BOOKLET IV
Disaster Recovery and the Road Ahead

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:

- 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).
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 43 Regional Centres, 6 Sub-Regional Centres and 1,400 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, Prakasham, 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.
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.
TRAINING MANUAL

BOOKLET IV
Disaster Recovery and the Road Ahead

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)
PROJECT TEAM NDMA
Mr. Amit Jha, Joint Secretary (A)
Ms. Sujata Saunik, Joint Secretary (Policy &Plan)
Mr. S.S. Yadav, Director (Finance)
Ms. Madhulika Gupta, Director (MIT)
Mr. R.K. Singh, Joint Advisor (Policy & Plan)
Ms. Preeti Banzal, Director (CBT)
Mr. P. Thakur, Under Secretary
Mr. Rajendra Prasad, (SO, CBT)
Mr. Naval Prakash (SRO)

PROJECT TEAM IGNOU
Prof. Pardeep Sahni
Prof. E. Vayunandan
Prof. Uma Medury
Prof. Alka Dhameja
Prof. Dolly Mathew
Dr. Durgesh Nandini

MANUAL FORMATTING AND COMPILATION
Prof. Alka Dhameja

MANUAL EDITING
Prof. Vinod K. Sharma, Indian Institute of Public Administration, New Delhi.

MANUAL COORDINATION
Prof. Pardeep Sahni

BOOKLET WRITING
Prof. Alka Dhameja

GRAPHICS
Mr. Amit Srivastava

COVER PAGE DESIGN
Mr. Rahul Chhabra

PRODUCTION
Mr. Manjit Singh

February, 2012
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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 grass root levels. 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)
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 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 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 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

Training Manuals are meant for the enhancement of knowledge, skills and attitudes of trainees. If this endeavour succeeds in moulding the mindsets of the target groups of this Project; a ray of satisfaction would be visible; not to mention the collective joy that would ensue. Many people are involved in such efforts. Acknowledgement is a small way of expression of gratitude to them. I wish to express my foremost appreciation for General N.C.Vij, Former Vice-Chairman, National Disaster Management Authority (NDMA), during whose tenure, the Project was conceptualized. I am equally obliged and beholden to Shri M. Shashidhar Reddy, Hon’ble Vice-Chairman, NDMA, for his guidance, constructive criticism, support and blessings towards the final execution of this Project.

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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

Disaster Management meets its toughest test at the recovery stage. This is the phase when the relief work is over and the agencies involved in humanitarian aid are on their way out. The space that is created thereafter has to be filled by the affected community itself. This is also the time when national and international agencies need to involve themselves full-fledgedly in disaster rehabilitation. What makes the task challenging is the different stages at which rehabilitation needs to be carried out; namely physical, social and psychological. The most crucial aspect is that of psychological recovery, as it requires tremendous adjustment on the part of victims and various stakeholders in the process of rehabilitation. This Booklet titled ‘Disaster Recovery and the Road Ahead’ deals with these very aspects in detail.

The Booklet, the 4th and the last one of the Training Manual, is divided into 2 Sections. The first Section is on ‘Disaster Recovery’ and deals with the characteristics, principles and typology of rehabilitation. It brings out the reconstruction strategies for different disasters, especially the earthquakes. In the ‘Concepts to Remember’, the Section explains terms such as Alternative Cropping Pattern, Canal Irrigation, Crop Life Saving Techniques, Deforestation, Damageability, Desertification, Ductility, Gender, Monitoring, Evaluation, Retrofitting and Watershed Management. The constraints in disaster recovery are also dealt with. Section 2 is on the ‘Road Ahead’ and gives a futuristic perspective on disaster management by highlighting the crucial components of the Interface between Disasters and Development, Sustainable Development Framework and Relief-Rehabilitation Development Continuum. Many new developments/initiatives taken by various organizations in disaster management, especially the NDMA have been brought out. Most importantly, this Section highlights the role of PRIs and ULBs under the 11th and 12th Schedules of the Constitution. The Booklet will come in handy for you when you engage yourselves in disaster recovery tasks.
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<td>Asian Development Bank</td>
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<td>AIDMI</td>
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<td>AIIMS</td>
<td>All India Institute of Medical Sciences</td>
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<td>ALP</td>
<td>Action Learning Project</td>
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<td>ATLS</td>
<td>Advance Trauma Life Support</td>
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<td>ATI</td>
<td>Administrative Training Institute</td>
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<td>BARC</td>
<td>Baba Atomic Research Centre</td>
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<td>BIS</td>
<td>Bureau of Indian Standards</td>
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<td>BMTPC</td>
<td>Building Materials and Technology Promotion Council</td>
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<td>CARE</td>
<td>Cooperative for Assistance and Relief Everywhere</td>
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<td>CBSE</td>
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<td>CBRN</td>
<td>Chemical Biological Radiological Nuclear</td>
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<td>Catholic Health Association of India</td>
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<td>Community Participation Consultant</td>
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<td>Department of Atomic Energy</td>
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<td>Defence Research and Development Organization</td>
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<td>Disaster Risk Management</td>
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<td>Decision Support System</td>
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<td>Earthquake Resistant Bracing</td>
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<td>ERC</td>
<td>Emergency Response Centre</td>
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<td>ECOSOC</td>
<td>Economic and Social Council</td>
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<tr>
<td>ES</td>
<td>Epidemiological Surveillance</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>FCGRP</td>
<td>FICCI-CARE Gujarat Rehabilitation Project</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<td>GO</td>
<td>Government Official</td>
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<tr>
<td>HPC</td>
<td>High Powered Committee</td>
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<td>HUDCO</td>
<td>Housing and Urban Development Corporation</td>
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<tr>
<td>IDRN</td>
<td>India Disaster Resource Network</td>
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<tr>
<td>IEC</td>
<td>Information Education Communication</td>
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<tr>
<td>IGNOU</td>
<td>Indira Gandhi National Open University</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>IIT</td>
<td>Indian Institute of Technology</td>
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<tr>
<td>IFRC</td>
<td>International Federation of the Red Cross</td>
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<tr>
<td>IS</td>
<td>Indian Standards</td>
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<tr>
<td>INMAS</td>
<td>Institute of Nuclear Medicine and Allied Sciences</td>
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<tr>
<td>ITDGG</td>
<td>Intermediate Technology Development Group</td>
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<tr>
<td>ITI</td>
<td>Indian Training Institute</td>
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<tr>
<td>LOS</td>
<td>Law of the Sea</td>
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<tr>
<td>LRRD</td>
<td>Linking of Relief and Rehabilitation with Development</td>
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<tr>
<td>MEERP</td>
<td>Maharashtra Emergency Earthquake Rehabilitation Programme</td>
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<tr>
<td>MSRTC</td>
<td>Maharashtra State Road Transport Corporation</td>
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<tr>
<td>NCERT</td>
<td>National Council for Educational Research and Training</td>
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<tr>
<td>NDMA</td>
<td>National Disaster Management Authority</td>
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<td>NDMIS</td>
<td>National Disaster Management Information System</td>
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<tr>
<td>NDRF</td>
<td>National Disaster Response Force</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NIDM</td>
<td>National Institute of Disaster Management</td>
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<td>NIMHANS</td>
<td>National Institute for Mental Health and Neuro-Sciences</td>
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<td>NPM</td>
<td>Nari Prabodhan Manch</td>
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<tr>
<td>OFDA</td>
<td>Office of US Foreign Disaster Assistance</td>
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<td>PAP</td>
<td>Project Affected People</td>
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<td>PDK</td>
<td>Personal Decontamination Kit</td>
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<td>PDS</td>
<td>Public Distribution System</td>
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<td>PSSMHS</td>
<td>Psycho-Social Support and Mental Health Services</td>
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<td>PRIs</td>
<td>Panchayati Raj Institutes</td>
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<td>RRD</td>
<td>Relief-Rehabilitation-Development</td>
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<tr>
<td>SHG</td>
<td>Self-Help Group</td>
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<tr>
<td>SEWA</td>
<td>Self-Employed Women’s Association</td>
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<tr>
<td>SD</td>
<td>Sustainable Development</td>
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<tr>
<td>SDRF</td>
<td>State Disaster Response Force</td>
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<tr>
<td>SEEDS</td>
<td>Sustainable Environment and Ecological Development Society</td>
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<td>SIRD</td>
<td>State Institute of Rural Development</td>
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<tr>
<td>SMA</td>
<td>SEEDS Mason Association</td>
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<td>SOPs</td>
<td>Standard Operating Procedures</td>
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<tr>
<td>SPARC</td>
<td>Society for Promotion of Area Resource Centre</td>
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<tr>
<td>TISS</td>
<td>Tata Institute of Social Sciences</td>
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<tr>
<td>ULBs</td>
<td>Urban Local Bodies</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Economic and Social Cooperation</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Education Fund</td>
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<tr>
<td>UNOCHA</td>
<td>United Nations Office for Coordination of Humanitarian Affairs</td>
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<tr>
<td>USAID</td>
<td>United States Aid Programme</td>
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<tr>
<td>UT</td>
<td>Union Territory</td>
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<tr>
<td>VHAI</td>
<td>Voluntary Health Association of India</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WFP</td>
<td>World Food Programme</td>
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</table>
SECTION I
DISASTER RECOVERY

‘From sixes and sevens to cloud nine, is a slow but shiny silver line’. Thereby, rehabilitation is no one-time effort; it is a part of ongoing development process.

(A Reconstructed Phrase)

Disaster recovery is the most difficult and long-drawn disaster management phase. Rehabilitation, an integral part of disaster recovery; other being reconstruction, could be defined as an overall dynamic and intermediate strategy of institutional reform and reinforcement, reconstruction and improvement of infrastructure and services; aimed towards support to the initiatives and actions of the concerned populations in the political, economic and social domains, as well as reiteration of sustainable development. It involves three pertinent phases:

- Planning
- Implementing; and
- Ensuring sustainability

Generally, rehabilitation package includes total reconstruction of damaged physical and psychological infrastructure, as well as economic and social rehabilitation of the people in the affected region. The rehabilitation package may be classified into:

(a) Housing and infrastructure redevelopment as physical rehabilitation
(b) Economic rehabilitation programmes
(c) Social rehabilitation structures and processes; and
(d) Stress management as a part of psychological rehabilitation

1.1 CHARACTERISTICS OF REHABILITATION

The priorities in a situation of disaster rehabilitation are:

- Operationalization of emergency relief
- Mobilization of human and material resources comprising food security, construction of temporary shelters and other basic needs
- Rehabilitation of all the displaced people, restoration of basic and alternative means of livelihood along with community-based infrastructure and institutions; and
- Initiation of long-term development interventions, which would lead to sustainable community-based actions
The ‘ought to’s’ and ‘should be’s’ pertaining to rehabilitation always sound logical and coherent, as there is often a sense of clarity and unanimity on its concept. However, various studies on disaster aftermath project a chaotic picture of mismanagement and lack of coordination at the ground level. Rehabilitation and reconstruction programmes, thus, need to base themselves on a few guiding principles.

To understand rehabilitation, you have to be very clear on its three specific types:

1. Physical Rehabilitation
2. Social Rehabilitation
3. Psychological Rehabilitation

We will be discussing them in detail later in this Booklet. The economic, social and psychological requirements of the affected population would vary from one disaster-affected site to the other. Even within the same site, the satisfaction of one need or requirement would not result in the satisfaction of the other needs. For example, rehabilitation in terms of provision of houses for the displaced will not take away the psychological trauma of having lost the dear ones. This makes it necessary to design and implement the rehabilitation programme to cope with the specific aspects of the victim’s lives at all the stages of disaster rehabilitation.

The three terms rehabilitation, reconstruction and recovery are often used interchangeably, but they aim to specifically meet the different types of objectives. Let us understand the nuanced difference between the three terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
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<tbody>
<tr>
<td>Rehabilitation</td>
<td>It is the process of assisting the disaster affected to gain control of their lives by improving their physical environment, social well-being and psychological limitations</td>
</tr>
<tr>
<td>Reconstruction</td>
<td>It is the process of rebuilding the destroyed physical structures in disaster affected areas to better the lives of the affected</td>
</tr>
<tr>
<td>Recovery</td>
<td>It is the process of healing the wounds of the affected in such a way that they are able to build resistance to future disasters. The process aims at establishing interlinkages with development programmes for long-term sustainability</td>
</tr>
</tbody>
</table>

**Principles of Planning for Rehabilitation**

- Participatory
- Flexibility
- Standardization
- Empowerment
Community-Orientation
Holistic Approach
Inclusive Livelihood Planning
Resource Mobilization

An overall recovery plan may be evolved by incorporating these principles. Such a plan would have three important components or parts, which you all must be aware of:

- **The Strategic Plan:** In the first part, the rehabilitation project team based on past experience and available research would draw a broad framework of rehabilitation - the mission, aims and objectives.

- **The Local Community Plan:** In the second part, the project team would actively consult the community, as well as the local government so that implementing strategies are culturally and environmentally compliant, acceptable to the targeted community and within the framework and guidelines laid down by the local government.

- **The Action Plan:** In the third part, the project team would devise specific action plans for various components of the project, which are primarily based on local needs and existing capacities.

**Role of Rehabilitation/Recovery Project Team is to:**

- Facilitate reconstruction process
- Encourage participation
- Provide suitable training
- Motivate participants
- Maintain professional standards
- Enhance community knowledge
- Ensure transparency
- Establish credibility
- Provide leadership and coordination

**DID YOU KNOW?**

The Government of Delhi in collaboration with Geo-Hazards International has taken up an innovative Project of retrofitting five buildings on a pilot project basis. These are the State Secretariat, Delhi Police Head Quarters, Delhi Disaster Management Authority Secretariat, Guru Teg Bahadur Hospital and Ludlow Castle School. The Project aims at structural and non-structural upgradation of these buildings.
1.2 CONCEPTS TO REMEMBER

**Alternative Cropping Pattern**

It is important to adopt crop stabilization strategies to cope with drought situation. These are techniques that involve use of different crops such as drought resistant varieties in different seasons and also within the same seasons. So if one crop fails, the other could blossom.

**Arch**

It is a curved structure in a building supporting itself over open space by pressure of stones one against the other.

**Canal Irrigation**

Canal Irrigation is one of the ways to compensate the losses caused to irrigation due to disasters. Larger canal systems enable the transfer of water from one region to another, which has many advantages. For instance, a region suffering from drought or low rainfall could receive water from another region, which has had better or abundant rainfall. Large-scale canal irrigation is usually linked to a storage reservoir or a barrage/weir in a river.

**Condition Assessment**

It implies recording of damages and finding out the causes of distress. Through this type of assessment, we can estimate the residual strengths of structural components and the system including the foundation. We can also plan the rehabilitation and retrofitting of the buildings.

**Crop Life Saving Techniques**

The essence of Crop Life Saving Technique is water harvesting and moisture stress alleviating practices. Short duration crops like grams, mustard and pulses can be very well intermixed with others like sorghum and wheat. Some crops like bajra and jowar need less water than rabi and groundnut. They have to be chosen as per weather conditions. Crop saving techniques could be of many types:

- Compensatory Cropping Programme
- Intermixed Cropping
- Alternative Cropping

**Deforestation**

It refers to the process of continuous felling of trees and other plantation in the forests due to man-made and natural causes.
**Damageability**

It refers to the ability of a structure to undergo substantial damage, without partial or total collapse. The key to achieve good damageability is the provision of several safety members to resist earthquake forces. In such a case, if one member connection or joint fails, there should be something else to share its burden to avoid complete collapse. This can be achieved by introducing several load paths in order to support the structure.

**Deformability**

The deformability is the ability of a structure to displace or deform substantially without collapsing. A deformability action is mandatory to achieve seismic resistance. The basic necessity to achieve the ductility in a structure is that it should act as well-proportioned, regular and well-tied single unit, so that excessive stress concentrations are avoided, and can easily be transferred from one component to another. To achieve this, no joint or connection should fail during the earthquake. Deformability is the property of the structure as a whole, while the ductility in turn applies to materials as well the structures.

**Desertification**

Cutting down of forests and trees, over-cultivation of soil and overgrazing is leading to desertification. The new deserts that are being created are not hot, dry and sandy, but are places where the soil has been mistreated and land has been rendered useless for agriculture. Thus, these are very different from the actual deserts.

**Documentation**

Documentation enhances learning by systematizing the means of data recording (figures, statistics, events, cases) in order to provide ready reference for recall, updation and knowledge enhancement.

**Domes**

Rounded vault, which forms a roof.
Dowels

A dowel is a wooden metal peg joining two adjacent parts.

Ductility

The ductility of a building is the ability to bend, sway and deform by large amounts without collapse. The opposite condition in a structure is called brittleness. The brittleness in a building arises due to the use of brittle construction materials like adobe, stone, brick and concrete blocks and from the wrong design of structures using otherwise ductile materials. The brittle material generally fails under the loads, leading to heavy damages in case of earthquakes and cyclones. The property of brittleness can be changed to ductility within the buildings through the addition of modest amount of ductile materials such as wooden elements in the adobe construction or steel reinforcement in masonry and concrete construction. The materials like wood and steel are inherently ductile and can save the structure from collapse in case of earthquake if they are properly placed at the points of maximum tensile stress.

Eave Projections

Overhanging edges of a roof.

Evaluation

Evaluation is the use of social research methods to systematically investigate a programme’s effectiveness. It is conducted either prior to beginning of an initiative or as an initiative comes to an end. These forms of evaluation are called formative evaluation (at the beginning) and summative evaluation (at the end) respectively.

Evaluation means:

- Reflection process on what has occurred
- Assessment of achievement and impact
Learning from experience

Ascertaining change

**Gender**

In common usage, the word gender often refers to the sexual distinction between male and female. However, it would be more appropriate to view gender as a set of relations between and among men and women in different societies based on socially constructed roles and behaviour, considered appropriate for men and women.

**Gable Ends**

Roof’s corner joints or ends to support the wall

**Lintel and Plinth Levels**

Lintel level is the top of the door or window and plinth is the uppermost level of foundation at which damp proofing is done

**Monitoring**

Monitoring is the routine process of data collection and measurement of progress toward disaster programme objectives. Designated agencies/volunteers monitor the activities of an initiative by keeping track of activities. It is important that there is an agreement on what these aims and objectives are before one sets out to monitor activities. Monitoring means:

- Knowing where we are
- Observing and recording change
- Regular and timely assessment
- Increased and jointly shared accountability
- Routine reflection
- Feedback

**Purlins**

One of several horizontal timbers supporting the rafters of a roof.

**Retrofitting (or Upgrading)**

It means reinforcement of structures to make them more resistant and resilient to the forces of natural hazards. It involves consideration of changes in the mass, stiffness, damping, load path and ductility of materials, as well as radical changes such as the introduction of energy absorbing dampers and base isolation systems. Examples of retrofitting include the consideration of wind loading to strengthen and minimize the wind force, and in earthquake prone areas, it means the strengthening of structures.
Watershed Management

Significant proportion of rainwater drains away even in water scarce drought prone areas. Much of this water can be harnessed through appropriate structural measures like construction of check-dams, contour-bunding, nala plugging etc. These can be supplemented by providing vegetative cover wherever feasible and economical. This strategy is useful because it has shorter gestation period, better environmental impact and greater adaptability to local level decentralized planning.

Water Harvesting in Small Catchments

In order to ensure effective irrigation, two pronged strategies may be adopted at a macro-scale through large projects or at micro-scale through water harvesting in small catchments. Large reservoir projects have many advantages and benefits. That is why they are impressive, but often have several financial, administrative, political, social, environmental and operational problems.

EXERCISE 1

WRITE THE MEANING OF THE FOLLOWING TERMS IN YOUR OWN WORDS:

- CROP SAVING TECHNIQUES
- DEFORMABILITY
- WATER HARVESTING
- MONITORING; AND
- DOCUMENTATION

1.3 STAKEHOLDERS IN REHABILITATION

As you all know, disaster management is a collective or team work. Many stakeholders are involved even at disaster rehabilitation and reconstruction phases. They all perform the following tasks in varied degrees:

- Damage Assessment
- Facilitation of Reconstruction Activities
- Awareness Generation for Controlling Epidemics
- Mobilization of Resources
- Promotion of Alternative Technology to Reduce Costs
Review of gaps to determine the pros and cons of requirement vs. availability of resources

You all should be aware of the role of some prominent stakeholders/agencies in disaster rehabilitation:

1.3.1 National Agencies

- National Disaster Management Authority (NDMA)

In all development programmes and plans, the NDMA advocates mainstreaming of Disaster Risk Reduction in order to ensure that all new projects involving infrastructure development and related construction adhere to disaster-resilient technology and safe siting. The revised project information formats of the Expenditure Finance Committee and Detailed Project Report address these concerns. Instructions in this regard have already been issued to all the Central Ministries by the Finance Ministry in June 2009. The process of self-certification is to be followed with a view to ensure that there is no delay in project implementation. The design of all new and ongoing projects/programmes will thus be addressed from the point of view of disaster management concerns, while existing infrastructure will be selectively reviewed for appropriate mitigation measures. Besides this, NDMA has also requested the State Governments to implement similar procedures of disaster management audit for projects/programmes under their purview.

- National Institute of Disaster Management (NIDM)

The NIDM is engaged with tasks that aim at capacity building, training, research, documentation and development of a national-level disaster information base. It functions within the broad policies and guidelines laid down by the NDMA.

- Housing and Urban Development Corporation (HUDCO)

There are many agencies working in the area of housing technology for disasters. One of the most important ones is HUDCO. It is one of the most important organizations in India that has been focusing on the issues of disaster mitigation and use of disaster resistant technology in construction. Apart from its routine operations of techno-financing, housing and basic infrastructure, it:

1. Promotes disaster-resistant technologies for human habitat
2. Adopts villages to demonstrate how to go about building shelters with simplicity and safety through simple illustration of ‘Do s and Don’ts’ in disaster prone areas
3. Provides knowledge on spatial planning and design in disaster-prone areas keeping traditional socio-cultural styles intact
4. Works in financing and executing post-disaster rehabilitation
5. Conceives methods for disaster preparedness and disaster resistant housing
6. Imparts skills in improvizing traditional building techniques using local materials to masons and artisans
7. Conducts workshops to train engineers, architects, builders, administrators and project managers; and
8. Funds rehabilitation projects, which require reconstruction, and extends financial help for retrofitting of housing and infrastructure
● **Building Materials and Technology Promotion Council (BMTPC)**

Its role pertains to propagating low-cost building materials and alternative construction techniques for disaster resistant construction

● **Central Building Research Institute**

It works in the area of research on habitat aspects for disaster prone areas

● **Structural Engineering Research Institute**

It works in the areas of post-disaster surveys, damage analysis, vulnerability and risk analysis of buildings and structures against natural disasters

Some examples of NGOs working in the area of disaster management are:

● **Cooperative for Assistance and Relief Everywhere (CARE India)**

It is committed to mitigate human suffering and loss of support systems in disaster situations. Its activities are confined to relief operations in the aftermath of major natural disasters, with an aim to improve the socio-economic conditions of the poor.

● **Oxfam India Trust**

It works in collaboration with development related organizations, and funds the rehabilitation programmes in disaster affected areas.

● **Ramakrishna Mission**

It is also working in the areas of disaster preparedness and post-disaster management

● **Indian Red Cross Society**

In the event of a disaster, the services of the Red Cross become auxiliary and/or complementary to that of the government. It provides immediate relief in case of disasters, as well as takes care of medicines and first-aid needed for the disaster-affected people.

● **Catholic Health Association of India (CHAI)**

It is the world’s largest Voluntary Healthcare Organization. Its disaster response is characterized by ‘holistic health through people’s empowerment’.

● **Voluntary Health Association of India (VHAI)**

Its goal is to ‘Make health a reality for the people of India’.

● **Action Aid**

It has been involved with disaster management related work in India since 1972.
Sustainable Environment and Ecological Development Society (SEEDS)

It undertakes research in all areas of disaster management and also provides support services for disaster related work.

Besides these, there are several other NGOs in each country that are engaged in addressing location-specific vulnerabilities that may lead to disasters. And of course, the ministries/departments/government representatives at the central, state and local levels are other important stakeholders. Booklet 2 of this Manual has discussed their role in disaster management.

**DID YOU KNOW?**

The FICCI-CARE Gujarat Rehabilitation Project (FCGRP) has been doing a lot of work in disaster-affected areas. It has successfully completed construction of over 3000 crore earthquake and cyclone resistant homes. The construction incorporates important safety features such as steel reinforcing of all corners of the house and reinforcement of the plinth, beam and roof levels, the latter being an essential component for cyclone resistance. In fact, all construction has been as per the specifications of the Indian Standards for Earthquake Safety, as provided in the guidelines issued by the Gujarat State Disaster Management Authority. Each core house covers an area of 30 square meters, and it takes into account the structured norms and existing lifestyle of the beneficiaries.

1.3.2 NGOs

The NDMA in its Guidelines on the ‘Role of NGOs’ has brought forth the specific functions of NGOs in disaster recovery. They perform a useful role in:

- Information Management- Capturing and storing information and making it accessible
- Knowledge Creation- Promoting research, adapting and innovating to generate new knowledge
- Knowledge Application- Utilizing existing knowledge
- Knowledge Sharing – Learning from one’s own experiences, successes and failures, and also from global experiences

NGOs, besides acting as facilitators for capacity building, also need to enhance their own capacity for institutionalizing Disaster Risk Reduction (DRR). Until NGOs enhance their technical and managerial capacity of mainstreaming DRR into development projects, their projects will never be integrated with DRR concerns. The managerial staff of NGOs needs to realize why DRR must be integrated, and the NGOs technical staff needs to understand how to integrate DRR into their developmental projects. For example, a capacity building session may make the managerial staff of NGOs realize that facilitating shelter to targeted beneficiaries will be meaningless, if the shelters are not disaster resistant and are likely to be damaged in a disaster. Similarly, the technical staff of NGOs must be trained on integration of disaster resistant technical know-how in shelter construction.

NGOs can also play an important role in knowledge dissemination. A few most common ways of knowledge dissemination by NGOs could be:
Curriculum development and teaching in school, college and university

Dissemination of knowledge during practical skill training

Propagation during campaign, workshop, seminar and other mass media forums

Locational aspects of development projects decided on the basis of hazard and vulnerability analysis of a given area should be a part of the risk reduction strategy of NGOs. They must know where to locate their development projects. NGOs should conduct a hazard and vulnerability analysis of a given area and take the results into consideration, while deciding the physical locations of their developmental projects. For example, a housing scheme floated by an NGO should check if its housing project is located in a flood prone area or on a seismically active fault line. If so, the NGO may consider relocation of the project or may like to integrate additional disaster resistant construction techniques in their housing projects, instead of altering the project sites.

DID YOU KNOW?

NGOs have the opportunity to integrate DRR during management of various phases of their project cycle. In a project cycle, the typical phases consist of Project Conceptualization, Appraisal, Financing, Implementation and Evaluation. In between the phases of conceptualization and appraisal, NGOs have opportunities of looking at the project from the DRR point of view. They can verify that their project does not increase vulnerability to any disaster and assess the opportunity to see if their project can be a means of reducing any risk of a future disaster. A mass housing project integrated with multi-hazard disaster resistant planning and technology can be a medium of future disaster risk reduction. However, the same project, if not integrated with DRR concern, may invite more damage to lives and properties during any occurrence of disaster.

1.3.3 International Organizations

NGOs in India work in close coordination with the international agencies. The financial aid for natural disasters should be released through main channels, as disasters impose a huge strain on country’s financial and other resources. In such a situation, it is mandatory to have clear-cut principles with regard to the rehabilitation process.

There are different international agencies like the UN that are engaged in the assistance work related to reduction of natural disasters. The pre-disaster and post-disaster recovery process, usually consist of a series of distinct, but interrelated programmes e.g., for financial grants, building materials, technical equipment, rehabilitation, food for work, and also assistance in the future development.

The important international agencies are:

- **International Federation of the Red Cross (IFRC) and Red Crescent Societies**

It is the world’s largest humanitarian organization. Its main mission, broadly speaking, is to improve the situation of the world’s most vulnerable people.

Source: Red Cross Week/trygveu.wordpress.com
- **Department for International Development (DFID)**
It aims at funding and providing support to disaster relief programmes.

- **World Bank**
The Disaster Management Facility of the World Bank was established to streamline disaster prevention and mitigation initiatives connected with all the activities pertaining to disaster management. It has been doing a lot of work in the area of disaster mitigation.

- **United Nations Development Programme (UNDP)**
Even though the UNDP does not directly participate in relief or rehabilitation operations unless specially requested, it does receive all information on the nature and extent of disaster damage and loss of life. Its broad aim is to design responsive structures, as well as implement prevention and mitigation strategies.

- **United States Aid Programme (USAID)/Office of US Foreign Disaster Assistance (OFDA)**
USAID doesn’t directly involve itself in disaster relief and rehabilitation. It is more concerned with monitoring and reporting on disaster preparedness and response activities. There may, however, be a provision through partner NGOs for short-term food aid to disaster victims. OFDA is the office within USAID responsible for providing non-food humanitarian assistance in response to international crises and disasters.

It contributes by donating funds to the Prime Minister’s Relief Fund. It regularly meets with the government of the affected country in order to facilitate a more coordinated disaster response mechanism which can facilitate rehabilitation.

- **United Nations Office for Coordination of Humanitarian Affairs (UNOCHA)**
This United Nations Office is mandated by the UN General Assembly to coordinate humanitarian assistance of the UN family, as well as that of international humanitarian actions. A Regional Office of the UNOCHA for Asia and the Pacific operates from Bangkok, Thailand.

- **Economic and Social Council (ECOSOC)**
The Economic and Social Council (ECOSOC) of the United Nations constitutes one of six principal organs of the United Nations responsible for the coordination of economic, social, and related work of 14 UN specialized agencies, its functional commissions and 5 regional commissions. The ECOSOC serves as the central forum for discussing international economic and social issues, and for formulating policy recommendations addressed to Member States and the United Nations System.

- **World Food Programme (WFP)**
The World Food Programme (WFP) is the food aid branch of the United Nations, and the world’s largest humanitarian organization addressing hunger worldwide. WFP works to help people who are unable to produce or obtain enough food for themselves and their families. According to its mission statement, its aim is to provide food aid to:
1. Save lives in refugee and other emergency situations
2. Improve the nutrition and quality of life of the most vulnerable people at critical times in their lives
3. Help build assets and promote the self-reliance of poor people and communities, particularly through labour-intensive programmes
4. Create Food-for-Work programmes to help promote environmental and economic stability, as well as agricultural production.

- **World Health Organization (WHO)**

The World Health Organization (WHO) is a specialized agency of the United Nations (UN) that acts as a coordinating authority on international public health. It carries out various health-related campaigns, for example, to boost the consumption of fruits and vegetables worldwide and to discourage tobacco use.

- **Food and Agriculture Organization (FAO)**

The Food and Agriculture Organization is a specialized agency of the UN that leads international efforts to defeat hunger. Serving both developed and developing countries, FAO is also a source of knowledge and information, and helps developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries, as well as ensure good nutrition and food security for all. FAO helps countries prevent, mitigate, prepare for and respond to emergencies. FAO focuses on strengthening capacity for disaster preparedness and ability to mitigate impact of emergencies on food security. It does so by forecasting and providing early warning of adverse conditions, assessing needs and devising programmes, which promote the transition from relief to reconstruction and development. As a result, improving analysis of underlying causes of crises, and strengthening local capacities to cope with risks.

- **Asian Development Bank (ADB)**

It is a regional development bank that has come up to facilitate economic development of countries in Asia. ADB has been modeled on the World Bank format, and has a similar weighted voting system, where votes are distributed in proportion with member’s capital subscription. The ADB is playing an important role in increasing loan share for social issues such as education, health and population, urban development and environment in many Asian countries.

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**DID YOU KNOW?**

_The NDMA’s Guidelines on disaster management reiterate the focus on disaster recovery, in order to give this disaster phase its due. The focus of the guidelines is on:_

- **Promoting a culture of prevention and preparedness by ensuring that disaster management receives the highest priority at all levels.**
- **Facilitating reconstruction as an opportunity to build disaster resilient structures and habitat.**
Undertaking recovery to bring back the community to a better and safer level than pre-disaster stage.

These goals bring home the point that those involved in disaster management recognize the paradigm shift in dealing with the issue. All stakeholders in this process now aim to address disaster management more holistically, treating it not just as one isolated event requiring quick and efficient response, but a process that entails serious overhaul at the preparedness and recovery phases, which are intermingled in many ways. Disaster recovery is a long-drawn process but paves way for disaster preparedness. The more prepared the community, more quick is its recovery in disaster aftermath.

1.3.4 Community and Community-Based Organizations

The most crucial stakeholder is certainly the community. Their role is very important in post-disaster rehabilitation and reconstruction. Right from rehabilitation of physical and social infrastructure to final long-term recovery, community has to be a part of all major decision-making. The role of Community Based Disaster Management (CBDP) in rehabilitation is no less important, as it is through community involvement that all stages of disaster management are complete.

**CBDP in Post–Disaster Phase** aims at:

a) Undertaking a detailed damage assessment covering verified number of human lives, identification of victims (dead and alive), livestock, infrastructure and crops

b) Drawing up a comprehensive economic rehabilitation plan that includes restoration of agricultural activity through necessary inputs, rehabilitation of artisans, marginal, small-scale and business people, replacement of cattle, agricultural and other equipment, boats, fishing nets, etc.

c) Ensuring social rehabilitation through strengthening of existing health centres, schools, anganwadis, community centres, vocational training centres, psychological counselling to the affected to enable them to get back to their normal routine.

Key ingredients of disaster management with a community perspective would be:

- Clearly defined and agreed criteria for the identification, selection and verification of the most deserving beneficiaries
- Emphasis on greater involvement and decision-making by women within the organization
- Priority for the weakest and most vulnerable people
- Strong local contribution
- Conscious focus on livelihood-based programme input. This would provide long-term and sustainable benefits to the community, and at the same time increase the commitment and feeling of solidarity between the community and the workers
- Right inputs to be given at the right time
- Planned cooperation with all government and non-government agencies, where such collaboration adds value and increases the effectiveness of the NGOs

- Strategic planning and coordination to bring together forces and resources to achieve optimum results

**DID YOU KNOW?**

*In 2008, NDRF embarked, in a big way upon the community capacity building and public awareness programmes in Bihar, which included training of vulnerable people and officials in various districts. NDRF carried out 3 day Flood Preparedness training programme in 15 vulnerable districts (Bhagalpur, East Champaran, Vaishali, Munger, Muzaffarpur, Saharsa, Madhepura, Khagaria, Begusarai, Darbhanga, Madhubani, Patna, Sitamarhi, Samastipur and Sheohar) of Bihar before monsoon season at District/Block levels. More than 15,000 village volunteers, local people, students, state police, and also central and state government personnel participated in the programme.*

Community participation may be viewed as a process that serves one or more of the following objectives:

- **Increasing Empowerment:** It should be defined as seeking to increase the control of disaster-affected people over the resources and decisions affecting their lives in the disaster aftermath; and ensuring their participation in the benefits produced by the society in which they live. Any project or development activity during the rehabilitation process has to be a means of empowering people, so that they are able to initiate as well as sustain disaster-mitigation actions on their own, and thus influence the process and outcome of development.

- **Building Beneficiary Capacity:** It could be achieved by ensuring that participants are actively involved in projects of rehabilitation and social consciousness, as well as awareness generation through formal or informal training.

- **Enhancing Project Effectiveness:** Community participation tends to enhance project effectiveness when the involvement of beneficiaries contribute to better project formulation, design and implementation, and leads to better match of project services with beneficiary needs and constraints.

- **Sharing Project Costs:** An object of community participation is the desire to share the cost of the project with the people it serves. Thus, beneficiaries may be expected to contribute labour, or other infrastructure resources to undertake or maintain the project.

The **advantages** of community participation in the recovery phase are:

- Systematic identification of problems

Source: Community Empowerment/chcsi.org
• Generation of innovative ideas/solutions
• Higher levels of motivation
• Cost-effective decision making
• Optimum utilization of local resources
• Faster communication
• Participatory decision making at local levels
• Effective and speedy monitoring and evaluation
• Lesser dependence on governmental and non-governmental bodies
• Involvement of all classes and strata of community in problem solving

**DID YOU KNOW?**

COMMUNITY AWARENESS leads to COMMUNITY PARTICIPATION which results in CAPACITY BUILDING culminating in COMMUNITY RESILIENCE

**EXERCISE 2**

MAKE A LIST OF THE WAYS THROUGH WHICH YOU PLAN TO INVOLVE COMMUNITY IN DISASTER RECOVERY

1.4 DAMAGE ASSESSMENT FOR REHABILITATION

Damage assessment is a precondition to effective disaster rehabilitation. You should have an idea of the extent and intensity of damage to plan out, implement and evaluate disaster recovery programmes. Sample Surveys, Epidemiological Surveillance, and Nutrition Centred Health Assessment are three pertinent ways to ascertain the extent of damage at the disaster recovery level.

![Source: Disaster Evacuation/Google Images](Image)

1.4.1 Sample Surveys

There are different types of sample surveys, which can be used for assessment of damage to facilitate disaster recovery.
### Types of Sample Surveys

<table>
<thead>
<tr>
<th>Sample Method</th>
<th>Usage</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Random Sample</td>
<td>Nutritional Assessment</td>
<td>Sampling error can be estimated</td>
<td>Interviews are dispersed and full list is rare</td>
</tr>
<tr>
<td></td>
<td>House Damage Survey</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Health Surveys</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Need Surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systematic Sample</td>
<td>Nutritional Assessment</td>
<td>Convenient to administer</td>
<td>Biased sample due to coinciding of sampling list with sampling interval</td>
</tr>
<tr>
<td></td>
<td>Damage Assessment</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Casualty Estimates</td>
<td></td>
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<tr>
<td></td>
<td>Needs Surveys</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Health Surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cluster Sample</td>
<td>Damage Assessment</td>
<td>Decreased Costs</td>
<td>Not useful when target population is too familiar</td>
</tr>
<tr>
<td></td>
<td>Nutritional Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Needs Surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Stage Cluster or Area Sample Survey</td>
<td>Damage Assessment</td>
<td>Lower Costs</td>
<td>Higher error than simple random</td>
</tr>
<tr>
<td></td>
<td>Nutritional Assessment</td>
<td>Lower Error</td>
<td>High Costs</td>
</tr>
<tr>
<td></td>
<td>Needs Assessment</td>
<td>Useful when not much is known about target population.</td>
<td></td>
</tr>
<tr>
<td>Stratified Sample Survey</td>
<td>Impact Surveys</td>
<td>Guarantees adequate representation of small groups</td>
<td>Sometimes requires weighing the responses</td>
</tr>
<tr>
<td></td>
<td>Needs Survey</td>
<td>Usually diminishes errors</td>
<td>Requires extensive data about target population</td>
</tr>
<tr>
<td></td>
<td>Health Assessment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: PGDDM Course, MPA-007, IGNOU*

#### 1.4.2 Epidemiological Surveillance (ES)

ES procedures are aimed at detecting changes in disease occurrence. To detect an increase in the incidence of disease caused by a disaster, pre-emergency baseline data must be available. While changes over the pre-disaster norm may not be easy to detect, changes in relation to the baseline can be noted down. The three principles of ES are:
• Systematic reporting of confirmed cases of predominant diseases
• Methodical reporting of symptoms that could indicate major diseases of concern; and
• Rapid field investigation of any reports or rumours of an abnormal increase in the incidence of disease

Assessment evaluates the health and nutritional status of children under the age of five, as a ‘point of contact’ to detect and assess a full range of health problems. The method is used for initial assessment of nutritional status, long-term surveillance of disease, malnutrition and death, as well as long-term monitoring of food supplies, logistics; water and food quality.

1.4.3 Nutrition Centred Health Assessment

This type of assessment can detect:
• Food shortages due to logistics problems
• Food distribution problems
• Problems in diet (in terms of nutrition)
• Illnesses
• Water shortages
• Water contamination
• Problems of personal hygiene
• Psychological problems

**EXERCISE 3**

**WRITE NOTES ON:**

• SAMPLE SURVEYS
• NUTRITION CENTRED HEALTH ASSESSMENT

1.5 PHYSICAL REHABILITATION

As you are aware, rehabilitation can be of three types: Physical, social and psychological. In a post-disaster situation, these three types of rehabilitation have to be seen holistically. Earthquake aftermath would need more of physical rehabilitation than droughts. The quality of physical rehabilitation would also vary from disaster to disaster.

Physical rehabilitation is a very important facet of rehabilitation. It includes:

• Reconstruction of physical infrastructure such as houses, buildings, railways, roads, communication network, water supply, electricity, and so on.
• Short-term and long-term strategies towards watershed management, canal irrigation, social forestry, crop stabilization, alternative cropping techniques, job creation, employment generation and environmental protection.
• Rehabilitation of agriculture, artisan work and animal husbandry.

• Adequate provision for subsidies, farm implements, acquisition of land for relocation sites, adherence to land-use planning, flood plain zoning, retrofitting or strengthening of undamaged houses, and construction of model houses.

1.5.1 Rehabilitation after Earthquakes

Strengthening of existing structures is indispensable to earthquake preparedness as well as rehabilitation. The community needs to be involved in the assessment of damage to their structures, just as it is engaged with earthquake impact assessment. Damage assessment of existing masonry buildings is done by determining:

• Probable maximum intensity of the earthquake

• Building typology

• Building configuration

• Quality of construction and maintenance over time

Assessment of buildings needs to be made in order to gauge whether they are amenable to repair and strengthening or not. Accordingly, damage grading is done to ascertain if retrofitting is needed, what kind of retrofitting is required (structural and non-structural), and whether building needs to be replaced with a new one altogether. As far as protection measures are concerned, the community should know how to strengthen their houses. The existing houses can be strengthened through various measures called retrofitting measures. The community should realize that rebuilding costs are much higher than expenditure that is generally incurred on retrofitting.

DID YOU KNOW?

An Earthquake-resistant Building must have the following features:

1) **Good Structural Configuration:** Its size, shape and structural system carrying loads are such that they ensure a direct and smooth flow of inertia forces to the ground

2) **Lateral Strength:** The maximum lateral (horizontal) force that it can resist is such that the damage induced in it does not result in collapse

3) **Adequate Stiffness:** Its lateral load resisting system is such that the earthquake induced deformations in it do not damage its contents under low-to-moderate shaking

4) **Good Ductility:** Its capacity to undergo large deformations under severe earthquake shaking even after yielding, is improved by favourable design and detailing strategies

After any earthquake, one of the challenging jobs left with the administration is of repairing and strengthening of the damaged and undamaged buildings. For this purpose, we require specialized techniques and services of technical experts/personnel. Some of the techniques, which you all should know, are:
**Superficial Repair**

Various activities carried out under this include replastering of walls, repairing of doors, windows and services and redecoration of the building. These types of works, however, do not improve the strength of the structure.

The different types of repair works can be described as:

- Patching up of defects such as cracks and fall of plaster
- Replastering walls where necessary
- Repairing doors, windows and replacement of glass panes
- Checking and repairing electrical connections, gas connections, etc.
- Rebuilding of non-structural walls etc.
- Redecoration works like white washing, colouring etc.

**Structural Repair**

Under this the various activities include rebuilding cracked walls and damaged roofs, repairing the pillars, columns etc. This type of repair work improves some of the lost strength of the structure, but not all because only parts of the building are dealt with, and the repaired building is not as strong as it usually is when new.

Various activities undertaken for structural repair include:

- Removal of portions of cracked masonry walls etc., and rebuilding them in richer mortar.
- Addition of reinforcing mesh on both the faces of the cracked walls, holding it to the wall through nails etc., and then plastering it
- Injecting epoxy like material, which is strong in tension, into the cracks in walls, columns etc.

**Structural Strengthening**

It requires adding strength to the weakened or damaged building to restore the lost strength. The lost strength of the structure can be
achieved by strengthening the various elements like beams, columns, walls and foundations to turn the structure anew. The seismic behaviour of existing buildings is affected due to various inadequacies, material degradation due to time and various changes carried out during the period when the structure remains under use. Due to various social and other factors, it is not possible to replace such buildings. Thus, it becomes very important to strengthen the existing buildings seismically.

**DID YOU KNOW?**

The various codes on earthquake resistant design lay emphasis on the following features in a building for proper earthquake resistance, entailing desirable properties of ductility, deformability and damageability:

- **Structural integrity** of all elements of the building like walls, roof, etc.
- Diaphragm action in roofs and floor
- Provision of bands at different levels like plinth, sill, lintel and roof
- Reinforcement around openings
- Provision of reinforcement at critical sections

**Strengthening after the Earthquake Damage**

Here the strength of the structure has to be improved to resist the earthquake forces which are dynamic in nature. To achieve this, a few new structural elements may require to be added to take care of the earthquake forces. The dwellings constructed in such a manner thus have no earthquake resistant features. Some of the weaker points identified in these houses, from earthquake point of view are:

- Wooden under-structures for lateral forces
- No bonding between the walls of the stone structures
- No necessary beds within the house to provide an integral action in the structure
- Massive weight of the walls and the roofs

For **retrofitting** of houses, following components need to be adopted:

- Strengthening the wooden frame to increase its lateral strength, by installing knee bracing
- Stitching the outer and inner wythes of the stone walls by the installation of ‘through’ stones
- Providing a seismic belt around the house
- Reducing weight over the roof by soil removal and waterproofing

Retrofitting goes beyond superficial repair and aims at upgrading of structures. It includes:

- Repairing doors and windows
- Anchoring lighting fixtures to the ceilings
- Checking and repairing electric wiring, gas pipes, water pipes and plumbing services
- Rebuilding non-structural walls, smoke chimneys, parapet walls
- Fastening shelves to the walls
- Replastering of walls
- Rearranging disturbed roofing tiles
- White washing, painting
- Increasing the lateral strength by increasing walls and columns
- Giving unity to the structure

Aim should be to reach an integral box action. Foundations are strengthened by introducing new load bearing members, improving the drainage, and adding strong elements like reinforced concrete strips. Roofs can be strengthened by replacing slates and roofing tiles with corrugated iron or sheeting. Roof truss frames should be braced by welding. New walls can be inserted to make unsymmetrical buildings stronger.

To deal with damages that occur due to an earthquake, many specialized techniques are required. The repairing methods for the damaged houses, constructed with brick walls could be:

a) Fill the cracks with cement, sand (1:6) mortar. If the crack in the wall is quite thin then, fill it up with cement paste.
   - If the wall is severely damaged, or a large number of cracks have occurred, the replacement of the wall will be a better option. For reconstructing the wall, sufficient support with wooden log etc., has to be provided to the roof. Then, construct the wall in (1:6) cement and sand mortar

b) If the reconstruction of severely damaged walls is not possible, the following method can be adopted:
   - Remove the plaster from the wall around the cracked portion
   - Clean the wall with the wire brush
   - Put rectangular iron wire mesh on both the sides with holders over the cracked wall along with clean portion
   - Plaster the wall over the wire mesh using cement, sand (1:3) mortar.
c) For the repair of wall separation at the corners:

- Fill up the crack with cement, sand (1 : 6) mortar
- Put a 4-5 meter long rectangular wire mesh on both sides of cracks inside the room, similarly put 7-8 meter long rectangular wire mesh on both the sides of the cracks outside the room as mentioned in point (b). For best results, the wire mesh must be connected with nut and bolt across the wall
- Provide adequate diagonal bracing in frame type construction, both in the vertical and horizontal planes along both the principal axis of the building
- Secure the internal faces of in-fill walls to the columns
- Use reinforced masonry such as brick walls, hollows, concrete block masonry, sandwich walls etc.
- Avoid using large sheets of glass in windows
- Use glazing bars or mullions for windows or doors
- Use holds-fasts to anchor the door and window frames to the wall or columns
- Keep the bolting or locking device of the door and window shutters simple and strong

Remember always, anchoring and bracing are the keys to structural resilience. Basic principles that go into making the houses seismically viable are location, setting, layout, design and material. These assist in achieving desirable properties of ductility, deformability and damageability.

DID YOU KNOW?

Traditional wisdom in construction of earthquake-resistant houses can still be revisited, as traditional houses were inherently earthquake-resistant:

The Building Technology in ‘Sumers’

The Sumers are ascribed to the Rajput families of Rajasthan in India. They built the Sumers to function as watchtowers and to provide for the defence of all the families living in an area, rather than for the protection of a single family. Structures comparable to the ‘Sumer’, with some variations have also been reported from Pakistan, Afghanistan and Nepal, all in the Himalayan – Karakoram earthquake-prone zone.

The indigenously devised building technology, which was used to erect Sumers, made use of locally available resources such as long thick wooden logs, stones, slates and clay to specification. The structure of the ‘Sumer’ rested upon this platform.

The four walls of the structure were thus raised using the wooden logs and dressed up flat stones alternately. The structure was further reinforced with the help of wooden beams fixed alternately that ran from the middle of the walls of one side to the other, intersecting at the centre. This arrangement divided the ‘Sumer’ into 4 equal parts from within and provided for joists supporting the floorboards in each floor of the building. Specially designed wooden ladders provided access to the different floors, which were located within the ‘Sumer’. The roof of the ‘Sumer’ was laid with slate stones.
Technology used in ‘Chaukhats’

The technology applied on the ‘Chaukhats’ was like a machine stitch on a fabric that keeps a piece of cloth in shape. In like manner, the technology made use of wood, like a thread and kept the entire structure intact against the ravages of weather and geo-activity. Through-stones and flat-stones were used, and wood predominated the structures of whatever dimensions they were. Pairs of thick wooden logs, beginning from the base of any two opposite walls were used at every 30 inches alternately with heavy stones to raise the walls and run through the entire length of all the walls.

EXERCISE 4

DISTINGUISH BETWEEN:

- STRUCTURAL AND SUPERFICIAL REPAIR
- RECONSTRUCTION AND RETROFITTING
- TECHNOLOGY USED IN ‘SUMERS’
- TECHNOLOGY USED IN ‘CHAWKHATS’

1.5.2 Rehabilitation after Cyclones

The principal dangers in case of a cyclone are from gales and strong winds, torrential rains, as well as storm surges. Houses totally collapse during cyclones. Loose files fly off; metal fibre sheets also fly away. In intense cyclones, whole roofs, even the cemented ones can fly off. Rehabilitation in the aftermath of cyclones would mean total rebuilding of houses. Thus, attention needs to be paid on:

- Removal of salinity by washing the upper soil through excessive irrigation.
- Planting shelter belts/mangroves in coastal areas.
- Adequate connection between the roof and external wall
- Use of Mangalore titled roofs
- Anchoring of tiles along the ridges, cave and roof intersections
- Monitoring of corrosions, cracks and leaks in houses all through the season

1.5.3 Rehabilitation After Floods

In floods aftermath, Protective Measures would include:

- Soil conservation and afforestation in river catchments
- Adopting new cropping pattern to avoid crop loss
Utilizing the addition of clay and silt as fertilizers after levelling the ground.

Introducing governmental policy for preventing human settlement in low-lying areas, and encroachment on drains etc.

Relocating of settlements to safer places.

Long-term Reconstructive Measures would include:

- Building of safe houses and shelters in hazard prone areas
- Construction of houses on an elevated area
- Strict implementation of safety-codes in the construction of private and public houses and buildings
- Construction of hazard-resistant roads, bridges, canals, water reservoirs, drinking water facilities, power transmission lines, telephone, cables, rail tracks, etc.
- Improvement in meteorological forecast and flood monitoring system, early warning system for cyclones, cyclone tracking system, etc.
- Construction of dams and embankments for protection against floods
- Organization of people to participate in preventive and protective measures, as well as to prepare for counter-disaster activities.

**DID YOU KNOW?**

*People living in the cyclone/flood prone areas have been facing these disasters at almost regular periodicity. As we have read in Booklet II, the local community has developed its own coping strategies to deal with the cyclones/floods. These can prove to be beneficial in minimizing the loss of life and property in the wake of these calamities. Some of them are as follows:*

- People wrap all available seeds, rice paddy and bury it underground when they move to safer places.
- Some families collect all their important papers, documents and other valuables and bury it underground before leaving their houses.
- Houses are constructed on higher plinth, whereby the water cannot enter the house.
- If the clouds move towards north, there is an indication that there will be floods in three or four days.
- Some people while looking at the colour of the clouds and their formation can predict about floods.
- People grow banana trees around the houses as the banana stems are used for floating. Something similar to a boat is made out of banana stems and is used as barge or plank to keep afloat.*

*Source: Earthquake/conservationtech.com*
• Banana leaves are used for fodder during cyclones and floods.
• People identify nearby villages and inform them before hand on their temporary migration and shelter in those villages in case of floods.
• People store foodstuff, dry food, coconut, pumpkins, etc., to be used immediately after floods/cyclones.
• Beating of drums for dissemination of warning.
• The continuously blowing wind from east indicates that the cyclone is approaching, more so if within two hours the wind starts becoming hot. Indication is that the intensity of cyclone will be more.
• If the wind changes its direction from east to south and gets more cool, it indicates that the cyclone has changed its direction.
• Barking of village dogs without any provocation during the day time is indicative of an unusual event like cyclone approaching in the immediate future.
• Scratching of the ground by village dogs.
• Fishermen get a huge catch of a particular fish prior to the cyclone, which normally they are unable to get.
• The fishermen nets catch a particular small plantation, which they never get otherwise. This also indicates that a cyclone is approaching.
• A strange and rather thundering sound from sea for two-three days indicate that a cyclone is about to strike.
• Moving of clouds from north to south speedily is considered an indicator.
• Birds, in large quantity, flock together and fly from north to south. It is also an indication to the community of an approaching cyclone.

1.5.4 Rehabilitation After Tsunami

Tsunami Vulnerability Reduction Programme should encompass:

• Initiating a coastal bio-shield movement along the coastal areas, which includes raising of mangrove forests, plantations of bamboo, palms, agro-forestry programmes and so on
• Promoting people’s participation in the conservation and enhancement of mangrove and other coastal wet-lands, as well as coral reefs, and coastal and marine biodiversity

Source: Wooden Houses/tradenote.net
• Encouraging the organization of community nurseries of mangrove and other appropriate tree species chosen under the coastal bio-shield and agro forestry programmes

• Regenerating fisheries and fostering a sustainable fisheries programme

• Raising artificial coral reefs that can stimulate fish breeding and revival

• Constructing permanent sea walls and dykes

• Developing a code of conduct for coastal ecological security. This includes steps to ensure that no permanent construction is permitted within 500 meters of high tide

• Providing incentives in the areas of tidal/ solar energy, rainwater harvesting, energy efficient construction etc

• Promoting sustainable management of coastal land and water resources to prevent salinization of ground water

**DID YOU KNOW?**

*Provision of Insurance in Disaster Recovery is an important risk management technique. Insurance provisions are very crucial to meet the losses in the aftermath of disasters.*

*Even though the insurance cover cannot be regarded as a funding arrangement for disasters, it does act as a funding source to meet the exigencies caused by a calamity. We need an insurance system that common people, especially the rural poor could afford. There is a need for an insurance scheme that compensates for catastrophic income losses and is easily implemented. The Eleventh Finance Commission noted that schemes such as crop insurance could help individual farmers to recuperate their losses better. Insurance brings quality consciousness in the infrastructure and a culture of safety standards, as it insists on following building codes, norms, guidelines, quality material in construction etc. It enforces safety standards by bringing about accountability.*

*Insurance can be encouraged through:*

• **Micro-Finance**

• **Catastrophe Funds**

• **Swarnjayanti Gram Swarozgar Yojna**

• **National Agricultural Insurance Scheme**

• **Seed Crop Insurance**

• **Kisan Credit Card**

• **SEWA Insurance**

• **Insurance Pools**
EXERCISE 5

WHAT ARE THE STEPS THAT CAN BE UNDERTAKEN TO:

- REHABILITATE AGRICULTURE AFTER FLOODS
- REHABILITATE INFRASTRUCTURE AFTER CYCLONES

1.6 SOCIAL REHABILITATION

Social rehabilitation is also an important part of disaster rehabilitation. The vulnerable groups such as the elderly, orphans, single women and young children would need special social support to survive the impact of disasters. The rehabilitation plan must have components that do not lose sight of the fact that the victims have to undergo the entire process of re-socialization and adjustments in a completely unfamiliar social milieu. Thus, this type of rehabilitation would include various activities that you may take up:

**Resurrection of Educational Activities**

- Give constant counselling to teachers and children
- Encourage children to attend the schools regularly
- Provide writing material, and work books to children
- Make children participate in all activities pertaining to resurrection of normalcy in the school
- Try to inculcate conducive attitudes to enable the students to play a positive role in self-development

**Rehabilitation of the Elderly, Women and Children**

- Identify familiar environs to rehabilitate elderly, women and children
- Make efforts to attach destitute, widows and orphans with their extended family, if that is not possible then identify foster families
- Organize regular counselling to strengthen the mental health of women and children
- Initiate various training programmes to make the women economically self-sufficient

Sources:
- Source: gees.usc.edu/geek/rediff.com
- Source: Sustainable Development/elrst.com
- Source: NGO Work/jaipur.olx.in
Give due attention to health, nutrition and hygiene in the long-term rehabilitation package for women and children

Activate/reactivate the anganwadis, day-care centres, and old-age homes within the shortest possible time

Set up at least one multi-purpose community centre per village

Make efforts to build residential female children homes at the block level

Set up vocational training camps to improve the skills of orphans and children

Create self-help groups

---

**DID YOU KNOW?**

**Livestock Rehabilitation and Reconstruction Measures would include:**

- **Adequate arrangement for purchase of livestock that the farmers might want to sell, out of distress. The cattle can be rehabilitated in ‘Goshalas’/‘Gosadans’**.

- **Provision of livestock insurance for farmers of the disaster affected area to enable them to receive adequate compensation for the livestock lost, incapacitated or dead due to disasters.**

- **Generation of awareness on system of distribution of cash relief by state government for the loss of animals.**

- **Priority to reconstruction of damaged veterinary hospitals and artificial insemination centres.**

- **Introduction of cattle breed of high quality and resistance in the disaster-affected area so that better genetic stock could come up for the future.**

- **Setting up of permanent fodder bank in drought and flood affected areas to help the livestock in disaster situations, in order to create fodder security.**

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**1.7 PSYCHOLOGICAL REHABILITATION**

Another crucial dimension of disaster rehabilitation is psychological rehabilitation. Dealing with victim’s psychology is a very sensitive issue and must be dealt with caution and concern. The psychological trauma of losing relatives and friends, and the scars of the shock of disaster event can take much longer to heal than the stakeholders in disaster management often realize. Thus, counselling for stress management should form a continuous part of a disaster rehabilitation plan.
Efforts should be made to focus more on:

- Psycho-therapeutic health programmes
- Occupational therapy
- Debriefing and trauma care
- Tradition, values, norms, beliefs, and practices of disaster-affected people
<table>
<thead>
<tr>
<th>Myth</th>
<th>Reality</th>
<th>Planning Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People panic in danger.</td>
<td>Only a small number are likely to panic; the majority will take whatever steps are available to protect and comfort each other.</td>
<td>Providing necessary information, direction which enables people to make rational decisions.</td>
</tr>
<tr>
<td>2. During disasters people only think of themselves.</td>
<td>People generally care for each other and provide necessary help.</td>
<td>Publicize the efforts of those who ensure safety of others in emergency.</td>
</tr>
<tr>
<td>3. Too much information is likely to scare people and make them behave erratically.</td>
<td>Majority of people react responsibly to the information they are given.</td>
<td>Provision of clear information and suggested courses of action.</td>
</tr>
<tr>
<td>4. People do not react with severe emotional disturbance when they are affected by any disaster.</td>
<td>The stress of experiencing disaster and lengthy recovery process has an effect on majority of people</td>
<td>Appropriate response mechanisms need to be developed.</td>
</tr>
<tr>
<td>5. Children are not affected by disasters.</td>
<td>Children do get affected by disasters. However, they express their problems to family members once things get back to normalcy.</td>
<td>Proper psychological counselling and support is required to enable them to open up and express their reactions.</td>
</tr>
<tr>
<td>6. A community affected by a disaster will fall apart or never recover.</td>
<td>Community has its own coping mechanisms to face a disaster. It adapts to a traumatic event and continues to keep pace with the process of development</td>
<td>Developing and integrating community processes. Such processes should coordinate multifarious efforts in managing disasters.</td>
</tr>
<tr>
<td>7. Workers in the disaster situation are not affected by disaster</td>
<td>Workers are also affected during disasters, as they have to cope with extensive destruction, damage, stress and trauma.</td>
<td>Proper assistance and support-administrative and psychological, needs to be provided to workers.</td>
</tr>
</tbody>
</table>
It is, therefore, essential that social welfare and psychological support measures should have a clear understanding of these myths surrounding human behaviour. Such measures should be considered immediately after a disaster event, so that they could be made a vital part of a rehabilitation programme.

It should include:

- Identification of Key Problems
- Appointment of Counsellors and Psychiatrists
- Making Use of Social Networking Mechanisms and Stress Management
- Counselling, especially Peer Group Counselling
- Arranging Street Plays/Nukkad Natak and Face-to-Face Interaction

Disaster survivors normally experience a range of psychological and physiological reactions. The reactions of survivors may become more intense as the amount of disruption to their lives increases. The strength and type of reaction varies with each person and depends upon several factors:

- Prior experience with a similar event
- Time and intensity of disruption
- Emotional strength of individual
- Presence of feelings that there is no escape

Survivors may go through distinct emotional phases following a disaster. There are four distinct phases that an affected person normally faces. These are:

- Impact Phase
- Inventory Phase
- Rescue Phase
- Recovery Phase

i) In the impact phase, survivors do not panic and may, in fact, show no emotion. They do what they must to respond to the situation, and try to keep themselves and their families alive

ii) In the inventory phase, which immediately follows the disaster event, survivors are engaged in assessing the damage and trying to locate other survivors. During this phase, routine social ties tend to pave way for more functional ones, required for initial response activities such as searching for family members and seeking medical assistance
iii) In the *rescue phase*, emergency services personnel are involved in responding to the victims and the survivors or victims are busy taking direction from these groups without protest. They, more or less, trust the rescuers and feel that they will address their needs, and that they can then put their lives back together quickly.

iv) In the *recovery phase*, survivors may believe that rescue efforts are not proceeding quickly enough. That feeling, combined with other emotional stressors (e.g., dealing with insurance agent and living in temporary accommodations) may cause survivors to turn against those who are trying to help them. **Always remember** that this is the most crucial stage for you, as it is here that you need to put together strategies to deal with such issues.

Though, the first three phases are a part of disaster response phase, it is better to understand all the four phases holistically to grapple with victims’ psychological health in the recovery phase. Disaster recovery planning is not merely a scientific technique. Even if the disaster recovery plan is foolproof and takes care of each and every nitty gritty of providing relief and comfort, there are certain factors, which need to be kept in view in order to humanize the recovery efforts. The recovery team must be clear about all post-disaster symptoms, as depicted below:

**Post-disaster Psychological and Physiological Symptoms:**

<table>
<thead>
<tr>
<th>PSYCHOLOGICAL SYMPTOMS</th>
<th>PHYSIOLOGICAL SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Irritability or anger</td>
<td>• Loss of appetite</td>
</tr>
<tr>
<td>• Self-blame, blaming others</td>
<td>• Headaches</td>
</tr>
<tr>
<td>• Isolation, withdrawal</td>
<td>• Chest pain</td>
</tr>
<tr>
<td>• Fear of recurrence</td>
<td>• Diarrhoea, stomach pain</td>
</tr>
<tr>
<td>• Feeling stunned, numb or overwhelmed</td>
<td>• Nausea</td>
</tr>
<tr>
<td>• Feeling helpless</td>
<td>• Nightmares</td>
</tr>
<tr>
<td>• Concentration and memory problems</td>
<td>• Inability to sleep</td>
</tr>
<tr>
<td>• Sadness, depression, grief</td>
<td>• Fatigue, low energy</td>
</tr>
<tr>
<td>• Denial</td>
<td>• Hyperactivité</td>
</tr>
<tr>
<td>• Mood swings</td>
<td>• Increase in alcohol or drug consumption</td>
</tr>
</tbody>
</table>

The intensity, timing and duration of these responses will vary from person to person. They may be:

- Acute or mild
- Immediate and/or delayed
- Cumulative in intensity
Children may also experience psychological or physical discomfort following a disaster. Those feelings may not last long, but it is not uncommon to have disturbing reactions many weeks or months after the event. It is important to remember that emotional responses apply to both the disaster victims and the rescue personnel. Recovery workers have to also witness the physical and psychological aftermath each day, which makes them agonized and distressed. Thus, the recovery personnel also need to be sensitized to the aftermath situation. The recovery plan needs to also keep in view their psyche and mind-set. There is a need to incorporate stress-relieving elements (exercise, meditation, rest, good nutrition) into everyday life in order to de-stress physically and mentally in disaster situations.

**DID YOU KNOW?**

The World Bank has endorsed a viable Environment Strategy in 2001, which is pertinent to rehabilitation and recovery. The Strategy has three interrelated objectives:

- Improving people’s quality of life, enhancing the prospects for quality of social and economic growth.
- Protecting the quality of the regional and global environmental commons, rational and planned growth of agricultural, industrial and tertiary sectors of economy.
- Creating employment opportunities, programmes for the youth, women and physically handicapped; and
- Promoting alternative cropping patterns, irrigation and water harvesting techniques, social and farm forestry, as well as skilled labour.

**EXERCISE 6**

**WHAT ARE THE FACTORS YOU WOULD KEEP IN MIND WHILE PSYCHOLOGICALLY REHABILITATING THE DISASTER VICTIM?**

**1.8 FACTORS IMPEDING DISASTER RECOVERY**

The most common constraint in any disaster recovery phase is that of lack of awareness on construction norms and guidelines. This is compounded by the unavailability of resources – human and physical. If the resources are available, then their utilization and prioritization becomes a hindrance. Besides, the monitoring and evaluation of recovery projects is always deficient and tardy. You all should be well-familiar with the factors that impede disaster recovery. These are:
Lack of Knowledge and Awareness on Disaster-Resistant Construction

Generally, the recovery managers and victims are not in the know of construction norms and standards or what are called the guidelines for disaster-resistant construction, which include:

1. Identification of Hazard-Prone Areas
2. Vulnerability and Risk Assessment of Buildings
3. Outlining Disaster Damage Scenario
4. Following Technical and Legal Guidelines for Hazard Resistant Construction
5. Upgrading Hazard Resistance of Existing Constructions through Retrofitting

DID YOU KNOW?

Some Specific Indian Seismic Codes are:

- **IS 4326: 1993**- Indian Standard Code of Practice for earthquake resistant buildings including masonry, timber, and pre-fabricated constructions. It intends to cover the specified features of design and construction for earthquake resistance of buildings of conventional types.

- **IS 13827: 1993**- Deals with the design and construction aspects for improving earthquake resistance of earthen houses, without the use of stabilizers such as lime, cement and asphalt. It has been recommended that buildings should be light, single-storeyed and of a simple rectangular plan

- **IS 13828: 1993**- Covers the special features of design and construction for improving earthquake resistance of buildings of low strength masonry

- **IS 13920: 1993**- Includes the requirements for designing and detailing of monolithic reinforced concrete buildings to give them adequate toughness and ductility to resist severe earthquake shocks without collapse. Contains mandatory features for structures in Zones III, IV and V

- **IS 13935: 1993**- Covers general principles of seismic strengthening, selection of material and repair material

- **IS 1893 Part I: 2002**- Includes Indian Standard Criteria for Earthquake Resistant Design of Structures (5th Revision)

- **IS 1893: 2002 (2nd Revised Edition of Part I)**- Contains provisions that are general in nature and those applicable for buildings
• **Lack of Clarity on Process and Impact Indicators**

Monitoring uses indicators to measure the progress of the project and the adherence to original goals. The validity of indicators needs to be continually questioned, as most emergencies are dynamic and continuously changing. Besides, indicators can be of various types: ‘process’ indicators and ‘impact’ indicators. Process indicators reflect the progress along methodology benchmarks, and are a reflection of how things are progressing and how well they are being managed as per the time schedule. Impact indicators, on the other hand, are reflective of what type of change the project intervention is finally able to bring about in the situation that it is meant to address. Often there is a lack of clarity on where a specific indicator fits into; and which of the indicators would amount to overlapping.

• **Long and Complex Monitoring Process**

The most common problem faced by monitoring and evaluation teams arises due to stretching the process too far and making it too complex. Developing monitoring and evaluation indicators can be an endless process. A number of indicators or benchmarks can be thought of for each component of process and impact of the project. This is something that project team has to carefully watch out for. It needs to have a small number of clearly stated indicators. The best way of having a small number of indicators is to look for those indicators that are basic to the issue and reflect the interests of target groups.

• **Generalized Approach to Evaluation**

The quality of the humanitarian action depends largely on the adequacy, specificity and context of the strategy used. Therefore, a universal approach would have only a limited operational value. It is better to be contextual and specific to the disaster situation to formulate better evaluation strategies.

• **Inadequate Management of Data and Information**

This could arise due to:

1. Low Priority to Information Systems
2. Involvement of Evaluators limited to Information Collection
3. Poor Feedback to the Data Collector
4. Quantitative Bias
5. Inadequate or Underqualified Human Resources

• **Inappropriate Conflict Management**

One of the most common constraints in recovery process is the existence of conflict, which can be between the organizations/agencies/representatives involved in disaster management or between the community and these organizations. Even within the community, different groups such as community based organizations, caste groups, community leaders, regional groups may clash amongst each other. Overcoming conflict is an art. The first step towards which is to recognize conflict as constructive and inevitable. Conflict must lead to coordination, change and creation of new alternatives.
DID YOU KNOW?

Conflict Avoidance Strategies include:

- Ignoring the Conflict (Withdrawal) – It may disappear with time
- Imposing a Solution through Dominance: Superior’s authority is recognized and a solution to conflict is imposed
- Projecting Common Goals of the Organization – It leads to coordination, reiteration of collectiveness and general bonhomie
- Practicing Accommodation – Efforts can be made to smoothen the crisis in order to minimize its intensity
- Liaisoning with Conflicting Groups – Dialogue and interaction with those involved in conflict can smoothen conflict
- Adopting Problem-solving Techniques – Collective decision-making and problem solving can help in lessening the conflict
- Bargaining and Compromising – Each party in conflict is expected to give up something for a concession

1.9 FUNDAMENTALS OF DISASTER RECOVERY PLANNING

The questions facing the recovery planners are: Who are the needy, when to begin the reconstruction work and what type of reconstruction package needs to be implemented. The satisfactory answer to these questions shall, to a large extent, determine the overall effectiveness of the recovery efforts. Given an overwhelming demand for human resources, the policy makers and implementers should seek to mobilize a wide range of actors, including the public, private and voluntary sectors of society in disaster management.

Those involved in disaster recovery; the way you all are, must make certain that:

- All available ‘actors’ are involved
- Qualified ‘actors’ are given appropriate tasks
- For each task, there is a clear definition of authority, resources and accountability; and
- Actors are co-coordinated by a pre-determined focal point

Long-term Rehabilitation

To successfully manage the continuity during the disaster aftermath operations and restore normalcy to all concerned, organizations require a good disaster recovery plan. When a disaster strikes, organizations need to mobilize all the talent and resources needed to continue their operations and return to a state that existed prior to the disaster. Planning for a disaster and then dealing with one is a team effort by people/

Source: Wooden House/Google Images
stakeholders from all types of organizations working in the affected area, along with the community. This ensures working together in an integrated fashion to solve a problem. The following principles provide a foundation for understanding disaster planning. They will help guide the people in an organization who need to develop the disaster recovery plan. You may provide your inputs to disaster recovery plan. The fundamentals would focus on:

- Development of a solid disaster recovery plan which would require the support and participation of upper-level functionaries, the directors of all functional departments such as human resources, facilities management, Information Technology (IT), corporate security, legal counsel, and the managers of all business units.

- Assessment of an organization’s risks. This generally requires time-consuming, detailed analysis based on a realistic understanding of the environmental, economic, social, and political conditions in which the organization, its suppliers and its beneficiaries operate.

- Support to the critical needs of business operations; and compliance with all relevant laws and regulations.

- Delineation and documentation of the chain of command of the managers responsible for declaring, responding to, and recovering from a disaster.

- Facilitation of control of communications among decision makers, managers and staff, as well as external support organizations.

- Accessibility of recovery policies to all departments, managers, and staff at all times during disaster response and recovery.

- Training for all personnel involved in disaster response and recovery in order to implement documented procedures, and to address unanticipated problems.

- Testing of disaster recovery procedures. The results of such an evaluation should be used to modify the plan, procedures or training design.

- Evaluation of new threats and business conditions as they develop, and then updating disaster recovery plans and procedures accordingly.

- Assessment of effectiveness of disaster response procedures and monitoring the physical safety and mental health of employees at all times. The results of the evaluation should be used to improve the disaster recovery abilities of the organization.

Every member of the disaster recovery team needs to be made familiar with certain steps and how they relate to each other: These are:

i) Organizing the team

ii) Assessing risks in the organization

iii) Establishing roles across departments and organizations

iv) Developing policies and procedures

v) Documenting disaster recovery procedures; and
vi) Training and testing the ongoing management activity

These basic steps provide a guide for project managers to organize and plan their efforts over time. The steps also serve as important milestones for the planning team. Building a solid disaster recovery plan can take many months and, in some cases, years. When team members like you all understand where you are in the planning stages, you will be less hassled by what is considered as a long-drawn and tedious process.

**EXERCISE 7**

**LIST THE CONSTRAINTS IN REHABILITATION AND RECOVERY PROCESS THAT YOU HAVE YOURSELF FACED DURING DISASTERS.**

1.10 DISASTER-DEVELOPMENT INTERFACE

Disaster-resistant construction, though a very pertinent disaster risk reduction method becomes redundant if seen in isolation from the broader economic, social and cultural requirements of the target groups. All development programmes must integrate disaster risk mitigation strategies. There is an intricate relationship between disasters and development that the community needs to keep in mind. Disaster mitigation has to be an integral component of the development programmes. A development project must see to it that no construction is allowed in disaster vulnerable areas such as hilly and steep slopes. The development programmes should not increase the vulnerability of disaster prone areas.

All risk reduction strategies draw sustenance from disaster-development interface. Unless the aftermath of a disaster is turned into a development opportunity with due focus on the requirements of target group, availability of infrastructure, opportunities for livelihood, mobilization of resources and agencies involved, disaster risk reduction through disaster-resistant construction will merely be a superficial exercise. Thus, post-disaster reconstruction is a process or a development attempt that helps the community not only to overcome damages due to earthquake, but also to help the community to upgrade its existing infrastructure to withstand future disasters. Critical entry points to mainstream risk reduction include:

- Incorporation of natural hazard risk in the country’s strategic planning process and poverty reduction strategy initiatives
- Accounting for hazard risk in loans recovery
- Revamping post-disaster borrowing to ensure that risk and vulnerability are not recreated during reconstruction
- Provision of technical assistance to vulnerable regions to develop risk reduction strategies and measures; and
- Development of risk financing and risk transfer instruments
The disaster-development interface needs a manifestation of its underlying contents and intent to make disaster risk reduction strategy a reality. There are many measures that can be adopted to build an interface between disasters and development. It is a protracted process, which can be facilitated by effective resilience, training, education, capacity building, and information dissemination efforts. The relationship between disasters and development is depicted below:

![Diagram](attachment:image.png)

*Source: Training-Module for NGOs on Disaster Risk Management, 2007*

If analyzed in context of the World Bank’s 1991 Environment Strategy and the disaster-development matrix, which is relevant even today, we can say that by promoting certain development measures, the disaster impact can be made less severe, especially in the coastal areas. These include:

- Establishing a regional early warning system
- Applying construction setbacks, greenbelts and other no-build areas in each region
- Regulating building safety codes and laws
- Sustaining measures to check unplanned urbanization through laws, regulations, zoning
- Training for builders, planners, civil engineers and attainment of professional qualifications
- Promoting early resettlement with provision for safe housing; debris clearance; potable water, sanitation and drainage services
- Providing for access to sustainable livelihood options
- Enhancing the ability of the natural system to act as a bio-shield to protect people
- Restoring wetlands, mangroves, spawning areas, sea grass beds and coral reefs
- Seeking alternative construction design that is cost-effective, appropriate and consistent
- Raising public awareness amongst children and adults
- Documenting and disseminating information
- Introducing mock rehearsals and drills at the community level
- Incorporating basic disaster management principles in school / college curricula
- Encouraging public-private partnership for disaster management
- Monitoring Disaster Management Programmes
- Mainstreaming Disaster Management

**DID YOU KNOW?**

*Disaster management is being mainstreamed into development planning process through structural measures, non-structural measures and mitigation projects. Disaster risk reduction measures will be incorporated into developmental programmes involving construction of buildings etc., such as Sarva Shiksha Abhiyan, Indira Awaas Yojna, Jawaharlal Nehru National Urban Renewal Mission etc. Generating knowledge and building capacity on Disaster Risk Reduction (DRR) at all levels is the key to mainstream DRR into development process.*
While disasters are calamitous events, lessons learnt and incorporated into long-term development planning may serve to minimize future vulnerability. It is certainly possible to prepare for disasters, even if they cannot be prevented altogether. Disasters are also our little windows of development. Ample opportunities for growth and prosperity are thrown open in the aftermath of disasters. If these are lapped up, disasters can be converted into development processes. However, ironical it may sound, it is true that the destruction of unsafe infrastructure and buildings can provide an opportunity for rebuilding with better standards, or even relocation from a vulnerable site to a less vulnerable one.

Disasters also focus on relief aid and rehabilitation investment; thereby providing developmental opportunities that have been previously unavailable. There is, thus, a significant relationship in the way disasters and development affect one another. In the present scenario, disasters can no longer be viewed as random occurrences caused by nature’s wrath. The relationship between disaster management and environmental protection thus needs to be examined against the backdrop of the disaster-development matrix, which falls under the Linking Relief and Rehabilitation with Development (LRRD), as well as the Sustainable Development (SD) Frameworks.

2.1 MAINSTREAMING DISASTER MANAGEMENT

An important factor to note is the increasing smudging of boundaries between natural and man-made disasters. The frequency and intensity of disasters has recorded an all-time high, as the harmonious balance between human beings and nature is being disturbed to almost irreparable proportions. If the disasters such as earthquakes, cyclones occur due to natural causes; their intensity is aggravated due to human factors, such as environmental destruction. So, no disaster can be categorically labeled natural anymore. Anthropogenic factors have begun to play an important role.

The ‘connect’ between population growth, poverty and development is strong and complex. When assessed in terms of growth of the Gross Domestic Product (GDP), India is ahead in economic growth, yet far behind. Food insecurity, lack of means of livelihood and insufficient capacity to access resources characterize the lives of the poor even in non-disaster situations. Conditions of poverty often contribute to greater vulnerability of some sections of population to a disaster. In this context, development cannot merely be an increase in economic growth. It should focus on effective disaster management plan, which is sustainable and gives credence to creation of sustainable livelihood
opportunities and alternative technologies. It should be remembered that disaster management is a ‘continuum’. All its different phases spill into each other; with actions taken at one stage impacting the other.

Mainstreaming implies that at conceptualization or funding stage itself, the development schemes should be designed with consideration of any potential hazardous impact associated with it; and incorporate measures for mitigation of the same. It means looking critically at each activity that is being planned, not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity’s potential contribution to the hazard. Every development plan has to incorporate elements of impact assessment, risk reduction, and the ‘do no harm’ approach. The aim being to ensure that all newly built structures and those under construction are disaster resilient, and those which have already been constructed are selectively retrofitted in accordance with priority.

‘Mainstreaming Disaster Risk Reduction (DRR)’ is integral to disaster-development interface. It is a process that fully incorporates the concerns of disaster preparedness, prevention and mitigation into development and post- disaster recovery policy, as well as practice. It means completely institutionalizing DRR within the development and recovery agenda. Accordingly, a few broad objectives of mainstreaming DRR into development include: ongoing schemes and projects of the Ministries and Departments of Government of India and State Governments, as well as of all government agencies and institutions, including Public Sector Undertakings, which will be selectively audited by designated government agencies for ensuring that they have addressed the disaster risk and vulnerability profiles of the local areas, where such schemes and activities are being undertaken.

Globally, the Earth’s climate is warmer today than it has been at any time in the past. The relationship between environmental degradation and disasters needs to be clearly surveyed. There are many International Environmental Treaties such as:

- Kyoto Protocol
- United Nations Framework Convention on Climate Change
- Basel Convention on Transboundary Movement of Hazardous Wastes
- Convention on Biological Diversity
- Convention on Climate Change, Convention to Combat Desertification
- Convention on International Trade in Endangered Species (CITES)
- Convention on the Law of the Sea (LOS)
- Montreal Protocol on Substances that Deplete the Ozone Layer

These Treaties and Conventions have set guidelines for environmental protection. The disaster management plan should keep the underlying features of these treaties into view and integrate environmental protection measures wherever required. The World Conference on Disaster Reduction
(2005) held in Kobe, Hyogo, Japan has adopted a Framework for Action (2005-2015) on “Building the Resilience of Nations and Communities to Disasters”. It is a positive step, as the Conference has provided a unique opportunity to promote a strategic and systematic approach to reducing risks and vulnerabilities to hazards. We have learnt about national organizations such as the NDMA, government departments, ministries doing substantial work in disaster management. However, there are many International Treaties, Forums and Conferences, which have also reiterated the relevance of CBDM. Management of disasters is acquiring a global connotation. Besides the United Nations and the World Bank, many international organizations such as Caritas India, Lutheran World Service, Asian Development Bank, Intermediate Technology Development Group (ITDG), Danish International Development Agency, Swedish International Development Agency, Cooperative for Assistance and Relief Everywhere (CARE), Sustainable Environment and Ecological Development (SEEDS), International Federation of Red Cross and Red Crescent Societies, Oxfam, etc., are doing substantial work in the area of disaster relief, rehabilitation and recovery.

2.2 SUSTAINABLE DEVELOPMENT FRAMEWORK

In order to promote environmental protection and create long-term vulnerability reduction conditions, a ‘sustainable livelihood framework’ is urgently required. The livelihood approach advocates an increase in economic opportunities of work without degrading the natural environment. It aims at:

- Understanding the many factors, which influence people’s choices
- Creating livelihood options
- Pursuing equitable and environment friendly growth
- Involving both content and quality of growth
- Preventing acts of nature from becoming disasters
- Mitigating the conflict between development and environment

DID YOU KNOW

Sustainable living patterns have always been an integral part of rural India. There has been a long tradition of living in harmony with nature. Traditional practices of water conservation such as ‘Kuhls’ of Himachal Pradesh, ‘Kundis’ and ‘Rapats’ of Rajasthan and ‘Palliyals’ of Kerala have held people in good stead against low intensity droughts. We have learnt about many environment-friendly traditional practices in this Manual. People have followed traditional practices of coping with disasters, but are now increasingly becoming dependent on external agencies to withstand the disaster aftermath. These traditional practices are being abandoned to make way for new technologies. At a time when we need a thoughtful blend of the ‘old’ and the ‘new’, we are slowly loosing our traditional wisdom to a haphazard approach to modern development.

Source: The Renaissance of Rainwater/ benettontalk.com

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A systematic disaster management plan should entail a right mix of traditional practices, sustainable ways of living and modern technological development. Sustainable Disaster Network (SDN) based on a systematic livelihood programme needs to:

- Analyze the existing socio-economic conditions prevailing in a pre-disaster area
- Examine the nature of occupational pattern in that area
- Ascertain the level of infrastructure of the vulnerable area
- Understand the psyche or mindset of the vulnerable community in the area
- Acknowledge the relationship of the community with the environment
- Appreciate the rights of the community, especially the children, women, elderly and physically challenged
- Find ways to encourage people’s participation
- Encourage prudent utilization of scarce resources
- Provide for alternative livelihood opportunities
- Promote alternative cropping patterns and irrigation systems
- Build respect for global environmental commons such as oceans, rivers, air and forests; and
- Enhance the quality of growth

2.3 RELIEF-REHABILITATION DEVELOPMENT (RRD) CONTINUUM

A Rehabilitation-Reconstruction-Tracking Matrix is being produced. Its objective is to provide salient information on the overall recovery effort. The Matrix is aimed at bringing together information from tsunami-affected countries with regard to the nature of work in the area, functions of stakeholders, monitoring and evaluation of impact; and availability of resources. The Matrix is designed to give information at three levels:

i) Regional overview

ii) Sector-level status by a region or a country; and

iii) Project level status by a country.

It is expected to provide a comprehensive view of rehabilitation and long-time recovery. A few important factors that need to be kept in mind are:

- The “backward” and “forward” linkages between political, developmental, relief and rehabilitation operations constitute a complex network of relationships, which has to be examined within the global policy framework or strategic planning policy. The components of the RRD-linkage and their design are highly situation specific and should be considered in the light of the ‘contextual’ realities of the country or region concerned.

- The structure of the document on RRD should also be seen in a holistic way. The fact that it starts with relief, followed by rehabilitation, and subsequently by development, including a political approach towards the objective of structural stability, does not mean that the so-called RRD-continuum is to be considered in this linear manner. The ground reality in each country is much more complicated and requires a multifaceted approach. Many situations are not
created by natural disasters, but are the result of interaction between political, economic and social forces, frequently stemming from bad governance, failed economic policies and inappropriate development programmes. RRD continuum must take into view all these realities and conditionalities.

- It is also important to introduce gender analysis into the RRD response, so as to avoid further marginalization of women and the other disadvantaged groups. A gender-sensitive approach helps to identify differing vulnerabilities of men and women to crises as well as their different (and ever-changing) capacities and coping strategies. Vulnerability is a key concept, and may be determined by membership of a particular ethnic or social group. Two other issues need to be considered:

The first is the institutional separation of relief and development, which exists within most donor organizations. Different criteria and procedures are applied to sustainability, funding and implementation arrangements. The international response to chronic crises in particular may risk reflecting the organizational and political priorities of implementing agencies, rather than the needs of disaster-affected populations, and the vulnerability of those threatened by disasters.

The second issue is financial. Over time, the relief expenditure of Organization for Economic Cooperation and Development (OECD) member states has increased multifold at a time when overall aid programmes are tending to stagnate or even decline. For all the above reasons, it is high time that we reconsidered our approach to LRRD, and examined the ways in which its impact and effectiveness could be improved.

The new perspective that is gaining relevance pertains to convergence of relief, rehabilitation and development. The basic premise for Linking of Relief and Rehabilitation with Development (LRRD) holds the key to future strategies towards disaster rehabilitation. The development policy often ignores the risks of disasters and the need to protect vulnerable households by helping them to develop appropriate ‘coping strategies’. If relief and development were to be linked, these deficiencies could be reduced. A comprehensive long-term recovery plan should keep into view the interlinkages between all the stages of disaster management, as well as the ‘connect’ between disaster rehabilitation, reconstruction and larger developmental planning.

The analysis of the LRRD problem makes it clear that the approach to economic, political and social development in the developing countries should be more holistic than it has been until now. At all the phases of their development, and not merely when a crisis is imminent. There is a need
for a strategic planning policy, which comprises political, developmental, social and technical aspects. This global policy framework should include:

- ‘Conflict Prevention’ and ‘Peace Building’, which must be intrinsic elements of development cooperation strategies
- Disaster prevention and vulnerability analyses, which should be taken into account in development planning and operations
- Relief actions, which should take into account the long-term objectives of reconstruction and development, besides the primary objective of keeping the number of casualties low; and
- Rehabilitation action for countries in a post-emergency phase, which should be undertaken so as to ensure the most effective transition from emergency assistance to long-term development.

These interconnections are the backbone of disaster management.

**DID YOU KNOW?**

*The success stories in India are few yet noteworthy. The endeavors such as greening of Arvari River in Alwar (Rajasthan), rejuvenation of Sukhha Lake in Chandigarh, and Build Your Own Check Dam in Saurashtra have been initiated by community groups and non-governmental organizations. These need to be woven coherently in order to build a strong knowledge base for disaster rehabilitation. The Narmada Bachao Andolan in India successfully drew attention to the travails of Project Affected People (PAP). It brought to light the reckless development and rehabilitation policies by focusing on issues such as non-compliance with rules, violation of human rights, and hardships of the poor. Such initiatives need to be given due attention.*

Let us now recapitulate the role of PRIs and ULBs like you, which we have learnt in the different Booklets of this Manual. This will give you an idea about the specificities of your tasks, with regard to disaster management. Your role pertains to the tasks assigned in the 11th and 12th Constitutional Schedules. You would have noticed that many of these tasks are either directly or indirectly related to disaster management. Some tasks you may take up yourself, and some you may facilitate in your area. We have enlisted some of them for you:

### 2.4 DISASTER MANAGEMENT MANDATE FOR THE PRIs AND ULBs IN THE CONSTITUTIONAL SCHEDULES

**Role of PRIs**

*Source: Panchayati Raj in India/indiacurrentaffairirs.org*
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Item</th>
<th>Preparedness</th>
<th>Response</th>
<th>Recovery</th>
</tr>
</thead>
</table>
| 1.     | Agriculture, including Agricultural Extension | • Preparing Seasonal Calendars for farming activities  
• Creating Agricultural Extension Centres for all villages  
• Creating awareness on Shrimp Farming, Mixed Cropping and Alternative Cropping  
• Promoting Crop Insurance  
• Promoting community grain/water-seed banks  
• Applying scientific knowledge and research to agriculture | • Growing crops in saline soil  
• Providing agricultural subsidy for buying/sowing and other activities  
• Preparing immediate Agriculture Damage Assessment Report  
• Providing immediate loans for purchase of seeds and crops  
• Undertaking Desiltation and Crop Sowing Activities | • Growing short-term crops  
• Promoting cash crops/Floriculture/Horticulture  
• Focusing on agricultural health and marketing |
| 2      | Land Improvement, Implementation of Land Reforms, Land Consolidation and Soil Conservation | • Constructing embankment to restrict sea waters from entering the agricultural land  
• Desilting of channels during agricultural off-season  
• Zoning rural land  
• Preventing soil erosion  
• Consolidating government land holdings  
• Clearing the water channels | • Clearing of weeds  
• Clearing the water ways  
• Repairing broken embankments | • Reclaiming lost and barren lands  
• Using land fertilization techniques  
• Practicing organic farming |
| 3      | Minor Irrigation, Water Management and Watershed Development | • Constructing check dams and safe water channels  
• Clearing the water channels  
• Promoting watershed management in hilly terrains  
• Encouraging roof-top water harvesting  
• Promoting stream water harvesting  
• Constructing community water storages  
• Assessing the damage to small check dams  
• Surveying blocked water ways  
• Opening up alternate channels for releasing excess water  
• Periodic monitoring of water levels of check dams | | • Starting new irrigation and rainwater harvesting schemes  
• Promoting research in irrigation and water management |
| 4      | Animal Husbandry, Dairying and Poultry | • Setting up Veterinary Centres  
• Appointing adequate number of Vet Doctors  
• Providing for regular | • Removing dead animals during disasters  
• Providing shelter to milch animals and other livestock | • Creating job avenues in animal husbandry and dairy sector  
• Appointing Veterinary Doctors  
• Providing subsidized |
| 5 | Fisheries | - Conducting Mock Drills to make fishermen alert during emergencies such as high tides and cyclones  
- Surveying fish ponds  
- Generating awareness on use of fish nets, Safe Fishing Zones, Warning System  
- Training Fishermen/ Farmers on net making, managing response time, pond safeguards etc.  
- Promoting insurance of fisheries | - Evacuating people from seashores during Alerts/Warning Phase  
- Assessing damage to boats, net, fish ponds, etc.  
- Restoring livelihoods  
- Clearing the debris from the seashores  
- Controlling contamination of water bodies due to killing of fishes | - Regular pond cleaning and bleaching  
- Diversifying activities related to fisheries in order to create more jobs  
- Promoting Pisciculture (Rearing and breeding of fishes through natural and artificial means)  
- Creating employment opportunities in Pisciculture |
| --- | --- | --- | --- |
| 6 | Social Forestry and Farm Forestry | - Growing shrubs to restrict sea water from entering land area  
- Constructing embankments  
- Planting trees along roadside, canals’ banks, river beds, and railway lines  
- Regular trimming of trees approaching roads, electric lines, and water pipes passing through forest areas | - Assessing the damage to crops and trees in social forestry land area  
- Removing tresses and trucks from social forestry land  
- Providing for immediate wood and fuel in disaster aftermath | - Planting trees in damaged areas  
- Maintaining the existing shrubs on the banks of the river/sea  
- Generating awareness on Social Forestry Scheme  
- Encouraging community participation in forestry programmes  
- Creating job avenues (skilled/unskilled) in commercial and non-commercial farm forestry, orchard farming, livestock ranching, community forestry  
- Focusing on capacity building of community |
| 7 | Minor Forest Produce | - Creating awareness about minor forest produce for sustainable use | - Immediate arranging of alternative livelihoods for the families depending | - Generating awareness on sustainable development  
- Holding consultations with environmentalists |
| 8 | Small Scale Industries, including Food Processing Industries | • Providing loan for forest production on minor forest produce on replantation  
• Involving community members in decision making  
• Promoting Value Added Training  
• Encouraging market, finance and producer linkages  
• Ensuring that all industries undertake insurance schemes  
• Keeping a buffer stock of food in food processing industry as contingency stock  
• Training craftpersons, artisans and tailors  
• Training of industry personnel on disaster management | • Ensuring proper recovery of insurance amount  
• Arranging alternative livelihoods  
• Assessing damages to industrial production | • Creating awareness about waste disposal  
• Promoting small-scale industries, by encouraging adequate funding  
• Creating livelihoods in small-scale industries |
| 9 | Khadi, Village and Cottage Industries | • Establishing market linkages  
• Promoting value added training  
• Motivating the industries to insure their assets | • Assessing damages to such industries in disaster aftermath  
• Arranging alternative livelihoods  
• Providing compensation | • Providing for adequate insurance cover  
• Diversifying skills in cottage industries |
| 10 | Rural Housing | • Constructing disaster-resistant houses/buildings  
• Arranging loans from banks  
• Creating awareness on safe construction  
• Training of rural masons/ helpers/ carpenters/ plumbers on construction of safe houses | • Assessing damage to the houses during disasters  
• Removing debris  
• Providing immediate relief | • Registering houses in the name of owners  
• Surveying women headed households and giving priority to them for the construction of houses  
• Arranging special loans/facilities for old, disabled and others  
• Promoting low cost disaster resistant technology in rural housing  
• Interacting with NGOs and Government institutions engaged with rural housing |
| 11 | Drinking Water | • Cleaning of tanks periodically  
• Creating awareness on safe drinking water and purification methods  
• Making people aware about the judicial use  
• Providing safe water to all  
• Cleaning the drinking water tanks  
• Ensuring that the pipes are in good condition  
• Immediate | • Regular monitoring of drinking water pipes  
• Chlorination of drinking water tanks  
• Providing safe drinking water to school children  
• Creating awareness on waterborne diseases |
| 12 | Fuel and Fodder | of water  
- Periodic checking of leakage and blockage of water pipes  
- Training on use of disinfectants (halogen tabs, bleaching powder etc)  
- Training of rural volunteers on repairing of tube wells/and damaged drinking water sources  
- Providing loans for setting up of water banks and rainwater harvesting initiatives | arrangement of alternate drinking water in disaster affected areas  
- Assessing damages to drinking water sources and infrastructure | Implementing Water Standards Code.  
- Making rainwater harvesting mandatory |
| --- | --- | --- | --- |
| 13 | Roads, Culverts, Bridges, Ferries, Waterways and other means of Communication | Generating awareness on alternative energy sources such as coal, solar and biogas energy for cooking purposes  
- Providing funds for setting up grain banks and fodder banks  
- Providing for storage of fuel for use in emergency  
- Provisioning the storage of kerosene, cooking gas, cow dung fuel, cooking wood, traditionally used fuel in rural areas for cooking in emergency  
- Promoting the use of smokeless ‘chullah’  
- Generating awareness on fire safety and efficient use of fuel  
- Providing loans for fodder plantation | Correcting fuel supplies  
- Assessing damage to livestock and fodder  
- Arranging for fuel supply to community kitchens to start normal life  
- Supplying fodder for livestock to relief centres and disaster affected areas  
- Arranging low interest loans | Reclaiming unused land for fodder production  
- Creating job avenues in alternative energy production |
|  |  | Making all weather resistant roads  
- Constructing proper drainage system to prevent water logging on the roads  
- Constructing small culverts to prevent water logging  
- Ensuring safety of the passenger if they  
- Reconstructing and restoring communication channels  
- Providing alternative communication channels  
- Assessing damages to road and other networks | Rebuilding of communication channels based on the weather condition  
- Maintaining bridges and waterways  
- Periodically assessing damage to waterways; looking for cracks in bridges and ferries  
- Keeping track of use of |
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<tr>
<th>14</th>
<th><strong>Rural Electrification, including Distribution of Electricity</strong></th>
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<tbody>
<tr>
<td></td>
<td>• Electrifying all roads to ensure the safety of the people</td>
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<td></td>
<td>• Providing uninterrupted supply of electricity to rural</td>
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<td></td>
<td>hospitals/ dispensaries and relief centres</td>
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<td>• Constituting local taskforces for coordination with the</td>
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<td>electricity department for early restoration</td>
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<tr>
<th>15</th>
<th><strong>Non-Conventional Energy Sources</strong></th>
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<tbody>
<tr>
<td></td>
<td>• Making people aware about energy</td>
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<td>efficiency</td>
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<td></td>
<td>• Providing loans to avail solar</td>
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<td>lights/ non-conventional energy</td>
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<td>sources</td>
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<tr>
<td></td>
<td>• Making an inventory of families</td>
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<tr>
<td></td>
<td>using non-conventional energy</td>
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<tr>
<td></td>
<td>sources</td>
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</tbody>
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| | **Material for construction** |
| | • Training of builders/masons/ |
| | architects                     |

| | **Assessing the damages** |
| | • Immediate restoring of electricity |
| | • Making alternative arrangement of electricity/power supply for relief centres, hospitals, schools etc., in disaster situations |
| | • Assessing damage to electric lines and wires |

| | **Promoting electrification schemes** |
| | • Inviting private companies to set up power plants |
| | • Encouraging innovation and research in rural electrification |

| | **Interacting with government and private sector to promote non-conventional energy sources** |
| 16 | Poverty Alleviation Programmes | - Ensuring the participation of all in implementing poverty alleviation programmes  
- Implementing specific activities which can reduce the vulnerability of poor  
- Providing livelihood through poverty alleviation programmes immediately after disaster  
- Helping in providing immediate compensation to the affected poor  
- Restoring community assets through poverty alleviation programmes  
- Building assets and livelihoods  
- Monitoring of poverty alleviation schemes  
- Making provision for effective coordination mechanisms to avert duplication of time and efforts |
| 17 | Education including Primary and Secondary Schools | - Ensuring that students are aware about the topography of their area  
- Training students on crisis management, and use of HAM radio  
- Participating in school safety programmes  
- Conducting periodic mock drills in schools on fire safety  
- Training of teachers, principals/ headmasters on disaster management  
- Identifying schools for safe shelter  
- Encouraging NCC / NSS volunteers to go for disaster management training  
- Periodically evaluating disaster management activities in schools  
- Providing safe water and sanitation facilities to students  
- Shifting of vulnerable/affected community to identified schools during disasters  
- Assessing damage to school buildings and infrastructure  
- Restoring of basic amenities in affected schools  
- Promoting awareness on disaster management in schools  
- Including the subject of disaster management in school curriculum |
| 18 | Technical Training and Vocational Education | - Providing training to youth on vocational and technical education  
- Encouraging the youth to join polytechniques  
- Helping the youth to get loans from banks and governments towards self-employment  
- Arranging off campus / short-term job oriented training for ITI, polytechnic,  
- Arranging for alternative/ vocational livelihoods in disaster aftermath  
- Providing apprenticeship where necessary  
- Starting ITIs for youth-employed/unemployed  
- Providing subsidy to the disaster-affected for technical and vocational courses  
- Introducing vocational/technical courses at school/college levels |
| 19 | Adult and Non-formal Education | • Encouraging the use of social mapping, resource mapping and community mapping  
• Including disaster management basic courses mostly in pictorial form, that is, safety tips, roles and responsibilities of community for responding to disasters, family disaster preparedness, mock drills, etc., in education curriculum.  
• Involvement of the students/trainees in practical DM activities, that is, attending gram sabha for finalization of DM plan, finalization of village development activity  
• Involving adults in community task forces  
• Arranging training sessions; using multimedia equipment | • Restoring structures/activities providing adult education, especially at night schools | • Providing for long-term education policies for adult education  
• Including disaster management specificities in adult education curriculum  
• Involving people undertaking non-formal education in disaster task forces  
• Creating awareness on institutions that also focus on non-formal adult education such as IGNOU, and other open learning and correspondence colleges |
|---|---|---|---|---|
| 20 | Libraries | • Procuring materials related to disaster management for library use  
• Keeping village disaster management plans, maps, etc in the libraries  
• Provisioning funds | • Restoring library buildings  
• Shifting of library materials to safer places in disaster situations  
• Assessing damage to library books and equipment | • Constructing library buildings as per building byelaws, and using them as community centre in crises situations  
• Maintaining library buildings and monitoring for cracks and seepage |
| 21 | **Cultural Activities** | • Creating awareness about disaster management through folk songs, street plays, radio shows etc.  
• Constituting disaster management cultural groups in villages/ panchayats  
• Providing financial support to cultural groups  
• Including disaster management component in cultural programmes  
• Organizing cultural programmes on disaster preparedness day | • Taking recourse to cultural activities/ programmes such as nukkad natak, dance shows to promote restoration activities and bring back normalcy | • Organizing intensive awareness programmes on disaster management through cultural programmes/ cultural groups |
| 22 | **Market and Fairs** | • Decongesting market and fair areas  
• Negotiating with shopkeepers of emergency supplies i.e., medicines, eatables, generators, fuel, shelter items etc. for use during disaster.  
• Organizing awareness programmes in markets/ fairs on market days  
• Constituting disaster task forces with market association members as participants and market representatives | • Cleaning of debris  
• Assessing damages  
• Mobilizing resources for emergency supplies  
• Activating disaster task forces  
• Organizing free kitchens with the help of fair and market associations  
• Mobilizing market resources for relief supply | • Undertaking training of businessmen, commercial merchants, fair organizers and market associations on disaster management, especially on use of wireless, making announcements on loudspeakers, handling of crowd, panic management and fire safety |
| 23 | **Health and Sanitation, including Hospitals, Primary Health Centres and Dispensaries** | • Ensuring the supply of trained doctors into the dispensaries  
• Making provisions for emergency medicines and supplies  
• Providing for ambulance facility  
• Conducting community level first-aid training programmes  
• Organizing health camps in vulnerable areas  
• Coordinating with community and NGOs for mobilization of trained manpower for emergency health management  
• Conducting regular mock drills  
• Linking up with the community first-aid teams for refresher training and refilling of first-aid kit. | • Assessing damage to health centres and hospitals  
• Providing for emergency services  
• Sending critical cases to nearby hospitals  
• Ensuring adequate care to old and disabled  
• Mobilizing community first-aid team for emergency health management at hospital  
• Establishing off-site medical camps  
• Arranging for professional counselling and post-traumatic stress disorder  
• Setting up rehabilitation centres | • Promoting regular health care, family welfare, immunization and first-aid programmes |
| --- | --- | --- | --- | --- |
| 24 | **Family Welfare** | • Concentrating on infant/child/maternal care  
• Setting up centres  
• Generating awareness in the community on health related issues and management of disasters  
• Focussing on first-aid training  
• Encouraging health insurance  
• Encouraging periodic health check up before monsoon and cyclone seasons  
• Organizing health camps in villages  
• Promoting training of physically challenged persons to enhance their adaptability to disaster situation  
• Providing for equipment for physically challenged persons | • Arranging for emergency surgery facilities  
• Focusing on special care and evacuation of sick, disabled, pregnant and lactating mothers  
• Mobilizing medicines for affected community  
• Promoting regular health care, family welfare, immunization and first-aid programmes | |
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<tr>
<th>25</th>
<th>Women and Child Development</th>
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<tbody>
<tr>
<td>1.</td>
<td>Ensuring special care for women and children</td>
</tr>
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<td>2.</td>
<td>Promoting regular immunization schemes for children and pregnant women</td>
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<tr>
<td>3.</td>
<td>Generating awareness on hygiene and diseases relating to disasters</td>
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<tr>
<td>4.</td>
<td>Ensuring proper nutrition for children under 5 yrs</td>
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<tr>
<td>5.</td>
<td>Training of anganwadi workers on disaster preparedness</td>
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<tr>
<td>6.</td>
<td>Providing safety tips to the children at anganwadi centres</td>
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<tr>
<td>7.</td>
<td>Involving women in disaster management planning</td>
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<tr>
<th>26</th>
<th>Social Welfare, including Welfare of the Handicapped and Mentally Retarded</th>
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<tbody>
<tr>
<td>1.</td>
<td>Ensuring that benefits of social welfare schemes reach the differently-abled</td>
</tr>
<tr>
<td>2.</td>
<td>Promoting formation of special disaster management task forces meant specifically for the disadvantaged</td>
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<tr>
<td>3.</td>
<td>Formulating plans on the basis of disaster needs assessment of the handicapped and other disadvantaged</td>
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<tr>
<td>4.</td>
<td>Encouraging special training sessions for the handicapped to manage themselves in disasters</td>
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<tr>
<td>5.</td>
<td>Providing special assistance to the women headed families, widows, and differently-abled</td>
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<th>27</th>
<th>Welfare of the Weaker Sections, and in particular, of the Scheduled Castes and Scheduled Tribes</th>
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<tbody>
<tr>
<td>1.</td>
<td>Involving the weaker sections, SC/STs in disaster management planning at the grassroots level</td>
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<tr>
<td>2.</td>
<td>Involving the weaker sections in the formation of community task forces</td>
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<td>3.</td>
<td>Ensuring that the special needs of women and children are attended to in disaster aftermath</td>
</tr>
<tr>
<td>4.</td>
<td>Providing for special relief items for women and children</td>
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<td>6.</td>
<td>Shifting differently-abled to safe places during disasters</td>
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<tr>
<td>7.</td>
<td>Ensuring sympathetic conduct of search and evacuation for the handicapped and mentally challenged</td>
</tr>
<tr>
<td>8.</td>
<td>Providing special care to the physically challenged victims in disaster aftermath</td>
</tr>
<tr>
<td>9.</td>
<td>Mobilizing Task Forces, Self-Help Groups, NGOs to respond to the special needs of the disadvantaged sections of society</td>
</tr>
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<td>Implementing all programmes keeping special needs of the disadvantaged in mind.</td>
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<td>9.</td>
<td>Providing for subsidized loan and assistance for rehabilitation of the women headed families, widows and the other vulnerable groups</td>
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<td>Arranging counselling sessions for women to help them recover from shock.</td>
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<td>10.</td>
<td>Formulating special rehabilitation plan for women and children</td>
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<td>Implementing all programmes keeping the weaker sections in mind.</td>
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<tr>
<td>13.</td>
<td>Designing of special development package for strengthening the economic status of weaker groups</td>
</tr>
</tbody>
</table>
| 28 | **Public Distribution System (PDS)** | • Prioritizing the requirements in disaster aftermath in such a way that the weaker sections get their due  
• Ensuring subsidized rations for all disaster affected community  
• Raising the quality of food items and services under PDS  
• Bufferstocking food items for disaster situation  
• Generating awareness among people on food security and grain/seed banks  
• Providing for additional PDS stock before monsoons  
• Identifying the space for storing of relief materials/ additional PDS material  
• Immediate distribution of relief from the PDS stock  
• Monitoring rapid needs assessment of PDS during disasters  
• Involving community and Self Help Groups in PDS  
• Providing for more Public Distribution Stores  
• Generating awareness on availability of provisions under PDS | • Involving community to maintain community assets  
• Promoting development planning for further strengthening of community assets  
• Mobilizing funds for better maintenance/ linkages with other agencies for assets/services development |
| 29 | **Maintenance of Community Assets** | • Implementing government schemes to ensure proper maintenance of community assets  
• Maintaining coordination with village task forces  
• Undertaking vulnerability assessment and other necessary measures for strengthening the community assets  
• Encouraging Public-Private Partnership model for income generation viz. maintenance of the community assets  
• Generating awareness on common community assets such as rivers, trees, pasture land, community centre, health centres, schools, hospitals  
• Involving community in restoring community assets  
• Assessing damage to village commons (like grazing grounds, rivers, forests)  
• Mobilizing community assets for erecting shelters, community kitchens, livestock shelters, health camps etc.  
• Involving community in restoring community assets  
• Promoting development planning for further strengthening of community assets  
• Mobilizing funds for better maintenance/ linkages with other agencies for assets/services development |
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<tr>
<th>Sr. No</th>
<th>Item</th>
<th>Preparedness</th>
<th>Response</th>
<th>Recovery</th>
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</thead>
</table>
| 1.    | Urban Planning including Town Planning | • Monitoring the construction of disaster resistant buildings and houses to ensure they adhere to building bye-laws  
• Creating awareness on town planning needs among people  
• Determining disaster-prone areas by use of advanced technology such as GIS, Remote Sensing and Mapping  
• Supervising the conduct of fire safety mock drills among people | • Evacuating people immediately in disaster aftermath  
• Creating temporary shelters for migrants  
• Providing minimum basic facilities of water and sanitation at public conveniences | • Promoting the use of disaster resistant house technology  
• Implementing building codes  
• Mainstreaming disaster scenarios in urban planning |
| 2     | Regulation of Land-use and Construction of Buildings | • Encouraging construction of disaster resistant buildings and houses  
• Categorizing land for commercial, domestic and mix-use purposes  
• Providing for spatial planning, transportation planning and environmental planning in land-use plans | • Removing debris from collapsed building sites  
• Consolidating land holdings for use | • Ensuring adherence to building bye-laws  
• Implementing environmental (control of pollution) laws |
| 3     | Planning for Economic and Social Development | • Including disaster management in long-term town planning  
• Generating awareness on interlinkages between disasters and development | • Assessing damages if any to social structures such as schools, dispensaries, anganwadis during disasters | • Mainstreaming disaster management into socio-economic development |
| 4     | Roads and Bridges | • Ensuring the use of quality material and modern technology for roads and bridges construction | • Encouraging the construction of temporary roads and bridges to evacuate people to safer places | • Analyzing seismic zones  
• Ensuring the construction of bridges/roads as per seismic zones |
| 5     | Water Supply for Domestic, Industrial and Commercial Purposes | • Focussing on laying disaster resistant pipes  
• Ensuring safe water | • Chlorinating all water tanks  
• Providing safe water to all | • Implementing environmental laws  
• Creating awareness on waterborne |
<table>
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<tr>
<th></th>
<th>Supply</th>
<th>Ensuring treatment of industrial effluents before their submergence into water bodies</th>
<th>Diseases</th>
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<td>Monitoring of water pipes for blockage/leakage on a regular basis</td>
<td>Setting up water banks</td>
<td>Making provision for rainwater harvesting</td>
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<td></td>
<td>Ensuring periodic cleaning of tanks</td>
<td>Creating awareness on waterborne diseases</td>
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</tr>
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<td></td>
<td>Creating awareness on sanitary awareness</td>
<td>Ensuring drinking water does not get mixed up with sewage</td>
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<td>Ensuring that toilets are constructed in all houses and public places</td>
<td>Making all public health officials alert</td>
<td>Sounding alert on water borne diseases like cholera, malaria and dengue</td>
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<tr>
<td></td>
<td>Ensuring that toilets are constructed in all houses and public places</td>
<td>Creating awareness on sanitation options</td>
<td></td>
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<tr>
<td>6</td>
<td>Public Health, Sanitation Conservancy and Solid Waste Management</td>
<td>Setting up sewage treatment plants</td>
<td>Formulating effective policy, taking cognizance of basic health care during disasters</td>
</tr>
<tr>
<td></td>
<td>Ensuring effective waste disposal</td>
<td>Ensuring that toilets are constructed in all houses and public places</td>
<td>Formulating effective policy, taking cognizance of basic health care during disasters</td>
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<td>Setting up of waste management treatment plants</td>
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<td>Monitoring regular collection of solid wastes</td>
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<td></td>
<td>Segregating bio-degradable waste and non-bio-degradable wastes</td>
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<td>Planning for the use of modern technology to generate electricity from waste</td>
<td>Setting up sewage treatment plants</td>
<td></td>
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<tr>
<td></td>
<td>Collecting user charges for waste collection/disposal</td>
<td>Setting up sewage treatment plants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensuring that toilets are constructed in all houses and public places</td>
<td>Setting up sewage treatment plants</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fire Services</td>
<td>Involving community in rescue operations</td>
<td>Establishing more fire service stations</td>
</tr>
<tr>
<td></td>
<td>Providing for regular mock drills</td>
<td>Providing for immediate first-aid</td>
<td>Establishing more fire service stations</td>
</tr>
<tr>
<td></td>
<td>Advertising the phone numbers of fire service department at all places visited by common people</td>
<td>Providing for immediate first-aid</td>
<td>Establishing more fire service stations</td>
</tr>
<tr>
<td>8</td>
<td>Urban Forestry, Protection of the Environment and Promotion of Ecological Aspects</td>
<td>Assessing the damages and reviving urban biosphere</td>
<td>Creating awareness about biosphere around the city</td>
</tr>
<tr>
<td></td>
<td>Creating awareness about biosphere around the city</td>
<td>Creating awareness about biosphere around the city</td>
<td>Making adherence to environmental laws mandatory</td>
</tr>
<tr>
<td></td>
<td>Ensuring the protection of urban biosphere/ environment</td>
<td>Creating awareness about biosphere around the city</td>
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<tr>
<td></td>
<td>Safeguarding the Interests of Weaker Sections of Society, including the</td>
<td>Giving priority to evacuate weaker sections during emergency</td>
<td>Establishing night shelters for weaker and disadvantaged sections</td>
</tr>
<tr>
<td></td>
<td>Formulating policies to protect the disadvantaged during disasters</td>
<td>Giving priority to evacuate weaker sections during emergency</td>
<td>Establishing night shelters for weaker and disadvantaged sections</td>
</tr>
</tbody>
</table>
| Handicapped and Mentally Retarded | • Providing for ramps at all public places  
• Promoting the construction of disabled friendly structures in schools, colleges, entertainment centres, cinemas and hospitals |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Slum Improvement and Upgradation | • Involving slum community in slum planning and development  
• Creating awareness about disaster preparedness among slum dwellers  
• Promoting the maintenance of public works and services in slum areas  
• Implementing low cost sanitation and water supply schemes  
• Mobilizing funds on beneficiary contributions and supply-driven design  
• Developing effective funding schemes for slum improvement and sanitation  
• Upgrading of existing slums by providing for basic safe drinking water and toilet facilities  
• Activating the Urban Slum Dwellers Programme or any other central/state programme for slum development in your area  
• Giving suggestions on formulation of an effective rural-urban migration policy to restrict migration |
| Urban Poverty Alleviation        | • Integrating poverty struck into self-help groups  
• Introducing employment generation activities among below poverty line people  
• Determining the number of urban poor through sample surveys and mapping  
• Ensuring food security when disaster strikes  
• Evacuating urban poor to safer places in disaster aftermath  
• Establishing temporary shelter for urban poor  
• Introducing skill training and asset creation programmes for urban poor  
• Establishing market linkages  
• Ensuring minimum wages in both formal and non-formal sectors |
| Provision of Urban Amenities and Facilities such as Parks, Gardens, Playgrounds | • Providing for recreation centres in the urban planning itself  
• Making use of open spaces like park, playgrounds to mobilize people in disaster warning/aftermath  
• Implementing spatial and environmental planning in urban areas |
| 13 | Promotion of Cultural, Educational and Aesthetic Aspects | • Establishing recreation centres in every locality | • Using cultural programmes to make people aware of disaster management and deal with ensuing trauma | • Providing knowledge, skills and attitudes on disaster management through cultural programmes |
| 14 | Burials and Burial Grounds; Cremations, Cremation Grounds; and Electric Crematoriums | • Establishing electric burial grounds in all areas | • Ensuring proper disposal of dead bodies | • Setting up more electric crematoriums |
|    |                    | • Creating awareness about safe burial of bodies | • Identifying, calculating and numbering bodies for last rites in disaster aftermath | • Disinfecting the burial and cremation grounds periodically |
| 15 | Cattle Pounds; Prevention of Cruelty to Animals | • Establishing slaughter houses outside the city | • Disposing of dead animals properly | • Providing suggestions on formulation of a sound policy on prevention of cruelty against animals |
|    |                    | • Fencing farms to guard against stray animals | • Removing injured animals from disaster site and taking them to vet centres | • Regulating slaughter houses |
|    |                    | • Ensuring proper disposal of dead bodies | • Assessing the number of deaths during disasters | • Setting up cow shelters |
|    |                    | • Identifying, calculating and numbering bodies for last rites in disaster aftermath | • Arranging for compensation to the kith and kin of the dead | • Setting up of veterinary centres |
| 16 | Vital Statistics including Registration of Births and Deaths | • Ensuring proper registration of all births and deaths | • Assessing the number of deaths during disasters | • Ensuring that registration takes place in municipalities |
|    |                    | • Providing ration cards/kisan cards/job cards on the basis of birth/death registration | • Arranging for compensation to the kith and kin of the dead | • Providing for coordination among different agencies for registration |
| 17 | Public Amenities including Street Lighting, Parking Lots, Bus Stops and Public Conveniences | • Constructing parks, lamp posts, toilets in large numbers | • Providing for immediate restoration of infrastructural facilities | • Provisioning funds for bettering infrastructural facilities |
| 18 | Regulation of Slaughter Houses and Tanneries | • Providing licences to slaughter houses and tanneries | • Arranging for safe disposal of wastes | • Implementing strict regulation laws and ensuring their adherence |
|    |                    | • Creating recycling plants | • Ensuring wastes do not get mixed with drinking water |
These specific tasks could be combined with an array of new innovations that are taking place in the field of disaster management. We must remember that disaster management is an ‘art’ that turns into ‘science’ during catastrophes. With the right dose of technology, it could turn into ‘science’ even at the policy formulation level.

**New Developments and Innovations**

The advancement in science and technology could be used with advantage for speedy long-term recovery. Certain developments in the recent past could be regarded as much needed steps in the right direction:

i) NDMA in collaboration with JPN Apex Trauma Centre AIIMS, New Delhi has started training of doctors for Advance Trauma Life Support (ATLS) courses. These courses are standardized and collaborated with American Surgeon Association Training Module, which is being practiced in 13 other countries. So far, 27 courses have been conducted, training 810 doctors throughout the country.

![Source: Innovation Policy/scienceprogress.org](image1)

ii) Since it would neither be possible nor advisable to assess the vulnerability of each house/infrastructure in different regions of the country, a “technical template” is being formulated classifying the buildings/infrastructures into certain categories that would be amenable to evaluation of their damage patterns due to different hazards of various magnitudes. Preparation of “Building Typology Template” has been finalized by the NDMA, which needs to be standardized to take care of the variations in the residential buildings in different regions in the country.

![Source: NDMA Photo Gallery](image2)

iii) NDMA has proposed to develop a Geographic Information System (GIS) based National Disaster Management Information System (NDMIS), where the data collected from different nodal agencies will be utilized along with detailed GIS and Decision Support System (DSS) for generation of very sophisticated actionable information for all the stakeholders at various levels by involving the domain experts from the scientific and technological community of the nation. GIS Platform with DSS will host the core database as well as disaster specific database for carrying out Vulnerability Analysis and Risk Assessment that are essential to enforce holistic and pro-active management of disasters in contrast to the response centric approach.

![Source: NDMA Photo Gallery](image3)

iv) A major initiative in the field of Disaster Response Training has been the publication of a ‘Training Regime Report on Disaster Response’, by a Committee set up in the NDMA. This
Report has identified 16 different types of training courses in Disaster Response for NDRF, SDRF and other stakeholders.

v) The Psycho-Social Support and Mental Health Services (PSSMHS) are now being considered as a continuum of interventions and an important component of general health services in disaster situations. Psycho-social support will comprise of the general interventions related to the larger issues of promoting or protecting psycho-social well-being through relief work, meeting essential needs, restoring social relationships, enhancing coping capacities, and promoting harmony among survivors. The mental health services will comprise interventions aimed at prevention or treatment of psychological and psychiatric symptoms or disorders.

vi) Significance of PSSMHS by the Government has been recognized by the Ministry of Health and Family Welfare, National Institute for Mental Health and Neuro-Sciences (NIMHANS) and a large number of NGOs. The purely clinic/hospital-based planning and delivery of services has given way to community-based services with active utilization of community resources. The nature of manpower involved in service delivery has also undergone a significant change. Earlier, only psychiatrists were visible, but now all mental health professionals, clinical psychologists, psychiatric social workers, professionals, para-professionals and trained community level workers (CLWs) and volunteers can be seen as effective service providers.

vii) Defence Research and Development Organization (DRDO) has developed expertise and facilities for CBRN casualties (like radiation monitoring vans, detection equipment, protective suits and radio protectors). Bhabha Atomic Research Centre (BARC) has also got facilities for detection and decontamination. A few training programmes have been conducted for doctors from the armed forces on radiation hazards and their management at the Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO, Delhi.

viii) The Bureau of Indian Standards (BIS) has undertaken standardization efforts in the area of earthquake engineering. It proposes simple rather than complex plans. Some new earthquake-resistance techniques have been developed. One of them is the Base Isolation Technology. It aims at reducing the forces transmitted to the building from the ground by placing the building atop a mechanical system of isolators, sliders and dampers. Such technologies along with Diagonal Bracing, Disaster Resistant Pier System, Welded Wire Fabric Reinforcement could help in disaster-resistant construction, and favourable resource utilization for disaster rehabilitation.

ix) The National Advisory Council, which works as a think tank for the central government in India, has proposed a National Rehabilitation Commission to ensure rehabilitation for all those affected by mega projects, including dams, mines, highways, as well as natural disasters.

x) Disaster management has been incorporated in the training curricula of All India Services with effect from 2004-05. There is a separate Faculty of disaster management in 29 State Level
Administrative Training Institutes. The Central Board of Secondary Education (CBSE) in New Delhi has introduced disaster management as a separate subject in standards VIII and IX in schools. The National Council for Educational Research and Training (NCERT) books now include lessons on disaster management for school children.

xii) On the pattern of India Disaster Resource Network (IDRN) in the Government domain, a Corporate Disaster Resource Network (CDRN) has been planned to be built up in the public domain. It would be an information platform where details of all such products would be available, which are required in emergency response of various types. This would greatly help in the procurement of items required in times of need and would help in showcasing the products of the corporate sector. It would also help the corporate world in knowing what is required when and where, and accordingly as a part of Corporate Social Responsibility donate such products.

xii) While the NDRF is being trained, re-trained and equipped as a specialist force for highly devastating disasters, it is equally important to ensure capacity building of state police personnel who are the first responders in any natural or man-made disasters. To ensure this, a two-pronged strategy is being suggested to the states: firstly, to train state police personnel in the basics of disaster management and secondly, to train at least one equivalent battalion out of their state armed police units as State Disaster Response Force (SDRF) on lines of the NDRF. In addition to police personnel, the SDRFs may be constituted from existing resources of the Fire Services, Home Guards and Civil Defence. NDRF Battalions and their training institutions will assist the States/UTs in this effort. The State/UTs will also be encouraged to set up DM training facilities in their respective Police Training Colleges, and include the subject in their basic and in-service courses.

xiii) NDMA has taken the following initiatives for disaster resilience:

(a) Policy, Plans and Guidelines

(b) Mainstreaming and Mitigation Projects

(c) Scientific and Technological Initiatives
(d) CBRN Preparedness

(e) Medical Preparedness

(f) NDRF – Strengthening Emergency Response

(g) Capacity Building; and

(h) Mock Exercises

A completely fresh perspective of linking disasters with development can draw from these developments in the area of science and technology, legal and administrative framework, education and research, as well as information dissemination. Development has to be environment-friendly and sustainable. It should give due regard to the goals of equality, human rights and social justice. Disaster planning has to, therefore, be a crucial component of overall development planning of a country.

Disaster management is being mainstreamed into the development planning process through: structural measures, non-structural measures and mitigation projects. Under structural measures, all new projects/programmes would be revisited to build in disaster management concerns to ensure disaster resilience. All the development schemes would be pragmatic, incorporating the awareness of local disaster risk and vulnerability, and ensuring that the schemes have addressed these concerns and included specific provisions for mitigating disaster concerns. A futuristic perspective would have to look into the contours of disaster-development interface and come up with a systematic disaster recovery strategy. The design of ongoing programmes will also be audited and disaster management issues will be addressed. Non-structural measures would incorporate legislation, and other such instruments as building bye-laws, land-use regulations, which create an enabling regulatory environment. Mitigation projects will be taken up to enhance the status of preparedness in the country.

The road ahead is full of complexities, as well as promise. In consonance with the new perspective, disasters can be viewed as developmental opportunities. Howsoever paradoxical it may sound, it is true that whereas faulty development policies may lead to disasters, many disaster events also open up new possibilities of development. An often quoted phrase needs to be reiterated over here; “Development should be such that guards against disasters, development in itself should not give rise to disasters”. We may conclude by saying that we still have miles to go from here. It is indeed a long and arduous tread ahead. However, with your cooperation, understanding and involvement, we will take up one step at a time to cover this long road to effective disaster management.
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National Disaster Management Authority, September 2010, *Report on Role of NGOs in Disaster Management*, GoI.


Sharma, Anshu, 2006, “Reconstruction Rehabilitation as Means of Development” (Unit 1), “Damage Assessment” (Unit 2), MPA-007, PGDDM, Faculty of Public Administration, SOSS, IGNOU.


Photo References: Google Images, Yahoo Image Search Results, Rediffmail.com Images.
**IMPORTANT EXERCISES**

1) Try to visit the office of any governmental or non-governmental organization engaged in the area of disaster management and enlist their specific functions.

2) Go through the various media reports and note down the role of any international agency involved in disaster resistant building construction in your state.

3) Prepare a list of all national NGOs working for disaster management in your city or state.

4) Make a list of the factors involved in disaster recovery process.

5) Prepare a list of various counselling tips that could be given to the disaster victims.

6) Try to conjure up an image of a person caught up in a disaster situation, and make a list of the ways to counter panic and stress in such a situation.

7) Attempt to obtain a copy of your town or district development plan, and identify those developmental programmes or schemes that could include long-term disaster management components.

8) Explain briefly how vulnerability and development are linked.

9) Enquire whether there is an Emergency Operations Centre (Control Room/ EOC) in the vicinity of your area? If yes, what are its contact telephone numbers? Who is the officer responsible at the EOC?

10) Find out if any disaster preparedness plan has been prepared for your area? If yes, make efforts to study it. In your opinion what improvements could be made in that disaster preparedness plan?

11) Study the Land-Use Zoning Act, and other rules and regulations in your local area from the point of view of disaster preparedness.

12) Go through the different building codes being followed in your area and ascertain if a No Objection Certificate (NOC) is obtained by the builders from the concerned authorities before the construction of new buildings.
CASE STUDIES

COORDINATION

The aftermath of Gujarat Earthquake 2001 saw a pouring of many national and international agencies such as Self-Employed Women’s Association (SEWA), Australian Red Cross, United Nations Children Emergency Fund (UNICEF), Oxfam etc. These Agencies have done substantial work in rescuing survivors from debris; providing food, shelter, water and basic sanitation; arranging for medical supplies and so on. The coordination and cooperation between these Agencies has made the task of rebuilding and rehabilitation in Gujarat a reality today.

INSURANCE

In 2002, a majority of the 2001 Gujarat Earthquake relief beneficiaries were still exposed to disaster-induced financial losses. Various studies—including the Gujarat Community Survey of 2002 by the Gujarat-based All India Disaster Mitigation Institute (AIDMI) and ProVention Consortium—revealed that access to risk transfer was correlated with sustainable economic recovery among victims, yet only 2 per cent of those surveyed had insurance. A micro-insurance scheme was designed to augment AIDMI’s ongoing Livelihood Relief Fund activities. The resultant scheme, called “Afat Vimo” was the result of extensive discussions and negotiations with insurance providers who could be interested in supplying low-premium insurance policies to poor clients. Afat Vimo policyholders are covered for damage or loss up to the value of 1,744 US dollars for non-life assets and 465 US dollars for loss of life, which gives a total damage and loss coverage of 2,209 US dollars. Current Afat Vimo clients include 5,054 individuals from low income households with an annual income of 280 US dollars.

The scheme covers 19 disasters including fires, explosions, riots, malicious damage, aircraft damage, cyclones, tempests, floods, inundation, earthquakes, lightening, implosions, strikes, impact damage, storms, typhoons, hurricanes, tornados and landslides. Afat Vimo policy holders are also supported with micro-mitigation measures such as fire-safety training, seismic-safe construction practices and business development services. The Afat Vimo scheme is part of the Regional Risk Transfer Initiative (RRTI), an Action Learning Project (ALP) of the Gujarat based AIDMI. The RRTI teaches insurance companies, authorities, donor communities and NGOs how to facilitate a convergence between micro-finance tools and disaster risk reduction strategies. The scheme represents an innovative approach to risk identification, pooling and transfer, which recognizes the fact that the majority of poor disaster victims have little or no access to risk transfer schemes.

COMMUNITY PARTICIPATION

The Maharashtra Emergency Earthquake Rehabilitation Programme (MEERP) is a classic model for resettlement and rehabilitation of large groups of communities with provision of housing, infrastructural and other socio-economic facilities, in a sustainable manner. Active participation of the affected people for both pre-construction and post-construction activities has facilitated the implementation of both the rehabilitation policy and the programme successfully. The objective has been to extend community participation beyond the consent of the Sarpanches (village leaders) and ensure that the views of all sections of the community are sought and understood. The involvement of the communities
in the rehabilitation programme has also ensured that the people’s concerns and needs are better understood and incorporated in the plans. It has permitted the communities to develop a stake in the rehabilitation process.

To act as an interface between the Government and various communities, many Community Participation Consultants (CPCs) have been appointed. The CPCs have been involved in a wide range of activities, from building a strong enabling presence in the field, demonstrating the Community Participation process, building the capacities of the Government and Village Level Committees, organizing massive information dissemination campaigns, as well as monitoring and assessing the rehabilitation programme on an ongoing basis. The CPCs have been active in a cyclical process of gathering people’s views on the various rehabilitation packages, clarifying issues of concern to them. They have made periodic recommendations to the government and actively assisted the state authority in conflict resolution in the villages.

Leading social organizations like the Tata Institute of Social Sciences (TISS), Society for Promotion of Area Resource Centres (SPARC), and Nari Prabodhan Manch (NPM) have been appointed as Community Participation Consultants for the relocation villages, and for repairs and strengthening programme.

The repair and strengthening programme is an explicit example of community based mitigation in a post-disaster rehabilitation effort. The SPARC’s role in the Repairs and Strengthening (R&S) programme has broadly been to facilitate, build and strengthen capabilities of all actors especially the house owners and the village communities, and the integration of the community participation, especially within the district and local administration.

GENDER SENSITIVITY

Orissa is a case in gender sensitization in disaster management. In Bhadrak District of Orissa, the Disaster Risk Management (DRM) Programme has led to greater inclusion of women at the village level. The traditional gender divide has been broken. Other such cases have been found in Saharanpur District of Uttar Pradesh, where DRM Programme has reached out to women and girls in the community by engaging the media in creating mass awareness on initiatives taken by women in the district.

All women Self-Help Groups (SHGs) have emerged as an effective medium to create disaster preparedness among the communities in the District of Nagapattinam. As a part of Government of India and United Nations Development Programme’s (UNDP’s) Disaster Management Programme, women volunteers of SHGs have been doing a lot of work in the area of community capacity building in disaster preparedness.

AWARENESS GENERATION

Maharashtra State Road Transport Corporation (MSRTC) and various stakeholders that comprise District Publicity Officer, Local Urban Bodies, representatives of educational institutions, Lions Club, Rotary Club etc. have prepared slogans for Auto-rickshaws on earthquakes like ‘Bhukampatirodhak Ghar Surakshit Ghar’. This initiative has gained good success in awareness generation on DRM. The NSS Volunteers are active in Maharashtra as they carry out Information Education Communication (IEC) activities on various social themes. Rajkot Municipal Corporation has developed a series of IEC material in Gujarati language on earthquake preparedness and ten golden rules to protect oneself from earthquakes for the community.
THINKING OUT OF BOX

In case of the Kosi catastrophe, an urgent need of motorized boats to be deployed for search and rescue operations in the worst affected districts of Bihar was felt, especially in the Supaul District of Bihar. The information was shared by the District Magistrate in the preliminary assessment at the State Control Room. The Disaster Management Department prepared a data base containing the number of motorized boats available in different districts of Bihar and alternate route charts to reach the districts. With the existing information at the state level, a detailed plan of action was decided. In the plan of action, the transportation of motorboats was well-planned, as their mode of travel and other instructions and information regarding operational modes was worked upon.

The Madhubani district was the adjacent District to Supaul District, but there was no road communication in between the two. The normal route takes more than 40 hours to reach from Madhubani district headquarters to Supaul District headquarters, but at the same time there was an alternate route i.e., the districts were connected through the water ways where the boats had to travel against the current to reach the district within 06 hours saving almost 34 hours. In the normal process, the motorized boats would have been transported through lorry/trucks from one point to the other. With the existing alternate route facility, the resources could be transported directly and within a short span of time. Planning of alternate route charts saved the time and the involved transportation cost. The boats were functional as soon as they reached the district, and were of great help to the evacuation operation.

GOVERNMENTS CAN MAKE A DIFFERENCE

In Tripura, many developments in the field of disaster management are taking place. 49 helipads have been constructed in all block and sub-divisional headquarters for carrying out search, rescue and relief operation, and for distribution of essential commodities in disaster-affected areas. Critical Search and Rescue equipment has been procured by using Contingency Relief Fund. Critical Medical Equipment has also been distributed among major hospitals in the state.

Emergency health management training programmes have been organized in 4 districts of the state. Vulnerability assessment of major hospitals in the state has also been requisitioned. Many earthquake-resistant structures have been constructed in many districts. The District Operation Centres have been constructed in 4 districts.

TRAINING

Following the devastating 2001 earthquake in Gujarat State, rehabilitation programmes have incorporated several Disaster Risk Reduction (DRR) features. One such initiative has been by the Sustainable Environment and Ecological Development Society (SEEDS). It has aimed to create a pool of masons trained in earthquake-resistant construction. The cadre of trained masons is expected to address the immediate need for reconstruction and a long-term need for a culture of safe buildings. Over the years, the SEEDS Mason Association (SMA) has expanded to an 800-member organization, of which 200 have been certified by the Government for having reached internationally accepted standards in construction skills. The masons are now serving their local communities, educating fellow masons in other regions at similar risk, as well as responding in disaster hit areas for shelter reconstruction and capacity building. The SMA initiative is an effort in consolidating training and research on good quality safe construction practice at grassroots level. The Association also acts as an information centre for dissemination of modern technologies in construction through newsletters and public meetings.
ANNEXURE 3

FFTP Schedule

<table>
<thead>
<tr>
<th>Session No</th>
<th>Session Details</th>
<th>Time</th>
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<tbody>
<tr>
<td>i</td>
<td>Registration</td>
<td>9.30-10.00</td>
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<tr>
<td>ii</td>
<td>Introduction to the Project</td>
<td>10.00-10.15</td>
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<tr>
<td>1.</td>
<td>Understanding Disasters, Disaster Management, Disaster Policy and Institutional Mechanisms in India</td>
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<td></td>
<td>This Session shall enable the participants to know about the:</td>
<td>10.15-11.15</td>
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<td></td>
<td>• Meaning of disaster;</td>
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<td></td>
<td>• Conceptual framework of disaster management;</td>
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<td>• Major landmarks in disaster management;</td>
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<td>• Important provisions of Disaster Management Act, 2005;</td>
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<td>• Major objectives of the National Policy on Disaster Management; and</td>
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<td>• Institutional mechanisms for disaster management in India.</td>
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<td></td>
<td><strong>Contents:</strong></td>
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<tr>
<td></td>
<td>1. Meaning of Disaster.</td>
<td></td>
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<td></td>
<td>3. Disaster Management: Various Phases.</td>
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<td></td>
<td>4. Disaster Management Mechanisms at the National, State and District and Local levels.</td>
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<td><strong>Methodology:</strong></td>
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<td>• Lecture;</td>
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<td></td>
<td>• Interaction.</td>
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<td>• Activity/Exercise</td>
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<td></td>
<td><strong>Towards Disaster Preparedness</strong></td>
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<td><strong>Session Objectives:</strong> This Session shall enable the participants to:</td>
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<tr>
<td></td>
<td>• Understand the concepts of Hazard, Vulnerability, Risk and Capacity Analysis (HVRCA);</td>
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<td>• Relate these terms with their specific situations/areas;</td>
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<td>• Highlight the essentials of disaster preparedness;</td>
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<td>• Discuss the types of preparedness; and</td>
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<td>• Examine the role of key stakeholders in disaster preparedness</td>
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<td></td>
<td>Tea</td>
<td>11.15-11.30</td>
</tr>
</tbody>
</table>
## Contents:
1. Explanation of HVRCA.
2. HVRC Situational Analysis.
3. Group Presentation on HVRC Analysis
4. Interaction on Disaster Preparedness Components and Types.

### Methodology:
- Explanation of meaning & significance of HVRC;
- Analysis of preferably a major disaster situation to analyze HVRC by participants and presentation by each Group; and
- Discussion & interaction on components and types of disaster preparedness.

### Timetable:

<table>
<thead>
<tr>
<th>Session</th>
<th>Contents:</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Disaster Response and Immediate Relief</td>
<td>11.30-12.00</td>
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<tr>
<td></td>
<td>Session Objectives: This Session shall enable the participants to:</td>
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<tr>
<td></td>
<td>- Explain the meaning, significance and features of Disaster Response and Incident Response System;</td>
<td>12.00-1.00</td>
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<td>- Know about different tasks in disaster response and activities in immediate relief;</td>
<td>2.00-2.40</td>
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<td></td>
<td>- Identify Lead &amp; Supporting Departments/Agencies in disaster response; and</td>
<td>2.40-3.30</td>
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<td>- Explain the role of various actors and agencies/stakeholders in disaster response.</td>
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</tbody>
</table>

### Contents:
1. Explanation of Disaster Response and IRS.
2. Response: Techniques, Do’s and Don’ts.
3. Activity on Identification of Lead & Supporting Departments/Agencies in disaster response.
4. Interaction on Role of key stakeholders in disaster response.

### Methodology:
- Lecture Based discussion on the meaning, significance and features of Disaster Response and IRS;
- Activity on Identification Lead & Supporting Departments/Agencies in disaster response; and
- Interaction with participants on ensuring coordination in role performance of key stakeholders in disaster response.
### Session Objectives:
This Session shall enable the participants to:
- Establish linkages between Disaster and Development;
- Explain the importance and types of Rehabilitation, Reconstruction and Recovery; and
- Comprehend Post-disaster Measures.

### Contents:
1. Disaster-Development Interface.
2. Concepts of Rehabilitation, Reconstruction and Recovery.

### Methodology:
- Lecture;
- Group Discussion & Activity.

### Schedule:
- **11.15 - 11.35**
- **11.35 - 12.00**
- **12.00 - 1.00**

### Towards Strengthening Community Based Disaster Management System (CBDM)

### Session Objectives:
This Session shall enable the participants to:
- Understand the meaning and significance of Community Based Disaster Management (CBDM);
- Discuss the ways of strengthening community capacity through awareness and participation for effective disaster management; and
- Enlist the major components of Community Action Plan for Disaster Management.

### Contents:
1. Meaning and importance of CBDM.
2. Strengthening Community Capacities through Conflict Resolution, Awareness, Advocacy, Livelihood Options, etc.

### Methodology:
- Lecture and Interaction
- Group Exercise on components of Community Action Plan

### Schedule:
- **1.30 - 2.00**
- **2.00 - 2.30**

### Summing-up and the Road Ahead

### Mock Drill

### Schedule:
- **2.30 - 3.00**
- **3.15 - 5.00**
STRUCTURED SCHEDULE FOR TRAINING NEEDS ANALYSIS (TNA) FOR CAPACITY BUILDING IN DISASTER MANAGEMENT

Kindly tick your response in the column/s on the right (You may tick more than one column, if you want)

Part-I

1. Name & Address:
2. Present Post/Position:
3. Educational Background:
   1. Graduate
   2. Post-Graduate
   3. Any Other (Please Specify)

Disaster Management and Training

4. Are you familiar with the nature and relevance of Disaster Management?
   1. Yes
   2. No
   3. Not Much

5. In which way your Department is concerned with Disaster Management?
   - Directly
   - Indirectly
   - Not Concerned
   - Can’t Say

6. Does your Department/ Elected Body conduct training programmes on Disaster Management?
   1. Yes, regularly
   2. Yes, but not regularly
   3. Never
   4. Never, but planning to organize a few

7. Training Workshops attended on Disaster Management:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Institute</th>
<th>Year</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>At State Administrative Institute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>At NIDM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>At other State ATIs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Any Other (please specify briefly over here)  
5. Not Attended

8. **Which Levels of Training have you attended on Disaster Management?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basic</td>
</tr>
<tr>
<td>2.</td>
<td>Advanced</td>
</tr>
<tr>
<td>3.</td>
<td>Both Basic and Advanced</td>
</tr>
</tbody>
</table>

9. **Are you given any reading material after the training programmes on Disaster Management?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, always</td>
</tr>
<tr>
<td>2.</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
</tbody>
</table>

10. **Did you attend any Mock Drill on Disaster Management conducted by your Organization / other Organizations?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, always</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, sometimes</td>
</tr>
<tr>
<td>3.</td>
<td>No, there is no provision of a Mock Drill</td>
</tr>
<tr>
<td>4.</td>
<td>Never heard of it</td>
</tr>
</tbody>
</table>

11. **Have these training programmes helped you in achieving Organizational Goals set by your Department/ Elected Body?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, always</td>
</tr>
<tr>
<td>2.</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
</tbody>
</table>

12. **Did you receive a Job Chart from your Department/ Elected Body pertaining to your roles and responsibilities in Disaster Management?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, but it does not have Practical Orientation</td>
</tr>
<tr>
<td>3.</td>
<td>No, as Job Chart has not yet been formulated</td>
</tr>
<tr>
<td>4.</td>
<td>Not Received</td>
</tr>
<tr>
<td>5.</td>
<td>Department is Planning to formulate one</td>
</tr>
</tbody>
</table>
13. **Do you have a Manual on Standard Operating Procedures (SOPs) provided by your Department/ Elected Body?**

   1. Yes
   2. No
   3. Yes, but a basic one

14. **Are there any training programmes being conducted for administrators and others like block development officers, police, fire and civil defence personnel, local elected bodies’ members and functionaries?**

   1. Yes, regularly
   2. Yes, but not regularly
   3. Never
   4. Never, but in the pipeline

15. **Are any training programmes conducted for health personnel?**

   1. Yes, regularly
   2. Yes, but irregularly
   3. Never
   4. Never, but in the pipeline

---

**Part-II**

**Understanding Disasters**

16. **Has your area suffered any disaster/s in the past?**

   1. Droughts
   2. Earthquakes and Tsunamis
   3. Cyclones and Storms
   4. Floods
   5. Fires
   6. All of them
   7. Some of them

17. **Who are most adversely affected by disasters?**

   1. Landless Labourers /Farmers/Daily Wagers
   2. Women, Children and Aged
   3. Physically and Mentally Disabled
4. Poor and Shelterless
5. All

18. How are the following most vulnerable sections of the society taken care of during disasters?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Group</th>
<th>Satisfactorily</th>
<th>Sometimes Satisfactorily</th>
<th>Non-satisfactorily/Generally Neglected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Elderly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Women and Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Physically and Mentally Disabled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Poor and Shelterless</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. What is the effect of disasters on the following?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Items</th>
<th>Badly Affected</th>
<th>Marginally Affected</th>
<th>Not Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Crops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Cost of Production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Physical and Social Infrastructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Means of Production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Price Rise</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Disasters and Development

20. Do you think there is a connection between global climatic changes and increased frequency of disasters?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Connection?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, there is a deep connect</td>
</tr>
<tr>
<td>2.</td>
<td>Sometimes, connection can be drawn</td>
</tr>
<tr>
<td>3.</td>
<td>No, there is no connection</td>
</tr>
</tbody>
</table>

21. Are disasters linked with development and planning?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Link?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, but not always</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
</tbody>
</table>
22. **Does development cause disasters or does it mitigate disasters?**
   1. Causes Disasters
   2. Mitigates Disasters
   3. No Connection of Cause and Effect

23. **Are you aware of the Disaster Management Act and Policy?**
   1. Yes
   2. Yes, but only about the Act
   3. Yes, but only about the Policy
   4. No, not aware of either

24. **Are you aware of the Governmental Planning, Logistics and Financial Arrangements in your area?**
   1. Yes
   2. Yes, but only about planning
   3. Yes, but only about Financial Arrangements
   4. No, not aware

25. **Are you aware of concepts such as Human Development Index, Community Based Disaster Preparedness and Potential Loss Studies?**
   1. Yes
   2. Yes, but not all Concepts
   3. No, not aware

26. **Are you aware of the concepts Monetary Compensation for Disasters, Disaster Insurance and Micro-finance?**
   1. Yes
   2. Yes, but not all Concepts
   3. No, not aware

27. **What is the basic focus of your Department/Elected Body with respect to Disaster Management?**
   1. Policy Planning
   2. Search, Rescue and Relief
   3. Response Planning
   4. Reconstruction and Rehabilitation
   5. Capacity Building
   6. All the Above
Disaster Preparedness

28. Though it is not possible to prevent disasters, do you agree that it is possible to reduce the adverse impact of disasters through adequate preparedness?

1. Yes
2. No
3. Can’t Say

29. Have you or your Department/ Elected Body or the Community taken any preparedness measures for mitigating disaster situations?

1. Yes, regularly such steps are taken
2. Yes, but not very regularly
3. Never
4. Never, but planning to organize such measures

30. Enlist the efforts taken by various institutions/agencies in your area with regard to generation of awareness on disaster preparedness:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Activities</th>
<th>Government Departments</th>
<th>NGOs and others</th>
<th>Local Elected Representatives and other Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Education in Schools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Lecture Series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Simulation Exercises/ Brain Storming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Skits, Nukkad Nataks, Advertisements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Distribution of Pamphlets, Posters etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Any Other (Please Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
31. In what way do the media (T.V, Radio, Newspapers) play a role in preparing the community to face disasters?

1. Creating Awareness
2. Providing Information
3. Continuous Coverage of Disaster Event
4. Interactions with the Vulnerable/ Affected Community and Official Representatives
5. All the Above

**Disaster Mitigation**

32. In which way do you participate in the mitigation strategies pertaining to any hazard in your area?

1. Assisting in the Construction of Disaster Resistant Houses
2. Strengthening of Existing Structures in Vulnerable Areas
3. Enforcement of Suitable Actions during Search and Rescue Operation, Fire-Fighting, First-Aid etc.
4. Taking Recourse to Alternative Cropping Pattern, Social Forestry, Van Panchayats and Pani Panchayats
5. Afforestation, Planting Trees, Preventing Tree Felling and Wood Cutting
6. Education and Training of People
7. All

33. Behaviourally, what is the attitude of Government Departments/ Elected Bodies that provide help and assistance during disasters?

1. Sensitive
2. Insensitive
3. Charitable
4. Indifferent
34. **Do people participate in the meetings/gatherings of the following?**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Local Elected Bodies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Women Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Cultural Forums</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35. **Are there any formal / organized bodies in your area that promote community participation?**

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Village Development Associations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Disaster Response Team</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Disaster Task force</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Youth Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Self-Help Groups</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

36. **What type of gaps do you find in Disaster Management/Mitigation?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gaps in Intra-Departmental Coordination</td>
<td></td>
</tr>
<tr>
<td>2. Gaps in Inter-Departmental Coordination</td>
<td></td>
</tr>
<tr>
<td>3. Gaps in Proper Instruction Dissemination</td>
<td></td>
</tr>
<tr>
<td>4. Gaps in Available and Required Resources</td>
<td></td>
</tr>
<tr>
<td>5. Gaps in Communication</td>
<td></td>
</tr>
<tr>
<td>6. Gaps in Availability and Mobilization of Funds</td>
<td></td>
</tr>
</tbody>
</table>

**Community Health**

37. **Has any Epidemiological study of disasters been done in your area?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Yes</td>
<td></td>
</tr>
<tr>
<td>2. No</td>
<td></td>
</tr>
<tr>
<td>3. Can’t Say</td>
<td></td>
</tr>
</tbody>
</table>

38. **What type of Health Survey is usually done in your area?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identification of Population at Risk</td>
<td></td>
</tr>
<tr>
<td>2. Preparation of Community Profile</td>
<td></td>
</tr>
<tr>
<td>3. Development of Disaster Vignette</td>
<td></td>
</tr>
<tr>
<td>4. Risk Identification and Analysis of Vulnerability Factors</td>
<td></td>
</tr>
<tr>
<td>5. None of the Above</td>
<td></td>
</tr>
</tbody>
</table>
39. Does any plan of action pertaining to Community Health exist in your area?

1. Provision of Immunization Facilities
2. Promotion of Health through Nutritional Intervention
3. Maternal, Infant and Child Care
4. Specific Treatment and Rehabilitation of Vulnerable Groups
5. Disposal of Dead
6. Sanitation
7. Water Supply
8. None of the Above

40. Does your area have an access to the following?

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Personnel/Items</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Doctors, Nurses, Para-medical Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Medical stores and equipment including drugs, surgical, medical appliances, diagnostic aids etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Logistic requirements like tents, linen, pillow and mattresses, storage of ration, water etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Ambulances</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

41. Are any efforts being made towards health education of:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Group</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Population at Risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>School Teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Women and Children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Youth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Religious Leaders</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

42. Are you aware of the General Principles of First-aid like:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Principles</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Immediate Rescue and Removal of Casualties in the shortest possible time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Immediate Arrest of Hemorrhage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Restoration of Respiration and Circulation of Blood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Reducing Pain by Simple Procedures and Medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Triage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
43. **Are you aware of the methods of Water Purification?**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Methods</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disinfecting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sedimentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Filtration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Traditional Methods of Using Neem Leaves etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

44. **Do you tell people to take recourse to Traditional Wisdom for water storage and usage such as indigenous Water Harvesting and Watershed Partnerships?**

| 1       | Yes                                          |     |    |
| 2       | Yes, but not always                          |     |    |
| 3       | No, never                                    |     |    |
| 4       | Never, but Planning to organize Water, Grain and Seed Banks | | |

45. **Are proper sanitation requirements available during mass feeding services in disaster situations in terms of:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Activities</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quality and Control of Food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Control of Insects, Rodents in Stores, Kitchens, Feeding Centres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Proper Storage and Cooking of Food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Proper Washing of Utensils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Cleanliness of Premises where Food is Prepared and Served</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

46. **What type of sanitary method is used in the houses of your locality?**

| 1       | Shallow Pits                                   |     |    |
| 2       | Simple Pit Latrines                            |     |    |
| 3       | Septic Tank                                    |     |    |
| 4       | Defecation in Farms and Forest Areas           |     |    |
Disaster Response

47. The response after any disaster at the departmental or elected body level is:

<table>
<thead>
<tr>
<th></th>
<th>Prompt and encouraging</th>
<th>Prompt, but not encouraging</th>
<th>Prompt, but not satisfactory</th>
<th>Can’t Say</th>
</tr>
</thead>
</table>

48. What is the frequency of visits of Government Officials to disaster prone areas?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Pre- disaster</th>
<th>During disaster</th>
<th>Post- disaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twice in a Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once in a Week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twice in a Month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once in a Month</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

49. What are the gaps that you can identify after any disaster at your individual level?

<table>
<thead>
<tr>
<th></th>
<th>Lack of Adequate Resources</th>
<th>Lack of Proper Planning</th>
<th>Lack of Accountability</th>
<th>Lack of Awareness about the Role Hierarchy</th>
<th>Inadequate Technical Skills</th>
<th>Lack of interest Shown by Disaster Management Authority</th>
</tr>
</thead>
</table>

50. Are you aware of Resource Mapping, Resource Inventories, and Documentation of Cargo, Time Mapping, Risk Management and Rapid Damage Assessment in Disaster Aftermath?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Yes, know a little</th>
<th>No, do not know at all</th>
</tr>
</thead>
</table>

51. Does your area have any plan laid down for carrying out Search, Rescue and Evacuation in times of disaster?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Yes, but it is not adequate</th>
<th>No</th>
<th>No, but in the pipeline</th>
</tr>
</thead>
</table>
52. **Are facilities available for?**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Item</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shelter for Livestock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Requisite Buffer Stock of Food and Fodder, Vaccines, Drugs for Livestock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Trained Doctors and Veterinary Staff to Treat Livestock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Removal of Dead Animals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Disaster Reconstruction and Rehabilitation**

53. **Do you feel that steps are taken towards the Social Rehabilitation of people in post-disaster situation?**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Strengthening of Existing Health Facilities and Infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Rehabilitation of Educational Activities through Schools, Establishment of Village Level Education Committees, and Counselling of Children to Attend Schools etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Rehabilitation of Women, Children and Destitute Affected by Disaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Repair and Reconstruction of Public Buildings, Roads, Bridges, and other Infrastructure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

54. **Are any of the following measures being taken towards Rehabilitation of Women and Children?**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Activating of Anganwadies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Setting up Multi-Purpose Community Centres in a Village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Setting up of Female Children Homes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

55. **Do you see a connection between Reconstruction and Long-term Recovery?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, always</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, at times</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
<tr>
<td>4.</td>
<td>Can’t say</td>
</tr>
</tbody>
</table>
56. Are you involved with the Preparation of Check Lists, Implementation of Crises Management and Panic Management Plans, and Use of Sample Surveys?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, always</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, but only sometimes</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
<tr>
<td>4.</td>
<td>Can’t Say</td>
</tr>
</tbody>
</table>

57. Have you had any experience in the Use of Ham Radio, Community Radio, and Social Networking?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes, many a time</td>
</tr>
<tr>
<td>2.</td>
<td>Yes, but only sometimes</td>
</tr>
<tr>
<td>3.</td>
<td>No, never</td>
</tr>
<tr>
<td>4.</td>
<td>Can’t Say</td>
</tr>
</tbody>
</table>

58. What kind of leadership qualities do you envision for a Disaster Manager?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Problem Identification</td>
</tr>
<tr>
<td>2.</td>
<td>Decision Making</td>
</tr>
<tr>
<td>3.</td>
<td>Motivation</td>
</tr>
<tr>
<td>4.</td>
<td>Empathy and Sensitivity</td>
</tr>
<tr>
<td>5.</td>
<td>Coordination</td>
</tr>
<tr>
<td>6.</td>
<td>Conflict Resolution</td>
</tr>
<tr>
<td>7.</td>
<td>Sharp, Analytical and Critical Vision</td>
</tr>
<tr>
<td>8.</td>
<td>All the Above</td>
</tr>
</tbody>
</table>

59. What capacities do you envision for community and community representatives involved in disaster management?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adaptiveness</td>
</tr>
<tr>
<td>2.</td>
<td>Self-help</td>
</tr>
<tr>
<td>3.</td>
<td>Resilience</td>
</tr>
<tr>
<td>4.</td>
<td>Knowledge-seeking and Learning</td>
</tr>
<tr>
<td>5.</td>
<td>Helpfulness and Cooperation</td>
</tr>
<tr>
<td>6.</td>
<td>Resolute and Firm</td>
</tr>
<tr>
<td>7.</td>
<td>All the Above</td>
</tr>
</tbody>
</table>
60. **What is your overall opinion on this Project on Capacity Building in Disaster Management?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>It will bring in a lot of change in the Knowledge, Skill and Attitude levels of Disaster Management Personnel</td>
</tr>
<tr>
<td>2.</td>
<td>Effective and Desirable Capacities can develop through such Programmes/Projects</td>
</tr>
<tr>
<td>3.</td>
<td>More such efforts are required</td>
</tr>
<tr>
<td>4.</td>
<td>Nothing would change despite such endeavours, as problems are more systemic</td>
</tr>
</tbody>
</table>

---

**Suggest some steps that your Department/Organization could take up towards improving the state of Disaster Management in your area:**

---

**Any other Suggestions/Remarks you wish to indicate:**

---

(Signature)