

A COMPENDIUM ON DISASTER RISK MANAGEMENT

India's Perspective

A PRIMER FOR LEGISLATORS



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GoI- UNDP Disaster Risk Management Programme

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Preface

A "Primer for Legislators" was prepared in perspective of Disaster Risk Management Programme. Government of India is implementing the programme with support from United Nations Development Programme and assisted through a multi-donor framework for 2002 to 2007. As the programme is executed in 17 states, 169 districts and 38 cities across India support from elected representatives and involvement of local-self government institutions in programme states has formed an integral part the programme's institutional implementing mechanism. The primer is meant to be a booklet for reference with consolidated information in context to India's paradigm shift in Disaster Risk Management. In each of these sections summarized portions extracted from relevant documents has outlined basic terminologies related to Disaster Risk Management, prevalent national and international frameworks, concepts of approaches to community based disaster management and the role of Local Self Government. This booklet was prepared keeping in mind the audience from the State Governments Legislative Forum, and their vital role to help adopt a holistic and proactive approach toward managing disasters. As disaster risk reduction looks at the linkages of relief, early recovery and rehabilitation with community and development planning process, it is through State Governments Legislator forum, that further advocacy could shape out relevant aspects that would streamline disaster risk reduction with the national and state development policies of India.

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Concepts on Disaster Risk Management

What is a hazard? How is it classified?

A dangerous condition or events that threaten or have the potential for causing injury to life or damage to property or the environment. They can be categorized in various ways but, based on the origin, hazards worldwide are basically grouped in two broad headings:

1. Natural Hazards (hazards with meteorological, geological or even biological origin)
2. Unnatural Hazards (hazards with human-caused or technological origin)

It is also important to know that natural phenomena are extreme climatological, hydrological, or geological, processes that do not pose any threat to persons or property. A massive earthquake in an unpopulated area, for example, is a natural phenomenon, *not a hazard*. It is when these natural phenomena interact with the man made environment or fragile areas which causes wide spread damage.

A **Hazard** is a potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. (Source: *Living with Risk, UNISDR 2002*)

Earthquakes, flood and, industrial gas leakages are some examples of hazards. Hazards can be single, sequential or combined in their origin and effects. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of on set, spatial dispersion and temporal spacing. Based on their causes, hazards are categorized into two broad types Natural hazards and Human induced hazards (Figure 1.1).

1. **Natural Hazards:** These are processes or phenomena occurring in the biosphere that may constitute a damaging event, resulting in- loss of life or injury, property damage, social and economic disruption or environmental degradation. Natural hazards can be classified by their origin into:
 - a. *Geological Hazards*
 - b. *Hydro- meteorological Hazards*
 - c. *Biological Hazards*
2. **Human Induced Hazards:** These are processes or phenomena caused primarily due to human activities and may lead to loss of life, injury, property damage, social, economic and political disruption and or environmental degradation. These can be classified into:
 - a. *Environmental Degradation and*
 - b. *Technological Hazards*

Hazards- Concepts and Classifications Source: *Living with Risk, UN ISDR 2002*

Hazard A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environment degradation.	
Natural Hazards Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified according to their (1)hydro meteorological, (2)geological or (3)biological origins.	
Origin	Phenomena / Examples
(1)Hydrometeorological hazards Natural processes or phenomena of atmospheric hydrological or oceanographic nature.	<ul style="list-style-type: none"> ▪ Floods, debris and mudflows ▪ Tropical cyclones, storm surges, wind, rain and other severe storms, lighting ▪ Drought, desertification, wild line fires, temperature extreme sand and dust storm. ▪ Permafrost, snow avalanches.
(2)Geographical Hazard Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin such as mass movements.	<ul style="list-style-type: none"> ▪ Earthquake, tsunami ▪ Volcanic activity and emissions ▪ Mass movements landslides, rockslides, liquefactions, submarine slides. ▪ Surface collapse, geographical fault activities.
(3)Biological Hazards Processes of organic organs or those conveyed by biological vectors, including exposure to pathogenic, micro organism, toxins and bioactive substances.	<ul style="list-style-type: none"> ▪ Outbreaks of epidemics diseases, plant or animal contagion and extensive infestation.
Technological Hazards Danger associated with technological or industrial accidents, infrastructure failures or certain human activities which may cause the loss of life or injury, property damage, social or economic disruption or environmental degradation, sometimes referred to as anthropological hazards. Examples include industrial pollution, nuclear release and radioactivity, toxic waste, dam failure, transport industrial or technological accidents (explosions fires spills).	
Environmental Degradation Processes induced by human behaviors and activities that damage the natural resources base on adversely alter nature processes or ecosystems. Potentials effects are varied and may contribute to the increase in vulnerability, frequency and the intensity of natural hazards. Examples include land degradation, deforestation, desertification, wild land fire, loss of biodiversity, land, water and air pollution climate change, sea level rise and ozone depletion.	

What is a Disaster?

A disaster is a serious disruption triggered by a hazard, causing human, material, economic or (and) environmental losses, which exceed the ability of those affected to cope. (Source: *Reducing Disaster Risk, UNDP 2004*).

What are the key elements of Disasters?

Disasters result from the combination of **hazards**, conditions of **vulnerability** and insufficient **capacity** or measures to reduce the potential negative consequences of **risk**. (Source: *Living with Risk, UN ISDR 2002*)

What Is Vulnerability?

Vulnerability is the condition determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. (Source: *Living with Risk, UN ISDR 2002*)

The scale of damage to a community from the impact of a given hazard does not only depend upon the community's physical exposure to that hazard, but also on its vulnerability. Here, physical exposure refers to the elements at risk. These elements may include people, artifacts, infrastructure etc. (Source: *Reducing Disaster Risk, UNDP 2004*). Vulnerability, on the other hand, is determined by aspects in the physical environment, such as nature of housing, available open space etc, as well as aspects in the socio-economic domain such as level of income, nutritional status, marginalization etc.

Some indicators of vulnerability for India's population are:

- poverty
- population explosion
- demographic imbalances
- unemployment
- growth of large informal economies in unplanned cities
- increasing migrant flows,
- socio-political tensions and uncertainty
- illiteracy
- women and child development concerns
- absence of sound institutional and legislative/ regulatory practices, and Unsustainable environmental practices

Capacity is the combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as 'leadership' and 'management.' Capacity may also be described as capability. (Source: *Living with Risk, UN ISDR 2002*)

- **Coping capacity:** The manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster phenomenon or process. (Source: *Reducing Disaster Risk, UNDP 2004*).
- An example of coping capacity is the community kitchen set up by local village groups in community areas like temples and schools of Orissa after the 1999 cyclone.

Resilience: The capacity of a system, community or society to resist or to change in order that it may obtain an acceptable level in functioning and structure. This is determined by the degree to which the social system is capable of organising itself, and the ability to increase its capacity for learning and adaptation, including the capacity to recover from a disaster. (Source: *Reducing Disaster Risk, UNDP 2004*)

Risk is the probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

(Source: *Reducing Disaster Risk, UNDP 2004*)

Risk is conventionally expressed by the equation:

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability}$$

(Source: *Reducing Disaster Risk, UNDP, 2004*)

Some professionals use the notation: **Risk = Hazards x Vulnerability minus (-) Capacity**

They identify capacity as an element that can drastically reduce the effects of hazards, and vulnerabilities and thus reduce risk. There is yet no consensus on the use of a particular notation.

What is Disaster Risk?

Disaster Risk is the **probability** of harmful consequences, or expected loss of lives, people injured, property, livelihoods, economic activity disrupted and environment damaged resulting from interactions between natural or human induced *hazards* and *vulnerable* conditions. (Source: *Reducing Disaster Risks, UNDP 2004*).

For example, an earthquake hazard of the same magnitude in a sparsely populated village of Rajasthan and in the densely populated city of Delhi will cause different levels of damage to human lives, property and economic activities. This is due to the difference between the two locations in densities of population, types of housing, types of industries, economic cost of infrastructure, geographic profile etc. Thus, earthquake disaster risk is a combination of earthquake hazard and the context (vulnerability and capacity) in which the hazard strikes.

When does a HAZARD lead to a DISASTER?

A disaster occurs when the impact of a hazard on a section of society overwhelms that society's capacity to prevent or cope with that event, causing death, injury, loss of property and/or economic losses.

If an earthquake strikes a desert uninhabited by human beings, it would not cause direct and immediate damage to the society and thus, would not be termed as a disaster. Conversely, the magnitude of loss of human lives and livelihood in our country due to such disasters is excessive by any modern standard. There is no reason why 13,805 deaths, 11,67,000 injuries, 2,22,035 houses destroyed, and 917,158 houses damaged should have been the result of an earthquake measuring 6.9 on the Richter scale in Gujarat whereas earthquakes of similar measurements in USA or Japan have had relatively little impact. Tragedies like the Bhopal gas leakage (the gas was Methyl Iso-Cynate) and regular outbreaks of floods and droughts in different parts of the country every year indicate that much more needs to be done to achieve holistic disaster management in the country.

The Disaster Management Act, 2005 has the following definition for a disaster:

(d) "disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such nature or magnitude to be beyond the coping capacity of the community of the affected areas;

What are some types of Disasters?

Disasters can be categorized into various types based on the speed and origin/cause.

a. Speed of Onset:

Slow-onset disaster: A disaster that unfolds with development processes. The hazard can be felt as an ongoing stress for many days, months or even years. Drought, environmental degradation, pest infestations, famines are some examples.

Rapid-onset disaster: A disaster that is triggered by an instantaneous shock. The impact of this disaster may unfold over the medium or long-term. Earthquakes, cyclones, floods, volcanic eruptions are some examples
(Source: *Reducing Disaster Risk, UNDP, 2004*)

b. Origin/Cause:

Natural Disasters: A serious disruption triggered by a natural hazard (hydro-metrological, geological or biological in origin) causing human, material, economic or environmental losses, which exceed the ability of those affected to cope. Some examples of natural Disasters are the 2004 Indian Ocean tsunami, the 2001 Gujarat earthquake, 1999 Orissa super cyclone, the recurrent droughts in Rajasthan and the annual floods in both rural and urban areas of northern and western India.

Human-induced Disasters: A serious disruption triggered by a human-induced hazard causing human, material, economic or environmental losses, which exceed the ability of those affected to cope.

Some examples are the 1984 Bhopal Gas Disaster, the 1997 Uphaar Cinema Fire in Delhi, Kumbakonam Fire Tragedy in 2003, Mumbai blasts in 1993 and 2006, Rajdhani Express train derailment in 2002 etc.

What is Disaster Risk Reduction?

Disaster Risk Reduction (DRR) is the systematic development and application of policies, strategies and practices to minimize vulnerabilities, hazards and the unfolding of disaster impacts throughout a society, in the broad context of sustainable development (Source: *Reducing Disaster Risk, UNDP, 2004*).

The UNDP advocates for the adoption of the Disaster Risk Reduction approach to all phases of Disaster Management (relief and response; recovery; rehabilitation and reconstruction; prevention; mitigation and preparedness) and associated activities. It views disasters as an opportunity for risk reduction and development.

For example, in the post- earthquake situation, relief materials should be stored in an area that is safe from potential damages due to aftershocks. This could be on an open ground rather than in or around a damaged building. Similarly, reconstruction could factor earthquake safety features in housing even if these were not followed before the earthquake.

Disaster Risk Reduction is deemed important as it would help reduce the exposure of society to the damaging effects of hazards. In the long term, it also helps use of scarce resources for development needs of the poor and vulnerable.

According to the UNISDR (United Nations International Strategy for Disaster Reduction), Disaster Risk Reduction is a conceptual framework of elements that would help minimize vulnerabilities and disaster risks throughout a society, avoid (prevention) or limit (mitigation and preparedness) the adverse impacts of hazards. The Disaster Risk Reduction Framework is composed of the following fields of action:

Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;
Knowledge development including education, training, research and information;
Public commitment and institutional frameworks, including organizational, policy, legislation and community action;
Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;
Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.
(Source: *Living with Risk, UNISDR 2002*)

The newly outlined **Hyogo Framework for Action (HFA) 2005-2015**, aims at guiding stakeholders towards “Building the Resilience of Nations and Communities to Disasters”, It also focuses on Disaster Risk Reduction through five priorities for action:

- i. Ensure that Disaster Risk Reduction is a national and a local priority with a strong institutional basis for implementation.
- ii. Identify, assess and monitor disaster risks and enhance early warning
- iii. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
- iv. Reduce the underlying risk factors
- v. Strengthen disaster preparedness for effective response at all levels.

What is the difference between Emergency Management, Disaster Management, Disaster Risk Management and Disaster Risk Reduction?

Emergency or Crisis Management refers to the organization and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation. (*Living with Risk, UN ISDR 2002*)

For example, it involves plans, structures and arrangements to coordinate the response of government, voluntary and private agencies during an emergency.

Disaster Management (DM) as a general term covers the range of activities designed to maintain control over disasters/emergency situations and to provide a framework for helping people to avoid, reduce the effects of, or recover from impact of a disaster. These activities may be related to preparedness, mitigation, emergency response, relief and recovery (reconstruction and rehabilitation) and may be conducted before, during or after a disaster. (*Source: Living with Risk, UN ISDR 2002*)

Disaster Risk Management (DRM) is the systematic management of administrative decisions, organization, operational skills and abilities to implement policies, strategies and coping capacities of the society or individuals to lessen the impacts of natural and related environmental and technological hazards. (*Reducing Disaster Risk, UNDP 2004*)

Disaster Risk Reduction (DRR) is the systematic development and application of policies, strategies and practices to minimize vulnerabilities, hazards and the unfolding of disaster impacts throughout a society, in the broad context of sustainable development. (*Source: Reducing Disaster Risk, UNDP 2004*).

Emergency Management is a part of Disaster Management, Disaster Management a part of Disaster Risk Management and Disaster Risk Management is a part of Disaster Risk Reduction. DRR can be broadly understood as an approach to DRM and its phases and elements. This approach must be active throughout the disaster continuum, from emergency management to disaster management, risk management and in normal times.

Who are the key stakeholders in Disaster Risk Management?

The scale, frequency and complexity of disasters can only be addressed by deploying a wide range of knowledge, skills, methods and resources, both in development and emergency programming. Risk reduction initiatives must be multi-disciplinary partnerships involving a range of stakeholders- national and local actors, government, private sector and civil society. In the government, the stakeholders comprise of ministries, line departments, armed forces (army, air force, navy, coast guard and others) and defence wings like the police, the rapid action force etc which play a crucial role in rescue and relief. The government is supported by international and national development and humanitarian aid agencies, bi-lateral donors, Red Cross societies, civil society groups like Non Government Organisations (NGOs), Community Based Organisations (CBOs), volunteers, associations, technical, training and research institutes, academics, consultants, media, the corporate sector and the private sector . All of these have a role to play in reducing disaster risk together with communities at risk, who are the central actors.

The primary responsibility for all aspects of disaster management rests with the government of the country. This includes: planning and implementing long-term risk reduction and preparedness measures; requesting and administering disaster relief and rehabilitation operations, requesting international assistance if required; and coordinating all disaster-related assistance programs, both nationally and internationally-funded.

What is the relationship between Disasters and Development?

Disaster is defined as a cause and product of failed development, outlining the relationship between the two concepts. **Sustainable Development** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs (Brundtland Commission, 1987).

Disasters and development are inversely related as evident in the following facts:

Disasters affect development: Disasters resulting from natural hazards killed on an average more than 60,000 people each year between 1992 and 2001. They affected on an average 211 million people per year (1991-2000) through damage to homes, property, crops, livestock and local infrastructure. Associated economic losses from major disasters currently exceed US \$90 billion a year; this excludes losses from to small and medium scale disasters. Some single disaster impacts result in economic losses in excess of national Gross Domestic Product (GDP), generating negative growth: Maldives faced losses above its GDP after the 2004 Indian Ocean tsunami.

Table 1.3: Damage and Loss in India after 2004 Tsunami

Affected States in India	Damage and loss (in US \$ million)			Effect on Livelihoods
	Damage	Loss	Total	
Andhra Pradesh	31.8	16.7	48.5	35.6
Kerala	68.2	57.6	125.8	82.6
Tamil Nadu	509.8	327.5	837.3	332.8
Pondicherry	48.2	8.2	56.4	30.4
Total (by sectors)	658.0	410.0	1,068.0	481.4
Fisheries	320.1	304.5	624.6	383.2
Agriculture and livestock	15.1	22.0	37.1	42.0
Micro enterprises and other	19.7	36.5	56.2	56.2
Housing	193.5	35.2	228.7	
Health and education	13.7	9.9	23.6	
Rural and municipal infrastructure	27.9	1.6	29.5	
Transportation	35.2	0.3	35.5	
Coastal protection	33.6	0.00	33.6	
Relief#		200.7	200.7	

'Damage' refers to the direct loss in assets and property. 'Loss' refers to the economic opportunity cost of the damage.

Source: ADB, UN and World Bank Joint Assessment Mission Report, 2005

The number of people affected indirectly by disasters, for example by rising prices or losses to livelihoods caused by adverse economic consequences is incalculable. Additionally,

- Disasters (small, medium and large) erode the gains of social welfare.
- Lack of disaster risk considerations in recovery following major disasters leads to investing in "construction and reconstruction of risk", perpetuating unsustainable human development.
- Poverty alleviation, good governance and other sustainable development activities in line with the Millennium Development Goals are challenged owing to compounding disaster losses and risks. For more on MDGs refer to Section 2, question 2.1 and 2.2

Development affects disasters: Developing countries are hit hardest by disasters. Between 1992 and 2001, 96 per cent deaths from natural disasters were reported in countries classified by the UNDP as medium and low on human development. Over the same period, 98 per cent of those directly affected lived in these countries. While only 11 per cent of the people exposed to natural hazards live in countries with low levels of human development, they account for more than 53 per cent of total recorded deaths.

Levels of development and disaster risks of a country are clearly, closely linked. Appropriate development policies, by factoring disaster risk concerns, can help reduce disaster losses, protect existing development gains and avoid new risks. Disaster-sensitive development policies can thus, help in the achievement of the Millennium Development Goals

Negative Realm:

1. Disasters set back development programme destroying years of development initiatives.

The examples in this realm include infrastructure destroyed by floods, impact of droughts on the predominantly agricultural economy of a village. The 2004 tsunami for instance, led to major damage and loss in the development sectors of transportation (25.5 million USD), rural and municipal infrastructure (29.5 million USD) and health and education (23.6 million USD). It had a significant impact on the livelihoods of some of the vulnerable sections of society like the fishing community, especially those living in thatched (*katcha*) houses closer to the beach. Many of these people were below the poverty line and about one-third of them were *dalits or tribals*. The fisheries sector faced a loss of around 624.6 million USD. (ADB, UN and World Bank Joint Assessment Mission Report, 2005.)

2. Development programs can increase an area's vulnerability to disasters.

Artificial embankments along rivers restrict the natural movement of rivers and prevent spill-over onto the floodplains during monsoons. Human settlements come up on these low-lying floodplains. Often during the monsoon season, very heavy rainfall along with release of water from reservoirs upstream lead to rivers breaching their embankments and flooding human settlements that have encroached onto the floodplains.

Positive Realm:

1. Rebuilding after a disaster provides significant opportunities to initiate development programs.

The ownership-driven housing reconstruction programs initiated by the Government of Gujarat after the 2001 Gujarat earthquake helped build local community's skills in safer reconstruction and strengthened community leadership. After the 2004 tsunami, several state governments in India expressed that the disaster presented them with an opportunity to apply the Coastal Regulation Zone (CRZ) notification. This would help them regulate development activities and land-use along India's coasts in the area falling within 500 meters of the high tide line and in the inter-tidal zone, by rebuilding coastal villages out of the immediate CRZ.

2. Development programs can be designed to decrease the vulnerability to disasters and their negative consequences.

Rural housing schemes of the Government of India, like the Indira Awas Yojna (IAY) and the school buildings/community buildings constructed under Sampoorna Grameen Rojgar Yojna (SGRY) could factor earthquake/cyclone/flood-resistant guidelines. The Ministry of Home Affairs, the nodal ministry for DRM in India and the Ministry of Rural Development (nodal ministry for rural development) are working together to factor disaster-resistant construction guidelines in these development schemes.

The reduction of disaster risk and sustainable human development are therefore mutually supportive goals that also contribute to the reduction of poverty, the empowerment of marginalized social groups and gender equality. Increasingly around the world, Ministries of Planning and Finance, with the support of United Nations and Non Governmental Organizations are assessing development projects in the context of disaster mitigation and are designing disaster recovery programs with long-term development needs in mind. Thus, DRR is critical to realistically achieve the Millennium Development Goals (MDGs).

What are some key trends in Disaster Risk Management?

The evolution of approaches to Disaster Risk Management can be traced through the following changes in the trend:

From Response to Preparedness: This trend has emerged in the 1990s. It has been acknowledged that it is more cost-effective, both in terms of human lives as well as financial resources, to invest in disaster preparedness and mitigation than response. It was also proved through scientific studies that the financial cost of preparedness and mitigation is lower than that of disaster relief and response. For example, the cost of retrofitting a building to meet earthquake safety standards (mitigation) is on an average between 2 to 5 per cent of the cost of the building. The cost of reconstructing a post earthquake damaged building is 2 to 5 per cent plus the cost of the building.

From Emergency Management to Risk Reduction: This trend too emerged in the 1990s with research studies that exhibited the close link between disasters and development. Stakeholders enlarged their focus of work beyond emergency management to reducing risks through mainstreaming disaster risk concerns in development planning and systems.

Some Emerging Practices in Disaster Risk Management: Disaster Management is advocating for an inclusive and comprehensive approach to risk reduction. Concepts like Total Risk Management, Comprehensive DRM have been advocated for. Some current initiatives include:

- a. Community -Based Disaster Risk Management (CBDRM), presently more often referred to as Local Level Risk Management (LLRM).
- b. Building Institutional and Legislative System (ILS)
- c. Capacity Development for and in DRM
- d. Mainstreaming Disasters Risk Reduction considerations in development plans and policies
- e. Disaster Data, Information and Knowledge Management
- f. Regional cooperation arrangements for DRM in Asia
- g. Insurance and risk transfer mechanisms
- h. Risk mapping at local and national levels
- i. Recovery Planning: pre-disaster recovery plans, cluster approach to early recovery
- j. Exploring links with other thematic areas such as conflicts, environment and climate change, gender and livelihoods.

A Shift to Disaster Risk Reduction in India

Little attention was paid in the past to disaster risk reduction strategies that have the potential to save thousands of lives by adoption of simple preventive measures. Reviews of the global scenario carried out in the 1990s in the wake of the "Yokohama Declaration" also brought home the fact that economic losses caused by natural disasters were increasing. Lack of coherent disaster reduction strategies and the absence of a 'culture of prevention' were identified as the major causes for this disturbing phenomenon. Disaster risk reduction (disaster reduction) has been defined as the 'systematic development and application of policies, strategies and practices to minimise vulnerabilities, hazards and the unfolding of disaster impacts throughout a society, in the broad context of sustainable development'.⁴ Disaster reduction strategies include appraisal of likelihood and intensity of hazards and analysis of vulnerabilities thereto of the community. Building of institutional capabilities and community preparedness is the next step. Crucial to all these efforts, however, is the existence of a 'safety culture' in societies. Inputs like education, training and capacity building play a very significant role. It needs to be understood that such preparedness can not be a 'one time' effort, but is a continuous process.

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been recurrent phenomena. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by disasters every year. The loss in terms of private, community and public assets has been astronomical.

At the global level, there has been considerable concern over natural disasters. Even as substantial scientific and material progress is made, the loss of lives and property due to disasters has not decreased. In fact, the human toll and economic losses have mounted. It was in this background that the United Nations General Assembly, in 1989, declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduce loss of lives and property and restrict socio-economic damage through concerted international action, specially in developing countries.

The super cyclone in Orissa in October, 1999 and the Bhuj earthquake in Gujarat in January, 2001 underscored the need to adopt a multi dimensional endeavour involving diverse scientific, engineering, financial and social processes; the need to adopt multi disciplinary and multi sectoral approach and incorporation of risk reduction in the developmental plans and strategies.

Over the past couple of years, the Government of India has brought about a paradigm shift in the approach to disaster management. In the new approaches disaster

management is part of the development process and investments in mitigation is much more cost effective than relief and rehabilitation expenditure. Now more emphasis has been given to address this through institutional changes, enunciation of policy, funding mechanism for mitigation and preparedness activities, and capacity building at all levels. Above all community preparedness and their participation was most important to minimize the loss due to frequent natural disasters.

Disaster Management in India - A *Status Report* proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process. Another corner stone of the approach is that mitigation has to be multi-disciplinary spanning across all sectors of development. The new policy also emanates from the belief that investments in mitigation are much more cost effective than expenditure on relief and rehabilitation.

Disaster management occupies an important place in this country's policy framework as it is the poor and the under-privileged who are worst affected on account of calamities/disasters. The steps being taken by the Government emanate from the approach outlined above. The approach has been translated into a National Disaster Framework [a roadmap in 2002-2003] covering institutional mechanisms, disaster prevention strategy, early warning system, disaster mitigation, preparedness and response and human resource development. The expected inputs, areas of intervention and agencies to be involved at the National, State and district levels have been identified and listed in the roadmap. This roadmap has been shared with all the State Governments and Union Territory Administrations. Ministries and Departments of Government of India, and the State Governments/UT Administrations have been advised to develop their respective roadmaps taking the national roadmap as a broad guideline. There is, therefore, now a common strategy underpinning the action being taken by all the participating organisations/stakeholders. The changed approach is being put into effect through:

- (a) Institutional changes
- (b) Enunciation of policy
- (c) Legal and techno-legal framework
- (d) Mainstreaming Mitigation into Development process
- (e) Funding mechanism
- (f) Specific schemes addressing mitigation
- (g) Preparedness measures
- (h) Capacity building
- (i) Human Resource Development and, above all, community participation.

National Disaster Management Framework of Government of India formulated in 2002-2003

1. Institutional Mechanisms.

Expected Outputs	Areas of intervention	Agencies/sectors to be involved and resource linkages.
Nodal agency for disaster management at the national level with appropriate systems	(i) Constitution of National Emergency Management Authority with appropriate legal, financial and administrative powers. (ii) Roles and responsibilities of the NEMA: - Coordinating multihazard Mitigation, prevention, preparedness and response programmes. - Policies for disaster risk reduction and mitigation - Preparedness at all levels. - Coordination of response - Coordination of post disaster relief and rehabilitation. - Amendment of existing laws, procedures, instructions.	Ministries/ Departments of Health, Water Resources, Environment and Forests, Agriculture, Railways, Atomic Energy, Defence, Chemicals, Science & Technology, Rural Development, Road Transport & Highways etc.
Creation of State Departments of Disaster Management	Departments of Relief & Rehabilitation to be re-designated as Department of Disaster Management with enhanced areas of responsibility to include mitigation, prevention and preparedness	State Governments/ UT Administration.
Setting up State Disaster Management Authorities	(i) State Disaster Management Authority to be headed by the Chief Minister. (ii) The Authority to lay down policies and monitor mitigation, prevention and preparedness as also oversee response.	Ministers for Agriculture, Home, Disaster Management, Water Resources, Health, Road & Transport, Civil Supplies, Environment & Forests, Rural Development, Urban Development and Public Health Engineering Departments as Members.

2. Disaster Mitigation Prevention

Disaster mitigation/prevention to be mainstreamed into the development process.	(i) Each Ministry /Department which has a role in mitigation /prevention will make appropriate outlays for schemes addressing mitigation/prevention (ii) Where there is a shelf of projects /schemes, projects / schemes contributing to mitigation to be given a priority. (iii) Wherever possible Ministries / Department of Govt. of India / State Governments /UT Administration 48 schemes/projects in areas prone to natural hazards to be so designed as to contribute to mitigation, and preparedness. (iv) Projects in vulnerable areas/areas prone to natural hazards to be designed to withstand natural	Ministries / Department of Govt. of India / State Governments /UT Administration
Techno-legal regime	(i) regular review of building codes and its dissemination (ii) construction in seismic zones III, IV and V to be as per BIS codes/National Building Codes. (iii) Construction in areas vulnerable to cyclones to be so designed as to withstand the wind hazard as per BIS codes/National Building Codes. (iv) Comprehensive review and compliance of - Town and Country Planning Acts -Development Control Regulations -Planning and Building Standards Regulations (v)Put in place appropriate techno-financial regime (vi)Capacityenhancement of Urban Local Bodies to enforce compliance of techno-legal regimes	Bureau of Indian Standards/Ministry of urban Development State Urban Development Department / Urban Local Bodies State Governments

Land-use Planning and Zoning regulations	(i) Legal framework for Land-use planning and zoning regulations to be reviewed. (ii) Zoning regulations to be enforced.	Ministry of Urban Development Department of Land Resources[MORD] Ministry of Environment and Forests[GOI] State Governments
Plan schemes for vulnerability reduction and preparedness.	State Governments. to formulate Plan Schemes and submit to Planning Commission	State Governments

3. Legal / Political Framework:

Disaster Management to be listed in List III [Concurrent List] of Seventh Schedule to the Constitution	i) Bill to be drafted. ii) Bill to be brought before Parliament	Ministry of Home Affairs/ Ministry of Law (Legislative Department)
State Disaster Management Acts	Model Act to be circulated to the States.	Ministry of Home Affairs State Governments
National Policy on Disaster Management	(i) Mainstreaming disaster management into planning and development process. (ii) Mandate safe construction. (iii) Coordinated action by all relevant Departments as per policy	Ministry of Home Affairs, Ministry of Finance, Planning Commission, Ministry of Environment & Forests, Rural Development, Urban Development and other relevant Ministries to be consulted.
States to enunciate Policy on Disaster Management .	(i) Mainstreaming disaster management into planning and development process. (ii) Mandate safe construction. (iii) Coordinated action by all relevant Departments as per policy	State Governments
State Disaster Management Codes	Amendment of existing relief codes/scarcity codes/famine codes to incorporate mitigation, preparedness and planning measures at all levels from community to State, constitution of Emergency Support Teams /Disaster Management Teams	State Governments

	/Committees /State Disaster Management Authorities, delegation of administrative and financial powers to disaster incident managers etc, protocol to update the inventory of resources and plans.	
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4. Preparedness and Response

National Emergency Response Force/ Specialist Response teams	(i) Designation of units for conversion into Specialist Response Teams. (ii) Designation of training centres. (iii) Training of trainers. (iv) Procurement of equipment (v) Training of teams.	Ministry of Home Affairs Central Industrial Security Force/ Indo-Tibetan Boarder Police/Border Security Force/Central Reserve Police Force
Specialized Response Teams at State level	(i) Designation of units for conversion into Specialist Response Teams. (ii) Designation of training centres. (iii) Training of trainers. (iv) Procurement of equipment using CRF resources (v) Training of teams.	State Department of Disaster Management/State Home Department State Police Training College/State Fire Training Institute

National Network of Emergency Operation Centers [NNEOCs]

Setting up Emergency Operations Centre[EOC] at National level	(i) Multi- hazard resistant construction. (ii) Communication system linkages. (iii) Mobile EOCs for on-site disaster information management	Central Public Works Department Department for Central Public Works Ministry of Home Affairs
State level EOC	(i) Multi- hazard resistant construction. (ii) Communication system linkages. (iii) Mobile EOC for onsite disaster management information	State Governments
District level EOC	(i) Multi- hazard resistant construction. (ii) Communication system linkages.	State Governments

Putting Incident Command System in Place	(i) Designate nodal training centres. (ii) Putting in place protocols/SOPs for Incident Command System.	Ministry of Home Affairs/ Department of Personal and Training/Lal Bahadur Shastri National Academy of Administration / State Governments/Administrative Training Institutes
Emergency Support Function Plan	(i) departments/agencies which perform emergency support functions to draw up ESF plans, constitute teams, and set apart resources in advance so that post disaster response is prompt.	Central Government Ministries/ Departments State Governments
India Disaster Resource Network	(i) A web enabled GIS based resource inventory listing out all the necessary resources for emergency response available at the district and State level throughout the country so that resources can be mobilized at short notice. (ii) Set up servers, draw up and install programmes, input data. (iii) Half yearly updating	Ministry of Home Affairs State Governments.
Communication linkages which will be functional even post-disaster.	i) Draw up communication plan. (ii) Obtain sanctions. (iii) Put communication network in place.	Ministry of Home Affairs Directorate Coordination of Police Wireless State Governments
Regional Response Centres	(i) Identify location of Regional Response Centres. (ii) Identify caches of equipment required. (iii) Obtain sanctions. (iv) Put teams and caches of equipments in place.	Ministry of Home Affairs Border Security Force/Indo-Tibetan Border Police /Central Reserve Police Force/ Central Industrial Security Force
Training in response to be made a part of training curriculum of CPMFs and State Police Forces.	(i) Draw up capsules. (ii) Train trainers	Ministry of Home Affairs Border Security Force/Indo-Tibetan Border Police /Central Reserve Police Force/ Central Industrial Security Force
State Disaster Management Plans	(i) Plan to be drafted under the supervision of the Chief Secretary (ii) Plan will include mitigation, preparedness and response elements. (iii) The plan will be multi-disciplinary to be drawn up in conjunction/consultation with all relevant Departments concerned with mitigation, preparedness and response. (iv) Plan to be updated once a year.	State Governments/ State Disaster Management Authorities

District Disaster Management Plans	(i) To be drawn up under the supervision of District Magistrate/Collector and to include mitigation, preparedness and response. (ii) Emergency Support Functions by various Departments to be included. (iii) To be drawn up in consultation with all relevant Departments. (iv) District inventory of resources to be maintained.	State Governments/ State Disaster Management Authorities
Block Disaster Management Plans	(i) To be drawn up under the supervision of District Magistrate/Collector and to include mitigation, preparedness and response. (ii) Emergency Support Functions by various Departments to be included. (iii) To be drawn up in consultation with all relevant Departments. (iv) District inventory of resources to be maintained.	State Governments/ State Disaster Management Authorities / Block Development Administration

Early Warning Systems.

(i) State of the art sensors to be set up. (ii) Hazard monitoring, tracking and modelling.	(i) IMD/CWC to carry out a review of sensors available and draw up plans for strengthening the system. (ii) Models to be updated to improve prediction accuracy.	Indian Meteorological Department/ Central Water Commission/National Centre for Medium Range Weather Forecasting
Warning Protocols	(i) Warning protocols to be user friendly. (ii) Warning to be communicated as quickly as possible to the States/districts/community. (iii) Protocols should be simple to understand. (iv) Districts to set up protocols for communication of early warning to the community. (v) Panchayats/local bodies to be used for early warning communication. (vi) Communication linkages for early warning.	Ministry of Home Affairs/ State Governments /Indian Meteorological Department/ Central Water Commission/ National Remote Sensing Agency/ Information and Broadcasting/ Doordarshan/ All India Radio

Human Resource Development and Capacity Building.

Training for services /cadres/ agencies involved in mitigation, preparedness or response.	(i) Training needs analysis/ Human Resource Development Plan (ii) Drawing up of capsule courses for training. (iii) Training of trainers. (iv) National Institute for Disaster Management to be strengthened. (iv) Setting up /strengthening training institutions in state faculties of Disaster Management in Administrative Training Institutes	Ministry of Home Affairs State Governments
Training of IAS/IPS, State Administrative Service Officers/State Police.	(i) Training curriculum for IAS/IPS and State Administrative Service Officers/State Police Officers to include capsules in disaster management. (ii) Training of Block/Village level staff (iii) Training of PRIs.	Administrative Training Institutes /State Institutes of Rural Development and District Institutes of Education and Training
Engineers/Architects	Curriculum for undergraduate engineering and B.Arch courses to be amended to include mitigation technologies in general and elements of earthquake engineering in particular	State Governments All India Council for Technical Education Indian Institute of Technologies Professional bodies
Health Professionals	Include crisis prevention, response and recovery and trauma management in the MBBS curriculum.	Ministry of Health and Family Welfare Medical Council of India
Youth organization	NCC, NSS, Scouts & Guides to include disaster response, search and rescue in their orientation/training programmes.	Ministry of Youth and Sports Ministry of Defence
Masons	Mason training for safe construction	Ministry of Rural Development/ Department of Urban Development/ State Governments
School curriculum	To include disaster awareness.	Central and State Boards of Education
National mass media campaign for awareness generation	Design and develop a communication strategy for awareness campaign	Ministry of Home Affairs /State Governments

	Use audio, visual and print medium to implement awareness campaign Development of resource materials on mitigation, preparedness and response	Ministry of Home Affairs /State Governments Ministry of Home Affairs
Non-government community-based organizations involved in awareness generation and community participation in disaster preparedness and mitigation planning	(i) Facilitate network of non-govt community based organizations at national/State/district levels (ii) Co-opted into the planning process and response mechanisms at all levels	Ministry of Home Affairs /National Institute for Disaster Management Ministry of Home Affairs /National Institute for Disaster Management
Corporate sectors involved in awareness generation and disaster preparedness and mitigation planning	Sensitisation, training and co-opting corporate sector and their nodal bodies in planning process and response mechanisms	Ministry of Home Affairs/ Federation of Indian Industries
Inter-state arrangements for sharing of resources during emergencies and lessons learnt	(i) Arrangements for inter-State sharing of resources to be incorporated in State Disaster Management Plans (ii) Inter-state exposure visits to be facilitated for learning from the experiences of other States	Ministry of Home Affairs/ State Governments Ministry of Home Affairs/ State Governments

Research and Knowledge Management:

Institutionalise knowledge and lessons learnt in the process of working on the national roadmap	(i) Assessment and evaluation of ongoing programmes and activities regular documentation of key lessons (ii) Establish India Disaster Resource Network as knowledge portal to pool and exchange information and knowledge among all concerned institutions and organization	Ministry of Home Affairs State Governments/ National Institute for Disaster Management Ministry of Home Affairs
Promote research in national, state and regional institutions in the areas of disaster risk reduction	(i)mitigation technologies for housing, roads and bridges, water supply and sewerage systems, power utilities, (ii)cost-effective equipments for specialized rapid response and preparedness in --temporary and transition	Ministries / Departments of Central Government

Develop national disasters database	(i)Systematic inventorization of disasters (ii)Trend analysis and reporting	National Institute for Disaster Management
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National Policy Framework

The National Policy framework has been prepared after due deliberations and keeping in view the National Vision 'to build a safe and disaster-resilient India by developing a holistic, proactive, multi-disaster and technology-driven strategy for DM. This will be achieved through a culture of prevention, mitigation and preparedness to generate a prompt and efficient response at the time of disasters. The entire process will centre-stage the community and will be provided momentum and sustenance through the collective efforts of all government agencies and Non-Governmental Organizations'. In order to translate this Vision into policy and plans, a mission-mode approach has been adopted involving a number of initiatives with the help of various institutions operating at national, state and local levels. The central ministries, states and National and State Disaster Management Authorities along with other stakeholders have been involved in the participatory and consultative process of evolving policies and guidelines. This Policy framework is also in conformity with the International Strategy for Disaster Reduction, the Rio Declaration, the Millennium Development Goals and the Hyogo Framework 2005-2015. The themes underpinning this policy are:-

- Community-based disaster management, including last mile integration of the policy, plans and execution.
- Capacity development in all related areas.
- Consolidation of past initiatives and best practices.
- Cooperation with agencies at national, regional and international levels.
- Compliance and coordination to generate a multi-sectoral synergy.

From the national vision and aforementioned theme, the objectives guiding the policy formulation have evolved to include:

- Promoting a culture of prevention and preparedness by centre-staging DM as an overriding priority at all levels and at all times.
- Encouraging mitigation measures based on state-of-the-art technology and environmental sustainability.
- Mainstreaming DM concerns into the development planning process.
- Putting 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.
- Developing contemporary forecasting and early warning systems backed by responsive and fail-safe communications and Information Technology (IT) support.
- Promoting a productive partnership with the Media, NGOs and the Corporate Sector in the areas of awareness generation and capacity development.

Ensuring efficient response and relief with a caring humane approach towards the vulnerable sections of the society.

Making reconstruction an opportunity to build back better and construct disaster-resilient structures and habitats.

Disaster Management Act

The Government decided to enact a law on disaster management to provide for requisite institutional mechanism for drawing up and monitoring the implementation of the disaster management plans, ensuring measures by various wings of Government for prevention and mitigating effects of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation. The Disaster Management Act, 2005 was enacted and notified on December 26, 2005.

The salient features of the Act include setting up of a National Disaster Management Authority under the Chairmanship of the Prime Minister; State Disaster Management Authorities in the States/Union Territories under the chairmanship of Chief Minister or Lt. Governor or Administrator, as the case may be; and the District Disaster Management Authority under the District Magistrate in each district.

The National and State Authorities shall be responsible for laying down the policies, plans and guidelines for disaster management. The District Authority shall act as the district planning, coordination and implementing body for all disaster management related functions. These functions include mitigation and preparedness measures also besides response, relief and rehabilitation.

A key role has been assigned to the local authority for ensuring training of its officers and employees; maintenance of resources so that these are readily available for use in the event of a disaster and ensuring that all construction projects in their area of jurisdiction conform to the prescribed standards and specifications. The local authority shall also carry out relief, rehabilitation and re-construction activities in the affected areas.

The Act seeks to constitute Disaster Response Fund and Disaster Mitigation Fund at the National, State and District level. It mandates that there shall be no discrimination on the ground of sex, caste, community, descent or religion while providing compensation and relief to the victims. The powers to issue directions to the Government authorities, organization and statutory bodies to facilitate and assist in disaster management have been vested in the Central Government. The Act seeks to make provision for punishment for obstructing response, making false claims, misappropriation of money or materials and issue of false warning. However, it provides immunity to Government organizations and officers for action taken in good faith.

With the enactment of the Disaster Management Act, 2005, the Government have now put in place requisite institutional mechanism for drawing up and monitoring the implementation of the disaster management plans at all levels, ensuring measures by various wings of Government at National, State and District level for prevention and

mitigating effects of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation. The Act will facilitate effective steps for mitigation of disasters, prepare for and coordinate a more effective response to handle disaster situations. The Act seeks to put in place Government's resolve to bring about change in orientation from relief-centric approach to a holistic multi-disciplinary and multi-sectoral approach with greater involvement of Panchayati Raj Institutions and Municipalities.

Keeping in view the federal polity, the DM Act has been enacted under the Entry "Social Security and Social Insurance" in the Concurrent List of the Constitution of India since it will have advantage to allow the State Governments also to have their own legislation.

Salient Features of the Act

- Setting up of a National Disaster Management Authority under the Chairmanship of the Prime Minister (PM) with such other Ministers not exceeding nine, as may be nominated by PM
- One of the Members may be designated as Vice-Chairpersons of NDMA by the Prime Minister
- The Authority shall be assisted by an Executive Committee of Secretaries to be constituted by the Central Government
- The National Authority may set up all Advisory Committee of Experts
- The National Authority shall have the responsibility for laying down the policies plans and guidelines for disaster management
- There shall be a State Disaster Management Authority in each State/UT under the Chairmanship of Chief Minister/Lt. Governor, Administrator, as the case may be
- The Vice-Chairperson and Members, of the State Disaster Management Authority will be nominated by the Chief Minister/Lt. Governor/ Administrator, as the case may be
- The State Authority shall be responsible for laying down the policies and plans for disaster management in the State
- It shall be assisted by a State Executive Committee. The State Authority may constitute an Advisor Committee of Experts as and when it considers necessary
- It will be mandatory for relevant Ministries /Department to draw up department wise plans in accordance with the National Disaster Management Plan
- The State Government shall constitute District Disaster Management Authority with District Magistrate as Chairperson and President, Zila Parishad or Chief Executive Member, District Autonomous Council as the case may be, as Co-Chairperson
- The District Authority shall act as the District planning, coordinating and implementing body for disaster management
- Appropriate provisions will be made for taking mitigation and preparedness

measures in accordance with the National, State and District Plans at National State and District levels.

- The Central Government shall be responsible for coordinating action by Ministries/Departments of the Central Government, National Authority and State Authority, Governmental and non governmental organizations.
- The local authority shall ensure training of its officers and employees and maintaining all resources so as to be readily available for use in the event of a disaster.
- The local authority shall also ensure that construction projects under them conform to the standards and specifications lay down
- The local authority shall carry out relief, rehabilitation and reconstruction activities in the affected area within its jurisdiction
- The Central Government shall constitute the National Institute of Disaster Management (NIDM).
- NIDM shall plan and promote training and research in disaster management, documentation and development of National level information base relating to disaster management policies, prevention mechanism and mitigation measures
- A National Disaster Response Force shall be constituted for specialist response.
- The Central Government shall constitute a National Disaster Response Fund for emergency response.
- The Central Government may constitute a National Disaster Mitigation Fund for mitigation projects
- The State Government shall establish Disaster Response Fund and Disaster Mitigation Fund at State and District Level
- Every Ministry/Department of Central and State Governments shall make provision in its annual budget for funds to carry out the activities set out in its Disaster Management Plan
- There is provision in the Bill for punishment for obstructing response, false claims, mis-appropriation of money or materials, issue of false warning
- No prosecution for offences shall be instituted except with the previous sanction of the Central Government or State Government
- There shall be no discrimination on the ground of sex, caste, community, descent or religion while providing compensation on relief to the victims
- The Central Government has the power to issue directions to the Government Authorities/Organizations/statutory bodies to facilitate or assist in disaster management
- Action taken in good faith by any officer or employee of the Central Government, National Authority, State Government, State Authority, District Authority and Local authority shall be protected and no prosecution or suit will lie in any Court.

- The Officers shall be immune from legal process in regard to any warning communicated or disseminated in their official capacity
- The Central Government and the State Government may make rules to carry out the provision of the Act
- NIDM may make regulations to carry out its objectives as laid down in the Act.

Sate Disaster Management Act

Respective States have made legislative provisions to enact the Disaster Management Act. The act provides for effective management of disaster, for mitigation of effects of disaster, for administering, facilitating, coordinating and monitoring emergency relief during and after occurrence of disasters and for implementing, monitoring and coordinating measures for reconstruction and rehabilitation in the aftermath of disasters, in the State Governments for these purposes establish the State Disaster Management Authority and to specify other agencies and for matters connected therewith or incidental thereto. State Government of Gujarat was the first state to enact its State Disaster Management Act in 2003. While other States of Governments of Maharashtra, Uttarakhand, Bihar, Uttar Pradesh and Sikkim have enacted the DM act in subsequent years of 2004, 2005 and 2006.

National Policies and Programmes which relate to Disaster Risk Reduction

Over the years, the Government of India has initiated a wide array of programmes and activities for holistic disaster management by changing its orientation from a relief-centric approach to a pro-active approach towards disaster management and by adopting a multi-disciplinary and cross-sectoral approach. A National Disaster Management Framework/Roadmap addressing institutional, legislative and policy frameworks, disaster prevention and mitigation, preparedness and response, networking of emergency operations centers, early warning systems, human resource development and capacity building and research and knowledge management has been formulated.

The Planning Commission has included a chapter on "Disaster Management The Development Perspective" in the Tenth Five Year Plan (2002-2007) underscoring the need to look at disasters from a development perspective and to have risk reduction components built into development projects.

The National Disaster Management Authority (NDMA) has been set-up to lay down the policies, plans, and guidelines for disaster management and a complementary structure is also envisaged at the State and District level. The Authority aims to integrate disaster prevention and mitigation in development plans and projects and to formulate projects and schemes for mitigation and earmark funds.

Enactment of *Disaster Management Act, 2005* confers legislative sanction to the institutional and coordination mechanisms to ensure holistic and coordinated disaster

management measures. In addition to providing for institutional framework to cater to mitigation and preparedness efforts, the Act mandates constitution of the Disaster Response Fund and Disaster Mitigation Fund at the national, state and district levels and assigns an important role to urban local bodies and Panchayati Raj institutions. A national disaster management Policy is being presently formulated.

A large number of hazard-specific projects and programmes aimed at risk reduction have been initiated. Separate National Core Groups on Earthquake, Cyclone and Landslides have been constituted to assist in risk assessment and mitigation planning, developing a techno-legal regime, land-use zonation etc. Specific programmes for addressing earthquake and cyclone risk mitigation have been formulated along with training of engineers, architects and masons in hazard-resistant construction practices and inclusion of elements of earthquake engineering in undergraduate engineering and architectural courses. Simultaneous efforts at assessing and retrofitting the existing lifeline infrastructure and the critical establishments have also been initiated. The guidelines of various development schemes relating to construction of housing, community assets and other physical infrastructure have been reviewed to make them disaster-resilient.

To address the need for developing a trained cadre of human resource for DRM, the National Institute of Disaster Management (NIDM) has formulated a national HRD Plan for Disaster Management. It also undertakes training and capacity building programmes along with assisting the national and state level training institutions in developing training modules and curricula for various sectors and stakeholders.

The Government, in partnership with UN and other national and International agencies has launched community-based disaster preparedness (CBDP) and planning initiatives. The CBDP process is being institutionalized in the administrative structures especially the three-tier *Panchayati Raj* system in the most multi hazard prone areas. Alongside, earthquake vulnerabilities in urban cities lying in seismic zones III, IV and V are also being addressed.

Disaster management has also been included in the school curricula to build a generation sensitive to disaster risk reduction concerns. This is accompanied by training of teachers for building aptitude and skills in the subject.

As envisaged in the National Disaster Management Framework, a multi-stakeholder approach involving the corporate sector, the youth voluntary organizations, construction industry, professional and sectoral organizations for dissemination of disaster risk reduction is being implemented. Specific work plans addressing the concerns and needs of each sector have been drawn up

and are being operationalized through their respective nodal agencies/organizations. The UN agencies in India have constituted a UN Disaster Management Team which facilitates coordinated support to the national and state governments in various stages of DM cycle, as well as facilitate information sharing with other partners.

Disaster Management- Present Status India

For far too long disaster management in India was marginalized as an issue of providing relief and rehabilitation to the people affected by natural calamities. In the Central Government it occupied a place in the Ministry of Agriculture, in the States it was a concern of the Revenue or Relief Departments, while in the districts it was one of the many crisis management functions of the Collectors. There was hardly any attempt to look into the impact of disasters on the economy and development and to examine how at times development itself can lead to disasters as the recent urban floods in various parts of India has demonstrated. The significant issues of disaster risk reduction in the policies and programming of various plan schemes on poverty alleviation, environment, micro-credit, social and economic vulnerabilities, etc., have hardly ever been deliberated in the apex planning body of the country. The country's commitment to mainstream disaster risk reduction into the process of development planning at all levels for sustainable development, as stated in *Hyogo Framework of Action 2005-15: Building the Resilience of Nations and Communities to Disasters* have not been carried forward across sectors for actionable programmes for achieving the desired results.

Tenth Plan Formulations

The Tenth Five Year Plan, prepared in the backdrop of Orissa super cyclone, Gujarat earthquake and end of International Decade of Natural Disaster Reduction (IDNDR), for the first time, recognized disaster management as a development issue. The Plan document not only included a separate chapter on Disaster Management, it made a number of important prescriptions to mainstream disaster risk reduction into the process of development.

The Tenth Plan prescriptions on disaster Management can broadly be divided in three categories: (a) policy guidelines at the macro level that would inform and guide the preparation and implementation of development plans across sectors, (b) operational guidelines of integrating disaster management practices into development, and (c) specific developmental schemes for prevention and mitigation of disasters.

At the macro level, the Plan emphasized that *"while hazards, both natural or otherwise, are inevitable, the disasters that follow need not be so and the society can be prepared to cope with them effectively whenever they occur"* and called for a *"multi-pronged strategy for total risk management, comprising prevention, preparedness, response and recovery, on the one hand, and for initiating development efforts aimed towards risk reduction and mitigation, on the other"*. It stated that *only then we can look forward to "sustainable development."*

At the operational level, the Plan made a number of very important prescriptions as given below:

- a) Institutional arrangements for disaster response should be streamlined by an integrated approach involving civilian and military resources, setting up a modern permanent national command centre or operations room with redundant communications and data links to all State capitals, establishing a quick response team particularly for search and rescue operations, developing standard operating system for dealing with humanitarian and relief assistance from non government sources and formulating a unified legislation for dealing with all types of disasters.
- b) Disaster prevention and preparedness should be built into development planning by introducing a rigorous process of vulnerability analysis and risk assessment, maintaining comprehensive database and resource inventories at all levels, developing state-of-the-art infrastructure for mitigation planning and establishing a Disaster Knowledge Network for the use of disaster managers, decision makers, community, etc.
- c) A nation wide culture of prevention should be developed by introducing disaster management in school curriculum, including relevant aspects of disaster management in professional courses, enhancing the capacity of disaster managers by better training facilities and creating a massive awareness at all levels.
- d) Community level initiatives for disaster preparedness should be encouraged by involving people at the grassroots, particularly those who are more vulnerable, for better preparedness and response.
- e) Appropriate zonal regulations, design standards, building codes and performance specifications should be developed for safe constructions.
- f) All development schemes in vulnerable areas should include a disaster mitigation analysis, whereby the feasibility of a project is assessed with respect to vulnerability of the area.
- g) Disaster mitigation components should be built into all development projects, financed under the Plan, as part of approved project costs. Given the pervasive nature of disasters and the wide spread havoc caused by some of them, the Tenth Plan felt that *“planned expenditure on disaster mitigation and prevention measures, in addition to the Calamity Relief Fund (CRF), is required”*.

Status of Implementation

The Mid Term Appraisal of the Tenth Five year Plan was silent about the implementation of the Plan prescriptions regarding disaster management probably because the plan schemes and allocations did not have much to offer

in this field. However, many significant initiatives were taken during the period for implementation of some of the general and specific prescriptions of the Plan. These are the following:

- a) A Central law on disaster management has been enacted in December, 2005, providing for requisite institutional and coordination mechanism and outlining an integrated approach for undertaking prevention and mitigation measures at the Central, State and District levels.
- b) National Disaster Management Authority under the Chairmanship of Prime Minister has been set up. The Authority has drafted a National Policy on Disaster Management and has taken up preparation of guidelines on prevention, mitigation, response and recovery in regard to various types of disasters such as earthquake, flood, landslide, industrial disaster etc.
- c) The State Governments are in the process of setting up the State Disaster Management and District Disaster Management Authorities. Notifications in this regard have already been issued by a few States.
- d) A strong 8 battalion National Disaster Response Force comprising 144 specialized response teams on various types of disasters, including NBC disasters, is being raised.
- e) The Civil Defence set up in the country is being revamped and further strengthened to supplement the local efforts for disaster response and relief. Similarly, the Fire Services are being modernized to convert them into multi hazard response units.
- f) National Institute of Disaster Management has been set up for training, capacity building, research and documentation on various natural and man made disasters. A comprehensive Human Resource Plan for Disaster Management has also been developed.
- g) Disaster Management has been included in the curriculum of Middle and Secondary school education. Disaster Management has also been included in the post-induction and in-service training of civil and police officers. Course curriculum has also been developed for Engineering, Architecture, and Medicine and Nursing courses.
- h) A committee of experts has finalized the model building bye laws for town and country planning legislations, land use zonation and development control legislations. 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.
- i) Bureau of Indian Standards has issued new building codes for construction of different types of buildings in different seismic zones in the country. The National Building Code has also been revised taking into consideration the natural hazards
- j) and risks of various regions of the country.
- k) Two national programmes to train 10,000 engineers and 10,000 architects on safe construction architectural practices are under implementation.
- l) A community based disaster risk management programme is under implementation with UNDP assistance in 169 multi hazard districts in 17 States and Union Territories. Under this programme disaster management plans are

being prepared from village to district; village volunteers are being trained in first-aid, search and rescue, evacuation, relief and shelter management; disaster management teams are being constituted at the district and sub-district levels and mock drills are being conducted at all levels. A web enabled centralized inventory of resources has been developed to minimize response time in emergencies. Over 84,000 records from 564 districts have been uploaded.

- m) National, State and District Plans -The concept of disaster management plan at different levels has received a new orientation with the passage of the Disaster Management Act, 2005. Earlier such plans were being prepared at the district level only. Under the GOI-UNDP Disaster Risk Management Programme, such plans are being prepared at the village level as well. But all encompassing disaster management plans have never been prepared at the National and the State levels. The Disaster Management Act stipulates that a National Plan on Disaster Management shall be prepared in consultation with the State Governments and expert bodies and organizations in the field of disaster management. The National Plan shall include:
- a) Measures to be taken for the prevention of disasters, or for the mitigation of their effects;
 - b) Measures to be taken for the integration of mitigation measures in the development plans;
 - c) Measures to be taken for preparedness and capacity building to effectively respond to any threatening disaster situation or disaster; and
 - d) Roles and responsibilities of different Ministries and Departments of the Government of India in respect of measures specified in clauses (a), (b) and (c) above.

The Act stipulates that every Ministry and Department of the Government of India shall make provisions in its annual budgets for funds for the purpose of carrying out the activities and programmes set out in its disaster management plan.

At the State level, a State Plan on Disaster Management shall be prepared in consultation with district and local authorities and people's representatives. The State Plan shall include:

- a) Vulnerability of different parts of the State to different forms of disasters;
- b) Measures to be taken for prevention and mitigation of disasters;
- c) Manner in which the mitigation measures shall be integrated with the development plans and projects; and

- d) Roles and responsibilities of each Department of the Government of the State in responding to the measures specified in clauses (a), (b) and (c) above.

At the District level, a District Plan on Disaster Management shall be prepared in consultation with the local authorities and having regard to the National and the State Plans. The District Plan shall include:

- a) The areas in the district, vulnerable to different forms of disasters;
- b) The measures to be taken for prevention and mitigation of disasters, by the Departments of the Government at the district level and the local authorities in the district;
- c) the capacity building and preparedness measures required to be taken by the Departments of the Government at the district level and the local authorities in the district to respond to any threatening disaster situation or disaster; and
- d) The response plans and procedures, in the event of a disaster, providing for-
 - (i) Allocation of responsibilities to the Departments of the Government at the district level and the local authorities in the district;
 - (ii) Prompt response to disaster and relief thereof;
 - (iii) Procurement of essential resources;
 - (iv) Establishment of communication links; and
 - (v) Dissemination of information to the public.

The statutory provisions regarding preparation of a hierarchy of disaster management plans at the National, State and District levels provide an opportunity to prepare holistic plans on disaster management covering the entire disaster management cycle and integrating the macro level policy issues with micro level issues of implementation. This also provides an opportunity of converging resources available from various sources for disaster risk reduction and management in the country.

Disaster Risk Management: Role of the UN, UNDP India

What is the UN system's role in DRM?

The UN system is composed of principal bodies, operational programmes, a number of specialized agencies and other autonomous entities carrying out specific mandates. The United Nations consist of 191 countries that have come together to solve problems that challenge humanity. Cooperating in this effort are more than 30 affiliated organizations, together known as the UN system. The UN system works to promote respect for human rights, protect the environment, fight disease and reduce poverty.

Reducing the impacts of natural disasters is a work that cuts across numerous competencies of the UN. The recognition of disaster reduction as a crucial component of sustainable development has turned disaster risk reduction into a core function of the UN family. Over the years the UN has evolved its understanding and approach to disasters from response to risk reduction based on the UN General Assembly Resolutions relating to disaster risk reduction. This focus on natural disaster reduction has led to the launch of several international initiatives by the UN. These include the

- a. International Decade for Natural Disaster Reduction (IDNDR) 1990-1999.
- b. United Nations International Strategy for Disaster Reduction (ISDR)

During these initiatives the UN organized two World Conferences on Disaster Reduction in 1994 and 2005 at Yokohama and Kobe respectively and came up with the following global documents:

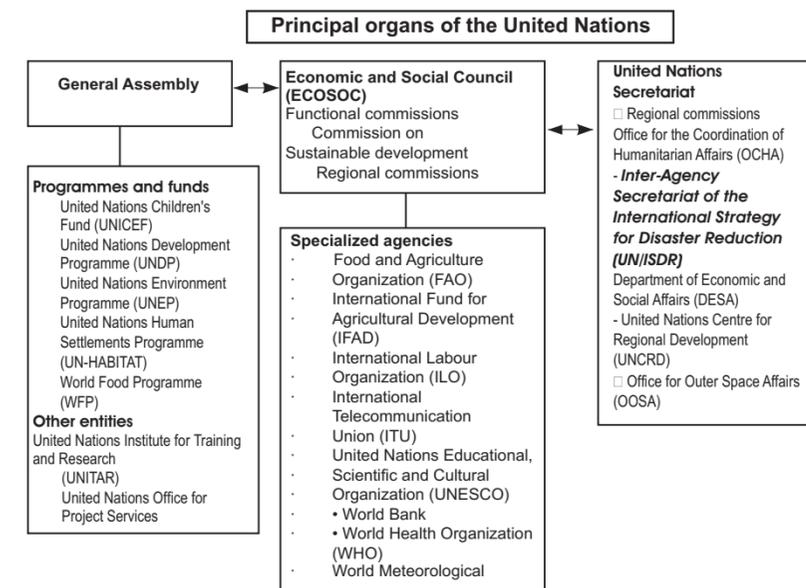
- a) **Yokohama Strategy and Plan of Action for a Safer World:** Launched in 1994, it aimed to guide DM- related activities at the community, national, regional, sub-regional and international levels during the second half of the IDNDR (1990s) and into the 21st Century.
- b) **Hyogo Framework for Action (HFA), 2005-2015:** Launched in 2005 at the World Conference for Disaster Reduction (WCDR) at Kobe, Japan, the HFA aims at guiding stakeholders towards "Building the Resilience of Nations and Communities to Disasters", which came to be known as the Hyogo Framework for Action (HFA). Its five priorities for action are to:
 - i. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.
 - ii. Identify, assess and monitor disaster risks and enhance early warning
 - iii. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
 - iv. Reduce the underlying risk factors
 - v. Strengthen disaster preparedness for effective response at all levels.

The primary responsibility for all aspects of disaster management rests with the Government of the affected country- planning and implementing long-term risk reduction and preparedness measures; requesting and administering disaster relief and rehabilitation operations, requesting international assistance if required; and coordinating all disaster-related assistance programs, both nationally and internationally-funded. Each UN organization or agency is responsible for providing advice and assistance to the government of a disaster-prone or disaster-affected country, in accordance with its mandate and the resources available. Each agency is accountable to its own governing body, but it is also called upon to act as a member of a united UN team. Most recently there has been an effort to mainstream Disaster Risk Reduction (DRR) into the processes/frameworks that develop UN programmes at the country level. These include

- Common Country Assessment (CCA): A country-based process for reviewing and analysing the national development situation and issues demanding UN intervention.
- United Nations Development Assistance Framework (UNDAF): A planning and resources framework for the country programmes and projects of agencies in the United Nations system.
- Country Cooperation Framework (CCF) with the respective national government.

A number of UN system entities carry out active programmes in support of disaster reduction and many of them have strengthened their disaster reduction capacity in their respective areas of competency during recent years. The UN agencies that work in DRR are identified in Figure 2.2. All these agencies work with regional, national or local authorities and in many cases with civil society organizations and groups.

Graphic overview of the United Nations system in relation to disaster reduction



National Development Targets related to Millennium Development Goals and relevant to Disaster Risk Reduction

In September 2000, at the United Nations Millennium Summit, world leaders agreed to a set of time-bound and measurable goals and targets for combating poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women. These were called the Millennium Development Goals (MDGs), which the UN system hopes to achieve by 2015.

The Millennium Development Goals (MDGs) serve as an overarching framework for the achievement of the Government of India's (GoI's) specific national development targets until 2015. The national development targets consist of country specific targets across multiple sectors of development activity, as stated under the Tenth Five Year Plan (2003-2007). In the past years, two MDGs in particular have been referred to by the Government and the UN as explicitly relating to disaster risk management in India. The relevant national development targets vis-à-vis the MDGs; as they **link with DRR activity have been briefly explored below:**

Goal 1: Eradicate extreme poverty and hunger

MDG target for 2015: Halve the proportion of people living on less than a dollar a day and those who suffer from hunger.

National target: Reduce poverty ratio by 5 per cent by 2007, and by 15 per cent by 2012.

Human vulnerability to natural hazards and income poverty are largely co-dependent. At the national level, reducing disaster risk is often contingent on alleviating poverty and vice versa. Exposure to hazards can play a critical role in places where poverty expresses itself as a lack of entitlement to acquire basic nutritional needs. Hunger reduces individual capacity to cope with disaster stress and shock and disasters can destroy assets leading to hunger.

Goal 7: Ensure environmental sustainability

MDG target for 2015:

- Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
- Halve, by 2015, the proportion of people without sustainable access to safe drinking water

National target:

- Increase in forest and tree cover to 25 per cent by 2007 and 33 per cent by 2012

- Cleaning of all major polluted rivers by 2007 and other notified stretches by 2012
- All villages to have sustained access to potable drinking water by 2007

Major disasters, or the accumulation of risk from regular and persistent but smaller events, can wipe out any hope of sustainable urban or rural environments. Again, the equation works both ways. Increasingly, destruction due to landslides, floods and other disasters related to environmental and land use patterns are a clear signal that massive challenges remain in achieving this MDG.

There are other links which will be established between the MDGs, national development targets and DRR, through this UNDAF. The need to make explicit links between MDGs relating to education, gender empowerment and developing partnerships has been deemed essential for reducing disaster risks through the UN's programming in support of national development goals.

What is UNDP's role in DRM?

In the area of disaster management, the UN General Assembly at its 52nd session gave UNDP the mandate of being the United Nations' focal point to support and strengthen national capacities related to disaster mitigation, prevention and preparedness.

"To act as the focal point for strengthening national capacities related to disaster mitigation, prevention and preparedness. UNDP's Executive Committee determined that disaster reduction (prevention, preparedness and mitigation) and recovery comprise essential components of UNDP's development priorities; as such they relate to the recent Millennium Development Goals. These goals range from providing universal primary education to reversing the spread of HIV/AIDS to boosting access to clean water, with the overarching goal of halving extreme poverty all by the deadline of 2015."

Crisis Prevention and Recovery is one of UNDP's five core practice areas. Globally, the practice area is spearheaded by the Bureau for Crisis Prevention and Recovery (BCPR). UNDP's crisis prevention and recovery efforts focus on the development dimension of crisis situations. UNDP works to prevent armed conflicts, reduce the impact of disasters and promote early recovery after crises have occurred.

The global objectives of UNDP in achieving vulnerability reduction and sustainable environment are:

- to achieve a sustainable reduction in disaster risks and protection of development gains;
- to reduce the loss of life and livelihoods due to disasters;
- to ensure that disaster recovery serves to consolidate sustainable human development

UNDP focuses primarily on the development-related aspects of disaster risks, and

on providing technical assistance to institution-building in relation to all aspects of disaster management. Through the Country Offices,, UNDP staff support local governments in needs assessment, capacity development, coordinated planning, and policy and standard setting. UNDP's emphasis is therefore on:

- a) Incorporating **long-term risk reduction and preparedness measures** in normaly development planning and programs, including support for specific mitigation measures where required.
- b) Assisting in the **planning and implementation of post-disaster rehabilitation** and reconstruction, including the definition of new development strategies that incorporate risk reduction measures relevant to the affected area.
- c) Reviewing the impact of large settlements of refugees or displaced persons on development and seeking ways to **incorporate the refugees and displaced persons in development strategies**.
- d) Providing **technical assistance** to the authorities managing major emergency assistance operations of extended duration (especially in relation to displaced persons and the possibilities for achieving durable solutions in such cases).

UNDP's Resident Representative also coordinates the operations of the UN Disaster Management Team (DMT) that is composed of UN agencies working for disasters in the country, and other crucial stakeholders. A number of other UN organizations and agencies have specific responsibilities, organizational arrangements, and capabilities relating to disaster mitigation, and/or relief or recovery assistance. UNDP respects the mandates and skills of these agencies, and seeks to ensure that all work together in harmony and use their expertise and resources for Disaster Risk Reduction.

The **Bureau for Crisis Prevention and Recovery (BCPR)** is one of the nine global bureaus in UNDP. BCPR spearheads the Crisis Prevention and Recovery (CPR) practice area of the UNDP. Its mission is

'To enhance UNDP's efforts for sustainable development, working with partners to reduce the incidence and impact of disasters and violent conflicts, and to establish the solid foundations for peace and recovery from crisis, thereby advancing the UN Millennium Development Goals on poverty reduction.'

The **Disaster Reduction Unit (DRU)** of the BCPR focuses on natural disaster reduction. Its goal is to *"Reduce risk of Disasters in Programme Countries."* Its strategy is to achieve sustainable disaster risk reduction and sustainable recovery in over 50 programme countries across Africa, Asia and Latin America by strengthening national and regional capacities. Its work relates to:

- a. **Promoting** the integration of disaster risk planning and preparation into national and regional development programmes;
- b. **Engaging** with the identification and assessment of key causes of emerging disaster risks
- c. **Providing** advice on risk reduction strategies as part of recovery programmes; strengthening global, national and regional institutional structures for sustainable disaster risk reduction through regional and sub-regional knowledge networks;
- d. **Enabling** countries to share information on strategies and best practices for reducing disaster risk and vulnerability through regional and sub-regional knowledge networks;
- e. **Contributing** to global advocacy on disaster reduction through the preparation of the global report, Reducing Disaster Risk (2004), to promote the role of effective policy and frameworks in reducing disaster risk;
- f. **Supporting** inter-agency disaster management training programme available for officials in risk prone countries. Disaster Management Training Programme (DMTP);
- g. **Mainstreaming** Disaster Reduction in UNDP practice areas such as:
 1. Poverty eradication and sustainable livelihoods;
 2. Gender equality and the advancement of women;
 3. Environmental and natural resources sustainability, and
 4. Sound governance.

It has been a key player in the implementation of the International Strategy for Disaster Reduction (ISDR). It is made up of a team of seven Geneva- based professionals with specialized expertise in disaster reduction, together with five Regional Disaster Reduction Advisors (RDRA) located in Bangkok (for East Asia and the Pacific region), Delhi (South and South West Asia region), Nairobi (Southern Africa), Beirut (Middle East and North Africa) and Panama (Latin America and the Caribbean). Their teams work with UNDP country offices in the regions.

UNDP in India

UNDP has been supporting various initiatives of the Central and State Governments of India to strengthen the disaster management capacities for nearly a decade. The Government of India-UNDP partnership in the area of vulnerability reduction and disaster management was amplified further in the aftermath of the two major disasters -the Super Cyclone in Orissa (November 1999) and the devastating

earthquake in Gujarat (January 2001). This partnership focused on integrating community-based disaster preparedness and mitigation planning process into the development plans prepared by local government, and also strengthens local capacities and institutions. Based on the immense experience gathered, the Disaster Risk Management Programme emerged as a joint initiative with the Government of India under the thematic priorities of the Gol-UNDP Country Programme (2003-2007). The Programme has been formulated using the '*community based disaster preparedness approach*'. The programme is currently being implemented in 169 identified multi-hazard prone districts across 17 selected States. The joint programme emphasizes on *sustainable disaster risk reduction through capacity building at all levels using community based and gender sensitive approaches to institutionalize the disaster risk management system in India*. The Programme also promotes partnerships of various stakeholders i.e Government at all levels, community based organizations and national/state/local resource institutions for disaster preparedness, prevention, and mitigation. This programme has a multi-donor resource framework of US\$ 34 million. The main objectives of the programme are-

1. National capacity building to institutionalize the disaster risk management programme in Ministry of Home Affairs
2. Environment building, education, awareness programmes and strengthening capacities at all levels in natural disaster risk management and sustainable recovery
3. Multi-hazard preparedness, response and mitigation plans for disaster risk management at state, district, block, village and ward level in 169 most multi-hazard prone districts of 17 selected states
4. Networking knowledge on effective approaches, methods and tools for disaster risk management, developing and promoting policy frameworks at State and National levels

The DRM programme has sub-components on -

1. *The Urban Earthquake Vulnerability Reduction Project*, being currently implemented in 38 cities in moderate to high risk seismic zones,
2. *India Disaster Resource Network* IDRN, a web portal on stock of resources available for disaster preparedness and response in order to enhance effective mobilization of equipment and skilled human resources during emergency situations
3. *India Disaster Knowledge Network* IDKN, a knowledge networking portal that is being designed to establish networks and partnerships among government agencies, policy makers, disaster managers and specialists.

To achieve the objectives a multi-pronged strategy has been adopted based on

community based disaster management initiatives such as multi-hazard disaster management plans, training of volunteers from government functionaries, CBO/NGOs and Panchayati Raj Institutions (PRIs) to facilitate the process of development of Local level Contingency Plan (CCP) based on the vulnerability of the areas, resource mapping and vulnerability analysis. Panchayati Raj Institutions (Local Self Government at the village level) and Urban Local Bodies (at city level) are directly involved in the preparedness and mitigation planning to ensure sustainability and integration of the disaster management into the development plan of the districts. The programme has facilitated in establishing policy frameworks and revision of building regulations and bye-laws on disaster risk reduction at both the national level and for programme states. It has also enabled the development of institutional mechanisms for an inter-disciplinary approach involving mitigation, preparedness and response functions by constituting Disaster Management Committees (DMC) at various administrative levels. Communities are being trained with specific skills to enable them to engage in dissemination of early warning, search and rescue operations, first aid treatment during a disaster event/ situation. Trainings are conducted for masons/construction workers and engineers in multi-hazard resistant housing technologies and they are taught to comply with the local building by-laws leading to safer habitats for the communities. Corporate Sector and Professional Bodies are also involved in risk management initiatives and with dissemination of appropriate and practical structural and non-structural disaster prevention and mitigation measures/practices to systemically mainstream disaster risk management.

Gender mainstreaming in disaster reduction has been promoted by fostering awareness about gender equity and equality and incorporating gender analysis in disaster management and risk reduction. In order to enhance the capacities of women for effective response and sustainable recovery in disaster situations, participation of the women in all training programmes for their skill up gradation is given importance. To summarize the holistic experience of blending the joint Disaster Risk Management Programme with the National Disaster Management Framework of the Government of India has *firstly* dealt with the institutionalisation process of disaster risk management and *secondly* adopted programme strategies have aimed to boost the capacities of existing state, district and local administration through an integrated approach to reduce vulnerabilities. It also facilitates setting up linkages between the first responders (community) and service providers (existing government system) in the geographic areas of intervention.

What is Community Based Disaster Preparedness?

Community Based Disaster Preparedness (CBDP) is most important means for disaster response, management and risk reduction. The community being the first to confront and respond immediately in the exigency of any emergency, there is a need for building up the capacities of the communities, enhancing the skills and traditional coping mechanism for minimizing losses resulting from disasters. It is with this thought, a community based disaster preparedness programme was initiated on a pilot basis in 10 blocks of Orissa in 7 worst cyclone affected districts and replicated to 169 districts of selected seventeen most vulnerable states of India.

Importance of disaster preparedness and mitigation:



The basic aim behind preparedness for mitigating disaster is to empower the communities to develop solutions for the different types of disasters they are vulnerable to and to provide a higher degree of security to any natural disaster. The whole community is involved in whole process of preparedness by being a part of the different Disaster Management Teams.

Role of Community in preparedness: It has been experienced that, community involvement in preparedness activities is the most essential component for mitigating any type of disaster. By involving the community in the preparedness phase, it not only increases the likelihood of increased action by the communities to help to mitigate the disaster but also brings the communities together to address the issue cooperatively. And there are evidences that any cooperative action has yielded good results and to a great extent it has been effective in lessening the impact of the disaster.

What is CBDP: various components of CBDP

Formation of Disaster Management Committee and defining of responsibilities of DMC members: Village disaster management committees formed in each village and responsible for initiating disaster preparedness activities. 5 to 20 peoples from various sectors are formed the village disaster management committees. The size of village disaster management committee is based on the population and need of the villagers. It may consist of local NGOs / CBOs, local PRIs, women groups, youth [school drop out], grass level govt functionaries etc. The committee members will decide when the plan development. The entire DMC will decide their leader for the CBDP activities.

Review & analysis of past disasters: Prioritizing disasters based on their frequencies and losses caused; Develop Seasonal calendar of disasters and finalizing the dates to carryout preparedness activities; Identification of resources through mapping exercise of the village; Identification of various hazards prone locations and vulnerable areas mapping exercise ; Identification of Risk groups [Man and Animal], Community and personal assets based on different hazard ; Identification of safe places and safe route for evacuation.

Seasonality Calendar of disasters: While analyzing the past experiences in relation to various natural disaster, communities are developing the seasonality calendar based on the occurrence for the disaster and events. In the calendar, they show the month of occurrence of the disaster and month for preparedness and mock drill.

Seasonality disaster calendar													
Sl.No.	Hazards	Jan.	Feb	March	April	May	June	July	August	Sept.	Oct	Nov	Dec
1	Flood												
2	Cyclone												
3	House hold fire												
4	Drought												
5	Forest fire												

Occurrence month
Preparedness month &
mock drill

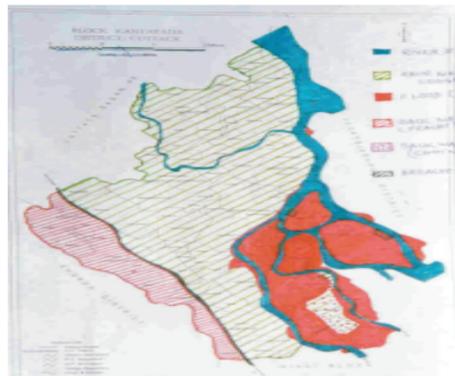
Mapping exercises: One of the most important activities of the CBDP is the mapping of the Village or the community because mapping is considered to be a very simple and cost effective tool to collect ground level data. This exercise has also been found to be very effective in raising awareness among the community members. It also enhances the community participation for problem identification and programme implementation. These maps not only generate awareness among the community but are also useful in smooth evacuation process during floods or any imminent disaster. The mapping exercises are done with the active involvement of women and poorer of the village.

The CBDP emphasizes and encourage the community to use the locally available resources rather than depending on the external agencies for helps and support. The villagers / community members are encouraged to draw the maps on the ground using locally available materials such as stone, sand and various colour powders to different items and indicators. For this, a detail mapping of the village is done by the community as because they are the ultimate users of that map. Therefore these maps are user friendly and indicators are as per the understanding of the community. As a part of the mapping exercise, the villagers along with the volunteers who are helping in carrying

out the exercise have to go around the village and note down the various resources available in the community which may be useful during the time of disaster. The resource points are also recorded.

Resource mapping: Resources mapping focuses on what communities have to offer by identifying the assets and the resources that can be utilized for building communities during and after disasters. Apart from infrastructure and money, this could be individuals, local institutions, people's knowledge, skills as all have the capacity to create and bring changes in their community. A resource map is therefore not limited to a map depicting the available resources but also plotting of resources based on distribution, access and its use due to the prevalence of some sensitive issues within the village.

Risk and vulnerable map: In the vulnerable map the community members have to identify the various hazards prone to the village and the possible affected areas. They also demarcated the low lying areas, nearer to sea or river or any water body, the direction of wind blow etc. Through this mapping exercises the community members could identify the risk groups location and the assets, those are required protection from various hazards.



Safe map: In a similar exercise all safe houses/buildings, drinking water sources and alternate routes have been identified by the community, which would be useful during the time of emergency.

Before the mapping exercise actually starts, the community should first discuss among themselves about their experience of last disaster they have faced or the disaster they may face in future. The discussion should be on what happened before, during, after the disaster, what are the major problems they have faced etc. So in this manner, review of the past disasters is made, losses/damages it must have done and the frequency of its occurrence is analyzed. Based on the analysis, the disaster preparedness and response plan for the community has to develop. Special meetings are held for three days to finalize a list of activities to be taken by the individuals in the community. The activities are divided into four times such as normal time for preparedness and mitigation activities, pre[after receiving the warning for any disaster], during and post disaster. Hazard specific roles and responsibilities of each team and individual have to draw. In the entire process all sections of the community members are participating actively and contributing to make a dynamic disaster management plan.

At community or village level, Disaster Management Teams (DMT) /task forces are formed to manage the crisis situation in the post disaster period. Till the phase of returning to normalcy, and external agencies operating at the site to help them out, these teams play a very vital role in managing the disaster. Different DMTs like Warning, Shelter Management, Evacuation & Rescue, Medical and First Aid, Water and Sanitation, Carcasses Disposal, Counseling, Damage Assessment and Relief and Coordination. An analysis of the potentials/strengths of the DMT members is done. And based on the need of the training, the DMT members are imparted training on specialised / technical topics such as Search & rescue, Water & sanitation, First Aid and Trauma Counseling etc. All DMT members are linked with the existing service providers for continuous training and discharge of their responsibilities effectively.

Defining the tasks of each DMTs for emergency response with available resources and long term preparedness.

The roles and responsibilities of the DMTs are here follows:

Early warning team- The early warning team have a detailed report of all the members of House Hold, especially vulnerable House Hold. Emergency contact telephone nos. should be collected well in advance of the hazard season, tools like radio, television should be kept ready in working condition prior to this hazard period. During the period of the disaster the team is solely responsible to inform each and every HH regarding the impending disaster. During any disaster the team is to collect latest information on the developing situation and inform the people. They should also keep a track of the situation and listen to the dewarning message.



Rescue and Evacuation team: The team is to have the list of the vulnerable population, those who are to be shifted to the safe place during any disaster with details belonging to each HH. They should as well have the necessary items like air tube, rope, bamboos, cutting equipments, etc. During that period they have to rescue the vulnerable and needy people. And after the disaster period they are to shift these vulnerable people in their respective houses. The team members are trained to prepare the rescue kits from the indigenous and local materials. More and more women will be the team members to rescue the women groups during crises time.

Shelter Team: The team leader or any other team member should have the keys of the

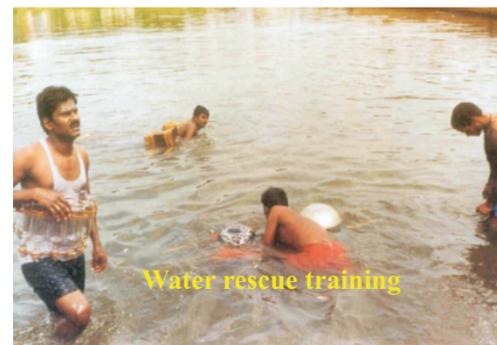
safe shelters so that prior to the disaster they will clean up the place and make available the necessary materials required for the evacuees during disaster period like food, water, medicines, bleaching powder, firewood, lantern, etc. during any disaster they will be responsible to fulfill the requirements of the people. After the disaster, the team will clean up the shelter place. Preferable women are the team member of the shelter team as they are well acquainted with house management, able to manage the shelter during emergency. Women are more caring than men.

Water & Sanitation Team: The team will construct temporary latrine/toilets at the shelter place. They will also make arrangements for storing of drinking water and water for cooking and bathing purpose. They will look into the cleanliness of the shelter place so they will take up special measures to avoid any breakout of diseases. Sprinkling of phenyl, bleaching powder, etc are their priority. After the disaster they are to clear off all the wastes in the village. They are also to disinfect the wells.

Medical & First Aid Team: This team is responsible for preparing and updating the list of all the vulnerable population like old and ailing people, pregnant ladies, child etc. They also have to procure the necessary medicines before the hazard season and conduct a routine checkup of the ailing people in the village. They have to collect health related information and aware the people on the health measures to be taken up. Women and existing health practitioner of the village should be the member of this team. This team is linked with the local medical for continuous training.

Relief and Coordination team: The team is responsible for having the member list of each of the HH so that they can arrange or procure sufficient quantity of food materials for each category of people. They are also responsible for the distribution of relief materials at the time of disaster. And in the post disaster period they will make arrangements for getting relief materials from the Block office. They should have the list of shops/ dealer where the food grains are available during the time of emergency.

Carcasses Disposal: The team is responsible for clearing off the carcasses (if any) after any disaster. They are exposed to different types of carcasses disposal methods. The team should put in all their efforts to check spread of diseases by disposing of the carcasses at the earliest and in the right manner.



Counseling: The existing relief system does not have the provision for treatment of mental health, which enhances suicidal cases after any major disasters. It

has been seen that most of the community members are traumatized due to heavy loss and loss of family members. After the large scale damages, it becomes difficult for few of the victims to take get back to normalcy. In that situation, the counseling team is responsible for counseling the victims.

Damage Assessment: With things getting better after the disaster, the damage assessment team carries out the assessment work. Basically assessment of the damaged houses, livelihood assets and crop etc. It usually happens that a Govt. servant [Revenue Deptt.] carries out the assessment after a particular period and during this period, the damage assessment team helps him/her in making a real and good assessment.

Identification of the hazard specific mitigation activities as per the need of the village: While developing the village disaster management plan, the mitigation plan for each hazard has to developed for long term planning such as coast belt plantation and cyclone shelters in cyclone prone areas, drainage system in low lying areas, raising the platform of the community hall or school building etc. All mitigation plans are forwarded to higher authority for financial provision. It helps the community to minimize the loss and prevent the impact of various natural disaster. All community mitigation plans are consolidated at GP level and become the part of the GP developmental plan.

Generation of emergency fund/ Community Contingency Fund (CCF) : Funds availability in the pre and post disaster period is very crucial as different activities are carried out. And for carrying out each activity, there is requirement of funds. So to meet this contingency, each household in the village is motivated to generate a fund. Some times they generate the fund either in case or kind such as food grains, which become the grain bank for the village. A very nominal amount based on the affording capacity of the inhabitants is collected and kept as the Community Contingency Fund or village fund. In the annual meeting they have decided how to use this fund for the need and developmental programme of the village.

Models of CDBP followed:

Training of GP/ block members on DRM: Gram Panchayat is the intermediary between block and village level, which has a vital link for disaster management activities. GP disaster management committee has the responsibilities to supervise and guide the community in this process. Similarly block is the administrative unit, who provides all developmental programme and have a very good linkage with the upper level of administration. So both levels of functionaries are very important for these initiatives and risk reduction would be a part of the development programme. The district level of master trainers are responsible to trained the functionaries of GP and blocks before initiation of the activities at village level.

Identification of village volunteers and training: One of the major components of the programme is to develop a cadre of trained human resources at community level to carry on all disaster management and mitigation initiatives. An innovative method is used in this programme to train at least two persons as disaster management volunteers who, after training these volunteers are supporting community in development of the village disaster management plan. These volunteers are selected by the representatives of local self-govt, block functionaries and CBOs. Most of the volunteers are from local youth club, women self help groups members or from CBOs and belongs to the same community.

Training of PRIs members: In India the decentralization of responsibilities is very good and three tier system is already existing. To mainstreaming of the DRM programme it is suggested that PRIs should be involved in this process to address the vulnerability reduction initiatives through the developmental programme. Because the PRIs are responsible for local area development. All PRIs are trained by the master trainers on DRM initiatives and encourage their involvement to reduce the disaster impact. These trained PRIs are helping the trained volunteers and community for disaster preparedness and management. These PRIs are vital players in disaster reduction programme and leads to sustain the programme.



Sensitization meeting at village/ community level: Village sensitisation meetings are organized with help of the representative of local self-govt, trained volunteers, local NGOs for the need of disaster preparedness and mitigation initiatives. In some villages the communities are ready for DM plan and other activities in one meeting or in some places it requires more meetings.



Plan development by the community: To reach out to the community at village level the disaster prone areas are divided into various

zones based on the vulnerability. The community based organizations and NGOs working in these areas are identified and trained them in helping the community in village disaster management plan development process. With help of PRIs and govt functionaries community members develop their own disaster management plan. Vulnerability and risk analysis of the village done based on the past history of various natural disasters and its impact on the locality. In the similar way the villagers identified the available resources for development of disaster management plan. The plan has three components such as preparedness, response and mitigation along with task force to carry out the entire activities in various stages. After the completion of village disaster management plan has to share with entire community and approved in the village meeting for implementation and becomes a govt document. Every year the plan has to be updated twice in a year before the hazard season.

Specialized Training of DMTs: Each DMT is comprised of a group of women and men volunteers and assigned with a specific task to discharge in four phases. A specialized training has been provided to all DMTs for their skill up gradation such as search and rescue, first aid, trauma counseling and water & sanitation. All DMTs are linked with existing service providers for continuous training of all DMTs. Some of the training institutions have been strengthened for ongoing training of DMTs at various levels.

Mock drill: Mock drill is an integral part of the village disaster management plan, which is a preparedness drill to keep the community alert. Keeping this in view mock drills are organized in all villages to activate the DMTs and modification of the DM plan based on the practicability. Basically this is simulation exercise, helps in improving the cohesiveness of the community during any disaster situation.

Women participation in Community Based Disaster Preparedness

Women, children and aged are the most vulnerable groups in the village in an emergency situation and need special attention and support. While preparing the preparedness and response plan of a village is based on the vulnerability of women and children. It gives equal opportunity to the women groups to participate in the preparedness and mitigation initiatives of the village. Most of the village plans are based on the vulnerability of women. Women are encouraged to be the members of shelter management, search & rescue and first aid and water and sanitation DMTs. Special training is being organized to enhance the knowledge of women DMTs to perform their duties during the time of emergency such as swimming training, first aid trainings. Most of the time they manage the house and these special skills can be used during the normal time. In village level most of the women are the members of search &

rescue, shelter management and first aid DMTs. In DMC and DMTs 30 percentage of the seats are reserved for women participation. In this new trend women are getting more opportunity to show their production capacity, sincere and dedication.

Linkages with development programmes and strengthening a decentralized approach-how are these being tackled.

Approval of DM plan by the Development Committee at district level to mainstream the vulnerability reduction activities is very significant for the decentralization approach. All DM plans are an integral part of the developmental plan of the villages that are as per the government's instruction. DM plan, DMC and DMTs are recognized by government's institutions for disaster preparedness and mitigation process. Prioritization as per the needs of the area while developing the development plan of the GP, by the community and utilising GP fund for mitigation activities and capacity building of DMTs is essential. Special provision for disaster preparedness activities is to be made within the current fund allocation by the government at various levels. It is the Gram Panchayats responsibility to guide the villagers for developing their disaster preparedness plan and after it is compiled all village plans are further compile at GP level. In a similar way GP Mitigation plans are consolidated at block level, which ultimately become the block mitigation plan. Now Gram Panchayats are responsible for development programme as well as disaster management programme. As Government has decentralized the process of disaster preparedness and mitigation initiatives, existing service providers are being involved for up-grading the knowledge and skills of GP DMTs and Village DMTs. Training institutions are strengthened to carry forward on going training programmes for DMCs and DMTs before the hazard seasons. Trained volunteers, CBOs and NGOs based at grass root level continue with the process.



Role of Panchayat Raj Institutions- A Model Concept under the GoIUNDP disaster risk management programme

The Indian sub continent is highly prone to natural disasters. Floods, cyclones, droughts, and earthquakes are a recurrent phenomenon in India. Susceptibility to disasters is compounded by frequent occurrence of man-made disaster such as fire, epidemics etc. For sustainable reduction Government of India [GOI] with support from United Nations Development Programme [UNDP] has started the **Disaster Risk Management Programme** in 169 districts most vulnerable districts in 17 states of India. The programme essentially aims at strengthening community, local self-governments and district administrations' response, preparedness and mitigation measures. The different stakeholders in the programme are the government functionaries, community; Non-governmental Organisations/ Community based organizations/Self help Groups, any other groups at community level and the Panchayati Raj Institutions.

At Village / Gram Sansad Level:

The Panchayati Raj Institutions play a key role in the various implementation process of the Disaster Risk Management Programme. The Disaster Risk Management Plan starts from the village/ ward level [for example: Gram Sansad in case of West Bengal], the ward member/s along with the village volunteers help the community in preparing the multi hazard preparedness, management and mitigation plan and forming the Village disaster management Committee (VDMC). There will be a Village Disaster Management Team [VDMT] to carry out different activities during the time of emergency. The ward members are leading the village disaster management committee and play an active role in pre, during and post disaster. Being a part of the VDMC they could play an active role in the normal development activities that are being carried out in the village and these activities could be clubbed in such a way that the vulnerability of the area towards a particular hazard decreases.

At Gram Panchayat / Gram Sabha Level:

At the gram panchayat level the Sarpanch / Pradhan, Samiti members form a part of the Gram panchayat Disaster Management Committee (GPDMC). The Pradhan is the chairperson of the GPDMC and the convener is the gram panchayat nodal officer [extension officer from block]. The Pradhan would help the Nodal officer and the GP Secretary in preparing the Multi hazard GP Disaster Management Plan and assigning

the roles and responsibilities to the various members of the GPDMC. In normal times the Pradhan and the PS Member could help in preparing the Gram Panchayat plan and approval of all plans in Gram Sabha. They could assist village disaster management team members to carry out the activities and prepared themselves for emergency. The VDMT members training by Civil Defense for First Aid and Rescue operations, water & sanitation, shelter management, damage assessment etc., which are to be, carried out at the Gram panchayats level by the PRI members along with the government officials. Coordination of relief, rescue operation, shelter management, first aid and health, damage assessments etc are the major activities that they have to play when a disaster strikes. The need of the gram panchayat has to address in the regular development programme to reduce the vulnerability such as high raised building for low laying areas, grain bank, and training to the DMTs etc.

At Block / Panchayat Samiti Level:

At the block level the Chairperson / Sabhapati of Panchayat Samiti would play a key role in forming the Block Disaster Management Committee [BDMC] and preparing the multi hazard preparedness and mitigation plan. The Chairperson / Sabhapati of Panchayat Samiti would be the chairperson of the BDMC and the Block Development Officer would be the convener of the BDMC. They could help in providing training at the Gram Panchayat level and carrying out the preparedness activities. In pre, during and post disaster stock piling of food stuff in vulnerable areas, coordination of relief, rescue operation, shelter management, first aid and health, damage assessments etc could be one of the major activities that they would have to carry out. Similarly it is the responsibility of Panchayat Samiti to approve the block disaster preparedness and mitigation plan and make it a regular programme of the block.

At District / Zilla parishad Level:

The Zilla Parishad President / Sabhadhipati and the other elected members of district would be a part of the District Disaster Management Committee (DDMC). They would basically monitor and coordinate the preparedness programme of the district. Coordinate with the District Disaster Management Team [DDMT] for supporting the other DMTs in training on relief, rescue operation, shelter management, first aid and health, damage assessments and carry out the activities when a disaster strikes. Awareness generation among the community members could be a role that the elected members could play. The Zilla Parishad President / Sabhadhipati would be the chairperson of the DDMC and the Collector and District Magistrate would be the

convener. They could take a lead role in carrying out the preparedness and mitigation activities in the blocks, which would reduce vulnerability and save life and property during disasters.

Role of PRIs in Disaster Risk Management Programme:

- Key facilitators
- Regular Up-gradation of disaster preparedness and mitigation plan
- Capacity building of disaster management team [DMT]
- Providing resource to DMTs-Medicine kit, Rescue equipment, Survival kits,
- Dissemination of warning to the communities
- Safe storage, temporary shelters at vulnerable pockets
- Helping the line departments in pre-positioning of food, medicine, health functionaries and water with DM taskforces
- Coordination and networking among all stakeholders in preparedness programme and emergency situation
- Helping in damage assessment and relief distribution
- Awareness campaign

Local self government is in the front line of disaster management could be a part a coordination process. Coordination and collaboration with PRIs will help in mainstreaming of the disaster management into the on going developmental programme. They are more useful in community development, so it is essential to strengthen their capacity to manage the vulnerability reduction programme. They will be one of the major players in the network suggested for disaster management and could be in the following key thematic areas;

- Communications (for early warning and safe communications during emergencies)
- Awareness building and detailed preparedness plans at the community levels
- Accuracy in vulnerability & damage assessment as a tool for planning development programs and mitigation measures (structural measures like embankments, roads, bridges and planning new housing programs)
- Information sharing during disaster situation to prevent loss of life and enable judicious distribution of relief and rehabilitation measures.
- To have a cadre of frontline response managers and resources to quickly move into the field in the event of any emergency (manpower & machinery)
- Networks for developing technically sound and appropriate designs for disaster resistant construction technologies and wide dissemination of the same.

To make these possible, the meetings, workshops, joint exposure visits, electronic networks, newsletters, capacity building exercises, should be held at a regular interval with action points for each participating agency. Follow up; monitoring and review would be an important tool to ensure that the network does not lose sight of its objective. There must be interchange of information within the various networks so that each one is aware of the developments taking place to reach the final goal of Disaster safe community. In this process UNDP and other developmental agencies could facilitate the process to enhance the capacity of PRIs in reduction of vulnerability and able to provide basic services to the needy community.

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