount of sediment carried downstream by the Himalayan rivers. Embankments also have problems of drainage congestion and waterlogging during heavy rainfall. Flood preparedness in India, introduced in 1950, has concentrated primarily on flood protection measures such as embankments, dams, barrages, and forecasting and early warning. The state governments have been assisted in introducing mitigation programmes such as construction of raised platforms. One hundred and seventy-two flood forecasting stations are in place along the major river basins and are operated by the Central Water Commission for monitoring and warning purposes.

Hazard mapping and early warning systems – The entire country has been mapped for four major hazards on a scale of 1: 2.5 million by the Vulnerability Atlas of India (BMTPC 1997). Subsequently, state-level vulnerability maps were published for the same hazards on the same scale along with district-wise risk assessment of housing types. A Peer Group for Updating and Revision of the Vulnerability Atlas of India has completed revision of the maps and submitted its report to the Ministry of Housing and Urban Poverty Alleviation, Government of India.

The available early warning and monitoring systems that are especially geared towards cyclone, drought, and floods are being upgraded and made more efficient. A network of advanced Doppler radars has been installed along the coasts for tracking cyclones. Added coverage of the west coast is under construction. Medium-range weather forecasting for droughts has been useful for early warning also. The Government of India has approved an advanced Tsunami Warning System under the Ministry of Earth

Sciences. The National Early Warning System for Tsunamis is to become operational by September 2007 after necessary testing and simulation. A National Centre for Tsunami and Storm Surges is being set up at the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad. An Interim Tsunami Warning Centre became operational at INCOIS in July 2005. Two coastal radars have been installed on the mainland for this purpose.

Human resource development and capacity building – Human resource development is a key aspect in establishing a disaster-resilient community, as it aims to institutionalise capacity-building processes. By and large, the education and training system had ignored disaster mitigation and risk reduction until recently. The capacity-building process is being introduced at both the primary school level and in updating the curricula of specialised courses such as engineering, architecture, and medicine. Efforts are being made to improve the capacities of education and training institutions to impart training in new concepts and practices to the workforce.

At the school level, disaster management has been included in the curricula for middle and secondary education. Disaster management has also been included in the post-induction and in-service training of civil and police officers. Course curricula have been developed for engineering, architecture, medical, and nursing courses also.

Earthquake-engineering education has been included in the curricula of the engineering colleges at the undergraduate level as a major step towards disseminating disaster education. As a public awareness initiative, a compilation of information, education, and communication (IEC) material on various aspects of disaster risk mitigation has been distributed to all states for translation into local languages and subsequent dissemination among communities. Awareness programmes about earthquakes, floods, and cyclones are being broadcast by All India Radio, Doordarshan, and print media, and sensitisation programmes are being held for school and college students at the national, state, and district levels. A programme to train and certify 50,000 rural masons in multi-hazard resistant construction is also being implemented.

Multi-stakeholder participation – The Act of 2005 provides for participation of all stake-holders in the disaster preparedness process. The Act mandates the State and District Disaster Management Authorities to involve civil society members from the community such as teachers, writers, and so forth. Contributions of other stakeholders from the Civil Defence, National Cadet Corps, and local NGOs will also be solicited to empower the communities and generate awareness. NGOs will be encouraged to identify their areas of interest and expertise.

The corporate sector has made commendable efforts in disaster relief and mitigation. The efforts range from preparation of ‘on-site’ and ‘off-site’ plans, relief distribution, heli-

ambulances, and fire and environmental protection. The NDMA has set up a national task force for the corporate sector to formalise its role in the disaster management process.