TRAINING MANUAL

BOOKLET 1

Conceptual and Institutional Framework of Disaster Management

FOR THE PROJECT ON
Capacity Building
in
Disaster Management
for Government Officials
and
Representatives of Panchayati Raj
Institutions & Urban Local Bodies
at District Level

(An Initiative of National Disaster Management Authority and Indira Gandhi National Open University)

National Disaster Management Authority (NDMA)

The NDMA has the Prime Minister of India as its Chairman. Other members of the Authority,not exceeding nine, are to be nominated by the Chairman. The Chairman of the NDMA may designate one of the members to be the Vice-Chairman of the NDMA. The Vice-Chairman of NDMA has the status of Cabinet Minister and other members have status of Ministers of State. The NDMA has been assigned the responsibility of laying down policies, plans and guidelines for disaster management for ensuring timely and effective response to disaster.

The NDMA has the following responsibilities to:

- *Lay down policies on Disaster Management;*

- *Approve the National Plan;*

- *Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;*

- *Lay down guidelines to be followed by the State Authorities in drawing up the State Plan;*

- *Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;*

- *Coordinate the enforcement and implementation of the policy and plan for disaster management;*

- *Recommend provision of funds for purpose of mitigation;*

- *Take such measures for the prevention of disaster, or mitigation, or preparedness, and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;*

- *Provide such support to other countries affected by major disasters as may be determined by the Central Government;*

- *Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management (NIDM).*

ignou
THE PEOPLE'S UNIVERSITY

The Indira Gandhi National Open University (IGNOU), since its establishment in 1985, has contributed significantly to the development of higher education in the country through the open and distance learning mode. IGNOU follows a learner-centric approach and provides seamless access to quality education, innovative learning, flexible methodology, Information and Communication Technology, professional skills and training.

The education is disseminated in conventional, as well as emerging inter-disciplinary areas, such as consumer protection, disaster management, environment, human rights, women empowerment and child development, participatory forest management, participatory planning, resettlement and rehabilitation, food and nutrition. Various literacy programmes focusing on community awareness, education and training in need-based and relevant areas have been successfully undertaken by the University as a part of its strategy of social intervention and community capacity building.

Extension education is an important component of academic activities of IGNOU. It provides much needed linkages between the community and the University. The University has established a network of 67 Regional Centres and 3200 Study Centres all over the country to provide easy access and effective support services to the learners. These include Programme Study Centres, as well as Special Study Centres for SC/STs, minorities, differently-abled learners, jail inmates, and personnel of different wings of Defence and Para-military services.

The University develops its academic programmes through 21 Schools of Study comprising Faculty trained in distance education methodology. The academic programmes of the University have multi-media support. The University has facilities for audio, video, radio, television, interactive radio and video counselling, as well as tele-conferencing. IGNOU has also been identified as the nodal agency for running a 24-hour educational TV channel called Gyan Darshan. It has the unique distinction of combining the conventional role of a University with that of an apex body in the promotion, coordination and maintenance of standards in distance education, through continuous assessment and accreditation of the Open and Distance Learning Institutions.

Universe of the Project on "Capacity Building in Disaster Management for Government Officials and Representatives of Panchayati Raj Institutions and Urban Local Bodies at District level".

Project is being undertaken in 11 States, covering the following 54 Districts:

1. **Andhra Pradesh:** Anantapur, Mahabubnagar, Nellore, Prakasam, Srikakulam.

2. **Assam**: Barpeta, Cachar, Dhubri, Dhemaji, Lakhimpur.

3. **Bihar:** Madhepura, Muzaffarpur, Patna, Sitamarhi, Supaul.

4. **Haryana**: Ambala, Gurgaon, Panipat, Rohtak, Yamuna Nagar.

5. **Himachal Pradesh**: Chamba, Kinnaur, Kangra, Kullu, Manali.

6. **Kerala**: Ernakulam, Idukki, Malappuram, Palakkad, Wayanad.

7. **Maharashtra**: Nasik, Pune, Raigarh, Satara, Thane.

8. **Orissa**: Balasore, Bhadrak, Ganjam, Jagatsinghpur, Kendrapara.

9. **Tripura**: Dhalai, North Tripura, South Tripura, West Tripura.

10. **Uttarakhand**: Bageshwar, Chamoli, Pithoragarh, Rudraprayag, Uttarkashi.

11. **West Bengal**: Bankura, Burdwan, Murshidabad, Purba Medinipur, South Dinajpur.

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(An Initiative of National Disaster Management Authority

and

Indira Gandhi National Open University)

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MESSAGE

The National Disaster Management Authority (NDMA) was set up in 2005 by the Government of India as an apex body to spearhead and implement a holistic and integrated approach to Disaster Management. NDMA has the responsibility for laying down policies, plans and guidelines for disaster management and coordinating their enforcement and implementation for ensuring preparedness, mitigation and timely and effective response to disasters. NDMA has launched a number of initiatives to take the message of disaster management to all the stakeholders including community at the grassroots level. NDMA has taken up mainstreaming of disaster risk reduction concerns in Government departments, States, Districts and civil society, School and College education, technical education, *Panchayati Raj Institutions* and Urban Local Bodies. NDMA has laid down the framework of capacity building and mainstreaming DM for various disasters through its National Disaster Management Guidelines.

Communities are the first responders in the event of any disaster and the representatives of local administrative bodies have a critical role in adoption of the new culture of disaster management in India. The National Disaster Management Authority is collaborating with the Indira Gandhi National Open University (IGNOU) to undertake a pilot project on "Capacity Building in Disaster Management for Government Officials and Representatives of *Panchayati Raj Institutions* and Urban Local Bodies at the District Levels". Under this project, a total of 4050 government officials and 12150 elected representatives of *Panchayati Raj Institutions* and Urban Local Bodies would be trained in Disaster Management through Face to Face Training Programmes at the district level in 54 hazard prone districts of 11 States.

The Face to Face Training Programmes will focus on the critical aspects of prevention, preparedness, mitigation, relief and immediate response, rehabilitation, reconstruction and recovery with respect to disasters. The Indira Gandhi National Open University has a long experience of teaching courses in disaster management and has developed rich knowledge on the subject. This project combines their knowledge with the various guidelines evolved by NDMA for Disaster Management.

I hope that this project would lead to larger programmes on capacity building of elected representatives of local bodies in the country and learning attained through such trainings will reach the community via the identified facilitators. This will help enhance preparedness, strengthen mitigation and fulfill the vision outlined in the National Policy on Disaster Management 2009, *"To build a safe and disaster resilient India by developing a holistic, proactive, multi-disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response."*

New Delhi
20 June 2011

(M. SHASHIDHAR REDDY)

FOREWORD

Accelerated pace of development brings with it the perils of unsafe living, pressures on non-renewable resources, densely populated spaces and environmental degradation among others. As a consequence, the frequency of catastrophes such as earthquakes, floods, cyclones, landslides, droughts, and fires has gone up. We hear of disasters so often that we as individuals are sadly becoming immune to them. We display concern and anxiety when these calamities happen, but by and large depend on the concerned stakeholders to do the needful, who on the other hand, have a reactive rather than pro-active approach to disasters. Stitching up of loose ends takes place after an event and then because of lack of follow-up in terms of reconstruction and rehabilitation, the affected areas are rendered further vulnerable to such events that keep happening, leading to enormous loss of human resources in particular.

Making disaster management more effective and efficient, against this backdrop, is not just a pressing concern, but an overarching problem facing the stakeholders in disaster management. Many efforts in the past, both governmental and non-governmental, have been initiated in this direction. Many committees, forums and organizations, both national and international, have reiterated the pressing need of managing disasters. There is no dearth of material in the form of reports, books, articles and manuals on the subject. From relief and response to preparedness and long-term recovery, all major facets of disaster management have been examined at length. Yet, the need to revisit the issue is still pertinent, as it opens up fresh avenues of analyzing its different aspects. This Manual tries to focus on the knowledge, skill and attitude inculcation on the various facets of disaster management in a novel manner. It emphasizes the role and relevance of governmental functionaries and representatives at the grassroots level, and reiterates the need for community understanding and participation in the disaster management process. The interconnection between disasters and development seems to be the core concern of the Manual.

This Manual, which is an integral part of the Project on 'Capacity Building for Government Officials and Representatives of Panchayati Raj Institutions and Urban Local Bodies at District Level', addresses the concern of empowering the officials and functionaries at the grassroots level. These are the people who are in constant touch with the community. When the disaster strikes they are the immediate responders along with the community to go to the site with relief. Their training in disaster management is the best example of preparedness needed for disaster management in the country. Having myself worked in the area of capacity building of PRIs for over two decades and being deeply involved in Rural Development interventions both at national and international levels, I am convinced that this Manual will be able to live up to the expectations of the participants. I am confident that it would be of substance and value to the grassroots level officials and functionaries, and all those interested in the area of disaster management.

(Professor. M. Aslam)
Vice-Chancellor IGNOU

ACKNOWLEDGEMENT

Alka Dhameja

(Alka Dhameja)

INTRODUCTION TO THE PROJECT

The Pilot Project on "Capacity Building in Disaster Management for Government Officials and Representatives of Panchayati Raj Institutions and Urban Local Bodies at District Level" is a joint effort of Indira Gandhi National Open University and National Disaster Management Authority. The Project is aimed to build and strengthen the capacity of the target groups in the areas of disaster prevention, preparedness, mitigation, response and recovery.

It is being undertaken in selected 11 States, identified on the basis of their vulnerability to various natural and man-made hazards. These States have been selected from all five Regions namely North-East (Assam, Tripura); North (Haryana, Himachal Pradesh, Uttarakhand); East (Bihar, Orissa, West Bengal); West (Maharashtra); and South (Andhra Pradesh, Kerala); covering the following 54 districts, 4 from Tripura and 5 from each of the other ten identified States under the Project:

- Andhra Pradesh: Anantapur, Mahabubnagar, Nellore, Prakasam, Srikakulam.

- Assam: Barpeta, Cachar, Dhubri, Dhemaji, Lakhimpur.

- Bihar: Madhepura, Muzaffarpur, Patna, Sitamarhi, Supaul.

- Haryana: Ambala, Gurgaon, Panipat, Rohtak, Yamuna Nagar.

- Himachal Pradesh: Chamba, Kinnaur, Kangra, Kullu, Manali.

- Kerala: Ernakulam, Idukki, Malappuram, Palakkad, Wayanad.

- Maharashtra: Nasik, Pune, Raigarh, Satara, Thane.

- Orissa: Balasore, Bhadrak, Ganjam, Jagatsinghpur, Kendrapara.

- Tripura: Dhalai, North Tripura, South Tripura, West Tripura.

- Uttarakhand: Bageshwar, Chamoli, Pithoragarh, Rudraprayag, Uttarkashi.

- West Bengal: Bankura, Burdwan, Murshidabad, Purba Medinipur, South Dinajpur.

From each district, 300 people shall be trained under the Project, out of which 75 will be Government officials and 225 will be the representatives of Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs). Thus, in all, 16,200 Government Officials (GOs) and representatives of PRIs/ULBs shall be trained in Disaster Management under this Project.

Objectives of the Project have been to:

- Build and strengthen the capacity of Government Officials and representatives of PRIs and ULBs in the areas of disaster prevention, preparedness, mitigation, response and recovery.

- Encourage the GOs as well as PRI and ULB representatives to enlist the support of local institutions, NGOs, CBOs, etc., for community awareness, as well as capacitate the officials and local institutions to procure the support from other relevant quarters.

- Reinforce the skills of officials and representatives in appropriate hazard assessment, vulnerability analysis, resource analysis and local capacity assessment.

- Develop the required disaster management knowledge base of the GOs, as well as PRI and ULB representatives.

- Formulate training modules, including standardized training methodology, technical support for organizing training programmes on emergency preparedness and management for the officials and representatives.

- Develop community based disaster management systems for their specific needs in view of the regional diversities and multi-hazard vulnerabilities through a consultative process.

- Disseminate important concepts of NDMA Guidelines in the various regional languages through multi-media technologies.

- Enable officials who are functioning at the district levels to be better equipped to deal with natural disasters such as earthquakes, floods, landslides and other natural phenomena that are likely to cause damage.

- Train the team of district officials to enable them to introduce basic guidelines/procedures and become aware of safety and evacuation techniques, as well as seismic-resistant constructions.

- Equip the functionaries at district level to immediately arrange for basic relief work, in case of common natural/man-made disasters without waiting for help/ instructions from external sources.

Methodology of Execution:

In the identified 54 multi-hazard districts, a systematic methodology has been adopted under the Project, which includes:

1. Identification of Administrative Training Institutes (ATIs), in each of the 11 States for organization of Pilot Face-to-Face Training Programme (FFTP) for Training Need Analysis (TNA).

2. Development of background material and audio and video programmes to be provided to the participants of FFTPs.

3. Translation of background material in Hindi, Assamese, Bengali, Marathi, Malayalam, Oriya, and Telugu.

4. The Study Centre Coordinator has been identified as the nodal officer representing IGNOU for carrying out the following activities pertaining to the Project:

   - To be in touch with the Nodal Officer from the District Administration to get the names of the participants for attending FFTPs. NDMA is responsible for passing on the names and contact details of the Nodal Officers to the Study Centre Coordinator, once the same is finalized and conveyed by the district administration.

   - To organize the Capacity-Building exercise through 8 FFTPs of two day duration each, to be attended by 35-40 participants identified by the district administration for each FFTP.

   - 2 Resource Persons identified from different fields of study from each Study Centre have been assigned to conduct 8 FFTPs of two day duration each.

   - Mock Drill of around two hours on the second day of each FFTP has been provisioned to demonstrate skills and methods required in rescue operations, including first aid techniques/ skills.

The Main Stakeholders of the Project are:

- National Disaster Management Authority (NDMA)
- Indira Gandhi National Open University (IGNOU)
- State Governments
- State Disaster Management Authority (SDMA)
- District Disaster Management Authority (DDMA)
- District Administration

The Project aims at training the participants who shall further help the community to undertake required tasks for effective disaster management.

INTRODUCTION TO THE BOOKLET

This Booklet, the first of the Manual for the Project on 'Capacity Building in Disaster Management...' is entitled 'Conceptual and Institutional Framework of Disaster Management'. The basic objective of the Booklet is to impart comprehensive knowledge on the Project and the very concept of disaster management. The Booklet is divided into 2 broad Sections, one on 'Introduction to the Project'; and the second on 'Disaster Management: Conceptual and Institutional Framework'.

Section 1 of the Booklet introduces us to the objectives, purpose, and modalities of the Project on 'Capacity Building in Disaster Management for Government Officials and Representatives of Panchayati Raj Institutions &Urban Local Bodies at District Level'. It deals with the mandate of NDMA and IGNOU. The role of PRIs and ULBs is discussed in detail. The general purpose of the Training Manual, of which the Booklet is an integral part, is clearly brought out through a discussion on dissemination of Knowledge, Skills and Attitudes (KSAs) with a focus on the interlinkages between education and training, based on knowledge and learning. The major goals of the Project are described at length. The Section gives an insight into the KSA requirements of the target group functionaries; and provides us the ways of using the Manual, underlining its broad overview.

Section 2 of the Booklet on 'Disaster Management: Conceptual and Institutional Framework' explains the meaning of the concept of disaster, clearly highlighting its characteristics and objectives. The distinction between a hazard and a disaster is also brought out. The Section explains the meaning of risk, vulnerability and capacity: the three pertinent features which vary in degree, and influence the impact of disasters. Typology of disasters, nature of disasters and disaster management phases are also dealt with in the Section. It gives a detailed list of key words such as Environment Impact Assessment, Food Security, El Nino, Greenhouse Effect, Ham Radio etc., with their explanations. National landmarks in disaster management such as the 73rd and 74th Constitutional Amendments, Twelfth Schedule, Eleventh Finance Commission, the Disaster Management Act 2005, Disaster Management Policy 2009, National Disaster Management Authority etc., find a major place in the Section. Likewise, it talks of International Agreements such as the Hyogo Framework of Action, Kyoto Protocol, Montreal Action Plan and United Nations Disaster Risk Reduction Programme among others. The Section discusses the types of financial arrangements for disaster management. The role of different stakeholders in disaster management at the central, state and local levels is also systematically brought out.

CONTENTS

ABBREVIATIONS

ADB	:	Asian Development Bank
APRS	:	Automatic Position Reporting System
ARC	:	Administrative Reforms Commission
ATC	:	Air Traffic Control
ATI	:	Administrative Training Institute
CADP	:	Community Awareness on Disaster Preparedness
CBDM	:	Community Based Disaster Management
CBDP	:	Community Based Disaster Preparedness
CBO	:	Community Based Organization
CBRN	:	Chemical Biological Radiological Nuclear
CBSE	:	Central Board of Secondary Education
CCF	:	Community Contingency Fund
CCMNC	:	Cabinet Committee on Management of Natural Calamities
CCS	:	Cabinet Committee on Security
CDRN	:	Corporate Disaster Resource Network
CFCs	:	Chlorofluorocarbons
CGI	:	Corrugated Galvanized Integrated
CMG	:	Crisis Management Group
CRF	:	Calamity Relief Fund
CS	:	Chief Secretary
CSO	:	Civil Society Organization
DDMA	:	District Disaster Management Authority/Delhi Disaster Management Authority
DFID	:	Department of International Development
DIPECHO	:	Disaster Preparedness European Commission's Humanitarian Aid Department
DM	:	Disaster Management
DMC	:	Disaster Management Committee
DMD	:	Disaster Management Department
DMF	:	Disaster Management Facility
DRM	:	Disaster Risk Management
DRR	:	Disaster Risk Reduction
EIA	:	Environmental Impact Assessment
EIC	:	Emergency Information Centre

ENSO	:	El Nino-Southern Oscillation
EOC	:	Emergency Operation Centre
FC	:	Finance Commission
FFTP	:	Face-to-Face Training Programme
GHG	:	Green House Gas
GIS	:	Geographic Information System
GO	:	Government Official
GoI	:	Government of India
GP	:	Gram Panchayat
HCFCs	:	Hydrochloric Flourocarbons
HLC	:	High Level Committee
HPC	:	High Powered Committee
HS	:	Home Secretary
HUDCO	:	Housing and Urban Development Corporation
IBRD	:	International Bank for Reconstruction and Development
ICS	:	Incident Command System
ICT	:	Information Communication Technology
IDNDR	:	International Decade for Natural Disaster Reduction
IDRN	:	India Disaster Resource Network
IEC	:	Information Education Communication
IFRC	:	International Federation of the Red Cross
IGNOU	:	Indira Gandhi National Open University
IIRS	:	Indian Institute of Remote Sensing
ILO	:	International Labour Organization
IMD	:	India Meteorological Department
IMG	:	Inter-Ministerial Group
IRS	:	Incident Response System
KSA	:	Knowledge Skill Attitude
LOS	:	Law of the Sea
LRRD	:	Linking Relief and Rehabilitation with Development
MCE	:	Mass Casualty Event
MFO	:	Micro-Finance Organization
MHA	:	Ministry of Home Affairs
NBC	:	Nuclear Biological Chemical
NCAP	:	National Contingency Action Plan
NCCF	:	National Calamity Contingency Fund

NCMC	:	National Crisis Management Committee
NCRMP	:	National Cyclone Risk Mitigation Project
NDCNP	:	National Disaster Communication Network Project
NDMA	:	National Disaster Management Authority
NDMRC	:	National Disaster Mitigation Resource Centre
NDRF	:	National Disaster Response Force/National Disaster Response Fund
NEC	:	National Executive Committee
NERMP	:	National Eartquake Risk Mitigation Project
NGO	:	Non-Governmental Organization
NIAR	:	National Institute of Amateur Radio
NIDM	:	National Institute of Disaster Management
NSS	:	National Service Scheme
NSSP	:	National School Safety Project
PESA	:	Panchayat Extension to Scheduled Areas
PGDDM	:	Post Graduate Diploma in Disaster Management
PPP	:	Public-Private Partnership
PRI	:	Panchayati Raj Institution
SAR	:	Search and Rescue
SDMA	:	State Disaster Management Authority
SDRF	:	State Disaster Relief Fund
SEC	:	State Executive Committee
SHG	:	Self-Help Group
SOP	:	Standard Operating Procedure
SSA	:	Sarva Shiksha Abhiyan
TNA	:	Training Needs Analysis
ULB	:	Urban Local Body
UNDP	:	United Nations Development Programme
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNFCCC	:	United Nations Framework Convention on Climate Change
UNISDR	:	United Nations International Strategy for Disaster Reduction
USAID	:	United States Agency for International Aid
V/CA	:	Vulnerability/Capacity Assessment
VDMC	:	Village Disaster Management Committee
WHO	:	World Health Organization

SECTION 1
INTRODUCTION TO THE MANUAL

'*Even if we cannot wish away disasters; we can learn to live with them in a symbiotic way*'

(Food for Thought)

India's development graph in recent years appears to be ever ascending. Ironically, at the same time, the frequency of disasters has also gone up. Recent decades have witnessed both natural as well as man-made disasters; blurring the distinction between them to a large extent. These disasters have caused widespread destruction and fatalities, leaving the institutions and the community wanting on the front of disaster related preparedness, relief, reconstruction and recovery. Does development lead to disasters or do disasters open up new avenues of development is the contemporary debate. A few noteworthy endeavours at the governmental, non-governmental and community levels have created small hamlets of success in managing disasters. However, these efforts remain confined and sporadic; their dissemination and replication are yet to be fully realized. The voices that are clearly audible on disaster policy initiatives and their participatory execution get attenuated when it comes to actualizing their sustenance.

This is why it is pertinent to treat disaster management as a part of the developmental process and not as an isolated event that takes place only when a disaster strikes. All disaster management phases and methods have to be mainstreamed into the larger development process. The onus of this stupendous task rests on all the stakeholders in the process; namely the governmental, non-governmental, international, national and community organizations. One such important stakeholder is the National Disaster Management Authority (NDMA), and the other is the Indira Gandhi National Open University (IGNOU). These institutions have been doing a pioneering work in the field of disaster preparedness, training, education and awareness, both at a theoretical as well as empirical levels. The Project on 'Capacity Building in Disaster Management...' is a product of their concerted efforts in this direction.

1.1   ROLE OF NDMA AND IGNOU IN THE PROJECT

Mandate of the NDMA

The NDMA has the Prime Minister of India as its Chairman. Other members of the Authority, not exceeding nine, are to be nominated by the Chairman. The Chairman of the NDMA may designate one of the members to be the Vice-Chairman of the NDMA. Vice-Chairman of NDMA has the status of Cabinet Minister and other members have status of Ministers of State. NDMA has been assigned the responsibility of laying down policies, plans and

Source: NDMA Photo Gallery

guidelines for disaster management for ensuring timely and effective response to disaster.

The NDMA has the following responsibilities to:

● Lay down policies on Disaster Management;

- Approve the National Plan;

- Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;

- Lay down guidelines to be followed by the state authorities in drawing up state plan;

- Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;

- Coordinate the enforcement and implementation of the policy and plan for disaster management;

- Recommend provision of funds for purpose of mitigation;

- Take such measures for the prevention of disaster, or mitigation, or preparedness, and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;

- Provide such support to other countries affected by major disasters as may be determined by the Central Government;

- Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management (NIDM).

NDMA has issued many disaster specific and thematic guidelines on disaster management. It is in the process of implementing various mitigation projects namely NCRMP, NSSP; formulating many projects like NDCNP, NERMP, and carrying out education and awareness programmes in the states.

Mandate of IGNOU

IGNOU is also doing extensive work in the area of disaster management: education and training. An endeavour to this effect was undertaken when the Faculty of Public Administration started a Project on Community Awareness on Disaster Preparedness (CADP) in 2000 in the states of Uttar Pradesh, Gujarat, Rajasthan, Andhra Pradesh and Orissa. The objective was to generate awareness on the different facets of disaster management amongst community members. The strategy was to involve them in decision making and disaster management structures and processes.

Source: IGNOU Photo Gallery

Besides, IGNOU has two full-fledged Certificate and Diploma Courses on disaster management. There is a rich component on disaster management in its Masters Programme in Public Administration. The Faculty of Public Administration has undertaken serious research in disaster management, which is visible in the form of Faculty members' individual and collective publications. The Faculty has organized two (National and International) Conferences on Disaster Management.

Carrying forward the substantive work, this Manual, is an integral part of the Project initiated by the NDMA with IGNOU in an attempt to highlight the role of the most important stakeholders i.e., the government officials and representatives of urban and local bodies at the district level. These grassroots functionaries are at the heart of disaster management, the cutting edge that could actually cut sharp into the area of managing disasters. To make a dent into the issue, an understanding of roles and functions of these representatives is very important and the Project has strived to achieve it.

1.2   ROLE OF PRIs AND ULBs

Role of PRIs

The Panchayati Raj Institutions (PRIs) have a statutory existence. Its members are elected by the local people through a well-defined democratic process with specific responsibilities and duties. The elected members are accountable to the people of the ward, rural community, block and the district. Article 243(G) of the Constitution visualizes panchayats as institutions of self-government. It also outlines the role of panchayats with respect to development, planning and implementation of programmes of economic development and social justice.   The PRI, a representative body of the people, is the most appropriate

Source: Rajasthan Panchayati Raj
indiascanner.com

institution from the village to district level in view of its proximity to the people, universal coverage and mandate of enlisting people's participation on an institutionalized basis. The PRIs are entrusted with tasks that aim to:

- Promote popular participation through an institutional framework;
- Act as catalysts to social mobilization process;
- Tap the traditional wisdom of the local communities to complement the modern practices in disaster mitigation efforts;
- Provide a base for integration of various concerns of the community with that of the Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs), which are engaged in various developmental activities at the grassroots level;
- Sensitize local communities, and through them develop coping mechanisms in disaster preparedness and mitigation measures;
- Discuss and evolve strategies to manage crisis situations effectively;
- Ensure transparency and accountability in the mitigation efforts;
- Streamline activities like distributing immediate relief in the form of money, food grains, medical care, clothes, tents, vessels for drinking water and other necessities;
- Coordinate activities of restoration, rehabilitation and reconstruction;
- Act as leaders to the community;
- Gather, analyze and disseminate information;
- Articulate community needs and expectations;
- Converge with local, state, national and international organizations involved in disaster management;
- Form disaster management task forces;
- Arrange for emergency relief;
- Encourage damage appraisal, vulnerability assessment and risk reduction strategies;
- Organize awareness campaigns and promote community education on disaster preparedness;
- Activate disaster management plans;
- Provide for safe disposal of carcasses;

- Arrange for safe drinking water and sanitation;
- Enforce minimum specification for safe reconstruction;
- Supervise and monitor long-term disaster management projects; and
- Mobilize funds and resources for disaster management.

Thus, many disaster management tasks have been allocated to the PRIs.

Role of the ULBs

Likewise, the representatives of Urban Local Bodies (ULBs) have to initiate disaster management tasks in the urban areas in the jurisdiction of municipal bodies. Their tasks include:

- Maintaining of vehicles, sanitary facilities, food, shelter and rest facilities, relief and replacement, personnel and emergency message, contact arrangement and logistic support;
- Keeping unauthorized persons out of the disaster area in order to prevent looting and decreasing congestion hampering rescue efforts, and preventing persons from being injured in the wreckage;

Source: Google Images

- Handling the dead, as mass disposal poses many problems in disasters;
- Warning and communicating with the public;
- Evacuating neighbourhoods;
- Coordinating with volunteers;
- Acquiring and allocating unusual resources;
- Dealing with livestock or family pets that had to be left behind;
- Disposing unclaimed valuables and merchandise found in the rubble;
- Disbursing large amounts of donations;
- Controlling emergency vehicle traffic in order to avoid blockage of routes by emergency vehicles;

- Maintaining hospital wards for emergencies;

Source: Google Images

- Checking the hospitals, nursing homes and day care centres that may need assistance;
- Prioritizing utility sources delivery;
- Enhancing communication that is a recurring challenge in disaster response;
- Sharing and collecting information on what agencies have responded to and what resources have they dispatched;
- Determining the resources needed to undertake the counter disaster measures;
- Sharing information about the location, scope, and character of the disaster and damage;
- Locating and specifying procedures for obtaining special disaster resources;
- Sharing information about the state of transportation route facilities, docking and landing sites;

- Generating and sharing predictions about weather conditions; and
- Obtaining information on how to deal with specific hazardous chemicals.

Thus, ULBs have many specific disaster management tasks to do.

1.3 KSA REQUIREMENTS TOWARDS CAPACITY BUILDING

As government officials and members of PRIs and theULBs, you all need to take up responsibilities and act accordingly. For this, you all need to be prepared with the right kind of knowledge, skills and attitudes (KSA, as they are called). The basic three requirements, therefore, are:

i) What you need to know (Knowledge - 'K')

ii) What you need to to do (Skill - 'S')

iii) What mind-set you need to possess (Attitude - 'A')

The object is to provide 'Education' and 'Training' *through* 'Knowledge' and 'Learning'

Definition of 'Education'

Education is a continuous process throughout the human life that attempts to modify the attitudes and behaviour of the people. Education enlightens the people about the 'Why' aspect as to the occurrence of disasters. It tells them what to do and what not to do for preventing or mitigating disasters. It orients them about the ways of managing situations, and provides them with several alternatives to choose from. The primary objective of education is to make people think, invoke their creativity, and motivate them to take action.

Definition of 'Training'

Training is a planned process, which attempts to improve the levels of knowledge, skills and attitudes amongst the recipients. Training needs to be given to build, strengthen and enhance the capacities of individuals, organizations and communities. It is necessary to have institutional support for effective training. With regard to managing disasters, training is accorded a very important place, as it:

- Imparts the necessary knowledge and skills to various categories of personnel;
- Improves the performance of people involved in managing the crisis;
- Enables the people to apply their knowledge and skills to situations;
- Modifies knowledge, skills and attitudes;
- Enhances learning experience;
- Increases the ability of effective performance; and
- Satisfies or attempts to satisfy the needs of an organization.

Definition of 'Knowledge'

Knowledge helps in:

- Knowing what is a task/ situation/ occurrence, and how to deal with it;

- Understanding where and how to reach for the facts and data;

- Increasing interpersonal, social and intellectual skills; and

- Inculcating a willingness to change.

Definition of 'Learning'

Learning helps in:

- Acquiring knowledge or skill, or an ability to gain knowledge and skill;

- Receiving instruction methodically;

- Becoming aware of information; and

- Committing knowledge to memory.

As education and training require systematic appraisal of knowledge and learning levels, it is appropriate to conceive their determining factors or parameters through a comprehensive Training Needs Analysis (TNA)

The TNA process involves a range of techniques to analyze how to enhance the performance of people. This can be done individually, for groups of persons, for the organization as a whole. It can be used for all levels of staff. The objectives of doing a TNA is to accurately identify where and in what amount training is needed, and also to present training recommendations to the authorities responsible for traning for approval.

TNA provides the basis for these activities by:

- Looking at the organization or an institution as a whole and trying to understand its operations and problems;

- Observing the workers at all levels and finding out how their performance can be improved;

- Identifying significant performance problems;

- Analyzing these problems to determine training needs for those people who are associated with them;

- Helping individual employees with their training and development;

- Recommending training and non-training solutions;

- Prioritizing the needs in order to help the management in decision-making; and

- Helping the management to plan training initiatives.

For the purpose of imparting KSAs to the target groups of this Project, a KSA chart has been prepared and distributed in the Project Expert Committee Meeting and Pilot FFTP and TNA workshops, to ascertain the knowledge, skill and attitude requirements of the target functionaries. The views of the participants at these workshops have been duly recorded. Given ahead is the list of identified KSA requirements (*Modified as per the input from Pilot FFTP Workshops*).

DISASTER MANAGEMENT: PHASES
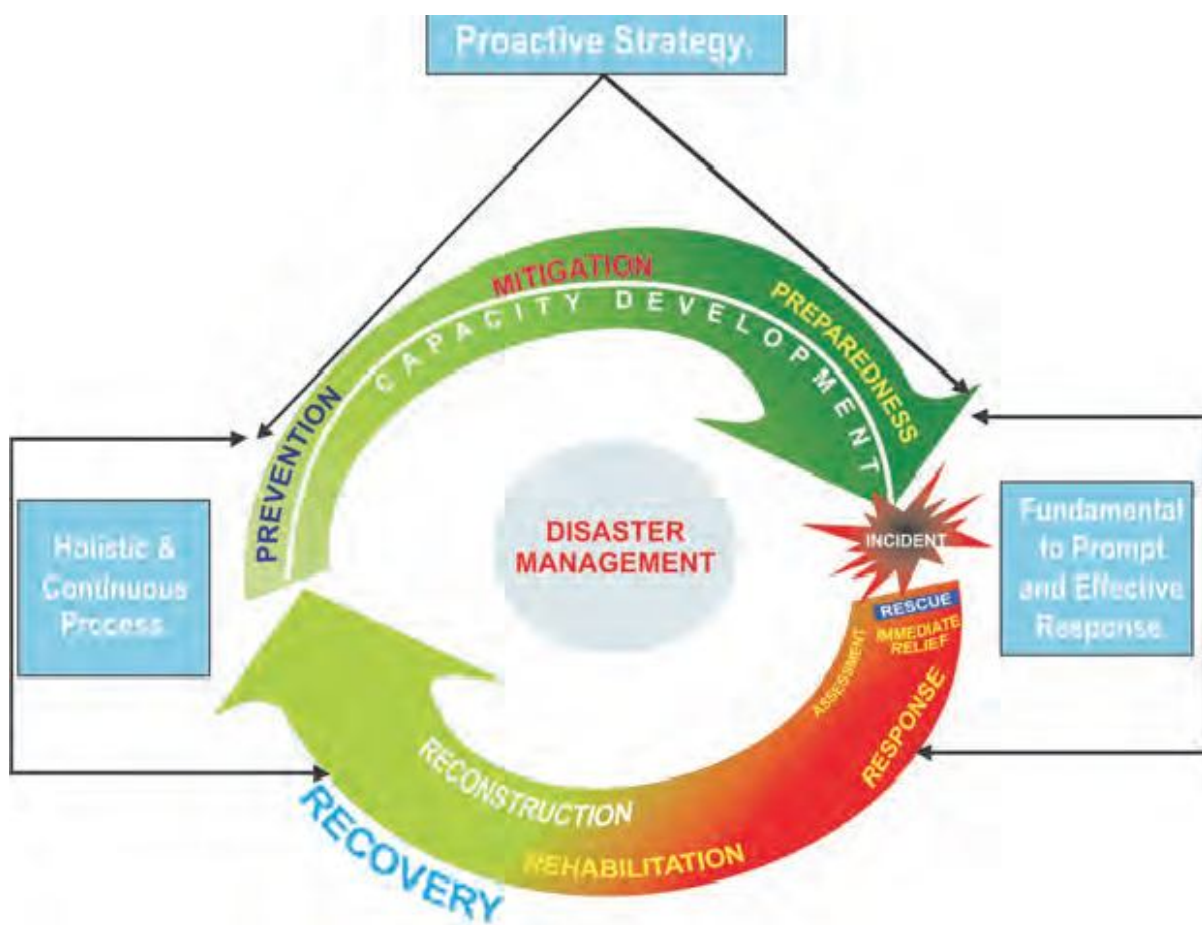
Key Requirements for Capacity Building towards Disaster Management

Disaster Management Concepts/Phases	Knowledge	Skills	Attitudes
UNDERSTANDING DISASTER MANAGEMENT- Hazards and Disasters, Disaster Management Cycle and Impact of Disasters	• Distinction between Hazards and Disasters • Relationship between Disasters and Development • Stages of Disaster Management Cycle • Types of Disasters • Vulnerability Analysis • Risk Assessment	• Mapping • Profiling • Damage Appraisal • Vulnerability Assessment • Risk Assessment • Use of Technologies	• Positive • Receptive • Assimilative • Descriptive • Critical • Analytical • Learning
INSTITUTIONAL ARRANGEMENTS FOR DISASTER MANAGEMENT- Experience Sharing, Role of Various Agencies	• Disaster Management(DM) Act 2005 and Disaster Management Policy 2009 • Role of Disaster Management Authorities and Concerned Agencies • Role of Various Ministries in Disaster Management • Role of International, National and Local or Regional Organizations (both Governmental and Non-governmental) • Financial Arrangements for Disaster Management	• Problem Identification • Garnering Data from Affected and Vulnerable Areas • Weighing the pros and cons of various available alternatives • Decision Making • Making Provisions for Operationalization of Plans	• Assimilative • Knowledge-seeking • Descriptive • Analytical • Rational • Learning • Resolute and Firm
DISASTER PREPAREDNESS- Preparedness, Mitigation, Community Based Disaster Management and Managerial Skills	• Evacuation Plans • Incident Response Set-Up • Logistics Management • Standardization of Relief Procedures	• Preparation of Resource Kits • Preparation of Search and Rescue (SAR) Kits • Preparation of Evacuation Check List • Preparation of Base Map • Preparation of List of Contact Persons	• Coordinative • Participatory • Interactive • Thinking • Persuasive • Rational • Enthusiastic

	• Land-Use Planning • Disaster Insurance • Awareness on Vulnerability of Women, Elderly, Children and Disadvantaged Sections of Society • Pertinence of Disaster Task Force • Role of Van Panchayats • Role of Traditional Wisdom • Community Based Disaster Management	• Involving Community to Prepare Quick First-Aid Teams, Relief Teams etc. • Formulation of Disaster Task Force • Problem Solving • Alternative Searching • Decision Making • Developing Worst Case Scenarios • Conducting Damage and Risk Surveys • Carrying out Vulnerability Analysis • Use of Internet • Sharing of Information • Maintenance of Buffer Stocks • Preparation of Alternate Routes to Disaster Vulnerable Areas • Making Provisions for Recruitment of Personnel for Relief and Distribution Tasks • Documentation of Cargo Material • Determination of Costs and Expenditure of Disaster Prevention Work • Preparation of Time Schedules etc. • Maintenance of Required Documentation and Resource Inventories • Preparation of Socio-cultural and Vulnerability Maps • Identification of School Buildings for Shelter and Identification of Storage Areas	
DISASTER RESPONSE- Major Components, Search and Rescue, Emergency Response, Minimum Standards, Emergency and Health Response, Support Services	• Role of Search and Rescue • Nutrition-Based Health Assessment • Epidemiological Survey • Role of Standard Operation Procedures (SOPs) and Emergency Operations Centre • Emergency Health Care • Geographic Information System (GIS) and Remote Sensing • Community Radio and Internet • Public-Private Partnerships • Evacuation Plans	• Coordination, Negotiations and Liaisoning • Use of Simple Rescue Methods– Facilitating the Use of Hand Grasps, Ropes, Ladders, Boats, Fire Extinguisher, Pulleys, Sacks, Sickles, Hammers, and Chair Knots etc. • Preparation of Evacuation Check List, Preparation of Base Map, Clearance of Debris, Use of Triage • Use of Ham Radio • Recycling of Rubble • Provision of Interim Houses, Community Shelters and Tents • Establishment of Local Advice Centres • Use of Rapid Damage Surveys • Distribution of Pesticides and Arrangement of Lighting in Warehouses • Provision of Garbage Disposal, Cleaning and Sweeping	• Motivating • Positive • Affirmative • Participative • Resilient • Calm • Balanced

	• Communication and Alarm Systems	• Provision of Fire Safety Measures • Record Keeping, Store Inspections • Preparation of Distribution Plan for Dry and Cooked Food • Preparation of Vulnerability Indices for Distribution of Standard Relief Material • Preparation of List of Contact Persons • Provision of Pre-stocking • Mapping the Affected Area • Preparing Feeding Schedules • Maintenance of Buffer Stocks • Preparation of Alternate Routes to Affected Area • Distribution of Relief Tasks • Provision of Warehouses • Liaisoning with other Aid Agencies • Management of Information with the Media • Preparation of Localized Community Maps • Providing for Counsellers and Psychologists to deal with the Behavioural Impact of Disasters on the Community	
DISASTER RECOVERY Damage Asssessment, Disaster Impact, Economic and Social Rehablitation, Participative Rehabilitation Process, Reconstruction and Recovery	• Distinction between Rehabilitation, Reconstruction and Recovery • Distinction between Immediate and Long-term Recovery • Relief-Rehabilitation Continuum • Sustainable Livelihood Framework • Risk Resource Mapping • Insurance Schemes • Utility of Disaster-Resistant Construction • Disasters and Development Interface • Land-Use • Fire Safety • Psychological Social, Cultural and Physical Rehabilitation	• Integration of Risk Reduction Strategies in Reconstruction Activities • Safe Construction Practices and Materials • Helping Group Activity for Optimum Utilization of Recovery Related Resources • Implementation of Crises Management and Panic Control Plans • Use of Participatory Tools to Promote Capacity Building Schemes • Use of Sample Surveys • Monitoring and Evaluation • Risk Management • Nutrition-Based Health Assessment • Information, Dissemination and Monitoring • Social Networking • Conflict Resolution Strategies • Self-sufficiency and Sustainability Skills	• Resilient • Positive • Optimistic • Helpful • Cooperative • Participative • Motivating • Leading

	• Stress Management • Social Forestry, Water Harvesting, Employment Generation • Indigenous Coping Mechanisms, and Watershed Partnerships		

Graphic 1: A Building Fire being Extinguished

It may be noted that there is bound to be an overlap between the KSA or KNOWLEDGE, SKILL and ATTITUDE requirements at different stages of disaster management cycle, as the activities tend to be reinforcing and intermingling. But, by and large, each stage requires certain distinct KSAs on the part of leaders, officials and representatives of the community.

Based on these requirements, the Manual is divided into 4 Booklets. These are:

1. Conceptual and Institutional Framework of Disaster Management

2. Disaster Preparedness and Mitigation

3. Responding to Disasters

4. Disaster Recovery and the Road Ahead

In addition, a functional Handbook has also been prepared for ready use of the micro-level disaster management personnel. It includes a detailed check list of preparedness measures for disasters, as well as Do's and Don'ts for major natural and man-made disasters including the Chemical Biological Radiological Nuclear (CBRN) disasters.

1.4   USING THE MANUAL

How can this Training Manual be used?

For the sake of convenience, each Booklet is packaged as a comprehensive disaster management phase, complete in its own. Each Booklet would give a detailed viewpoint on disaster management; dealing with each of its facet holistically. The organization of Manual into 4 self-contained booklets would make it more handy and readable, besides lending it a distinct character.

Introduction to the Project, Abbreviations and References form a part of each Booklet

The case studies and exercises in Annexes of Booklet 4 are aimed to make the participants:

• Appreciate the various efforts going on in the area of disaster management.

• Acknowledge the relevance of weaving the success stories for research and development of the subject.

Though the major aim of the Project, for the time being, is to impart training and orientation to the stakeholders, its long-term objective is to equip such clientele, who have received orientation, to be the Resource Persons and Facilitators for sharpening the skills, as well as enhancing the knowledge base of others down the line in their respective areas of operation and jurisdiction.

In keeping with the goal, you as facilitator should be able to equip yourself (KSA-wise) to deal with disasters in a better manner. The facilitator can use the Manual as a whole, or only those portions/booklets that are relevant to the situational context of the participants, their training needs and their specific tasks. The facilitator also has to decide to adapt the Manual to the target requirements, instead of sticking to it word by word. For example, if all the participants are from one State, it may make sense to use instances and cases from that State or a State of a similar profile, rather than those indicated in the Manual Booklets. To make learning interesting, the facilitator must try to use a mix of training methodologies such as:

• Lectures

• Group Discussions

• Charts, Slides and Graphics

• Handouts

• Case Studies

• Activities/Exercises

• Simulations

• Nukkad Nataks

The role of the facilitator is expected to:

• Make participants feel comfortable by reassuring their potential value in the whole scheme of the project.

- Apprise participants on the goals and objectives of the project, its aims and contents.

- Ensure full participation of the target group through participative discussions, feedback, and also constructive criticism.

- Impress upon the participants the very need for effective disaster management, collective leadership and people's power to bring in substantial transformation in KSA.

Major Aspects covered in the Training Manual are:

1. Concept of Disaster Management

2. Typology, Nature and Impact of Disasters

3. Phases in Disaster Management

4. Pertinence of Preparedness, Mitigation, Response and Recovery

5. The Disaster Management Act 2005 and the Disaster Management Policy 2009

6. Stakeholders involved in Disaster Management

7. Role of Panchayats and Urban Local Bodies in Disaster Management as per the 73rd and 74th Constitutional Amendments

8. Mainstreaming the concerns of Gender and Disadvantaged Sections in Disaster Management

9. Relationship between Disaster Management and Development Processes

Graphic 2: A Drought Affected Region

The **expected outcomes** of the Manual are to make the Government officials, representatives of PRIs and ULBs as well as the facilitators realize the importance of:

- Interconnection between disaster management and development processes.

- Coordination and support processes amongst various disaster management agencies/institutions/stakeholders.

- Role of community and its representatives.

- Use of traditional knowledge and wisdom.

- Role of stakeholders; government and non-government; and institutions such as NDMA and IGNOU in disaster management.

- Mainstreaming disadvantaged sections (women, elderly, children and physically challenged) in disaster management planning.

- Logistics management, health management and resource mobilization; and

- Linking, relief and rehabilitation with development under the aegis of Sustainable Livelihood Framework.

1.5 OVERVIEW OF THE MANUAL

Overview of the Four Booklets of this Manual

Booklet No.	Module	Objectives
I	**CONCEPTUAL AND INSTITUTIONAL FRAMEWORK OF DISASTER MANAGEMENT**	To know about the : • Project and Manual • Distinction between Hazards and Disasters • Relationship between Disasters and Development • Stages of Disaster Management Cycle • Types of Disasters • Nature of Impact of Disasters • Vulnerability and Hazard Analysis, and Risk Assessment • Disaster Management: Global and National Overview • Functions of NDMA, NDRF, Contingency Fund, Calamity Fund, Insurance and Other Financial Arrangements • Concepts of Climate Change, Community, Civil Society, Damage Assessment, Global Warming, Greenhouse Effect, Geographic Information System, Remote Sensing
II	**DISASTER PREPAREDNESS AND MITIGATION**	To understand about: • Incident Response Set Up • Logistics and Finance • Standardization of Relief Procedures • Land Use Planning • Disaster Insurance • Pertinence of Disaster Task Force • Role of Traditional Wisdom and Van Panchayats • Role of Community Based Disaster Management • Preparation of Resource Kits • Relevance of Problem Solving • Decision Making • Developing Worst Case Scenarios • Conducting Damage and Risk Surveys • Carrying out Hazard Vulnerability Capacity Analysis • Preparation of Alternate Route Maps • Maintenance of Required Documentation and Resource Inventories • Capacity Building • Information Dissemination and Monitoring
III	**RESPONDING TO DISASTERS**	To understand the important role of: • Search and Rescue • Emergency Health Care • Public-Private Partnerships • Evacuation Plans • Communication and Alarm Systems • Preparation of SAR Kits • Use of Simple and Effective Rescue Methods

		• Use of Hand Grasps, Ropes, Ladders, Boats, Fire Extinguishers, Pulleys, Sacks, Sickles, Hammers, and Chair Knots • Evacuation Check List, Base Maps, Clearance of Debris, Use of Triage • Interim Houses and Community Shelters • Identification of School Buildings for Shelter and Provision of Tents • Local Advice Centres • Rapid Damage Surveys • Pre-stocking • Identification of Storage Areas • Distribution of Warehouses • Buffer Stock Maintenance • Use of Pesticides and Lighting in Warehouses • Garbage Disposal, Cleaning and Sweeping • Fire Safety Measures • Record Keeping, Store Inspections • Distribution Plan for Dry and Cooked Food • Vulnerability Indices for Distribution of Standard Relief Material • Feeding Schedules • Alternate Routes to Affected Area • Relief Tasks • Liaisoning with other Aid Agencies • Incident Response Schedules to Track Information on Events • Information Management • Damage Appraisal • Localised Community Maps to Ascertain Damage to Human Lives, Livestock and Infrastructure • Community Participation in First-Aid Teams, Relief Teams, Shelter Teams, Water and Sanitation Teams etc. • Disaster Task Force from amongst the Community
IV	**DISASTER RECOVERY AND THE ROAD AHEAD**	To understand the importance of: • Linking Relief and Rehabilitation with Development Framework • Nutrition-Based Health Assessment • Stress Management • Conflict Resolution • Disaster Resistant Housing • Land-Use Planning • Utility Mapping and Sample Surveys • Fire Safety • Epidemiological Procedures • Psychological, Social, Cultural and Physical Rehabilitation • Social Forestry • Water Harvesting, Employment Generation • Disasters and Development Connect • Sustainable Livelihood Framework • Indigenous Coping Mechanisms and Watershed Partnerships

DISASTER MANAGEMENT: CONCEPTUAL AND INSTITUTIONAL FRAMEWORK

"The earth provides for every man's need, but not every man's greed"

(Mahatma Gandhi)

Very often, we hear of earthquakes, floods, droughts, cyclones and natural hazards, affecting some region or the other of the country. However, the question: is do we understand the nature and impact of these catastrophic events. What are these hazards, what are their types, what are their consequences, do they lead to disasters, how are disasters managed, who are involved in their management, and what are the constraints in managing them. An understanding of many such queries is a must to grapple with the issues of disaster management. Prevention, preparedness, mitigation, response and recovery, all dimensions are integral to disaster management. You will be learning about them under the different Booklets of this Manual, but the predominant question is what actually is a disaster ?

2.1   CONCEPT OF DISASTER

What is a Disaster?

The first question that crosses our minds is what exactly is a disaster. As per the High Powered Committee (HPC) on Disaster Management, which submitted its Report in 2001, 'a disaster is an event triggered by natural or man-made causes that leads to a sudden disruption of normalcy within society, causing widespread damage to life and property.' As per the Disaster Management Act (2005), 'a "disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or

Source: Disaster Management in India/eda.in

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 a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

Disaster is a function of the risk process. Though, most disasters are of natural origin, human activity does increase their risk and frequency. Besides, there are disasters, which are purely man-made as certain types of fires, floods and droughts. These types are a result of faulty and insensitive developmental activities. There are several **causes** behind these man-made disasters such as:

•   Poverty, which compels people to live in vulnerable zones;

- Population growth, which results in occupation of land and resources in vulnerable regions, i e., proximity/exposure (e.g., live/work near hazards);

- Rapid urbanization, forcing people to live in disaster-prone regions;

- Moving from agriculture-centric to industry-centric model of growth;

- Environmental degradation like felling of trees, suffocation of green lungs, deforestation; and

- Lack of awareness on byelaws, vulnerable regions, and impact of developmental changes on environment.

The words, *Des* (Bad)+ *Aster* (Star) make a Disaster

Thus, Disasters are catastrophic happenings, where normal patterns of life get disturbed and external help becomes crucial to save lives, prevent injury and safeguard infrastructure.

Disasters could be categorised into type-based and time-based disasters. Type-based disasters originate from natural and human-induced factors. These disasters are of two kinds:

1. Natural
2. Man-made

Likewise time-based disasters are also of two types:

1. Slow-onset disasters, which can be predicted with greater precision and provide some response time; and

2. Quick-onset, which are unpredictable and occur suddenly; taking all by surprise and providing no response time.

2.2   DIFFERENCE BETWEEN A HAZARD AND A DISASTER

Hazard and Disaster

A hazard is an occurrence that has the potential of causing injuries to life or damage to property or environment. The magnitude of the phenomenon, the probability of its occurrence and the extent and severity of the impact can vary. In many cases, these effects can be anticipated and estimated.

We come across hazards everywhere. For instance, houses near Yamuna Pushta area in Delhi appear hazardous, but a disaster strikes only when they are inundated by rise of water levels above the danger mark. A distinction is made between a hazard and a disaster, as hazards can be everywhere, but need not turn into a disaster.

Source: Sometimes, Natural Hazards/nimsonline.com

Both hazards and disasters, could be natural and man-made. However, only when elements of risk and vulnerability are involved, can a hazard turn into a disaster. A disaster occurs when the impact of a hazard on a section of society exceeds its capacity to prevent or to cope with it.

> **DID YOU KNOW?**
>
> *If an earthquake strikes a desert that is 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 earthquake that struck Bhuj (Gujarat) in 2001 and killed more than 14,000 people became a disaster, owing to its immediate and horrific impact on life and infrastructure.*

Types of Hazards

Hazards can be classified by their origin namely: geological, hydro-meteorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

TYPE	NATURE
Geological Hazards	They include internal earth processes or are tectonic in origin. Such hazards include earthquakes, geological fault activity, tsunamis, volcanic activity and emissions, as well as external processes such as mass movements. These can be landslides, rockslides, rock falls or avalanches, surface collapses, expansive soils and debris or mud flows. These hazards can be single, sequential or combined in their origin and effects.
Hydro-meteorological Hazards	These hazards include: floods, debris and mud flows; tropical cyclones, storm surges, thunder/hailstorms, rain and wind storms, blizzards and other severe storms; drought, desertification, wild land fires, temperature extremes, sand or dust storms; permafrost and snow or ice avalanches. These hazards can be single, sequential or combined in their origin and effects.
Anthropogenic Hazards	They occur as a result of human interaction with the environment. They include technological hazards, which occur due to exposure to hazardous substances, such as radon, mercury, asbestos, fibers, and coal dust. Acid rain, contamination of the atmosphere or surface waters with harmful substances, and the entire global warming are consequences of anthropogenic hazards.

The element of risk that can turn a hazard into a disaster is always present. Disaster Management thus involves minimization of the risk factor. So what is Risk?

2.3   CONCEPTS OF RISK, VULNERABILITY AND CAPACITY

What is Risk?

As per the United Nations Development Programme (UNDP), Global Report on 'Reducing Disaster Risk: A Challenge for Development: Glossary of Terms' 2004 – Risk is the

probability of harmful consequences, or expected loss of lives, people injured, property, livelihoods, economic activity disrupted (or environmentally damaged), resulting from interactions between natural or human-induced hazards and vulnerable conditions.

Risk is the:

- Expected loss (lives lost, persons injured, damage to property and disruption of socio-economic and educational activities)

- Product of hazard and vulnerability

It is important to consider the *social contexts* in which risks occur, as people do not necessarily share the same perceptions of risk and their underlying causes. Some professionals identify *capacity* as an element that can drastically reduce the effects of hazards and vulnerabilities.

There is no consensus on the use of a particular definition on risk. It is, however, conventionally expressed by the equation:

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

By this definition, vulnerability increases the risk of a hazard turning into a disaster; and capacity has the potential to control the risk factor. If capacity to cope with hazard and vulnerability is high, risk factor would be low and if capacity is low, then risk would be high. Thus, we have to be clear about the terms vulnerability and capacity as well.

Next query pertains to the meaning of vulnerability.

What is Vulnerability?

Vulnerability is:

- Susceptibility to a potentially damaging phenomenon.

- Extent to which a community, structure, service, or geographic area is likely to be managed or disrupted by the impact of a particular hazard.

- Gauged on the basis of nature, construction and proximity to hazardous terrain or a disaster prone area.

- Projected in terms of class, ethnicity, gender, disability, age, and economic conditions.

As per United Nations Framework Convention on Climate Change (UNFCCC), developing countries are the most vulnerable to the impact of climate change because they have fewer resources to adapt: socially, technologically and financially.

Source: rediffimagesearchfile agricrop.nic.in/d

The Components of Vulnerability can be diagrammatically expressed as below:
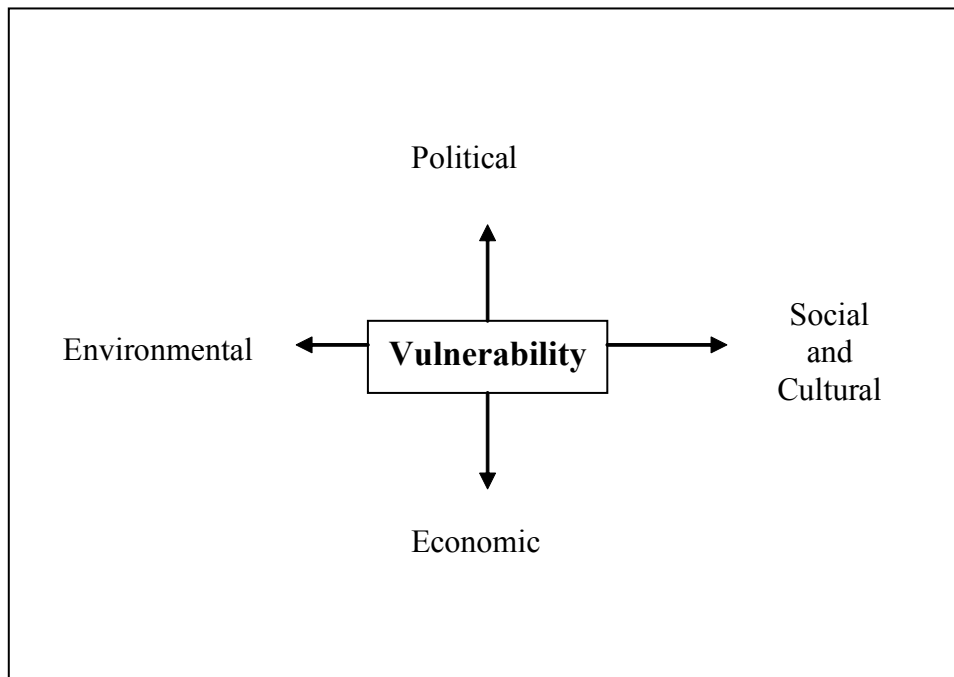
Magnitude of a disaster is related to differential vulnerability. More the vulnerability, more intense is the impact of a disaster. Some of the key reasons for ever-increasing levels of vulnerability are:

- Rapid population growth, where disaster events can claim more lives.

- Environmental degradation due to poor land use, deforestation, over-cultivation and overgrazing. These render the land more prone to floods, cyclones and landslides.

- Increased rate of industrialization and rapid urbanization without the necessary safeguards.

- Impoverished conditions.

- Blind adherence to cultural practices.

- Gender inequalities.

- War and civil strife.

- Lack of public awareness and information.

- Absence of preventive and preparedness measures for disasters in development planning; and

- Neglect of developmental issues and concerns.

Source: Pictures of NGO work/jaipur.olx.in

Types of Vulnerability

TYPE	NATURE
Material/Economic Vulnerability	Inadequate access to resources
Social Vulnerability	Disintegration of local institutions and structures
Ecological Vulnerability	Degradation of environment and inability to protect it
Organizational Vulnerability	Lack of strong central, state and grassroots institutional structures
Educational Vulnerability	Insufficient access to information and knowledge
Attitudinal and Motivational Vulnerability	Low levels of public awareness and desire to change
Political Vulnerability	Limited access to political power and representation
Cultural Vulnerability	Blind faith in beliefs and customs
Physical Vulnerability	Weak buildings and other infrastructure, as well as physically weak or vulnerable people

Source: IGNOU, PGDDM, Course MPA-004 on Disaster Preparedness.

What is Capacity?

As per the United Nations International Strategy for Disaster Reduction (UNISDR) definition, '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, and can also be referred to resources, attitudes, skills and knowledge to cope with crises.

DID YOU KNOW?

A Pilot Project on Community Capacity Building and Public Awareness Campaign on Floods, Earthquakes and other natural disasters was organized by NDRF, which has been set up by the NDMA. The Project was organized by NDRF Teams in 2007 in 14 highly vulnerable districts of Bihar. In this Project, 2,200 volunteers and State Disaster Management Authority (SDMA) officials were trained. Along with Community Capacity Building and Public Awareness exercises, NDRF is also actively engaged in area familiarization exercises. Such exercises provide first-hand knowledge on the topography, access route to disaster prone areas, availability of local infrastructure to be used in response operations. The target group under the programme includes villagers, school children and volunteers selected by state administration. The programme aims at providing exposure to the emergency first-aid, basics of search and rescue, flood preparedness and use of improvized life saving equipment.

NDRF Battalion, Pune conducted capacity building and awareness preparedness programmes in different parts of North and South Goa in June 2010. The Team educated more than 1500 people including villagers, students, teachers, government and non-government officials on prompt response and mitigation measures during various disasters. One Team of NDRF Battalion, Bhatinda conducted area familiarization and capacity building programmes in 3 districts of Himachal Pradesh in April 2010, and trained more than 1000 partcipants.

EXERCISE 1

1. DIFFERENTIATE BETWEEN A HAZARD AND A DISASTER BY GIVING SUITABLE EXAMPLES

2. BRING OUT THE RELATIONSHIP BETWEEN HAZARD, VULNERABILITY, RISK AND CAPACITY

2.4   TYPOLOGY OF DISASTERS IN INDIA

Disasters identified by the HPC (2001) (Both Natural and Man-made) are:

I.   **Water and Climate Related Disasters**

- Floods
- Cyclones
- Tornadoes and Hurricanes
- Hailstorm
- Cloud Burst
- Heat Wave and Cold Wave
- Snow Avalanches
- Droughts
- Sea Erosion
- Thunder and Lightning

II.   **Geologically Related Disasters**

- Landslides and Mudflows
- Earthquakes
- Dam Failures/ Dam Bursts

III.   **Chemical, Industrial and Nuclear Related Disasters**

- Chemical and Industrial Disasters
- Nuclear Disasters

Source: Bhopal Gas Disaster/downtoearth.com

IV. Accident Related Disasters

- Forest Fires
- Urban Fires
- Mine Fires
- Mine Flooding
- Oil Spill
- Major Building Collapse
- Serial Bomb Blasts
- Festival Related Disasters
- Electrical Disasters and Fires
- Air, Road and Rail Accidents
- Boat Capsizing
- Village Fire

Source: Dirt on a Forest Fire/tammybruce.com

V. Biologically Related Disasters

- Biological Disasters and Epidemics
- Pest Attacks
- Cattle Epidemics
- Food Poisoning

Major Natural Disasters that adversely affect India are:

1. Cyclones
2. Droughts
3. Earthquakes
4. Fires
5. Floods
6. Landslides and Avalanches
7. Tsunamis

These major ones are also the disasters that are focussed on in this Booklet.

The general features of disaster impact relate to:

- Falling apart of normal pattern of life.
- Loss of life and property.
- Adverse impact on economic and social structure.

Source: For Disaster Relief/wired.com

Source: TheDisaster Relief Robot/geekologie.com

- Disruption in community needs of shelter, food, clothing, and medical help.

- Onset of psychological trauma.

- Loss of lives, crops, livelihoods and housing.

- Disruption of communication, transport and infrastructure.

- Law and order problems.

- Epidemiological threats.

- Migration (Both short-term and long-term).

All impacts are, however, not always negative, since the negatives could open up positive avenues of growth and development as depicted in chart below:

Disasters: Negative and Positive Aspects

Aspects	Negative	Positive
D	Damage	Development
I	Interruption	Innovation
S	Severe	Sharing
A	Antagonistic	Awareness
S	Scourge	Self-sufficiency
T	Trauma	Transformation
E	Emergency	Education
R	Risk	Resilience

Source: Views expressed by Pardeep Sahni at a Faculty Seminar, 2001

2.5   NATURE OF DISASTERS IN INDIA

India has been traditionally vulnerable to natural hazards, as its geo-climatic and social conditions are distinct in many ways. Floods, droughts, cyclones, earthquakes, landslides, avalanches and tsunamis have been recurrent phenomena affecting around 85% of its geographical area.

Landmass/Areas Prone to:

- **Cyclones**   –   08%

- **Droughts**   –   68%

- **Earthquakes** – 60%

- **Floods** – 12%

It is very pertinent to understand the nature and characteristics of these disasters in order to cope with their ferocity.

Cyclones

Cyclones are catastrophic winds that storm the vulnerable regions with intense speed and ferocity. They occur very frequently in India. Cyclones occured in the past have been given specific names such as Aila, Laila and Bandhu. There are two distinct cyclone seasons: pre-monsoon (May-June) and post-monsoon (October-November), which impacts the long 7,516 km. long coastline of India.

Source: The crazy week cyclone basyang / marriage and beyond.com

Droughts

Severe and rare droughts occur in arid and semi-arid zones. Droughts can occur due to long spells of water shortage as a result of scanty rainfall, inadequate

Source: Drought/insidesocial.com

water management techniques, and sheer governmental neglect. The severity of drought depends on the degree of moisture deficiency, duration of dry spells, extent of irrigation facilities; and size of the affected area. An erratic pattern, both low (less than 750 mm) and medium (750-1125 mm) makes 68 per cent of the total area vulnerable to periodic droughts. Droughts and Famines are two different things. Famine is defined as the situation when food available to the people is extremely scarce and it leads to hunger and starvation. Famine can occur due to mismanagement even when there is no drought. On the other hand, a drought, if managed well, will not turn into famine.

Earthquakes

58.6 per cent of our country is vulnerable to earthquake activity of varying magnitudes and is accordingly divided into Seismic Zones II, III, IV and V (Zone I has been merged with Zone II). Most of the highly vulnerable areas are in the Himalayan and sub-Himalayan regions, Andaman and Nicobar Islands and Kutch areas of Gujarat. An earthquake is a sudden violent motion of the earth, which lasts for a limited time within a very limited region. It is caused by natural processes wresting the earth's crust. It is found where one of the earth's plates is moving against another and building

up so much tension that the rock cracks. The sudden cracks and the movement of the rocks send out shock waves (P-Waves and S-Waves) making the ground shake violently. The degree of destruction caused by an earthquake depends on many factors such as: magnitude, type, depth, distance from epicentre, soil conditions, preparedness of population, time of day, and duration of an earthquake.

Source: As a matter of disaster relief/indiastudychannel.com

Floods

Floods or heavy and unmanageable inundation is generally caused by an excessive overflow of water over the natural banks of river due to incessant rainfall, heavy rainfall synchronization with river spill or poor drainage, gradual erosion of the river bank reducing the capacity of rivers to contain the water, sediment deposition, avalanches and landslides blocking the normal course of the river, change of river course by earthquake, failure of dams, deforestation, blockages in waterways, sewage systems etc. Brahmaputra and the Gangetic Basin are the most flood prone areas. The other flood prone areas are the north-west region of the west flowing rivers like Narmada and Tapti, Central India and the Deccan region with major east flowing rivers like Mahanadi, Krishna and Cauvery.

Source: Disaster Preparedness/dosomething.org

Fires

Fires are of many types like Forest Fires, Coal Fires, Gas Fires, Oil Fires, and Building Fires. Forest Fires are the most common. They occur more in coniferous forests and evergreen broadleaf forests in hot and dry regions, but seldom in rain forests and deciduous broad leaf forests. If the basic requirement of air and the burning fuel (grass, bush, fallen leaves, branches of trees, deadwood) is dry, fires are more likely. Hot sunny days with low humidity and strong breeze are conducive to the rapid spread of fire in a forest. Many trees in forests emit oily or wax-like substance, which intensifies forest fire. Extinguishing a forest fire is not easy. Generally forest fire once started, continues until there is heavy rain or the burning fuel is finished. Very intense forest fires are called "crown fires" and are extremely destructive. Building fires are also common. Careless attitude and bypassing

Source: Disaster Like Earthquake/blogspot.com

of regulations result in building fires as well as coal, oil and gas field fires. Uphaar Cinema Hall Tragedy in New Delhi was a result of sheer insensitivity and carelessness of Cinema owners and License Authorities.

Landslides and Avalanches

The Himalayan, the northeast hill ranges and the Western Ghats experience considerable landslide activity of varying intensities. River erosion, seismic movements and heavy rainfall cause considerable activity. Heavy monsoon rainfall, often in association with cyclonic disturbances results in considerable landslide activity on the slopes of the Western Ghats. Avalanches constitute a major hazard in the higher reaches of the Himalayas. Severe snow avalanches occur in Jammu and

Source: Rediff Image Search/news.sky.com

Kashmir, Himachal Pradesh and the Hills of Western Uttar Pradesh. The three types of snow avalanche zones are: **Red Zone:** The most dangerous zone where snow avalanches are most frequent and have an impact pressure of more than 3 tonnes per square meter. **Blue Zone:** Where the avalanche force is less than 3 tonnes per square meter, and where living and other activities may be permitted with construction of safe designs. However, such areas may have to be vacated on warning. **Yellow Zone:** Where snow avalanches occur only occasionally.

Tsunami

Source: The Tsunami Economic Challenge/jobletter.org.nz

A Tsunami is a series of sea waves travelling at high speeds, for long periods, caused by a sudden event generated by an abrupt displacement of large volumes of water in the ocean. This may be caused by an earthquake, a submarine landslide, a volcanic eruption or a meteorite impact. The most destructive Tsunamis are formed by the occurrence of large earthquakes, with epicentres located near or on the deep ocean floor. The Indian Ocean Tsunami of 2004, which affected the coast of Tamil Nadu, Kerala and Pondicherry, has made India wake up to this type of disaster.

DISASTERS IN THE LAST DECADE

PLACE AND TYPE OF DISASTER	YEAR
Uttarkashi (Uttaranchal) Earthquake	1991
Punjab Floods	1993
Chamoli District (Uttaranchal) Earthquake	1995
Orissa Heat Wave	1998
Orissa Super Cyclone	1999
Bhuj (Gujarat) Earthquake	2001
Indian Ocean Tsunami	2004
Jammu & Kashmir Earthquake	2005
Kumbakonam (Tamilnadu) Fire Tragedy	2004
Kosi (Bihar) Floods	2008
Uttarakhand Floods	2010
Cyclone Thane	2011

2.6   MANAGING DISASTERS

What is Disaster Management?

The Disaster Management Act 2005 defines 'disaster management' as a continuous and integrated process of planning, organizing, coordinating and implementing measures, which are necessary or expedient to prevent danger or threat of any disaster, mitigation or reduce the risk or severity or consequences of any disaster, capacity building and preparedness to deal with any disaster, prompt response to any threatening disaster situation or disaster, assessing the severity or magnitude of effects of any disaster evacuation, rescue and relief, rehabilitation and reconstruction.

Disaster management as an activity involves measures to:

- Reduce the risks associated with disasters through timely measures, short-term and long-term policies
- Provide required assistance to communities during and after the disasters; and
- Ensure rapid and sustained recovery and rehabilitation after the occurrence of disasters

The new vision adopted for disaster management focuses on:

- Preparedness rather than post-crisis management
- Coordinated participatory approach
- Technology upgradation and deployment
- Information as a tool of disaster management
- Recognition of linkages between disasters and development
- Connecting specific programmes for management of natural disasters
- Forecasting and warning using latest technology; and
- Disaster management as a continuous and integrated part of development process

Graphic 3: An Inundated Village

Approaches to Disaster Management

APPROACH	FOCUS
Conventional/Dominant Approach	It focuses on managing disasters after they have occurred. The focus is on reactive or *Relief Paradigm*. It includes provision of food and shelter, health aspects, contingency planning, evacuation planning, organization and training, early warning and hazard monitoring system. It also includes the *Mitigation Paradigm*, which focuses on identification of hazard prone locations, patterns of physical vulnerability, relocating; retrofitting; zoning; and building codes.
Alternative/Progressive Approach	The focus here is on *Development Paradigm* with emphasis on the causal factors and processes of vulnerability, community capacity building, land property ownership; access to credit; diversification of livelihoods; and technological innovation. The *Risk Reduction Paradigm* is also a component of this approach. It amalgamates scientific approach with traditional knowledge. The objective is to: • Assess hazards, vulnerabilities and capacities as well as people's understanding of disaster risks. • Optimize existing coping strategies in the face of losses. • Provide local solutions to global problems; and • Treat communities as subjects and not objects.

Contract-Expand Approach	This Approach assumes that the component or dimensions of disaster management like disaster prevention, mitigation, response and recovery can all be carried out at the same time in a hazard-prone community. However, the relative weighing of each component "contracts" or "expands", depending on the relationship between the hazard and the vulnerability of the community. It believes that disasters occur when a hazard exceeds the community capacity to manage it (i.e., when vulnerability of the community to a hazard increases).

These approaches are followed with varied emphases in varied disaster situations at different disaster phases of a disaster management cycle.

2.7   DISASTER MANAGEMENT CYCLE

The disaster management cycle generally comprises four major stages:

1. **Disaster Prevention, Preparedness and Mitigation** rest on the principle that prevention is better than cure. This stage or phase involves all the steps necessary for creation of disaster-resilient structures and communities.

2. **Disaster Response and Relief** includes immediate disaster search and rescue operations, provision of food, clothing, and shelter for the affected.

3. **Disaster Rehabilitation, Reconstruction and Recovery** take into view the efforts to restore all essential facilities to pre-disaster status. They focus on measures that could pave the way for long-term recovery of social, economic and physical structures, as well as processes in such a way that future disasters are unable to impact severely and irreversibly.

4. **Long-term Development** as the Way Forward, focuses on erecting disaster resistant infrastructure and mainstreaming disaster management activities into developmental planning.

Let us look at the nature of disaster management activity at these stages in detail:

DISASTER STAGE	NATURE OF ACTIVITY
Prevention	Prevention activities aim at totally avoiding the adverse impact of hazards and providing means to minimize environmental, technological and biological disasters. Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters.
Mitigation	Mitigation means any action taken to minimize the extent of a disaster or potential disaster. Mitigation can take place before, during or after a disaster, but the term is most often used pro-actively to refer

	to actions against potential disasters. Mitigation measures are structural and also non-structural. Structural measures are measures that can be easily seen or perceived such as strengthening of buildings, disaster-resistant construction, and erection of infrastructure. The non-structural measures are intangible in nature. These cannot be easily quantified, but are very important such as generation of awareness, education and training, insurance and adherence to the rules and byelaws.
Preparedness	Preparedness entails activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings, preparation of emergency plans, maintenance of inventories, at-risk planning and temporary evacuation of people and property from threatened locations. It involves measures that enable governments, community and individuals to respond rapidly to disaster situations and effectively cope with them.
Response/Relief	Relief can be of an immediate, short-term, or protracted duration. For example, search and rescue of the affected people and provision of food, temporary shelter and medical care to the persons affected by the disaster are some common areas of intervention after a disaster.Relief involves strategies and ways that can help to reduce the level of suffering and mitigate the distress, so as to bring the affected people out from the shock and trauma of suddenly losing their loved ones and their means of livelihood. Further, the main objective of relief is to assist the affected persons to start their normal activities again.
Rehabilitation	Rehabilitation process includes all operations and decisions taken after a disaster with a view to restoring an affected community to its former living conditions, by encouraging and facilitating the necessary adjustments to the changes caused by the disaster.
Reconstruction	Process of Reconstruction includes the actions taken to re-establish a community, following rehabilitation after a disaster. These actions generally include construction of permanent housing, complete restoration of all services and physical infrastructure to that of the pre-disaster state.
Recovery	Recovery refers to decisions and actions related to rehabilitation and reconstruction taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the affected community. At the same time, encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery activities make use of disaster risk reduction measures to improve the situation in affected areas. The aim is to also develop the areas in a way that vulnerability and risk to disasters are minimized. All development programmes in the area need to be mainstreamed with recovery programmes in order to treat disasters as development opportunities.

The focus on effective disaster management is gaining currency with emphasis on:

• Institutional Change

• Policy Measures

• Legal and Techno-legal Framework

• Mainstreaming Mitigation into Development Process

• Systematic Funding Mechanism

• Pro-active Measures

• Information Sharing and Capacity Building

• Human Resource Development

For all of you, an understanding of the following related concepts can go a long way in making disaster management effective.

2.8   CONCEPTS TO REMEMBER

Automatic Position Reporting System (APRS)

It is an amateur radio based automatic position reporting system for tracking digital communications. The system uses amateur radio to transmit position reports, weather reports, and messages and data between users. It is helpful in the event of a slow ham radio service.

Source: Warning and Climate Change/earthgreen9.com

Climate Change

Changes in climate may be due to natural processes or persistent anthropogenic changes in atmosphere or in land use. The United Nations Framework Convention on Climate Change (UNFCCC) defines these changes as attributable directly or indirectly to human activity. As per the Wikipedia, climate change is a change in the statistical distribution of weather over time.

Compensation

Compensation is basically replacement of any damage in financial terms. It is a part of contractual agreement, whereby unnatural dispossession of wealth and property is required to be compensated. In a disaster situation, this is done through various instruments such as governmental calamity relief or emergency funds, international donations, charitable donations, and insurance schemes. It is generally understood that no country in the world is in a position to fully compensate the losses incurred due to natural and man-made calamities. Nevertheless, compensation is one major step towards healing the wounds of the affected.

Source: Rajasthan Panchayati Raj/indiascanner.com

Community

A community is a group of people who share common interests, ideas, goals, resources and environments. It generally has a leader who may be elected or nominated to guide its members. A community reaches its decisions on the basis of a sense of belonging, participation and consensus building. Communities are human resources, as they are knowledgeable about disasters happening in their environment, and are sometimes able to forecast them. The community also follows experience-based coping mechanisms.

Community Radio

Though radio has been with us for innumerable decades, providing information and entertainment, community radio is a development that has assumed importance only in the last few decades. Community radio is distinguished by three essential principles: non-profit making, community ownership/management, and community participation. It is characterized by its limited local reach, low-power transmission, and programming content that reflects the educational, developmental and cultural needs of the specific community it serves.

Civil Society

By a civil society, we often think of non-governmental and voluntary agencies working for the betterment of people. However, the term is much wider. Generally, regarded as a space outside the state and market, its various points of intersection with state and market have made the concept a little difficult to define. It includes all actors/spaces that work for justice, non-violence, equity and welfare of the community. It comprises organized community bodies with significant grassroots level experience and presence, which is crucial for executing disaster reduction practices at the community level. These include Non-Governmental Organizations (NGOs), Community Based Organizations (CBOs), Self-Help Groups (SHGs) and Community Networks.

Disaster Risk Reduction (DRR)

It refers to a wide sector of work on disaster management including: mitigation, prevention, risk reduction, preparedness and vulnerabilities. The United Nations defines it as 'the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention), or to limit (mitigation and preparedness) the adverse impact of hazards, within the broad context of sustainable development'. DRR attempts to strengthen the capacity of the disaster-prone communities and address hazard threats through appropriate mitigation measures.

Damage Assessment

It is an assessment of damage in terms of lives lost, and infrastructure damaged in the post-disaster situation. Assessment is of following types:

- Situation Assessment is a description of what has happened

- Needs Assessment ascertains what needs to be done

- Casualty Assessment lists the lives (human and livestock) lost

Ecosystem

As per the Wikipedia, the term eco-system refers to the combined physical and biological components of an environment. It is a complex set of relationships of living organisms functioning as a unit and interacting with their physical environment. Eco-system is a functional unit consisting of living things in a given area, non-living chemical and physical factors of their environment, linked together through nutrient cycle and energy flow. The extent or boundary of an eco-system may range from very small spatial scales to the entire Earth.

El Nino-Southern Oscillation (ENSO)

It is a complex interaction of the tropical Pacific Ocean and the global atmosphere, which results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns. The El Nino part of ENSO refers to the well-above-average ocean temperatures along the coasts of Ecuador, Peru and Northern Chile, and across the eastern equatorial Pacific Ocean, while the Southern Oscillation refers to the associated global patterns of changed atmospheric pressure and rainfall. La Nina is approximately the opposite condition to El Nino. Each El Nino or La Nina episode usually lasts for several seasons, and has substantial role to play in disaster occurrences.

Environmental Degradation

The reduction of the capacity of the environment to meet social/ecological objectives and needs is called degradation of environment. Potential effects of degradation are varied and may contribute to an increase in vulnerability, as well as frequency and intensity of natural hazards. Land degradation, deforestation, desertification, wild fires, loss of bio-diversity, land, water and air pollution, climate change, sea level rise and ozone depletion are all instances of environmental degradation.

Source: Drought /freakyweather.com

Environmental Impact Assessment (EIA)

EIA includes studies undertaken in order to assess the effect of any new factor on a specified environment, which may upset the current ecological balance. By using EIA, both environmental and economic benefits can be achieved, such as reduced costs and time of project implementation and design, treatment and clean up costs, and impact of laws and regulations.

The key elements of EIA are:

* Identifying key issues and concerns of interested parties.

* Screening and deciding whether an EIA based on information collected is needed or not.

* Identifying and evaluating alternatives.

* Adopting mitigation measures to prevent or minimize the impact of disaster.

Food Security

Creation of mechanisms to safeguard food needs of the vulnerable areas. These mechanisms could take the form of setting up of Grain Bank, Water Bank and Seed Bank, to ensure that minimum food requirements of weak and vulnerable are maintained in terms of quality as well as quantity.


EXERCISE 2

WRITE DOWN THE MEANING OF FOLLOWING CONCEPTS:

* *COMMUNITY*

* *CLIMATE CHANGE*

* *DAMAGE ASSESSMENT*

* *ENVIRONMENTAL DEGRADATION*

Geographic Information System (GIS)

GIS entails analysis that combines relational databases with spatial interpretation and outputs often in the form of maps. A more elaborate definition is that of computer programmes for capturing, storing, checking, integrating, analyzing and displaying data about the earth that is spatially referenced. GIS is increasingly being utilized for hazard and vulnerability mapping and analysis, as well as for application of disaster risk management measure. GIS software uses geography and computer-generated maps as an interface for integrating and accessing massive amounts of location-based information. GIS can be used for scientific investigations, resource management, disaster and development planning.
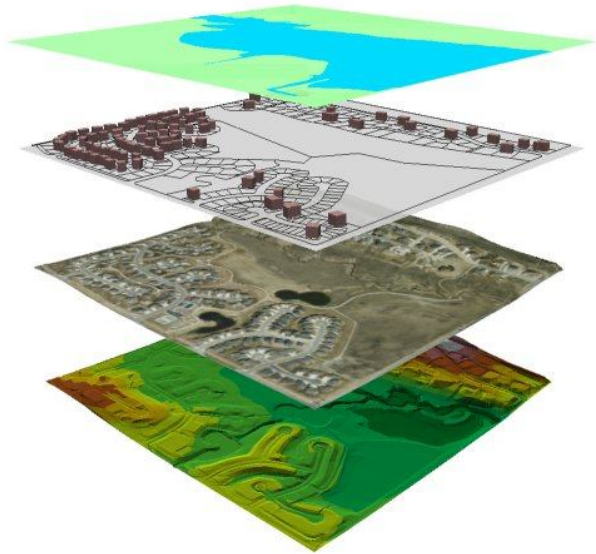
Source: Certificate in GIS/las.depaul.edu

Global Warming

Referred to as anthropogenic or human-induced climate change, global warming is the slow heating of our earth, which leads to an increase in the average temperature. Also known as Global Climate Change, the phenomenon is attributed to the concentration of greenhouse gases that trap heat. Other causes include continental drift, volcanoes, ocean currents, the earth's tilt, comets and meteorites, as well as variations in solar

Source: global warming project/cranberg.com

radiations. The issue of climate change is intrinsically linked with increase in frequency of disasters, and is likely to impact the livelihood of the poor and the disadvantaged. Mitigation of climate change would certainly help in bringing down the adverse impact of disasters to a substantial extent.

Greenhouse Gas (GHG)

As per United Nations Environment Programme, 'a gas, such as water vapor, carbon dioxide, methane, chlorofluorocarbons (CFCs) and hydrochloric fluorocarbons (HCFCs), that absorbs and re-emits infrared radiation, warming the earth's surface and contributing to climate change is a greenhouse gas'. This type of gas traps heat in the atmosphere.

Source: greenhouse effect/realscience.org.uk
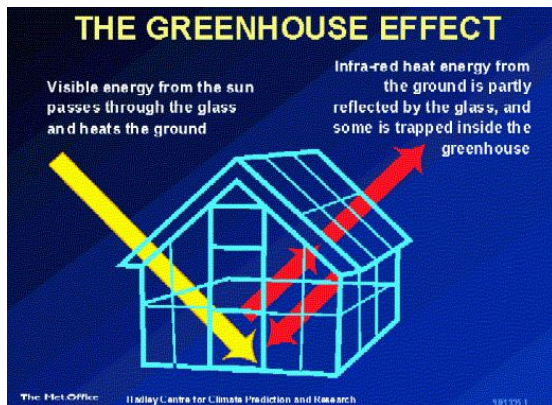
Greenhouse Effect

When the sun's rays enter or escape back to outer space, some of it is reflected, and some of the heat energy is absorbed and trapped by greenhouse gases in the earth's atmosphere. The process of trapping of heat is called the greenhouse effect. The greenhouse gases have become more concentrated due to use of fossil fuels such as coal, oil, natural gas and other ozone-depleting material.

Ham Radio

Amateur (Ham) Radio is emerging as a significant communication tool that facilitates direct two-way contact with people. In the event of a disaster, normal communication system frequently gets overloaded, damaged and completely disrupted at a time when rapid establishment of communication becomes essential to facilitate rescue operations. In a communication emergency, things can be bettered through Ham Radio, as it uses transmitters and receivers that make use of car battery.

Source: A base item Radio Station/kc9dn.tripod.com

DID YOU KNOW?

i) *Within hours of being informed about the Cyclone in 1999, the teams of HAM operators rushed from Hyderabad, Bangalore and Calcutta to the affected districts of Orissa. In fact, many HAM operators actually trekked several kilometers, just to track down people.*

ii) *Apart from helping people to connect with each other, the HAMS averted two major air disasters at the Bhubaneshwar airport. With the Air Traffic Controls (ATCs) down, it became the responsibility of the HAM operators to ensure that the planes landed safely.*

iii) *A small coastal village in Pondicherry could save its people with the help of simple loudspeakers when the Tsunami struck their land in 2004. The Government of India has been funding the National Institute of Amateur Radio (NIAR) for developing the necessary infrastructure.*

Incident Response System (IRS)

The Incident Response System (IRS) is an effective mechanism for reducing the scope of ad-hoc measures in response. It has its roots in the Incident Command System (ICS), which is a systematic tool used for the command, control, and coordination of emergency response. According to the United States Centre for Excellence in Disaster Management and Humanitarian Assistance, ICS is 'a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities.'

The Government of India (GoI) in 2003 decided to adopt the ICS, as practiced in the USA. The ICS addressed most of the critical gaps in our disaster response mechanism, even though there were certain India specific modifications, which were necessary to be addressed. The NDMA therefore took up the adaptation of the ICS, which incorporates the existing administrative structure and the provisions of DM Act, 2005. The principles and features of ICS have been followed and comprehensive Guidelines have been prepared. This adapted version will be referred to as the Incident Response System and will go by the acronym of IRS. The introduction of IRS will ensure that the response to disasters in future will definitely be swift, efficient and effective since every stakeholder / responder will be properly trained in the role he has to perform and will have a clear chain of command. The main purpose of these Guidelines is to lay down the roles and responsibilities of different functionaries and stakeholders, at the state and district levels, and determine how coordination with the multi-tiered institutional mechanisms at the National, state and district levels will be done. The Guidelines also emphasize the need for proper documentation of various activities for better planning, accountability and analysis. They will help new responders to immediately get a comprehensive picture of the situation and go in for immediate action.

The Trigger Mechanism, which is an important component of IRS was proposed by the High Powered Committee (HPC) in 2001. It has been conceptualized as an "emergency quick response mechanism", which when activated prior to or on occurrence of disaster event, simultaneously sets into motion the required prevention and mitigation measures, without any loss of time.

The Trigger Mechanism, requires the disaster managers to:

- Evolve an effective signal/warning mechanism.

- Identify activities that require attention.

- Formulate sub-activities under each activity/level of activity.

- Specify authorities for each level of activity and sub-activity.

- Determine the response time for each activity.

- Work out individual plans of each specified authority to achieve the activation as per the response time.

- Set up Quick Response Teams for each specified authority.

- Formulate alternative plans and contingency measures.

- Provide appropriate administrative and financial delegations to make the response mechanism functionally viable; and

- Undergo preparedness drills.

Information Education Communication (IEC)
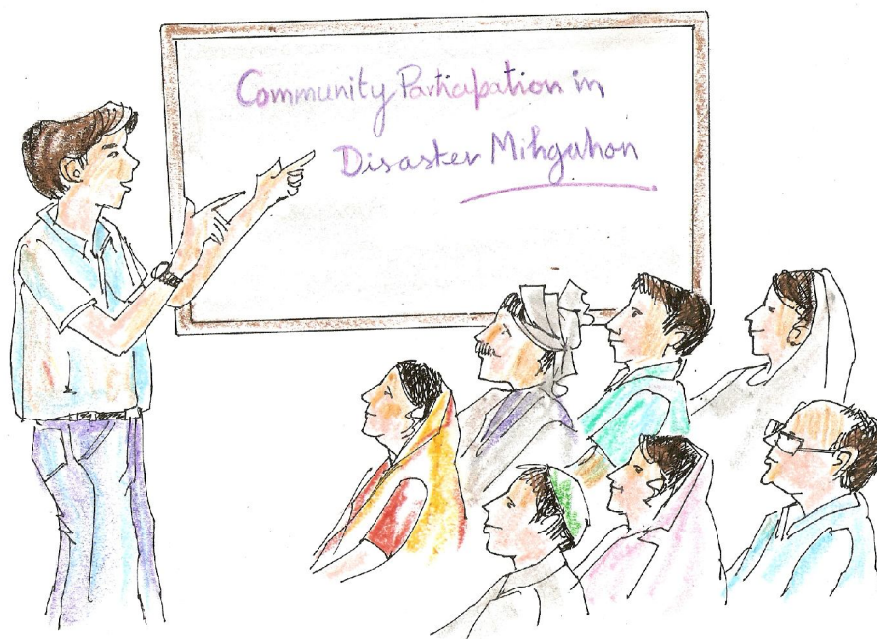
Graphic 4: Training Session on Community Participation

The major goal of information is to make concepts simpler, decipherable and understandable. In disaster management, garnering and disseminating information correctly and adequately forms the very crux.

IEC can reach the community through a variety of means, such as:

a)   Educational programmes.

b)   Media (television, radio, newspapers).

c)   Preparation and distribution of material such as brochures, pamphlets and posters that contain information about the disasters, the do's and the don'ts.

d)   Orientation through training, lecture demonstrations, practice alerts, and mock drills.

e)   Group discussions and talks.

f)   Street plays and folk songs.

g)   Disaster Management Committee (DMC).

DID YOU KNOW?

The objective of IEC activities is to create awareness about disaster management, using conventional as well as innovative mediums. Awareness campaigns on floods, earthquakes, cyclones and other disasters are carried out through audio-video spots and documentaries on radio, television and print media. The states are also being given financial assistance by the NDMA to carry out IEC Campaigns.

Information Communication Technology (ICT)

In this information age, ICT is being widely used in disaster data collection, storage and dissemination. The Portal – India Disaster Resource Network (IDRN) has an access to over 92,000 information data records, covering 574 districts in India. It is a web-enabled information system with updated inventory of disaster related information. It is an initiative that aims to establish networks and partnerships among research organizations, government agencies, policy makers, disaster managers and specialists from various fields such as engineering, architecture, planning, earth sciences, hydrology and management.

Source: Information Technology/suno.edu

Likewise, the Corporate Disaster Resource Network (CDRN), launched by the NDMA, as logistics, administrative and financial coordination tool, is an initiative by Aidmatrix, a non-profit organization and Civil Society Organization (CSO) partners. The aim is to help corporates know how they can help disaster struck people by providing real time information on products and services needed during emergencies. CDRN acts as a platform where companies are shown the specific needs, and they can actually choose the manner in which they can help. Relief agencies that are working in the disaster struck areas, update the system with real time demands that arise during times of crisis. Through an extended base of consortium partners specialized in relevant services, the CSO Partners develop appropriate programme opportunities for various contributors, which include government, corporate bodies and individuals, to engage with civil society organizations in a process of social change that benefits all stakeholders. It has established a support partners network in varied areas ranging from donor and volunteer services, social investment services, financial management, governance, documentation, advocacy and communications.

DID YOU KNOW?

i)   *The UP District Management Authority has compiled a manual of songs and skits of folk troups. The Manual aims at spreading awareness about disaster management in rural and semi-urban areas.*

ii) *A demonstration on earthquake resistant structures is an integral part of the 'Agriculture Fair', organized every year in Satara District of Maharashtra.*

iii) *The National Service Scheme (NSS) volunteers are actively involved in carrying out IEC on various social themes in Maharashtra.*

Mainstreaming Gender and Disadvantaged Sections

Disaster Risk Management Programme should work on the principles of social justice, gender equity and sensitivity towards the weaker sections. The emphasis in disaster management programme should be on:

• Skill training of women volunteers.

• Sensitization training for disaster management functionaries.

Source: Manila Flood Disaster/mirror.co.uk

- Special packages for the disabled and the destitute.

- Activation of Anganwadis/Balwadis/Old Age Homes.

Source: Floods/ Flickr hivemind.htm

Mass Casualty Event

Any event resulting in a number of victims, large enough to disrupt the normal course of emergency and health care services is called Mass Casualty Event (MCE). Indian health care system is wanting on many counts; thereby posing immense challenges before management of MCE. All disasters have a potential of turning into mass casualty. Increasing geological and hydrological events, population explosion, poverty and uncontrolled urbanization are resulting in disasters, which have a mass casualty potential.

Public-Private Partnership (PPP)

The role of PPP in disaster preparedness and mitigation is very important. It involves a triangular partnership of Government-NGO-People with the involvement of the Gram Sabha, especially at the grassroots level for an "enduring partnership". The PPP represents an opportunity for NGOs to 'link the community to the permanent development agency', namely the government, and to enable people to benefit from various government schemes through an organized effort. PPP entails transparency and accountability. It provides an opportunity to people to have a say in the developmental activities. PPP generates better understanding with the government at different levels, and helps to establish the credibility of NGOs in the government machinery.

DID YOU KNOW?

As an example of Public-Private Partnership, it is important to note that the UP Government has teamed up with a corporate house TATA-TISCON to combine strengths and create a pool of engineers, architects and masons to make them conversant with earthquake safe techniques. TATA-TISCON is into making steel products, so joining hands with this Corporate has reinforced the need for strong earthquake resistant structures.

Remote Sensing

Remote sensing is a multi-disciplinary activity, which deals with the monitoring, predicting and assessment of environment resources through the analysis of data obtained by observations from a remote platform. It is an advanced technology to analyze satellite images through digital image processing and interpretation. Remote Sensing provides a vast database from which past disasters can be analyzed. Satellite images can help in detection of early stages of onset of disasters, and also facilitate the monitoring of these events at the micro and remote levels.

Social Forestry

It is based on the concept that forests are for the people. Their management must involve people and their produce should meet people's needs. It aims at raising plantations by the common person,

so as to meet the demands for timber, fuel, wood, fodder, etc., thereby reducing the pressure on the traditional forest area. With the introduction of social forestry, the government has formally recognized the local communities' rights to forest resources, and is now encouraging participation of people in the management of natural resources in rural areas. This type of forestry aims to improve the environment, provide rehabilitation to land evacuees, and raise standard of living.

Standard Operating Procedures (SOPs)

These are set of written instructions that document a routine or repetitive activity followed by an organization. It tells an individual how to perform a job properly and increase quality. As per the Wikipedia, SOP is a set of instructions covering those features of operations, which lend themselves to definite procedures without loss of effectiveness.

Sustainable Development

As per the Brundtland Commission Report, 1987, 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs is sustainable'. It contains within it two key concepts: the concept of 'needs', in particular the needs of the poor; and the idea of 'limitations' imposed by the state of technology and social organization on the environment's ability to meet these needs. The main objective of sustainable development is to prevent the acts of nature from becoming disasters. Development that is sustainable will not disturb its environs beyond reasonable levels. It is based on socio-cultural development, political stability, economic growth and ecosystem protection, which all relate to disaster risk reduction.

Wireless Communication

It is the transfer of information over a distance without the use of enhanced electrical conductors or 'wires'. When the context is clear, the term is often shortened to 'wireless'. It is a very important branch of telecommunications and plays a major role in early warning in disaster situation, as well as during disasters, when all other communications break down.

Source: Wireless Network/ computer.howstuffworks

Worst Scenario Analysis

It is a technique under which we analyze situations under different conditions. In simple language, it is the method of finding '*what if*?' By just a change in one parameter, the whole situation changes, and it has a cascading effect on the subsequent years. In disaster preparedness, we study the vulnerability of a given geographical area and ascertain its vulnerability to disasters. The knowledge, skills and attitudes to face the vulnerabilities are developed accordingly. Technology today has advanced to the extent that making scientific projections is easier now. A structural engineer, for example, could tell us in advance how a structure would collapse – would it cave in? Would it simply tumble down if there is an earthquake of particular intensity? When such professional predictions are supported by computer simulations, a complete worst scenario of a particularly densely populated locality could be constructed. This helps in making critical decisions related to emergency response preparedness.

2.9 NATIONAL LANDMARKS IN DISASTER MANAGEMENT

Disaster Management as a subject is not mentioned in any of three lists of the Constitution's Seventh Schedule, namely Union, State and Concurrent. However, certain landmarks since independence have given disaster management the necessary focus and substance. These are:

Federal Structure of the Constitution

Our Constitution is a landmark in itself. It lays down a clear division of powers under three lists – Union (with Centre), State (with States) and Concurrent (with both Centre and State, but in case of disputes, powers of resolution lie with the Centre). In line with the federal nature of the Constitution, the responsibility to cope with natural disasters is that of the state government. The district is the focal point for implementation of all government schemes. District Collector is the fulcrum of relief work in the disaster-hit area. The Collector has all powers of supervision, coordination and preparation of contingency plans. Since district is the nodal point of action, the PRIs and ULBs bear the major responsibility of carrying forward all disaster related works at the village, block and district levels.

73rd and 74th Amendments to the Constitution

The powers and functions of Panchayats emanate from Article 243(G) of the Constitution, which empowers the state legislature to endow such powers and functions necessary to enable them to function as institutions of self-government. The legislature may bring such law for devolution of powers and responsibilities on Panchayats at an appropriate level with respect to preparation and implementation of plans for economic development and social justice. The 73rd and 74th Amendments to the Constitution have reiterated the spirit of decentralization by giving substantial powers to PRIs and local urban development bodies to involve themselves in self-governance and grassroots planning. The Amendments empower the local self-government institutions in rural areas to plan and implement developmental activities in their areas, by providing an action agenda or an indicative list of 29 items in the Eleventh Schedule and 18 items in the Twelfth Schedule.

Eleventh Schedule

The Eleventh Schedule has 29 items in which Disaster Management is not mentioned, although there are many subjects in the Schedule, which have direct or indirect link with managing disasters. These

subjects include: agriculture, land improvement, minor irrigation, fisheries, social forestry, khadi, village and cottage industries, drinking water, fodder, non-coventional energy sources, poverty alleviation programmes, and market and fairs among others.

Twelfth Schedule

It includes 18 subjects or items for transfer to the Urban Local Bodies (ULBs) that cover among other items such as urban planning, roads, fire services, public health, roads and bridges, burial grounds, public amenities, and regulation of slaughter houses.

Panchayat Extension to Scheduled Areas (PESA) Act

The Panchayat Extension to Schedule Areas Act, 1996 is a landmark legislation, and has certain mandated provisions empowering the Gram Sabha and the Panchayats. The Gram Sabha has been empowered to approve programme and projects of economic development before it is implemented, and exercise control over local plans and resources. They also have control over water bodies and available natural resources in their area.

High Powered Committee (HPC)

The HPC that published its Report in 2001 aimed at creating a new culture in the area of disaster management by focusing on:

- Preparedness
- Quick Response
- Strategic Thinking, and
- Prevention

It outlined pro-active measures for disaster preparedness and mitigation, capacity building in disaster management, recruitment of professionals, understanding of risk and long-term rehabilitation.

As per the **HPC Report,** disasters are graded at three levels:

L1: A District level disaster, within the capabilities of the District Administration.

L2: A State level disaster, within the capabilities of the State Government.

L3: A National level disaster, requiring major direct intervention of the Central Government.

In addition to the disaster situations, the following 'peace-time' situation has also been identified:

L0: A 'no-disaster' situation. This is the level at which surveillance, preparedness, prevention and mitigation activities must be focused on.

National Committee on Disaster Management (NCDM)

An all party NCDM was set up after the Gujarat Earthquake for catalysing and enabling the preparation of disaster management plans and suggesting effective mitigation mechanisms.

Tenth Five Year Plan (2002-2007)

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), has for the first time,

recognized disaster management as a development issue. The Tenth Five Year Plan Document has incorporated a detailed chapter on Disaster Management. From a mitigation point of view, the Plan has also promulgated a nationwide 'Culture of Prevention', through community preparedness, introduction of 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 mass awareness at all levels.

Some of the outlined steps towards preventive planning are:

- Introducing a comprehensive process of vulnerability analysis and objective risk assessment.

- Building a robust, comprehensive and sound information database.

- Creating state-of-the art infrastructure based on frontline research.

- Establishing linkages between all knowledge based institutions and developing a National Disaster Knowledge Network attuned to the felt needs of a multitude of users like disaster managers, decision makers, community etc.

Eleventh Five Year Plan (2007-12)

The Eleventh Five Year Plan has aimed at consolidating the process initiated by the Tenth Five Year Plan, by giving impetus to projects and programmes that could develop and nurture the culture of safety. It has called for integration of disaster prevention and mitigation into the development process. The Plan focuses on the role of NGOs as planners, implementators and consultative partners in the projects/programmes identified as a priority in the Eleventh Five Year Plan. Specific actions could include delivering best practices and demonstration projects, promoting employment based mitigation, sustainable capacity building and pro-active engagement of communities in spreading the culture of safety.

Thirteenth Finance Commission

The Thirteenth Finance Commission (FC) recommended that the existing National Calamity Contingency Fund (NCCF) be merged into the National Disaster Response Fund (NDRF) proposed under the DM Act 2005, with effect from 1 April 2010, and that the balances in the NCCF at the end of 2009-10 be transferred to the NDRF. As far as financing of the NDRF is concerned, as per the Act it should be credited with amounts that the Central Government may provide, after due appropriations made by the Parliament. It recommended that the Calamity Relief Fund or CRF be merged with the State Disaster Response Funds (SDRFs) of the respective states. The contribution to the SDRFs is to be shared between the centre and states in the ratio of 75:25 for general category states and 90:10 for special category states.

The Thirteenth FC emphasized that effective disaster response requires trained manpower to deal with complex situations where effective and speedy handling can reduce the impact of a disaster on human life and property. It is necessary to continuously undertake measures to build capacity amongst those handling response and creating awareness amongst people. It recommended an additional grant of Rs. 525 crore, on the basis of the overall size of the SDRF of a state. This amount may be used for taking up activities for building capacity in the administrative machinery for better handling of disaster response and for preparation of district and state level disaster management plans, as envisaged in the DM Act 2005. It also recommended an assistance of Rs. 250 crore to

National Disaster Response Force to maintain an inventory of items required for immediate relief. It suggested that mitigation and reconstruction activities to be kept out of the schemes funded through FC grants and be met out of overall development plan funds of the Centre and the states.
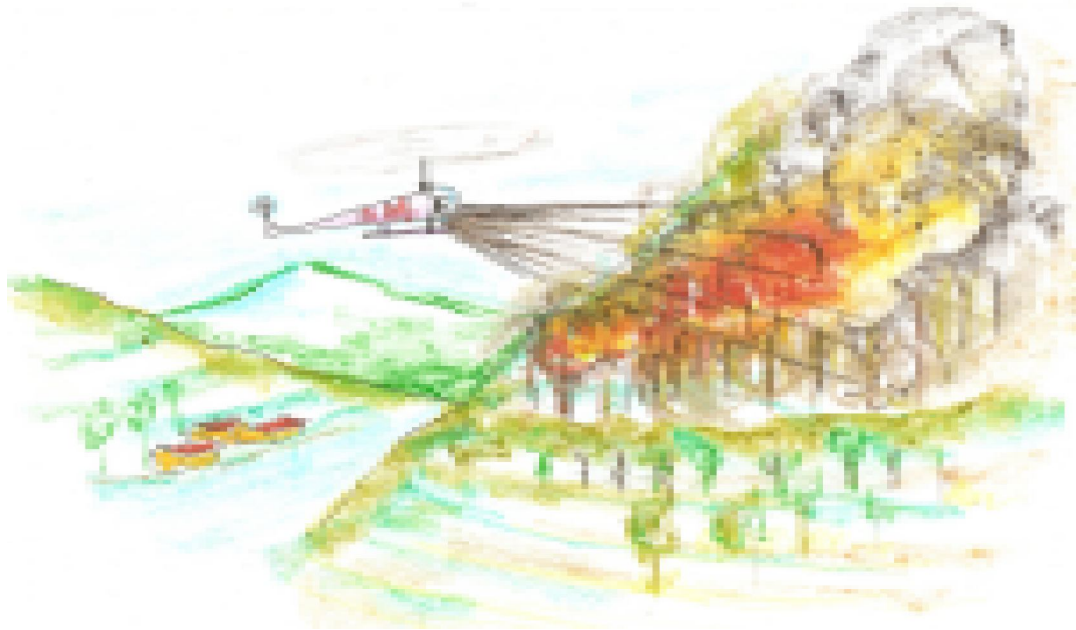
Graphic 6: Aerial Extinguishing of Forest Fire

The Disaster Management (DM) Act 2005

The National Disaster Management Act was passed in 2005. It was enacted under the Social Security and Social Insurance subject of the Concurrent List of the Constitution of India. The Act provides for the pre-requisite institutional mechanism for monitoring and implementation of the plans, and ensuring measures by various wings of the Government for disaster prevention and mitigation aspects. In tune with the paradigm shift, the State Governments have been advised to amend their Relief Codes to incorporate the changed provisions. The revised codes will ensure that the process of drawing up disaster management plans, and mitigation and preparedness measures get institutionalized.

The DM Act provides that:

- There shall be a National Authority, which shall consist of the Chairman and such number of other members, not exceeding nine, as may be prescribed by the Central Government, and unless the rules otherwise provide, the National Authority shall consist of (a) The Prime Minister of India, who shall be the Chairman of the National Authority, ex-officio; and (b) Other members, not exceeding nine, to be nominated by the Chairman of the National Authority.

- The Chairman of the National Authority may designate one of the members nominated under Clause (b) of Sub-section (2) to be the Vice-Chairman of the National Authority.

- The term of office and conditions of service of members of the National Authority shall be such as may be prescribed.

- The National Authority shall meet as and when necessary, and at such time and place as the Chairman of the National Authority may think fit.

- The Chairperson of the National Authority shall preside over the meetings of the National Authority.

- If for any reason the Chairperson of the National Authority is unable to attend any meeting of the National Authority, the Vice-Chairperson of the National Authority shall preside over the meetings.

- The Central Government shall provide the National Authority with such officers, consultants and employees, as it considers necessary for carrying out the functions of the National Authority.

- Powers and functions of National Authority are: (1) Subject to the provisions of this Act, the National Authority shall have the responsibility for laying down the policies, plans and guidelines for disaster management for ensuring timely and effective response to disaster; and (2) Without prejudice to generality of the provisions contained in sub-section.

- The Chairperson of the National Authority shall, in the case of emergency, has power to exercise all or any of the powers of the National Authority, but exercise of such powers shall be subject to ex post-facto ratification by the National Authority.

- The National Authority may constitute an advisory committee consisting of experts in the field of disaster management and having practical experience of disaster management at the national, state or district levels to make recommendations on different aspects of disaster management.

- The members of the advisory committee shall be paid such allowances as may be prescribed by the Central Government in consultation with the National Authority.

- The National Authority shall constitute a National Executive Committee to assist it in the performance of its functions under this Act.

- The National Executive Committee shall consist of: (a) the Secretary to the Government of India in charge of the Ministry or Department of the Central Government having administrative control of the disaster management, who shall be Chairperson, ex-officio; and (b) the Secretaries to the Government of India in the Ministries or Departments having administrative control of the agriculture, atomic energy, defence, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, science and technology, space, telecommunication, urban development, water resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee, ex-officio.

- The Chairperson of the National Executive Committee may invite any other officer of the Central Government or a State Government for taking part in any meeting of the National Executive Committee and shall exercise such powers and perform such functions, as may be prescribed by the Central Government in consultation with the National Authority.

- The procedure to be followed by the National Executive Committee in exercise of its powers and discharge of its functions shall be such as may be prescribed by the Central Government.

- The National Executive Committee may, as and when it considers necessary, constitute one or more sub-committees, for the efficient discharge of its functions, which may include: coordinating and monitoring the implementation of National Policy, laying down guidelines for ministries for preparing disaster management plans, providing necessary technical assistance, monitoring the implementation of the guidelines laid down by the National Authority; and promoting general education and awareness on disaster management.

Identifying and integrating differential gender and class vulnerabilities in Disaster Risk Reduction (DRR) strategies and development policies are mandatory. The major pillars of disaster management, which need to be strengthened include:

i) Epidemiological surveillance.

ii) Public health measures for containment of outbreak of disease.

iii) Concept of pre-hospital care at the disaster site.

iv) A unified Incident Command System.

v) Community participation.

vi) Harmonization of the concept of Triage.

vii) Communication network.

viii) Transportation of mass casualties during disasters.

ix) Capacity development of various linkages and support functions.

x) Updation of the medical set-up to handle mass casualties.

xi) Networking of critical care facilities at earmarked hospitals and trauma care – with referral linkages.

xii) Rehabilitation including psychological care.

xiii) Specialized incident-site and hospital capabilities to handle Chemical Biological Radiological Nuclear (CBRN) casualties.

xiv) Human resource development by training manpower.

xv) Resource mobilization based upon the nature of disaster.

xvi) Adoption of new technologies used worldwide for effective mass casualty management.

xvii) Network of blood transfusion services, bio-safety laboratories, and other facilities.

xviii) Network of different detection and testing laboratories for different kinds of samples.

xix) Mechanism and capacity development to deal with public emergencies.

xx) Material logistics.

xxi) Simple and concise documentation for the victims requiring medical care.

xxii) Identification of the dead using modern technologies.

xxiii) Public-Private Partnership – development of regional consortiums for critical care.

DID YOU KNOW?

The Government of India has also constituted Cabinet Committee on Management of Natural Calamities and Cabinet Committee on Security. Besides, there are High Level Cabinet Committee and Inter-Ministerial Group also. A National Disaster Mitigation Fund is proposed to be created; a National Disaster Response Fund has already come up.

National Policy on Disaster Management

The National Policy on Disaster Management has been finalized. Major Objectives of the National Policy on Disaster Management are:

- Promoting a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education.

- Encouraging mitigation measures based on technology, traditional wisdom and environmental sustainability.

- Mainstreaming disaster management into the developmental planning process.

- Establishing institutional and techno-legal frameworks to create an enabling environment and a compliance regime.

- Ensuring efficient mechanism for identification, assessment and monitoring of disaster risks.

- Developing contemporary forecasting and early warning systems backed by responsive fail-safe communication with information technology support.

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

- Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat for ensuring safer living.

- Promoting a productive and proactive partnership with the media for disaster management.

DID YOU KNOW?

The Vision of NDMA is to build a safer and disaster resilient India by developing a holistic, pro-active, multi-disaster-oriented and technology-driven strategy through a culture of prevention, mitigation, preparedness and response.

To operationalize the National Vision and the objectives, the strategy evolved by the NDMA is based on certain pillars, which are as under:

- *Pre-Disaster Phase-*

  Prevention, Mitigation, Preparedness, Capacity Building, Community Based Disaster Management (including Public Awareness).

- *Post-Disaster Phase-*

  Prompt and Efficient Response – Proactive.

  Reconstruction and Recovery (Building Back Better).

DID YOU KNOW?

Delhi Disaster Management Authority (DDMA) has been set up in 2004 with an objective to institutionalize disaster management in the state with participation of all major government departments and other stakeholders. District Disaster Management Authorities have been constituted in all the nine districts of Delhi.

Paradigm Shift from Relief-centric Response Approach to Proactive Prevention, Mitigation and Preparedness-driven Approach

Graphic 5: Disaster Resistant Construction in Progress

The focus of disaster management remained on relief till 1999 Orissa Super Cyclone. The devastating disaster became instrumental in bringing about a paradigm shift in the perspective and attitudes of decision makers at the governmental and non-governmental levels. A radically different approach to confront and manage disasters has been the focus since then. The disasters that followed like Bhuj

Earthquake and Tsunami have propelled a strategic change in approach from relief to preparedness. Concretized by the National Policy on Disaster Management in 2009, the approach aims at conserving developmental gains and loss of like livelihood and property.

A holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels. The paradigmatic change would focus on:

- Prevention, mitigation and preparedness.

- Coordination of disaster management efforts.

- Advanced early warning systems.

- Consolidation of past initiatives and best practices.

- Capacity development.

- Institutionalization of knowledge and research.

National Institute of Disaster Management (NIDM)

The NIDM was set up in October, 2003 by Government of India. The National Centre for Disaster Management located at Indian Institute of Public Administration was upgraded to the level of NIDM. It is a premier national organization working for human resource development at national level in the area of disaster management and is being developed as a Regional Centre of Excellence in Asia. The NIDM:

- Develops training modules at different levels.

- Undertakes training of trainers programmes; and

- Organizes training programmes for planners, administrators and command functionaries.

The role and responsibilities of the Institute include development of national level information base on disaster management policies, formulation of disaster management code and consultancy to various states in strengthening their disaster management system.

DID YOU KNOW?

The NDRF battalions are located at ten different locations in the country, based on the vulnerability profile to cut down the response time for their deployment. During the preparedness period or in a threatening disaster situation, pro-active deployment of these forces is supposed to be carried out by the NDMA in consultation with state authorities. The ten battalions are to be stationed at Arrakkonam (Tamil Nadu), Mundali (Orissa), Greater Noida (Uttar Pradesh), Kolkata (West Bengal), Guwahati (Assam), Pune (Maharashtra), Vadodara (Gujarat), Bhatinda (Punjab), Guntur (Andhra Pradesh) and Patna (Bihar).

EXERCISE 4

MAKE A LIST OF THE TASKS ENVISIONED FOR DISASTER MANAGEMENT BY THE NDMA UNDER THE DM ACT 2005

2.10 FINANCIAL ARRANGEMENTS FOR DISASTER MANAGEMENT

As far as the financial provisions are concerned, the state governments are provided monetary support on six natural calamities, identified by the Finance Commission. The policy and the funding mechanism for provision of relief assistance to those affected by natural calamities are clearly laid down. These are reviewed by the Finance Commission appointed by the Government of India every five years. Financial assistance in the wake of disasters is provided through:

National Disaster Response Fund (NDRF)

The NDRF (earlier known by the nomenclature NCCF) is a Fund constituted under Section 46 of Disaster Management Act, 2005. It covers calamities of cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst and pest attack. NDRF is operated by the Government of India (GoI) for the purpose of providing immediate relief to people affected by the calamities of severe nature, under non-plan expenditure.

NDRF is classified in the Public Account in Sub-section(b) Reserve Funds not bearing interest of the GoI under the National Disaster Response Fund major head 8235 – 'General and other Reserve Funds' – 119. Funds are to be credited into NDRF in accordance with the provisions of DM Act. Let us have a look at some of these provisions:

● Upon a request made by a state not having adequate balance in its State Disaster Response Fund (SDRF), Ministry of Home Affairs (MHA) or Ministry of Agriculture, as the case may be, will assess whether a case for additional assistance from NDRF is made out under the guidelines and the approved items and norms of assistance under NDRF/SDRF.

● MHA shall oversee the utilization of releases from NDRF for the purposes for which funds have been released and monitor compliance with guidelines of NDRF.

● Upon the approval of High Level Committee (HLC), constituted with members from Ministry of Finance, Ministry of Agriculture, Ministry of Home Affairs, Deputy Chairman Planning Commission, the assistance shall be released by the Ministry of Finance from NDRF to states.

● The actual expenditure out of NDRF should be booked under respective minor heads within major head.

● The Pay and Accounts Office, Ministry of Finance shall release payments to the state governments. The detailed accounts of the Fund shall be maintained by the Controller General of Accounts through the Chief Controller of Accounts, Ministry of Finance.

● The State Executive Committee shall be responsible for ensuring that the expenditure incurred out of funds received under NDRF is in accordance with the items and norms of expenditure of NDRF/SDRF.

● The accounts of NDRF shall be maintained and audited by the Comptroller and Auditor General (CAG) annually. Its report will be submitted to Ministry of Finance and Ministry of Home Affairs.

State Disaster Response Fund (SDRF)

SDRF (which has replaced the earlier Calamity Relief Fund (CRF)) is a Fund constituted under Section 48 (1a) of Disaster Management Act. The SDRF shall be used only for meeting the expenditure for providing immediate relief to the victims of Disasters, as identified for NDRF grant. The SDRF is constituted in Public Account under the Reserve Fund bearing Interest in the Major Head: 8121. The provisions include:

- Of the total contribution indicated by the Thirteenth Finance Commission, GoI will contribute 75 per cent for general category states and 90 per cent for special category states, of the total yearly allocation in the form of a non-plan grant. The balance 25 per cent in case of general category states and 10 per cent in case of special category states will be contributed by the state government concerned.

- The share of GoI to SDRF shall be paid as Grant-in-aid and accounted for in the GoI accounts under the Major Head "3601-Grants-in-aid to state governments – 01 Non-Plan Grants – 109 Grants towards contribution to SDRF".

- The Annual Report shall, *inter-alia*, furnish details of expenditure incurred by the state government on each of calamities, for each type of expenditure allowed as per the items and norms of expenditure of SDRF/NDRF so fixed by MHA with the concurrence of Ministry of Finance.

- The State's SDRF account would distinctly show the receipt of assistance from NDRF apart from the remaining four sources of receipts into the Fund, namely (i) Centre's share of SDRF, (ii) State's share of Disaster Response Fund, (iii) Returns on investments, and (iv) Redemption of investments.

- The State government will constitute a State Executive Committee (SEC) according to DM Act and entrust it with responsibility to decide on all matters connected with the financing of relief expenditure of immediate relief from SDRF.

- The accounts of SDRF and investment shall be maintained by Accountant General in charge of accounts of the State. CAG would cause audit of SDRF annually.

- The share of the Central government in SDRF shall be remitted to State governments in two installments in each financial year. The State governments shall furnish a certificate to MHA and Ministry of Finance indicating that the amount received earlier has been credited to SDRF along with State's share of contribution, accompanied by a statement giving the up-to-date expenditure and balance amount available in the SDRF.

National, State, District Response Funds

NDMA has made the following recommendations to highlight the disaster management concerns for financial allocations:

i) Funding of National and State level Mitigation Projects.

ii) Constitution of Disaster Response Fund at the National, State and District Levels.

iii) Constitution of Disaster Mitigation Fund at the National and State Levels.

iv) Enlargement of the scope of disasters for relief to include some more natural hazards afflicting different parts of the country like frost, cold wave, heat wave, lightning, river and sea erosion. Besides these, it has also been recommended that man-made calamities occurring due to Chemical, Biological, Radiological and Nuclear origins should also be considered.

2.11 INTERNATIONAL LANDMARKS IN DISASTER MANAGEMENT

International Decade for Natural Disaster Reduction (IDNDR)-1990-2000

Launched in the year 1990, the aim of IDNDR has been to concentrate on sustained international and multi-disciplinary commitment for disaster prevention through primary focus on hazard, vulnerability and risk assessment, disaster prevention and sustainable development, effective early warning, sharing of knowledge and transfer of technology.

The objectives of IDNDR have been that all countries should have:

a) Comprehensive national assessment of risks from natural hazards, taking into account their impact on developmental plans.

b) Mitigation plans at national and/or local levels, involving long-term prevention, preparedness and community awareness; and

c) Ready access to global, regional, national and local warning systems and widespread dissemination of such warnings.

A major conference of the IDNDR programme was held in Yokohama in May 1994, where a plan of action for disaster reduction called the Yokohama Strategy was evolved.

Yokohama Strategy

The World Conference on Natural Disasters at Yokohama in May 1994 has been a crucial landmark in Disaster Mitigation and Preparedness Planning. The focus of the Strategy remains on natural hazards being beyond the control of human beings. It has recognized risk assessment as a critical need and propagated a comprehensive prevention, mitigation and preparedness strategy along with developing a culture of prevention.

International Strategy for Disaster Risk Reduction (ISDR)-2000-2010

Formulated by the United Nations or UN in 2000, it aimed to provide a global framework to foster the resilience of communities to the effects of natural hazards through the implementation of risk management, hazard mitigation and sustainable development. The disaster risk reduction framework propagated by ISDR has focussed on risk awareness and assessment, hazard analysis and vulnerability/capacity analysis, knowledge development, public commitment, institutional frameworks, environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, financial instruments, early warning systems, research and development.

The Hyogo Framework for Action for a Safer World

The World Conference on Disaster Reduction, held in the city of Kobe in the Hyogo region of Japan in 2005 brought the global disaster management community together once again to review the

progress on the Yokohama Strategy, and to plan a framework of action for the subsequent ten years. The result of the Conference, the Hyogo Framework for Action, highlights the following action agenda for the decade 2005-15, as it aims to:

1) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

2) Identify, assess and monitor disaster risks and enhance early warning systems.

3) Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

4) Reduce the underlying risk factors.

5) Strengthen disaster preparedness for effective response at all levels.

The process started by the Yokohama Strategy and the Hyogo Framework for Action is the basis for a global shift in disaster management approach from response towards preparedness.

The Earth Summit

The Conference on Environment and Development, also known as Earth Summit was held at Rio De Janeiro in 1992. The United Nations initiated a dialogue on the part of governments to rethink economic development and arrest environmental pollution through this Summit. The Summit made the governments realize the fact that economic policies needed to include the impact of development on the environment urgently. The adoption of United Nations Framework Convention on Climate Change (UNFCCC) in 1992 has been a major step in tackling the problem of global warming.

Source: Climate/understandingclimatechange.com

The UNFCCC binds its 155 member states to:

- Promote and cooperate in the development, application, diffusion and transfer of those technologies, practices and processes that control, reduce or prevent anthropogenic (man-made) emissions of greenhouse gases.

- Encourage sustainable development.

- Cooperate in adapting to climate change.

- Promote scientific and technological research in information dissemination and management on climate change.

- Impart/promote education, awareness and training related to climate change.

Kyoto Protocol

The Kyoto Protocol that came into existence in 2005 focuses on good governance, development and poverty eradication, reduction in emissions of greenhouse gases during a five-year period (2008-2012) by involving all major sectors of economy. At Cancun 2010, the countries have struggled hard to reach a consensus on cuts on emissions, which shows how different countries are weighing their stakes in their bid at 'development vs environment' debate.

Montreal Action Plan 2005

The Plan has agreed to extend the life of Kyoto Protocol beyond 2012 and negotiate deeper cuts in greenhouse gas emissions, but at Cancun, no clear consensus has been reached towards its further extension.

Disaster Risk Management Programme (DRMP)

A Disaster Risk Management Programme has been taken up by India with the assistance from UNDP, United States Agency for International Aid (USAID), Department of International Development (DFID), Disaster Preparedness European Commission's Humanitarian Aid Department (DIPECHO), Government of Japan, United Nations International Strategy for Disaster Reduction (UNISDR) in 169 highly hazard prone districts in 17 States, including the North Eastern States during 2002-09. The programme aims to minimize losses of development gains from disasters and reduce vulnerability. Disaster preparedness is an important component of this project. Other activities include awareness generation and public education, preparedness, planning and capacity building, developing appropriate institutional, administrative, legal and techno-legal policies at the state, district, block, village, urban local body and ward levels.

World Bank

International Bank for Reconstruction and Development (IBRD), popularly known as World Bank, offers project loans for reconstruction and development to developing countries. In July 1998, a Specialist Disaster Management Facility (DMF) was set up at its headquarters in Washington, D.C. to promote disaster risk management. The World Bank has also posted Disaster Management Specialists in some of its offices. Realizing the importance of disaster management in development projects, World Bank now incorporates disaster management component in many of its projects. World Bank has financed many rehabilitation projects after the Latur Earthquake (1993), Orissa Super Cyclone (1999), and Gujarat Earthquake (2001).

Asian Development Bank

Asian Development Bank (ADB), which is in Manila, is a Philippines based regional development bank for Asia and the Pacific. It provides long-term project financing. ADB has also financed rehabilitation projects in India, mostly in conjunction with IBRD. ADB undertakes research on disaster management and publishes them. Its activities encompass areas pertaining to preparedness, response, recovery and rehabilitation.

EXERCISE 5

MAKE A LIST OF THE ACTIVITIES PERFORMED BY THE UNDP

2.12 THE STAKEHOLDERS IN DISASTER MANAGEMENT

The stakeholders are the institutions, agencies, organizations, communities and individuals involved in the task of disaster management.
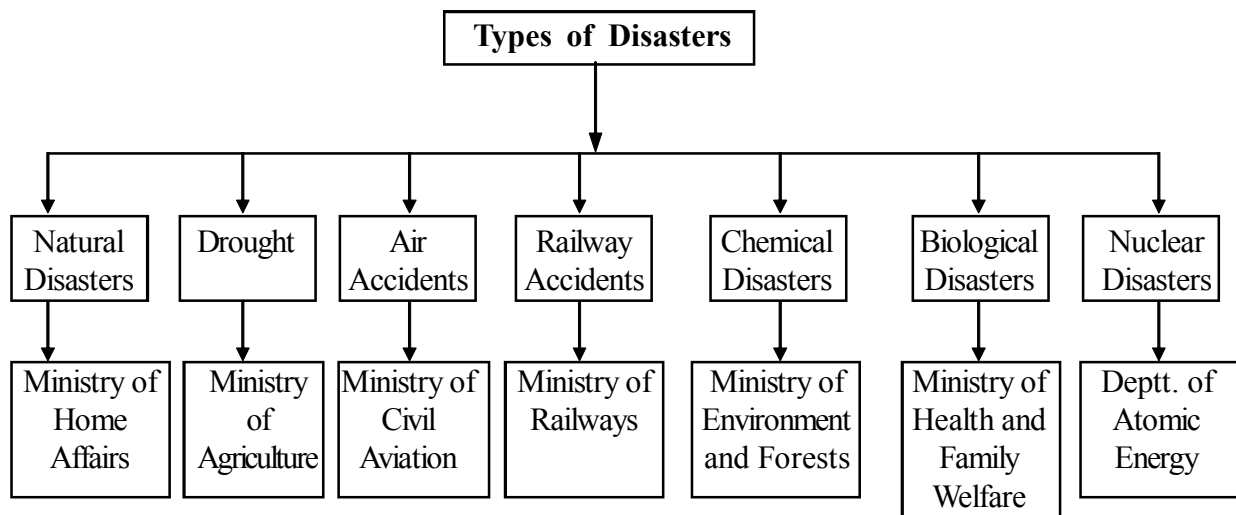
Who are the stakeholders in disaster management in India?

- Government Institutions/Agencies
- National Disaster Response Force
- Armed Forces
- Police
- Fire Services
- Communities at Risk
- Corporate Sector and Market Associations
- Media
- Donors, including the UN and other International Agencies

Source: NDMA Photo gallery

Nodal Ministries Involved in Disaster Management

Types of Disasters						
Natural Disasters	Drought	Air Accidents	Railway Accidents	Chemical Disasters	Biological Disasters	Nuclear Disasters
Ministry of Home Affairs	Ministry of Agriculture	Ministry of Civil Aviation	Ministry of Railways	Ministry of Environment and Forests	Ministry of Health and Family Welfare	Deptt. of Atomic Energy

Let us now look at the Legal-Institutional Framework of Disaster Management in the country.

Legal-Institutional Framework
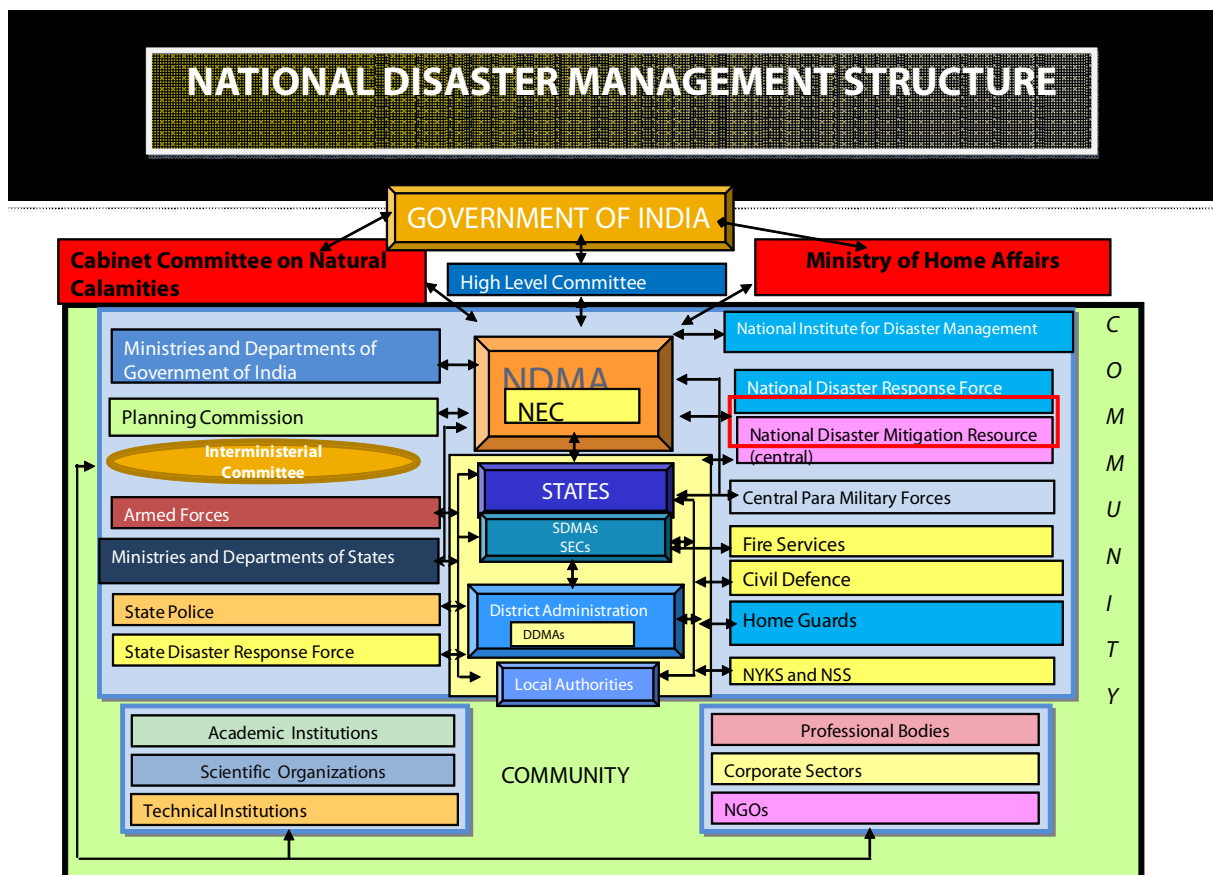
Disaster Management Act 2005
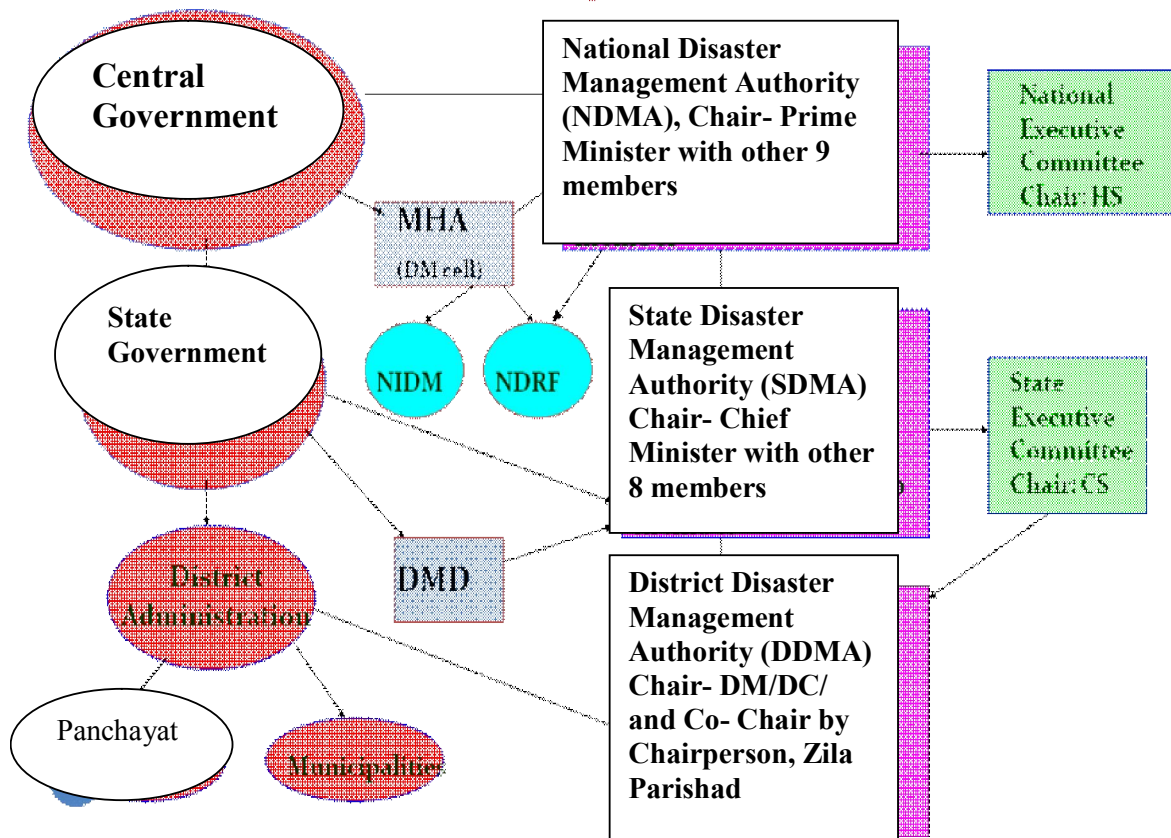
The Disaster Management Act, 2005 lays down institutional, legal, financial and coordination mechanism at the National, State, District and Local Levels. The institutional and legal framework is as follows:

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

- Central Ministries/Departments and State Government will extend necessary cooperation and assurance to NDMA for carrying out its mandate.

- The NEC is the executive committee of NDMA, and is mandated to assist the NDMA in the discharge of its functions, and also ensure compliance to the directions assured by the Central Government.

- The NEC will prepare the National Plan for Disaster Management based on the National Policy on Disaster Management. The NEC will monitor the implementation of guidelines issued by NDMA. It will also perform such other functions, as may be prescribed by the Central Government in consultation with NDMA.

- At the State Level, the State Disaster Management Authority (SDMA), headed by the Chief Minister, will lay down policies and plans for DM in the State. It will approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures, and review the developmental plans of the different departments of the State to ensure the integration of prevention, preparedness and mitigation measures.

- The State Government shall constitute a State Executive Committee (SEC) to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government, and coordinate and monitor the implementation of the National Policy, the National Plan and the State Plan.

- The District Disaster Management Authority (DDMA) will be headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as the Co-Chairperson. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA, and ensure that these are followed by all the Departments of the State Government at the District Level.

- Local authorities such as Panchayati Raj Institutions (PRIs), Municipalities, District and Cantonment Boards and Town Planning Authorities will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with the guidelines of the NDMA, SDMAs and DDMAs.

- The National Institute of Disaster Management (NIDM), in partnership with other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a National Level information base.

- For the purpose of specialized response to a threatening disaster situation of disaster/emergencies, both natural and man-made such as those of CBRN origin, the Disaster Management Act, 2005 has mandated the constitution of a National Disaster Response Force (NDRF).

- The general superintendence, direction and control of this Force shall be vested in and exercised by the NDMA, and the command and supervision of the Force shall vest in an officer to be appointed by the Central Government as the Director General of Civil Defence and NDRF. The Ten Battalions of NDRF will handle the natural disasters and four more Battalions will also be equipped and trained to respond to CBRN emergencies.

- Cabinet Committee on Management of Natural Calamities (CCMNC) and the Cabinet Committee on Security (CCS) have been constituted to facilitate the management of disasters. CCMNC will oversee all aspects relating to the assessment of the situation and identification of measures and programmes considered necessary to reduce its impact, monitor and suggest long-term measures for prevention of such calamities, formulate and recommend programmes for public awareness for building up society's resilience to them.

- The CCS deals with issues related to defence of the country, law and order and internal security, policy matters concerning foreign affairs that have internal or external security implications, and economic and political issues impinging on National Security.

- In case of Calamities of severe nature, Inter-Ministerial Central Teams are deputed to the affected states for assessment of damage caused and amount of relief assistance required. The Inter-Ministerial Group (IMG) headed by Union Home Secretary, scrutinizes the assessment made by the Central Teams and recommends the quantum of assistance to be provided.

- The High Level Committee (HLC) comprising the Finance Minister as Chairman and the Home Minister, Minister of Agriculture and Deputy Chairman of Planning Commission as members, approves the Central Assistance to be provided to affected States based on the recommendations of the IMG.

- In accordance with the provisions of the Disaster Management Act, the Central Government will take all such measures with regard to Disaster Management and Coordinate actions of all agencies. It will have the power to issue directions to NEC, State Governments/SDMAs, SECs, or any of their officer or employers to facilitate and assist in DM.

NATIONAL DISASTER MANAGEMENT STRUCTURE

GOVERNMENT OF INDIA

| Cabinet Committee on Natural Calamities | High Level Committee | Ministry of Home Affairs |

Ministries and Departments of Government of India
Planning Commission
Interministerial Committee
Armed Forces
Ministries and Departments of States
State Police
State Disaster Response Force

NDMA
NEC

STATES
SDMAs
SECs

District Administration
DDMAs

Local Authorities

National Institute for Disaster Management
National Disaster Response Force
National Disaster Mitigation Resource (central)
Central Para Military Forces
Fire Services
Civil Defence
Home Guards
NYKS and NSS

COMMUNITY

Academic Institutions
Scientific Organizations
Technical Institutions

COMMUNITY

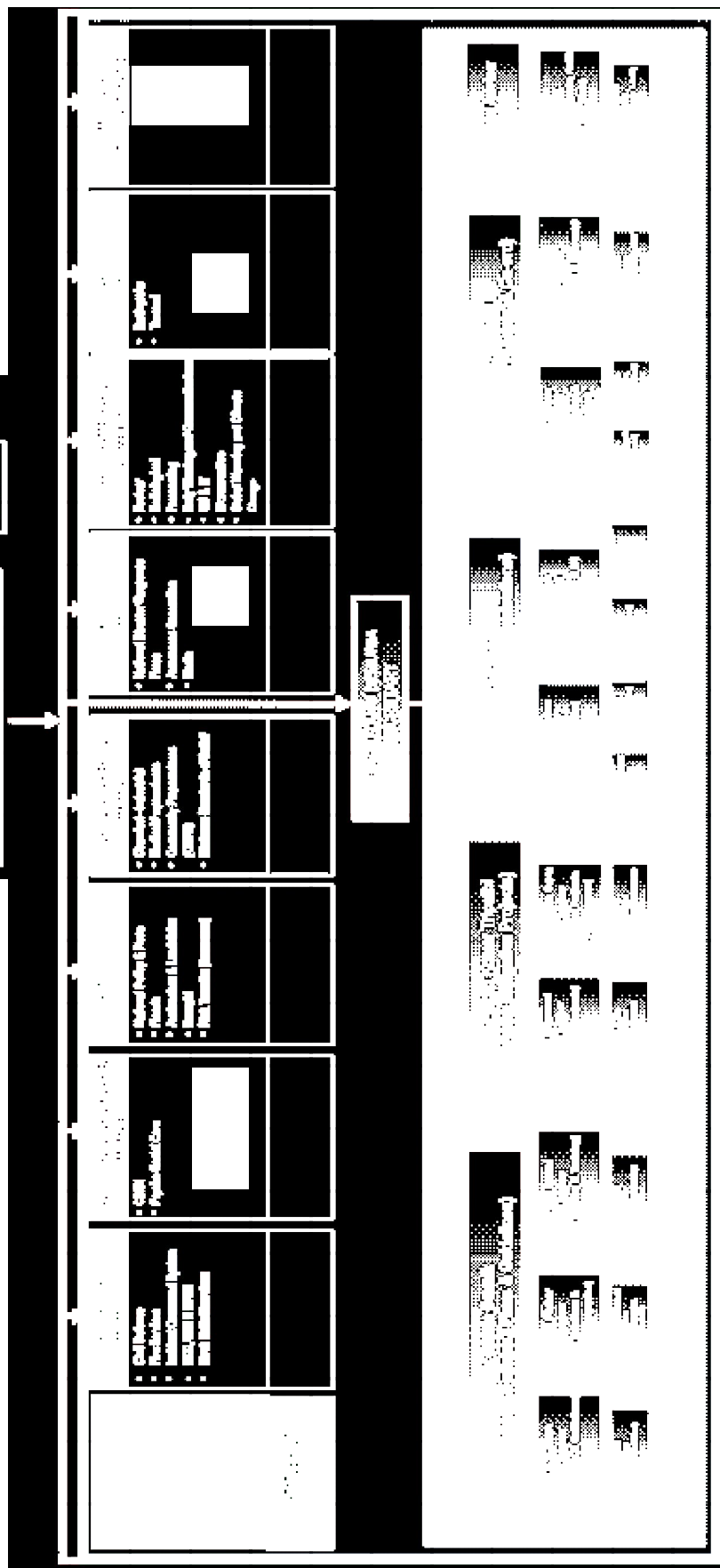Professional Bodies
Corporate Sectors
NGOs

- The National Crisis Management Committee (NCMC) comprising high level officials of GoI headed by the Cabinet Secretary will deal with major crisis, which have serious national ramifications. It will be supported by Crisis Management Group (CMG) of the Central Nodal Ministries and assisted by NEC as may be necessary.

- The Disaster Management Act mandates the State Governments to take measures for preparation of Disaster Management Plans, and facilitation of other aspects of disaster management. The States will create State Disaster Response Forces (SDRF) to facilitate disaster response facilities.

EXERCISE 6

- *STUDY THE STRUCTURE OF DISASTER MANAGEMENT AT THE CENTRAL, STATE AND DISTRICT LEVELS*

- *MAKE A LIST OF THE STAKEHOLDERS IN DISASTER MANAGEMENT*

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