Community-Based Disaster Risk Management (CBDRM): E-Module

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ACRONYMS & ABBREVIATION

TRAINING MODULE FOR COMMUNITY BASED DISASTER MANAGEMENT

1.Background

Community based disaster management has emerged as a key priority in disaster management in the context of paradigm shift which is taking place globally from a response oriented reactive management approach to a holistic approach which attaches immense importance to prevention, preparedness, mitigation and response (Source -NDMA). Community participation is the most effective element to achieving sustainability in dealing with natural and man-made disaster risks. The approach seeks communities at risk to get engaged in all of its phases: prevention, mitigation, preparedness, response, and recovery. In order to build disaster resilient communities, they need to be empowered first so that community members can cope with the adverse effects of natural hazards. This is the most effective approach to achieving sustainability in dealing with natural disaster risks. CBDM by its very nature demands a decentralized bottoms-up approach with intensive, micro interventions at the local Panchayats, ward or village level with the intention of generating confidence, awareness, knowledge, partnership, and ownership for planning and rolling out local disaster management plans.

The impact of a disaster is borne disproportionately by the poorest segments of the society. A community-based approach aims to reduce the socially constructed vulnerability by involving communities as active participants in a disaster program. There is also a broadening consensus that it is cost-effective to train and educate communities about risks they face, provide them access to resources and knowledge, and to develop community-based preparedness and mitigation programs. This approach has emerged as a complement to structural mitigation (dams, dykes, levees, etc.) and even certain types of non-structural mitigation programs (land use, building codes, development regulations, etc.). A community-based disaster risk management program is a series of action plans that allow methods to be less normative, procedures less standardized and intervention mechanisms more innovative and improvised. The key issues addressed within this approach are creating access to resources for protecting shelter and livelihoods, to knowledge and choices for hazard mitigation, and reducing socio-economic vulnerability.

The objective of this course is to introduce the concepts, tools, and mechanisms, which help design and implement community-based disaster risk management programs. The course highlights the flexibility and innovation required for these community-based initiatives. Further, it underscores the need for greater engagement with people and a better understanding of their risks and resources. The Community-based Disaster Risk Management is a specialization course within the comprehensive disaster risk management program, directed at community leaders, representatives of civil society and aid agencies, and local government officials[1].

Gujarat State Disaster Management Authority is carrying out various community-based programmers to establish disaster prevention as an essential component of sustainable development. Its activities include improvement of the safety levels of core community facilities such as schools; dissemination of best practices in disaster risk management at the community level.

2. Why CBDRM[2]?

Community Based Disaster Management (CBDRM) is an integral part of sustainable development, which places communities are at the heart of decision making vis-à-vis identification, assessment evaluation and management of disaster risks at the local level. Although disasters affect large areas, the effects are severe at the local level. An indicator of the best form of good local disaster governance is to empower communities to formulate their plans to safeguard themselves from potential hazards before they turn into disasters. In addition to this, umbrella support has to be provided by national, regional or local government in terms of a legal and operational framework. Through CBDRM, Communities tend to enhance their resilience to natural and human induced disaster by proactively designing and implementing locally viable measures.

3.Benefits: Given the increasing vulnerability of our Village/cities and communities to disasters, disaster professionals and interested learners have critical questions to answer.

Whether local communities are prepared for coping with the next disasters?

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[1] World Bank courses

[2] UNISDR

Given the vulnerability of our rural and urban populations, what can be expected from district, state and national governments under the Disaster Management Act 2005?

What opportunities can be learnt from other developing countries having large vulnerable populations to learn lessons for our communities?

4 Objectives: The course aims at developing understanding on key areas of the CBDRM including: ·

1. To understand the concept of disaster and disaster management and the role of community in DM.
2. To recognize community based disaster management approach.
3. To introduce and evaluate various participatory tools in community based disaster risk assessment and recourse management
4. To know the disaster's psychological impacts on human and different techniques (viz. stress management, etc.) to overcome it.
5. To discuss various disaster risk reduction measures that can be undertaken by the community.

5.Target Group:

The target group for this programme would be taluk/village level elected representatives/officials and functionaries from various line departments of the taluk involved in activities related to planning, design and construction of habitat

6.Methodology

The training will be conducted in an interactive mode with a judicious mixture of lectures, discussions, demonstrations, experience sharing, field visits, group work and case study analyses for understanding the major issues related to community resilience.

7.Teaching Aids

Training will have to be conducted with the help of the following:

- A Compendium of Background Reading materials
- Handouts of presentations or additional material
- Scenarios for exercises
- Data Sharing: All the material to be given at the closure of the programme containing the presentations, group exercises, photographs, contact numbers of trainers and co-participants for subsequent updation and networking.

8.Training Materials and Equipment's Required

The training is designed to be classroom based, with field trips of half day or 1-day duration. The field trips would be followed by group exercises pertaining to the area visited and identifying the disaster risk issues therein. The training materials for classroom teaching like Computers, LCD projectors, Flip charts, markers etc. would be required in the classroom. For the field trip, maps of the area to be distributed to participants for guidance and risk identification.

9.Seating Arrangements

The seating arrangements should preferably be four or five circular tables to facilitate group work and allow the trainer to move around the class for interaction.

10.Language of Instruction

The medium of instruction will be English, Hindi and Gujarati

11.Expected Outcome:

- Participants would prepare community based disaster preparedness plan as follow up of the course
- Apply tools for Risk Analysis
- Practice the implementation of mitigation, relief and response action plans

Module at Glance

Module: Inauguration & Pre-Training Assessment

Module 1: Disaster Management concepts (Disasters, hazard, risks and vulnerability).

Module 2: Disasters in Gujarat – Disaster problems in different parts of the states

Module 3: Hazard Risk Vulnerability and Capacity Assessment (HRVCA)

LU3.1; HRVCA: what and why and how?

Lu3.2: HRVCA: in a real life situation in a village

Module 4: PRA Technique of CBDRM

Module 5: Disaster Institutional and policy Framework &Main Feature of Disaster Management Act

Module-6: Community Based Disaster Management: Empowering Communities to Cope with Disaster Risks

LU6.1: Community Risk Assessment
LU6.2: Community Preparedness and Emergency Response Activities
LU 6.3: Community Risk Reduction Measures for Drought, Flood, Earthquake, Landslide and Cyclone
LU6:4: Community Risk Management Planning

Module 7: Role of PRI in Disaster Management & Community Based Disaster Management Planning

LU: 5.1: Community Based Disaster Risk Management (CBDRM) Planning: What, Why and How?

Module-8: Role Stakeholders in Community based Disaster Management

Module 9: Psychosocial Care for Disaster Affected People

Module 10: Access of micro finance for CBDRM

Module11: - Case study

12.Course Design

Program Design

Day I:

#	Session Theme	Learning objectives	Time	Methodology
Inaugural Session 1:Inauguration & Pre-Training Assessment				
	Inauguration & Pre-Training Assessment	- Welcome participants - Introduce trainees and trainers - Overview of the training and GIDM - Lay down ground rules - Formal Inauguration	40	
Technical Session 1:				
T.S 1.1	Disaster Management concepts (Disasters, hazard, risks and vulnerability).			
T.S 1.2	Disasters in Gujarat – Disaster problems in different parts of the state			
T.S 1.3	Disaster Institutional and policy Framework	- Organizational Legal (Policy & Act)		
T.S 1.4	Introduction to Community Based Disaster Risk Management			

Day II:

#	Session Theme	Learning objectives	Time	Methodology
Technical Session 2: DM Planning and implementing at community level				
TS2.1	**DM Planning and implementing at community level**	- HRVA - PRA Technique - Disaster & Livelihood - Gender Issues - Community Networking - Early warning and Response Planning		

		Local Media and Risk Communication		
T.S:2.2				
T.S:2.3				
T.S: 2.4	Understanding Natural Hazards- Its Impact and mitigation techniques at community level			

Day III:

Session	Session Theme	Learning objectives	Time	Methodology
Technical Session: 3				
T.S:3.1				
T.S:3.2				
T.S:3.3				
T.S:3.4				

Day IV:

Session	Session Theme	Learning objectives	Time	Methodology
Technical Session: 4				
T.S:41				
T.S:4.2				
T.S:4.3				
T.S:4.4				

Day V:

Session	Session Theme	Learning objectives	Time	Methodology
Technical Session: 5				
T.S:51				
T.S:5.2				
T.S:5.3				
T.S:5.4				

Pre-Training Assessment

Learning Unit: Pre-Training assessment

1. Context & Description

Community is the first responder during disaster. The communities, their livelihoods, local economy and infrastructure and the environment might be exposed to multiple risks from such hazards. It is important to understand the kind of impact a hazard can have upon the communities in the locality. The main aim of training to enhance the participants' skills, knowledge and attitude in community based disaster risk management. This session is therefore aimed towards assessing the entry behavior of the participants and subsequently getting them on a similar platform so that the objectives of the course are met.

2. Session objectives

- To assess the expectations of the participants from this course
- To assess the entry behavior of participants
- To make a comparative analysis of the course objectives and participants' expectations.

3. Duration- 40 minutes

4. Methodology

- Expectation Exercise and Discussion
- Q & A Session

5. Trainers' Note

The session can be divided into two parts viz. the expectation and the entry behavior. In order to find out participants' expectations from the course, the trainer may distribute sheets of paper for participants to write down the most important expectation. These may then be collected and pasted/pinned to the walls/boards or collated in a composite chart. At the end of the training, a similar exercise can be conducted to see how much of the expectations were met.

In order to find out the entry behavior of the participants, a Question & Answer Session can be organized. The coordinator can ask simple questions on the subject, give each trainee 2-5 minutes to ponder and write down the answers and then proceed to discuss each with the group. If the group is too large, this exercise can be done in pairs.

6. Session Plan

No	Topic	Duration
1	Expectations & Objectives	15 mins
2.	Q & A	15 mins

7. Training/ Performance Aids

Colour paper handouts, Flip charts, Markers, Tag-boards to pin the handouts (walls and scotch tape will suffice if there are no tag-boards).

Module:1

Basic Concepts, Terminologies and Issues of Disaster Risk Reduction

Learning Unit1: Basic Concept and Elements of Disaster Management[3]

Learning objectives

At the end of this session, the participants should be able to: -

i. Explain the basic concepts related to disaster management- viz.; disaster, hazard, vulnerability, capacity, disaster risk, disaster preparedness, relief & response, rehabilitation, reconstruction, recovery, disaster risk reduction
ii. Describe the inter-relationship between hazards, vulnerability, capacities and risk.
iii. Describe various natural hazards and man-made disasters

Time: 60 Minutes

Methodology: *Presentation/ Lecture, Group Exercise, Video*

Key Concepts:

- Natural hazards are phenomenon or condition or event, natural or manmade having potential to cause injury, loss of life or damage to property, livelihood or environment.
- Hazards may turn into disasters if vulnerability of the communities is not properly addressed.
- A community may be prone to multiple hazards.

Learning Unit 1: Basic Concepts & Terminologies

1.1 Hazards

Source: http://www.bgs.ac.uk/

Any phenomenon or situation, which has the potential to cause disruption or damage to people, their property and their services and environment. For example, in South Asia, Drought, Floods, Cyclones/storms, Extreme temperature, Earthquake, Glacial Lake Outburst Floods (GLOFs) etc., are the major hazards.

[3] NIDM Training module

Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydro meteorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability. Processes such as urbanization, environmental degradation and climate change shape and configure hazards, which mean it is becoming increasingly difficult to disentangle their natural and human attributes. More and more human activities influence and induce natural hazards and at present days, these hazards are called physical hazards. As in GAR, 2011, hazard is not classified or referred to as 'natural or man-made hazard', rather it is viewed as 'Physical Hazard'- physical event which can be measured and modeled (UNISDR Global Assessment Report, 2011).

Hazard: *dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Any phenomenon, condition, material, process or event having potential to cause disruption or damage to people, their property and their services and environment.*
- *Hazards can be single, sequential or combined in their origin and effects*
- *Each hazard is characterized by its location, intensity, frequency and probability*

1.2 Vulnerability

Vulnerability is the conditions determined by physical, social, economic and environmental factors which increase the susceptibility of community to the impact of hazard. It can also be defined as the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

There are many aspects of vulnerability[4], arising from various physical, social, economic, and environmental factors.

[4] Gupta, A.K., Nair, S.S., Wajih, S.A., Chopde, S., Gupta, G. and Aggrawal, G. (2014). Mainstreaming Climate Change Adaptation and Disaster Risk Reduction into District Level Development Plans. NIDM New Delhi (India), GEAG Gorakhpur (UP, India) and ISET, Colorado (US), P 114.

Physical Vulnerability: It includes risk to tangible things, such as, buildings, houses, roads, bridges, assets, infrastructure, amenities, etc., which houses, bridges, and other assets which can be directly hit by a hazard event.

Socio-economic Vulnerability: Social vulnerability includes threat to life, health status, caste, gender, ethnic groups, children, disabled and other special groups. Whereas economic vulnerability is probable financial losses held to occupation, income, GDP, funds, etc.

Environmental vulnerability: It includes risk to water, land land/soil, land-use, landscape, crops, lake/rivers, estuaries, aquaculture, forest, animals/livestock, wildlife, atmosphere, energy, etc.

Systemic vulnerability: It includes intactness in the governance and administration against the risk of disaster incidences. For example, levels of coordination and cooperation between various departments including agencies before, during and after any major disasters.

Vulnerabilities: *The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.*

Comment: *There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard*
- *Aspects of Vulnerability: Physical, Socio-economic, Environmental, and Systemic*
- *Aspects of vulnerability are also known as set of vulnerable components which face the impact of disasters*

1.3 Exposure

UNISDR defines exposure as "*People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses*". Thus, exposure may include structures, such as, number of housing units, lifelines, etc; total resident population; and economy (Gross Domestic Product).

For example, cutting of mangrove and other trees in coastal area due to population density and farmland expansion can lead to exposure of vulnerable elements to hazard such as cyclone and storm surge. A community on the river bank is more exposed to river flood compared to community located on hilly slope. At the same time, community on the unstable hill slope is likely to be more exposed to landslide than riverbank community.

Points to Remember!

- *Exposure (i.e. the state of being exposed to contact with something) as the elements presents in hazard zones that are thereby subject to potential losses*
- *Exposure elements may include structures, such as, number of housing units, lifelines, etc.; total resident population; and economy*

1.4 Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. It is either human-induced or natural hazard induced, and can be a slow-onset (drought) or sudden (earthquake). Disasters are often the result of the combination of the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences.

For example, each year more than a million earthquakes vibrate on the earth surface, but those occur in uninhabited desert (no exposure of vulnerability elements) had not affected any impact and there is no disaster. If this same earthquake occurs in densely- populated and poor housing areas (vulnerable elements exposed), it will cause deaths of human lives, injuries and damages (disaster).

Disaster: *A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.*

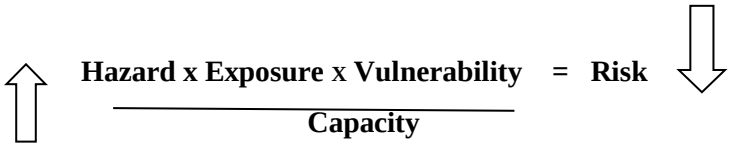
Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Disaster is an unfortunate incident caused due to hazards, which spreads serious disruption of the functioning of a community or a society*
- *Disaster occurs result of the combination of the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity*
- *Disaster brings widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources*

1.5 Risk

Risk is the probability of harmful consequences or expected losses (deaths, injuries, properties, livelihood or environment) resulting from interaction between hazards and vulnerable conditions.



The risk can be categorized as:

- Intensive Risk (The risk of high severity, low frequency disasters) and
- Extensive Risk (The risk of low severity, high frequency disasters)

The risk can be managed by:

- Actions to reduce the risk (This would include taking actions that would mitigate the risk)
- Actions to manage the residual risk (This would entail shifting the risk-bearing responsibility to another party preparing to respond, early warning, etc.)

***Risk**: The combination of the probability of an event and its negative consequences.*

Comment: The word "risk" has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in "the risk of an accident"; whereas in technical settings the emphasis is usually placed on the consequences, in terms of "potential losses" for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Risk is the probability of harmful consequences or expected losses resulting from interaction between hazards and vulnerable conditions*
- *Risk is the composite mix of dimension of hazard (frequency and intensity) and components of vulnerability (i.e. location, exposure, and sensitivity)*
- *Risk has two distinctive connotations: "the risk of an accident" and "potential losses"*
- *Risk can be categorized as intensive and extensive risk*
- *Risk management approaches: Reducing risk and residual risk management*

1.6 Residual Risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

***Comment**: The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Residual risk management deals with putting in place effective emergency response and recovery capacities for effective disaster risk reduction*
- *It involves building effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms*

1.7 Risk Assessment

A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

***Comment:** Risk assessments (and associated risk mapping) include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes known as a risk analysis process.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *It is a step by step procedure to determine the nature and extent of risk, which support towards adopting disaster risk reduction measures*
- *Step 1: Hazard assessment – identification of the nature, location, intensity and probability of threat*
- *Step 2: Vulnerability assessment – determining existence and degree of vulnerability and exposure to the threat*
- *Step 3: Risk Characterization – Assessing the likelihood of impacts given the occurrence of a hazard event in the backdrop of current and future vulnerability*
- *Step 4: Capacity assessment – Identifying the capacities and resources available and accessible*

- *Step 5: Determining acceptable levels at risk*

Source: ISET 2014

1.8 Mitigation

Mitigation includes a range of policy, legislation, professional practices, and social adjustment that are designed to reduce the effects of hazards in the community. The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness.

Mitigation has two components namely structural and non-structural. The common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters. The common non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programs.

Mitigation: *The lessening or limitation of the adverse impacts of hazards and related disasters.*
Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "mitigation" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.
Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions, including mitigation measures*
- *Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness*
- *Mitigation has two components namely structural and non-structural.*

- *Structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters.*
- *Non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programs.*

1.9 Preparedness

Preparedness includes all activities and measures taken in advance to ensure effective response to the impact of hazards.

The goal of disaster preparedness is to achieve a satisfactory level of readiness to respond to any emergency situations by strengthening the technical and managerial capacity of governments, organizations, and communities. Preparedness can also take the form of ensuring that reserves of food, equipment, water, medicines and other essentials are maintained in cases of disasters.

***Preparedness**: The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.*

***Comment:** Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term "readiness" describes the ability to quickly and appropriately respond when required.*

Points to Remember!

- *Goal of disaster preparedness is to achieve a satisfactory level of readiness to respond to any emergency situations*
- *"Readiness" describes the ability to quickly and appropriately respond when required.*
- *Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems*

1.10 Reconstruction

Reconstruction is permanent measures to repair or replace damaged infrastructure and to set the society back on course. It is also defined as the actions taken to reestablish a community after a period of

rehabilitation subsequent to a disaster. Actions would include construction of permanent housing, full restoration of all services, and complete resumption of the pre-disaster state. (UNDP/UNDRO, 1993)

It often provides an opportunity to improve a community rather than to simply reconstruct a pre-existing system and is widely known as 'Build back better'. Increasing the reconstruction programs are not simply restoration of damaged and destroyed elements, but are 'built better'. For example, the Indian Ocean Tsunami 2004 recovery program also embraced the concept of 'built back better'.

Points to Remember!

- *Actions taken to reestablish a community after a period of rehabilitation subsequent to a disaster.*
- *Actions include construction of permanent housing, full restoration of all services*
- *It often focuses on 'Build back better' where reconstruction is an opportunity to improve a community rather than to simply reconstruct a pre-existing system*

1.11 Recovery

The process aimed at assisting affected people, livelihood, damaged facilities & structures, system failure (such as transportation system, communication system, etc.) and other affected elements to resume their normalcy and ensure resilience for potential disasters in the future. This could be done through various measures such as rebuilding, providing farm-based communities with necessary agricultural equipment and seeds for cultivation after disaster, adopting optional livelihoods, identify safer location for re-settlement.

***Recovery**: The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.*

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programs, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the "build back better" principle.

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *It involves restoration and improvement of system, facilities, communities, etc.*
- *Recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended*

- *It often focuses on 'Build back better' principle*

1.12 Early Warning

The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

***Early warning system**: The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.*
Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.
Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take actions to avoid or reduce their risks and prepare for effective response*
- *People-centered early warning system comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received*
- *End-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response*

1.13 Disaster Management

Disaster management includes administrative decisions and operational activities that involve Prevention, Mitigation, Preparedness, Response, Recovery and Rehabilitation.

Disaster management involves all levels of government. Nongovernmental and community-based organizations play a vital role in the process. Modern disaster management goes beyond post-disaster assistance. It now includes pre-disaster planning and preparedness activities, organizational planning, training, information management, public relations and many other fields. Crisis management is

important but is only a part of the responsibility of a disaster manager. The newer paradigm is the Total Risk Management (TRM) which takes a holistic approach to risk reduction.

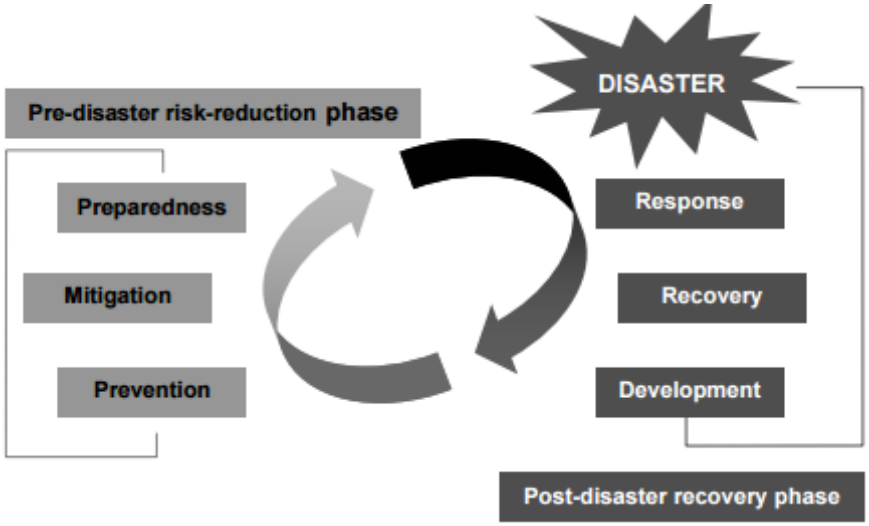


Figure: Disaster management Cycle [traditional]

Points to Remember!

- *Disaster management includes administrative decisions and operational activities for managing disaster effectively.*
- *Prevention, Mitigation, Preparedness, Response, Recovery and Rehabilitation, are different phases of disaster management*
- *It involves all stakeholders, such as, all level of government, NGOs, CBOs, etc., who play vital role in the process*
- *Modern disaster management or total disaster management which takes a holistic approach to risk reduction*

1.14 Disaster Risk Management

The use of wide range of options available to protect people, their assets, and the environment. The main purpose of DRM is to reduce and manage disaster risks, build disaster resilience, focus on how to stop potentially damaging disaster events, or, where this is not possible, and make the impact of potentially damaging disaster events as small as possible.

Disaster risk management: *The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.*

Comment: *This term is an extension of the more general term "risk management" to address the specific issue of disaster risks. Disaster risk management aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Disaster Risk Management focuses on risk reduction, manage disaster risks, build disaster resilience*
- *Key component 1) Mitigation - measures to be taken before and after an event*
- *Key component 2) Preparedness - measures to be taken before and after an event*
- *Key component 3) Response - measures to be taken during and immediately after an event*
- *Key component 4) Recovery - post disaster measures (long-term after the disaster)*

1.15 Disaster Risk Reduction

The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: *A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is "The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries." The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organisations and civil society actors to assist in the implementation of the Framework. Note that while the term "disaster reduction" is sometimes used, the term "disaster risk reduction" provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.*

Source: UNISDR's Terminology in Disaster Risk Reduction, 2009

Points to Remember!

- *Five HFA Priority Actions (2005-2015): Priority Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; Priority Action 2: Identify, assess and monitor disaster risks and enhance early warning; Priority Action 3: Use knowledge, innovation and education to build a culture of safety and*

resilience at all levels; Priority Action 4: Reduce the underlying risk factors; and Priority Action 5: Strengthen disaster preparedness for effective response at all levels.

- *Sendai Framework for Disaster Risk Reduction (2015-2030): Four Priority Actions: Priority 1 – Understanding Disaster Risk, Priority 2 – Strengthening disaster risk governance to manage disaster risk, Priority 3 - Investing in disaster risk reduction for resilience, and Priority 4 – Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction*

1.16 Capacity development

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: *Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.*
Source: UNISDR 2009

Some of key guiding principles for DRR capacity building are shown below: -

Figure: Guiding principles for DRR capacity development (ISET, 2014)

Points to Remember!

- *It incorporates a broad range of concerns starting from creating enabling environment, resources (acquiring, creating, and facilitating access when needed)*
- *It includes Human resource development – through education (professional and higher)*
- *It includes Training and awareness on all aspects of disaster risk management*
- *Guiding principles are important to strengthen DRR capacity development*

Reference

ADPC (2012) Disaster Management Participant's Workbook. Twigg, John (2004) - Disaster risk reduction: Mitigation and preparedness in development and emergency programming.

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Module:2

Disasters in Gujarat: Disaster problems in different parts of the states

Learning Unit 2: Gujrat Disaster profile

Objectives:

To understand the major hazards in Gujarat
List out the natural and man-made disasters in Gujarat

Methodology: Lecture, Discussion, Role Play

Materials needed

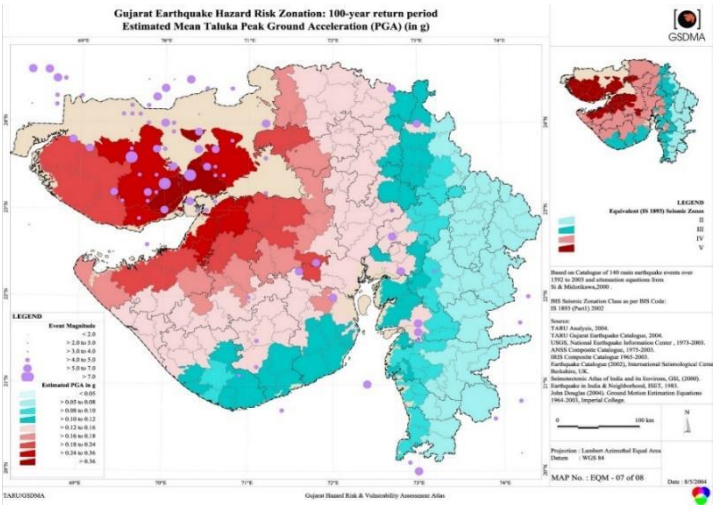
- Flip charts, markers

Key Learning Points:

- Local communities aware on different vulnerable place about our states
- Community shared experience of history of disaster in the states

Learning Unit 2.1 DISASTER OVERVIEW OF GUJARAT

Earthquake

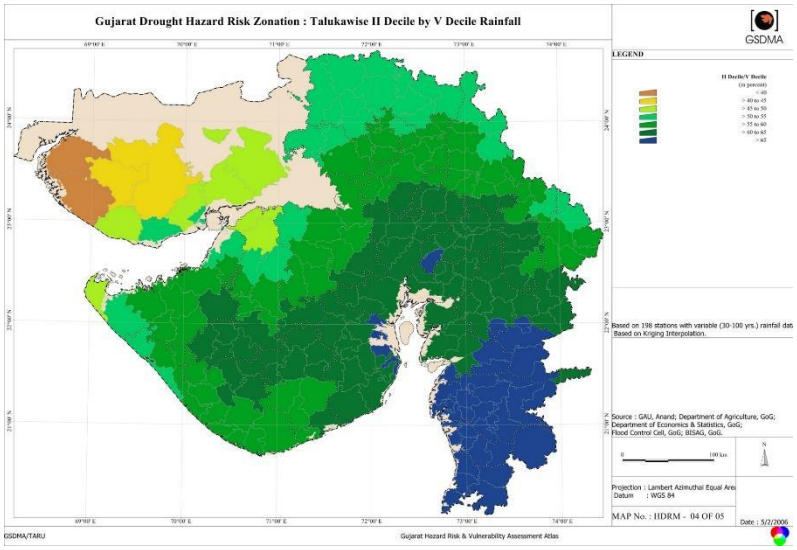


As per Indian Seismic Zone Map, Gujarat region lies in three zones- Zone III, IV and V. Kach region (about 300km x 300km) lies in zone V where earthquakes of magnitude 8 can be expected. A belt of about 60-70km width around this zone covering areas of North Saurashtra and areas bordering Eastern part of Kachchh lie in zone IV where intensity VIII can be expected mainly due to earthquakes in Kachchh and some local earthquakes along North Kathiawar Fault in Northern Saurashtra. The rest of Gujarat lies in zone III where intensity VII earthquakes can be expected due to moderate local earthquakes or strong Kachchh earthquakes.

The estimated mean taluka earthquake peak ground acceleration (PGA) zonation for a 100-year return period is presented in the figure 2.1. All of Kachchh, almost the entire coastline of northern Saurashtra that adjoins Kachchh and a small area in Patan district fall into the very sever intensity zone over a 100-year return period. The cities of Ahmedabad, Bharuch, Rajkot, and Bhavnagar fall into the severe intensity zone, while Bhuj and Jamnagar fall in the very severe intensity zone over this time frame.

Drought

Daily temperature of the State ranges from a minimum 13°C to 27°C in January to 27°C to 41°C in the summer during May. The South-West winds mostly bring rain between June to September and approximately 90 to 95% of precipitation is registered in these three months. From the North-West areas to South Gujarat areas, the rainfall varies from 300 mm to 2000 mm per annum. In Gujarat, 60% of rainfall is uncertain, unprecedented and unequal and the



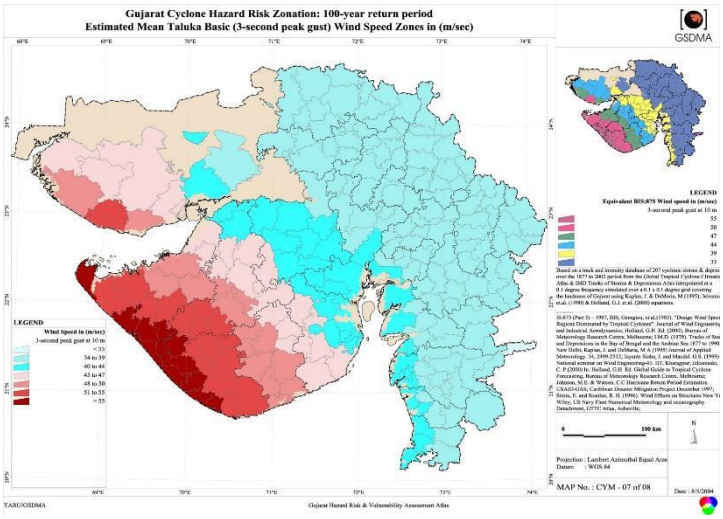
regions of Saurashtra Kutch and North Gujarat face famine every third year. Since 1900, the state has faced scarcity of water and food almost 30 times.

Gujarat is one the chronic drought prone state of India, with an average annual rainfall about only 700 mm with more than half of the Talukas of Gujarat receiving rainfall within the range of 200-400 mm.

Substantial portions of the State are arid to semiarid. With large parts of North Gujarat and Saurashtra having no source of alternate irrigation, groundwater exploitation is leading increased threats of droughts. Falling water tables have added stress on crops and water supplies.

Cyclone

Gujarat falls in the region of tropical cyclone. With the longest coast line of 1600 km in the country, it is highly vulnerable to cyclone and its associated hazards such as floods, storm surges, etc. Most of the cyclones affecting the state are generated in the Arabian Sea. They move North-East and hit the coast particularly the Southern Kutch and Southern Saurashtra and the Western part of Gujarat.

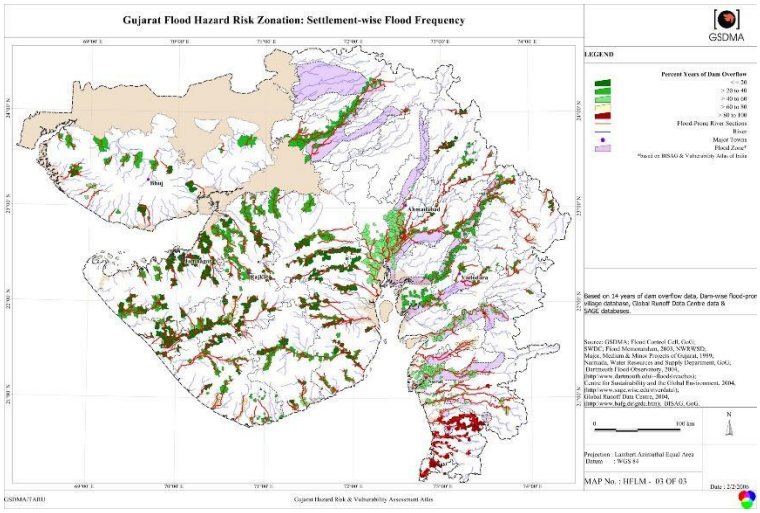


Two cyclonic storm seasons are experienced in Gujarat: May to June (advancing southwest monsoon) and September to November (retreating monsoon).

Over 120 cyclones originating in the Arabian Sea had passed through Gujarat over a period of 100 years. Figure 2.3 shows a maximum wind speed class of more than 55 m/sec along the Saurashtra coast, specifically in Porbandar, Jamnagar and Junagadh districts, which are exposed to high intensity

cyclonic and storm impact. The 51 to 55 m/sec class extends further inland to cover much of Jamnagar, part of Rajkot, Junagadh and Kutch districts. The 48 to 50 m/sec class extends to most of Rajkot, part of Amreli and Jamnagar districts including Jamnagar, Rajkot cities and parts of Kutch. The 45 to 47 m/sec class covers much of Saurashtra and all of Kutch. This is followed by the 40 to 44 m/sec class that gets its swathe from Kutch through northern Saurashtra all the way to the coast of Gulf of Khambhat and southern Gujarat. The rest of the State falls into the 34 to 39 m/sec class.

Flood



The climatology of Gujarat is influenced by the Arabian Sea in the West and three hill ranges along its Eastern border. A long coastline makes parts of arid Saurashtra and Kutch occasionally experience very high rainfall. These occasional heavy rainstorms are responsible for most of the floods in the State. While the Northern part of the State is mostly arid and semi-arid, the Southern part is humid to sub-humid. Extremes of climate, be it rainfall or temperatures are quite common in this region. All major rivers in the State pass through a wide stretch of the very flat terrain before reaching the sea. These flat lowlands of lower river basins are prone to flooding. Cities like Ahmedabad, Surat and Bharuch are located on the flat alluvial plains of large rivers.

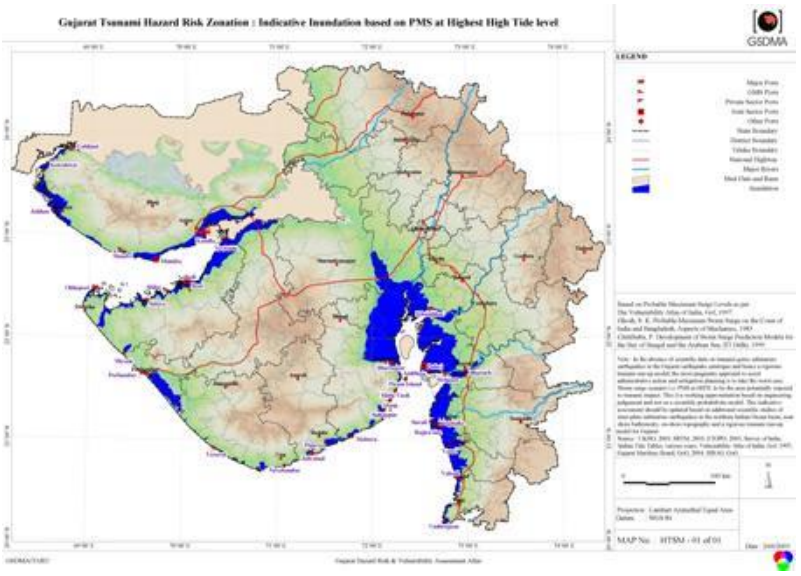
Concentrated runoff resulted by heavy rainfall cause flash floods in the small river basin of Saurashtra and Kutch because of their fairly impervious catchments (rocky or black cotton soils) and steep sloping upper catchments.

The flood prone river sections were identified from settlement level analysis. Flood prone river sections in Saurashtra extend to the upper basins due to the presence of dams which have to resort to emergency discharge during heavy rainstorms. Even small valleys in Saurashtra are used for agriculture. Hence flooding in these zones impacts both residents and settlements.

The majority of the area of Gujarat is flood prone, irrespective of the size of the catchment. The flood risk in Saurashtra is lower than that of the South Gujarat plains. The relatively flat plains in the lower basic areas with hilly catchments in upper parts of South Gujarat accentuate flood risks. Few villages in the North Gujarat are flood prone too.

Tsunami

Gujarat is prone to tsunami risk due to its long coastline and probability of occurrence of near and offshore submarine earthquakes in the Arabian Sea. Makran Subduction Zone (MSZ) -South West of Karachi is an active fault area which may cause a high magnitude earthquake under the sea leading to a tsunami.



In past, Kandla coast was hit by a Tsunami of 12 mtrs height in 1945, due to an earthquake in the Makran fault line. Tsunami prone areas in the State include coastal villages of Kutch, Jamnagar, Rajkot, Porbandar, Bhavnagar, Anand, Ahmedabad, Bharuch, Surat, Navsari and Valsad districts.

Fire:

There are many cause of fire in the state such as accidents, electrical short-circuit, carelessness, gas leaks, mishandling of flammable chemicals and products, etc. Further, Gujarat being highly industrialized state there is increased threat of fire incidents. Fire causes huge losses of life and property every year.

Industrial & Chemicals Disasters

Around 35% of the total Major Accident Hazard (MAH) units of the country are located in Gujarat at Vapi, Hazira, Ankleshwar, Dahej, etc. Gujarat presently has 402 Major Accident Hazard (MAH) prone industrial units, of which 331are operational. „Golden Corridor". Ankleshwar (in Bharuch district) situated on the Narmada estuary is Asia"s largest chemical zone. Some toxic chemicals with more than 5,000 metric tonnes storages in Gujarat are acrylonitrile, ammonia, benzene, chlorobenzene, chloroform, cyclohexanone, ethylene dichloride, hydrogen, cyanide, P-xylene, styrene monomer and toluene. In addition to the manufacturing industries, there is significant infrastructure for handling chemicals such as pipelines, transportation (rail and road), and isolated storages. 70% of country"s oils and gas imports are transported through Gujarat via road/rail routes or gas/oil pipelines. A cross-country 2,300 km Hazira-Bijapur-Jagdishpur (HBJ) gas pipeline originates from Hazira. A hydrocarbon supply pipeline runs from Kandla to Bhatinda (Punjab). A pipeline network of

more than 17,000 km is present in the State. This has further increased the incidence of chemical accidents during transportation.

Owing to the presence of most of chemical industries in earthquake prone areas and port based industries in areas prone to tsunami, storm surge and flood, the State is also vulnerable to chemical or industrial disasters in aftermath of a natural disaster.

Accidents

A total of 4,00,517 accidental deaths were reported in the country during 2013 and Gujarat accounts for 6.6% of this. It includes road accidents, rail-road accidents and other rail accidents. The figure has ever been increasing due to an ever-increasing number of vehicles, rage driving, smooth highways and road infrastructure that allows over speeding, non- adherence of traffic rules, etc. Gujarat falls under the jurisdiction of the Western Railways Division of Indian Railways. The major railway stations in Gujarat are Ahmedabad Railway Station, Surat Railway Station, Vadodara Railway Station and Rajkot Railway Station. Vadodara Railway Station is the third busiest railway station in the country. The State has around 241 railway stations and a dense railway network. Other accidents include building or bridge collapses, failure of dam or levee, breaks in water, gas, or sewer lines, oil spill, etc

Epidemic

In the past, Gujarat has faced severe epidemic or epidemic like situations which includes Swine Flu breakout during 2015 and 2010, Hepatitis B outbreak during 2009, Plague Epidemic of 1994, etc.

Additionally, there are also high chances of outbreak of epidemic in the aftermath of any disaster due to overstressed health resources, infrastructure and compromised conditions of hygiene and sanitation. This is particularly seen in case of hydrological disasters like flood leading to threats of water borne diseases and epidemic.

Heat Wave

During summer the maximum temperature often peaks to 45 degrees Celsius leading to severe heat wave conditions. This results in loss of life of many people particularly, homeless, gardeners, daily wagers who work out under direct sun, auto drivers, etc.

Stampede

Gujarat is a culturally vibrant state; it celebrates and hosts many national and regional festivals and fairs with huge enthusiasm. This attracts large number of people at one place. Apart from it, Gujarat attracts large number of religious and other tourists from across the world. This

makes it prone to stampede like incidents if proper arrangements of crowd management are not put in place or in case of any rumour or any disaster.

Learning Unit 2.2. CONSEQUENCES OF DISASTERS

Disasters influence the socio-economic, political, cultural and mental states of the affected area. Generally, a disaster completely disturbs the normal day to day life in the concerned area. It negatively influences the emergency systems and the regular life process deteriorates. Fundamental needs like food, shelter, health etc are affected. A large number of lives are lost and affected by various disasters every year. An average annual damage due to various disasters has been conservatively estimated to be around 3000 million rupees. In addition to the direct human costs and economic destruction (of houses, factories, social infrastructure etc.), calamities result in reduction in the level of economic activity, family income, and in the outbreak of diseases as well as increase in social costs, which indirectly affect the economy. It also results in loss of resources as well as slowing down of development programs.

Consequences of calamities, which include ravaged habitations, ruined infrastructure, homelessness and environmental problems put additional pressure on the countries' socioeconomic systems. The aftermath of a calamity is all the more devastating for countries going through period of transaction. Usually, their institutions are fragile and they have little experience in coping with calamities on their own.

The disasters like the super cyclone in Orissa in 1999 and Earthquake in Gujarat in 2001 are in the living memory of the nation. In Orissa super cyclone around 10,000 people lost their lives and the loss to the economy was to the extent of Rs 7000 crores. In Gujarat earthquake the loss of lives was around 19000 and loss to the economy is above 14,000 crores.
Social, economic and health related consequences of natural calamities can be summarized as follows:

S.No.	Consequences	Natural Calamities				
		Earth Quake	Cyclone	Flood	Fire	Drought Famine
1.	Loss of life	X	X	X	X	
2.	Injury	X	X	X	X	X
3.	Epidemiological threat		X	X		
4.	Loss of crops		X	X		X
5.	Loss of housing	X	X	X	X	

6.	Damage to infrastructure	X	X	X	X	
7.	Disruption of communications	X	X	X	X	
8.	Disruption of transport	X	X	X	X	
9.	Panic	X	X	X	X	
10.	Looting	X	X	X	X	
11.	Breakdown of social order	X	X	X		
12.	Short-term migrations			X		X
13.	Permanent migration					#
14.	Loss of Industrial production	X	X	X	X	#
15.	Loss of Business	X	X	X	X	#
16	Disruptions of marketing systems	X	X	X	X	#

Legend:
X - Direct Consequences
- Secondary Consequences

2.3: Group Exercise:

Video Display of disaster

Reference: -

1. *State Disaster Management Plan of Gujarat developed by GSDMA*

Module 3:

Hazard Risk Vulnerability and Capacity Assessment (HRVCA)

Learning Unit 3.1: ***Hazard Risk Vulnerability and Capacity Assessment (HRVCA)***
Objectives:

- Define the meaning, purpose and process of HRVCA exercise
- Describe the role and importance of participatory methodology in conducting HRVCA
- Use participatory methodology for conducting HRVCA in a real village situation

Sessions:

- HRVCA: what and why and how?

Estimated time: 90 minutes

Expected Outcome

- Competence to facilitate HRVCA in a real community living with disaster.

Methods:

- Introductory presentation
- Group work and discussion

- Hands on HRVCA in a real life situation by working groups of participants

Materials needed

- Flip charts, markers

Key Learning Points

1. Hazard, Risk, Vulnerability and Capacity Analysis (HRVCA) is an integral part of disaster preparedness and contributes to the creation of community-based disaster preparedness plans and programmes at the rural and urban grassroots level.
2. The purpose of HRVCA is to help a community make risk aware choices to address vulnerabilities, mitigate hazards and prepare for response to and recovery from hazard events.
3. It is one of the planning tools and at the community level it emphasizes people's perception of their problems, needs and probable solutions in designing action plans.
4. . Participatory HRVCA leads to a deeper understanding of local vulnerability and to appropriate vulnerability targeting.

Learning Unit 3.1: SESSION PLAN WITH FACILITATOR NOTES

Starting the session (5 minutes)

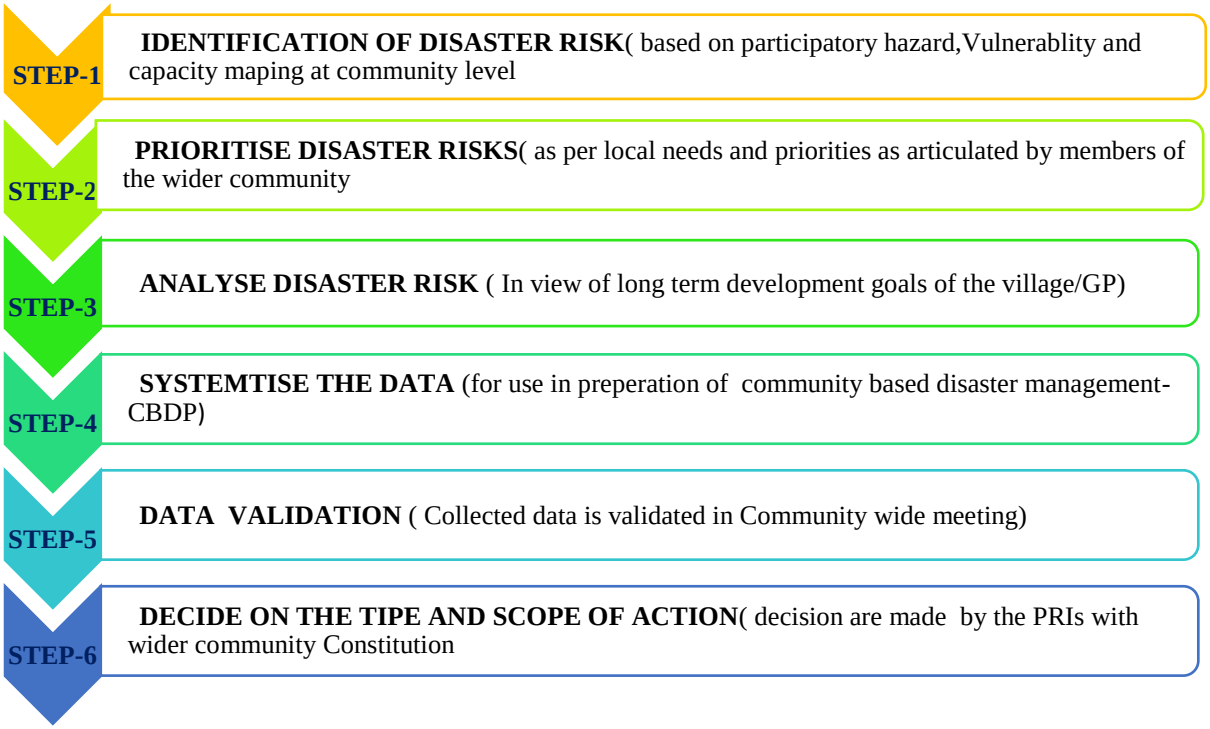
Explain the purpose of the session and its intended learning outcomes.

Introductory Presentation (10 minutes)

Provide an overview of HRVCA highlighting its aim, agenda and method. Explain how it is an integral part of DRR planning at any level and also as to how crucial it is for PRIs to use participatory approaches in order to identify the real priorities and needs of the people at the grass roots.

Discuss the various uses of HRVCA as outlined in the technical notes.

Show the major steps of the process as given in the technical notes. Go through the detailed stepwise process which is as follows:



Learning Unit 3.2.TECHNICAL NOTE

What is HRVCA?

Hazard Risk Vulnerability and Capacity Assessment (HRVCA) is a participatory exercise to assess people's exposure to and their coping capacity to withstand the impact of natural hazards. It is an integral part of disaster preparedness and contributes to the creation of community-based disaster preparedness programmes at the rural and urban grassroots level. HRVCA helps in the following:

- identification of local priorities
- identification of appropriate action for reducing disaster risk
- inputs for the design and development of DRR and CCA sensitive development plans and programmes on the ground.

The aims of HRVCA are to:

- assess risks and hazards facing communities and the capacities they have for dealing with them;
- involve communities, local authorities and outside support organisations in the assessment of risk at the local level
- draw up action plans to prepare for and respond to the identified risks;

- identify risk reduction activities to prevent or lessen the effects of expected hazards, risks and vulnerabilities.

HRVCA is complementary to macro level risk assessment exercises carried out by national and sub-national agencies involving risk, hazard, vulnerability and capacity mapping to identify regions and zones facing different kinds of disaster and climate risks. These assessments are available in the form of Vulnerability Atlas of India and state specific vulnerability atlases as in Gujarat.

HRVCA is primarily a micro assessment exercise confined to a city, village or community. It is usually a multi-stakeholder exercise undertaken at the community level to diagnose the specific areas of risk and vulnerability and determine what action can be taken to address them. To complete the circle, what HRVCA generates at the local level can provide a valuable indication of national and sub-national vulnerabilities and capacities.

3.3: How to conduct HRVCA?

It involves an assessment of hazard, risk, vulnerability and capacity where the following main aspects to be studied are:

- Disaster risks faced and apprehended by the community,
- Capacities and resources of the community, including livelihoods systems.
- Causes and consequences of the disaster risks on the livelihoods and environment,
- Adaptation and coping strategies developed by communities (preparedness, mitigation, response).

Following are the steps to undertake an HRVCA in a participatory manner

STEP 1: IDENTIFICATION OF DISASTER RISK

This process involves the following steps:

1. Focus Group Discussion

The focus group discussion (FGD) is a guided conversation in which only a few issues and questions are discussed as per a pre-decided agenda and plan. The field team defines the relevant topics first and analyses the possible relationships between these subjects and issues at stake.

Focus group discussion (FGD) can be undertaken to carry out participatory hazard, vulnerability and capacity assessment at the community level. FGDs should be conducted in

small groups of 20-30 people. FGDs with women, men and children should be conducted separately to elicit varying perceptions of disaster risk across different community groups. It is important to ensure that the concerns of vulnerable groups, particularly the poor, old, sick and the challenged are adequately represented during FGDs. If required, special FGDs should be organised with the poor and disadvantaged groups separately to make the exercise of risk assessment truly inclusive.

2. Disaster History

The disaster history tool helps provide a better understanding of the most significant disaster events that have left their mark on the community's development and evolution, on the changes in their nature, intensity and behaviour. It provides a more in-depth history and community identity. It helps reveal how disasters have affected people's resources over the years and evaluate their negative effects on their lives.

Disaster history a format

Disaster	year	Impact

4. Seasonal Calendar

The seasonal calendar is used to study changes in the community over a year. The seasonal calendar contains a lot of information about seasonal changes and related hazards, diseases, community events and other information related to specific months of the year. It can be used to show weather patterns such as hurricanes, floods or droughts, the social and economic conditions, public events and seasonal activities. It shows periods of stress, work, disaster, hunger, debt or vulnerability. It also identifies livelihoods and coping strategies.

Figure 4: Example of a seasonal calendar

Disasters	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec
Flood												
Cyclone												
Household fire												

Drought												
Forest fire												

STEP 2: PRIORITISE DISASTER RISKS

This process involves the following steps:

1. **Disaster Risk Ranking**

The aim is to know, prioritize and analyse the most significant disaster risks faced by the community, and to weigh needs and solutions for further assessment. It determines the hazards that have the most serious impact on poor people's assets, and the current coping and adaptive strategies.

2. **Hazard Analysis**

The aim of this process is to develop hazard specific analysis. This tool is used to support community to describe the characteristics of the major hazard that has been prioritized during the previous stage.

Suggested Format (Flood as an illustration)
The same format can be used for other hazards with some suitable modifications:

Characteristics (Flood)	Elements
Cause	
Warning signs	
Speed of onset	
Frequency	
Period of occurrence	

Note: This is not an exhaustive set of characteristics and more can be added depending on the area and nature of hazard

STEP 3: ANALYSE DISASTER RISKS

1. **Vulnerability and Impact Analysis**

It aims at defining vulnerable elements, why they are vulnerable and how they are impacted by the specific hazard.

Categories	Level of vulnerability	Underlying causes	Impact (on lives, livelihoods, property, infrastructure, basic services, assets and resources)

Individual					
Community					
Infrastructure					

Capacity and Risk Analysis

It aims at identifying the major capacity gaps in dealing with disaster risks, particularly among vulnerable groups within the community at risk. These groups involve the poor, women and children. The needs of the old, sick and the challenged have to be mapped out and analysed separately.

Capacity and risk analysis can be used to identify the disaster risk reduction (DRR) needs at the community level, particularly in the context of the disaggregated vulnerable groups. After capacities and gaps have been listed, a risk rank is assigned to individual or households groups.

This tool also involves mapping of various resources of the community which includes health centres, schools, water points, etc. As the HRVCA goes on, the map enables the strengths and the weaknesses of the community to be visualised (resources, livelihoods, etc.).

This shows the potentialities of the community. The main features of the area are represented such as houses, fields, roads, facilities, buildings, waterways, land, forest, and other uses of space and resources of the community.

A list of assets that can be mapped and be relevant for integrated programming is presented in the appendices.

	Capacities			**Risk ranking**		
	Existing capacities to cope with hazards (before, during and after)	Gaps	Required capacities to cope with hazards	H	M	L
Categories						
Household and Individual						
Community						
Facilities and infrastructure						

3. Visioning Matrix

This exercise allows the community to envision a desired state of development, which is resistant and resilient to avoidable disaster and climate related risks. People in the community can be asked to draw a map of a disaster safe village that they would like to see. The commonly

aspired situation embodying the desired change can help refine the analysis and define the potential measures that can transform weaknesses into capacities. It provides a vision of their ideally prepared and resilient community.

Risk reduction strategies	Current situation	Aspired situation (desired change)	Barriers	How to address barriers (activities)
Household/Individual				
Community				
Infrastructure/Facilities				

STEP 4: SYSTEMATISE THE DATA

1. **The Key Data Record tool**

It is the abstract of all information collected through the PRA tools. It is mostly based on the problem/solution tree and the HRVCA matrix. It records the main disaster risk and the appropriate measures according to the community's weaknesses and capacities. It identifies gaps in DRM strategies. It is realized by the team, and be completed and validated by the community members.

Hazard	Effects	Vulnerabilities	Capacities	Risk reduction strategies from the community
	Household/Individual			
	Community			
	Infrastructure/Facilities			

2. Venn Diagram

Objective: It provides information on the type of support that is present or that could be exploited so as to gradually expand the local capacity. It allows the stakeholders that are the

most important for the community to be identified. The influential segment of the community must be included in this case. Social and organizational structures and processes create division in the community or make some groups more powerful/influential than others and their role is very crucial in implementing any intervention.

Description: The Venn diagram complements "Key data record" tool to recognise actors that may have the capacity required by the community to support the implementation of selected DRR activities. This tool helps the team identify organisations/entities that may have some significance and adequate resources that support them. Organisations may include religious institutions, schools, health centres, grassroots organizations, farmers' associations or the local authorities. Here, understanding institutional and organizational influences and recognizing issues and drivers for disaster risk are extremely important.

Suggested guiding questions:

- Which individuals, groups, organisations and institutions are involved or closely linked in addressing the type of selected disaster risk measures?
- What are their activities? What is their level of influence?
- What is their interrelationship? What are their current links with and support to the community?
- What support would they be able to provide? What is the probability of access to this support?

Facilitation tips: It is a pictorial presentation in circles. The significance of these stakeholders is reflected in the size of their circles. Trust putting a small circle very close to the community**.**

STEP 5: DATA VALIDATION

Data analysis and interpretation will be comprehensive only if they are presented and validated by the larger community. For this purpose, the collected data should be presented to the larger community for their review, reflections and decisions. This provides an opportunity to make other groups in the community aware of the views of particularly vulnerable groups. This step is crucial as it determines who can do what and when at the community level, and what cannot be done locally and what are the aspects for which communities require outside support. This should allow the community to engage itself in DRR measures according to its capacities, resources and motivations.

STEP 6: DECIDE ON THE TYPE AND SCOPE OF ACTION

Based on the data collected on the field and decision made on potential actions on DRR, community decides which DRR measures will be carried out on short-term, medium term and long term period. Information from the visioning matrix (discussed above) has to be compiled in order to have a clear DRR strategy selection matrix.

For each DRR measures selected and validated, community has to define how these activities will be implemented:

- Which resources are needed to set up activities?
- Who will be involved during the implementation?
- To what extent does the community contribute to the implementation of these measures?
- Who will be responsible to monitor and ensure the effectiveness of the activities?

DRR Strategy Selection Matrix

This allows the community to verify the feasibility of the selected DRR activities in order to specify what the community can and cannot do. By filling in this matrix, it is particularly important to insist on the availability of resources in the community or the need for external resources. Then the community must determine how it will use and/or acquire what it needs in terms of resources and technical support. The focus must be on measures that the community can take with little external support from the short to medium term to show a relationship with the community.

CLASSROOM BASED SIMULATION EXERCISE (40 MINUTES)

This hands-on exercise will be carried out by the working groups of participants in the classroom before they leave for the field. Form 4-5 working groups of participants, ask the groups to choose one participant's village amongst their group as a case (that participant can change for each exercise).

The following three tasks could be entrusted to three different groups of participants for the simulation exercise.

Task 1: Disaster History

Brief the participants of this group about the relevance and use of this tool. Now ask the participants in this group to select one participant based on whose experience the following format can be developed. They may add more information in the table shown above in technical note.

Task 2: Hazard, Risk, Vulnerability and Capacity Assessment (HRVCA)

Explain to the participants about the relevance and use of HRVCA. Ask the participants of this group to show how they are going to carry out this exercise at the field level. Ask them to do a mock exercise within their group pretending as if they are carrying out this exercise in the real life situation in the village.

Task 3: Seasonal Calendar

Explain to the members of this group the relevance and use of a seasonal calendar. Most of the disasters that hit communities at risk at regular intervals include floods, drought, cyclone and landslides. These are seasonal and related to rainy and summer seasons. Hence, a seasonal calendar is a tool that yields the varying nature and intensity of the hazards, which are season specific.

Seasonal calendar helps systematise information on the seasonal nature of different hazards and the risk that they pose to the local communities.

Ask this working group to pool in their experiences to develop a real or imaginary seasonal calendar of hazards and risks of a real or imaginary community at risk.

Plan the field exercise (5 minutes)

Selection of the community: The selection of a community for the HRVCA exercise is based on clearly defined criteria such as:

- The vulnerability conditions (physical, social, etc.),
- The severity of community's risk exposure,
- Accessibility,
- The size of the community,
- The frequency of disasters, etc.

When the method is finalized, the HRVCA can be conducted in the field. But in order to do advanced preparation the facilitator needs to ensure the following (all this will vary from state to state):

Reference: -

1.*Training Module on PRI by National Institute of Disaster management*

2. HRVCA tool of Indian Red Cross Society

3. Community Based disaster management by ADPC

Module4:

An overview of Disaster Management System, Framework and Institutional Mechanism

LU -4.1: An overview of Disaster Management System, Framework and Institutional Mechanism

Learning Objectives

At the end of this session, the participants should be able to:

- Describe the administrative and institutional structure, & mechanism for disaster management in the country.
- Explain the process of policy formulation and decision making and implementation at various levels of administrative and institutional structure.

Time: 60 mts

Methodology: (i) Presentation/ Lecture, group exercise

4.1: AN OVERVIEW OF THE DISASTER MANAGEMENT SYSTEM

CONSTITUTIONAL PROVISION

Disaster Management as a subject is not mentioned in any of the lists i.e. Union List, State List or Concurrent List of the seventh schedule. Since it is not mentioned in any of the three lists, it comes under the Residuary powers of the Union under entry 97 of the Union List.

EMERGENCE OF INSTITUTIONAL ARRANGEMENT IN INDIA[5]

A permanent and institutionalised setup began in the decade of 1990s with set up of a disaster management cell under the Ministry of Agriculture, following the declaration of the decade of 1990 as the 'International Decade for Natural Disaster Reduction' (IDNDR) by the UN General Assembly. Following series of disasters such as Latur Earthquake (1993), Malpa Landslide (1994), Orissa Super Cyclone (1999) and Bhuj Earthquake (2001), a high powered Committee under the Chairmanship of Mr. J.C. Pant, Secretary, Ministry of Agriculture was constituted for drawing up a systematic, comprehensive and holistic approach towards disasters. There was a shift in policy from an approach of relief through financial aid to a holistic one for addressing disaster management. Consequently, the disaster management division was shifted under the Ministry of Home Affairs in 2002 vide Cabinet Secretariat's Notification No. DOC.CD-108/2002 dated27/02/2002 and a hierarchical structure for disaster management evolved in India.

Disaster Management Framework

Shifting from relief and response mode, disaster management in India started to address the issues of early warning systems, forecasting and monitoring setup for various weather related hazards. A structure for flow of information, in the form of warnings, alerts and updates about

[5] Disaster management in India -MHA

the oncoming hazard, also emerged within this framework. A multi-stakeholder High powered group was setup by involving representatives from different ministries and departments. Some of these ministries were also designated as the nodal authorities for specific disasters.

Following a High Powered Committee Report on Disaster Management for establishment of a separate institutional structure for addressing disasters and enactment of a suitable law for institutionalizing disaster management in the country, a multi-level links between these ministries and the disaster management framework have emerged. Disaster Management framework may be seen in Figure 1(*Source DM in India-MHA)*

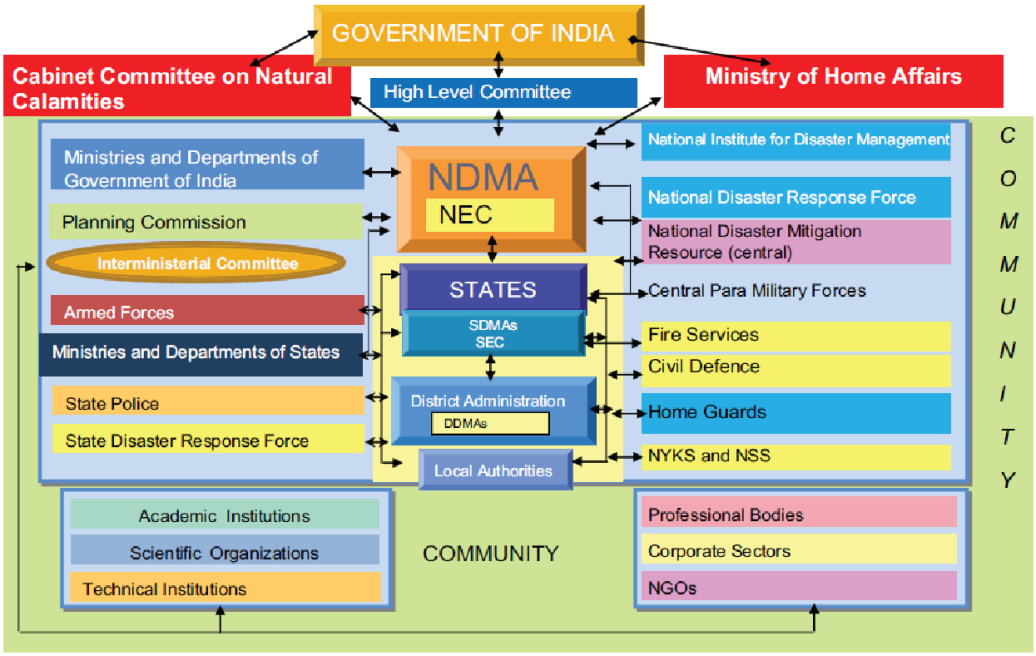


Figure1.: *National Disaster Management Structure*

Institutional Framework: Three levels of Administrative structure for Disaster Management

- National Level:
- State Level
- District Level

National Level:

- National Disaster Management Authority (NDMA) chaired by the Prime Minister.
- National Executive Committee of Secretaries
- Nodal Ministries for Managing Different types of disasters

Types of Disasters / Crises	Nodal Ministry
Natural and Man Made disasters	Ministry of Home Affairs
Droughts	Ministry of Agriculture
Air Accidents	Ministry of Civil aviation
Railway accidents	Ministry of Railways
Chemical Disasters	Ministry of environment
Biological Disasters	Ministry of Health
Nuclear Accidents	Department of Atomic Energy

(i) Technical Agencies/Organizations like India Meteorological Department, CWC, INCOIS, etc.

State Level:

I. State Disaster Management Authority (SDMA) chaired by the Chief Minister.

II. State Executive Committee of Secretaries

District Level:

District Disaster Management Authority (DDMA) chaired by the District Magistrate

The Systems and Structures for Disaster Response

National Crisis Management Committee (NCMC)

A National Crisis Management Committee (NCMC) has been constituted in the Cabinet Secretariat. The has top ranking representation from various ministries such as PMO, MHA. In case of major disasters NCMC gives such directions to the Crisis Management Group of the Ministry as deemed necessary.

Cabinet Committee/Group of Ministers

For effective implementation of relief measures in the wake of a catastrophe, the Union Cabinet may set up a Committee/GoM to provide overall directions in all matters concerning relief in the wake of natural calamity and take steps for effective implementation of its directions.

Crisis Management Group

There shall be a Crisis Management Group (CMG) for dealing with matters relating to relief in the wake of major natural calamities, consisting of the functionaries or designated persons from various ministries and other departments. The CMG coordinates the activities of the Central Ministries and the State Governments in relation to disaster preparedness and relief, and review

the measures required for dealing with a natural calamity

State Level:

Crisis Management Committee

A cabinet committee on Natural Calamities under the chairpersonship of the Chief Minister takes stock of situations and is responsible for all important policy decisions.

Crisis Management Group: Crisis Management Group/Committee under the chairpersonship of the Chief Secretary, consisting of secretaries in charge of concerned departments, reviews crisis situation on a day to day basis at the time of crisis, coordinates the activities of all departments and provides decision support system to the district administration.

District Level:

The District Magistrate/Collector has the responsibility for the overall management of disasters in the district. He has the authority to mobilize the response machinery and has been given financial powers to draw money under the provisions of the General Financial Rules/Treasury Codes. All departments of the State Government including the police, fire services, public works, irrigation etc. work in a coordinated manner under the leadership of the Collector during a disaster, except in metropolitan areas where the municipal body plays a major role. The District Collector also enjoys the authority to request for assistance from the Armed Forces if circumstances so demand. NGOs have also been effective in providing relief, rescue and rehabilitation in recent times.

Actions & Reflections:

Q. How to evolve disaster management in India?

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Q. Describe disaster framework and administrative level of Institutional frame work of India?

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4.2 :Disaster Management Act, 2005

(source – constitutional framework of India - IGNOU)

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

The DM Act provides that:

- There shall be a National Authority, which shall consist of the Chairman and such number of other members, not exceeding nine, as may be prescribed by the Central Government, and unless the rules otherwise provide, the National Authority shall consist of (a) The Prime Minister of India, who shall be the Chairman of the National Authority, ex-officio; and (b) Other members, not exceeding nine, to be nominated by the Chairman of the National Authority.
- The Chairman of the National Authority may designate one of the members nominated under Clause (b) of Sub-section (2) to be the Vice-Chairman of the National Authority.
- The term of office and conditions of service of members of the National Authority shall be such as may be prescribed.
- The National Authority shall meet as and when necessary, and at such time and place as the Chairman of the National Authority may think fit.
- The Chairperson of the National Authority shall preside over the meetings of the National Authority.
- If for any reason the Chairperson of the National Authority is unable to attend any meeting of the National Authority, the Vice-Chairperson of the National Authority shall preside over the meetings.
- The Central Government shall provide the National Authority with such officers, consultants and employees, as it considers necessary for carrying out the functions of

the National Authority.

- Powers and functions of National Authority are: (1) Subject to the provisions of this Act, the National Authority shall have the responsibility for laying down the policies, plans and guidelines for disaster management for ensuring timely and effective response to disaster; and (2) Without prejudice to generality of the provisions contained in sub-section.
- The Chairperson of the National Authority shall, in the case of emergency, has power to exercise all or any of the powers of the National Authority, but exercise of such powers shall be subject to ex post-facto ratification by the National Authority.
- The National Authority may constitute an advisory committee consisting of experts in the field of disaster management and having practical experience of disaster management at the national, state or district levels to make recommendations on different aspects of disaster management.
- The members of the advisory committee shall be paid such allowances as may be prescribed by the Central Government in consultation with the National Authority.
- The National Authority shall constitute a National Executive Committee to assist it in the performance of its functions under this Act.
- The National Executive Committee shall consist of:

  (a) the Secretary to the Government of India in charge of the Ministry or Department of the Central Government having administrative control of the disaster management, who shall be Chairperson, ex-officio; and

  (b) the Secretaries
- to the Government of India in the Ministries or Departments having administrative control of the agriculture, atomic energy, defence, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, science and technology, space, telecommunication, urban development, water resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee, ex-officio.
- The Chairperson of the National Executive Committee may invite any other officer of the Central Government or a State Government for taking part in any meeting of the National Executive Committee and shall exercise such powers and perform such functions, as may be prescribed by the Central Government in consultation with the National Authority.
- The procedure to be followed by the National Executive Committee in exercise of its powers and discharge of its functions shall be such as may be prescribed by the Central

Government.

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

Actions & Reflections:

Q. Describe provision of DMACT 2005

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4.3: LEGAL AND INSTITUTIONAL FRAMEWORK

The institutional mechanisms for carrying out response, relief and rehabilitation have been well-established in the country since independence. These mechanisms have proved to be robust and effective insofar as response, relief and rehabilitation are concerned. The Government has since brought a paradigm shift in its approach towards managing disasters. The changed approach looks holistically to the entire gamut of disaster management viz; mitigation, prevention, preparedness, response & relief, rehabilitation & recovery. The Government's changed approach is being put into effect through:

(a) Institutional changes

(b) Enunciation of policy

(c) Legal and techno-legal framework

(d) Mainstreaming Mitigation into Development process

(e) Funding mechanism

(f) Specific schemes addressing mitigation

(g) Preparedness measures

(h) Capacity building

(i) Human Resource Development

(j) Community participation

Legal Framework

Parliament has enacted the Disaster Management Act 2005 by invoking entry 23 namely "Social security and social insurance, employment and unemployment" in the Concurrent List the Act establishes an institutional mechanism for drawing up and monitoring the implementation of the disaster management plans ensuring measures by various wings of Government for preventing and mitigating effects of disaster and for undertaking a holistic, coordinated and prompt response to any disaster situation.

The Act provides for setting up of:

(i) National Disaster Management Authority (NDMA) under the chairmanship of the Prime Minister

(ii) State Disaster Management Authorities (SDMAs) under the chairmanship of Chief Ministers, and

(iii) District Disaster Management Authorities (DDMAs) under the chairmanship of District Magistrates.

The Act further provides for constitution of National Executive Committee (NEC), National Institute of Disaster Management (NIDM) and National Disaster Response Force (NDRF). It also provides for the concerned Ministries and Departments to draw up department-wise plans in accordance with the National Disaster Management Plan.

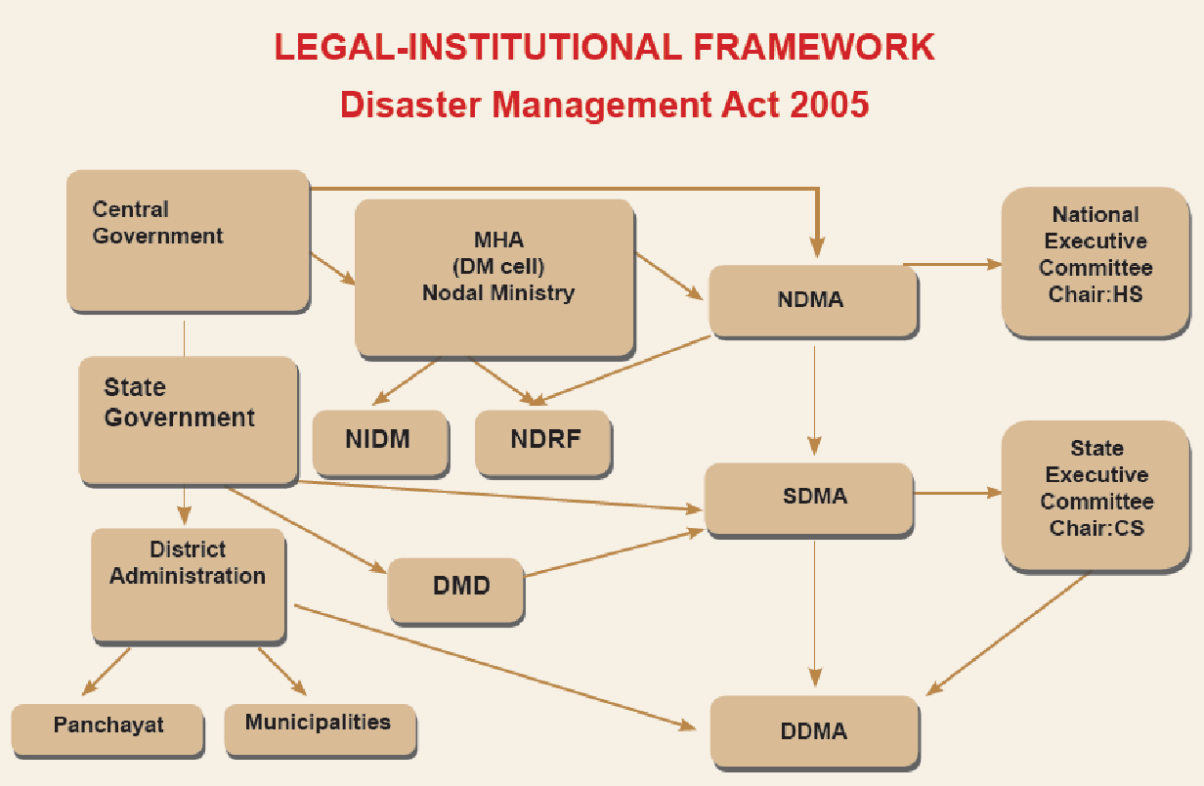

Figure 2: Legal Institutional framework of India

In addition, the Act contains provision for constitution of National Disaster Response Fund and National Disaster Mitigation Fund and similar funds at the state and district levels. The Act also provides for specific roles to local bodies including Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) in disaster management. The NDMA, NEC and NIDM have since been constituted, in accordance with the provisions of the Act, to discharge the powers and function envisaged for them under the Act.

The NDMA has the responsibility for laying down policies, plans and guidelines for ensuring timely and effective management of disasters. The National Authority is empowered under the Act to:

- Lay down policies on disaster management
- Approve the National Plan
- Approve Plans prepared by the Ministries and 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 different Ministries and 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 the purpose of mitigation
- Provide such support to other countries affected by major disasters as may be determined by the Central Government.
- Take such other measures for prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary,
- Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

The NDMA is empowered to constitute an advisory committee of experts in disaster management to make recommendations on various aspects of disaster management. The National Executive Council has been constituted under the chairmanship of the Home Secretary to assist the National Authority in the discharge of its functions and have the responsibility for implementing the policies and plans of the National Authority and ensure the compliance of directions issued by the Central Government for the purpose of disaster management in the country.

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

Actions & Reflections:

Q. Discuss on legal framework of India?

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(*Source- Gujarat state disaster management plan-GSDMA*)

The Gujrat management disaster management Act was enacted in year 2003 (GUJARAT **ACT NO. 20 OF 2003)** *for provide for effective management of disaster, for mitigation of effects of disaster, for administering, facilitating, coordinating and monitoring emergency relief during and after occurrence of disasters and for implementing, monitoring and coordinating measures for reconstruction and rehabilitation in the aftermath of disasters, in the State of Gujarat and for these purposes to establish the Gujarat State Disaster Management Authority and to specify other agencies.* The National Disaster Management Act, 2005 resembles the State Act with only a few provisions which are not a part of the State Act but are there in the Central Act.For the purposes of carrying out the objects of this Act, the following shall be the authorities, namely: -

(a) The State Government,

(b) The Gujarat State Disaster Management Authority,

(c) Heads of Government Departments,

(d) Commissioner,

(e) Collector of a district,

(f) Local authorities.

The State Government shall ensure that all the authorities specified in section 3 and stakeholders shall take all such measures, as are necessary or expedient for the purpose of managing a disaster and mitigating its effects. The act has also a provisions for designating a Vice Chairman to the SDMA, constitution of a State Executive Committee, establishment of a District Disaster Management Authority in each District and creation of a District Disaster Response & Mitigation Funds. The State has existing institutional arrangements in place for addressing the roles/ responsibilities envisaged through the above provisions and hence does not find it compelling to implement the provisions afresh.

There are following function and measure of the state government are below **(Chapter II Gujarat DM Act 2003):**

(a) ensuring that appropriate policies and guidelines are developed;

(b) establishing a group called the Crisis Management Group and such other entities as may be necessary and such group or entity shall exercise such powers and perform such functions as may be specified by the regulations;

(c) ensuring that the State administration and local authorities shall take into consideration the guidelines laid down by the Authority while planning its activities;

(d) ensuring that a comprehensive communication and technology network is established and maintained;

(e) facilitating procurement related to disaster management of materials, equipment and services in connection with the disaster management and ensuring their quality;

(f) ensuring that disaster management plans are prepared and training for managing disaster is given;

(g) promoting adequate risk-transfer, risk-sharing and cost-sharing mechanisms;

(h) ensuring that adequate funds are available for disaster management;

(i) ensuring appropriate recovery measures; and

(j) taking such steps and issuing such directions as may be necessary to prevent escalation of the disaster or to alleviate, contain or minimise the effects of disaster.

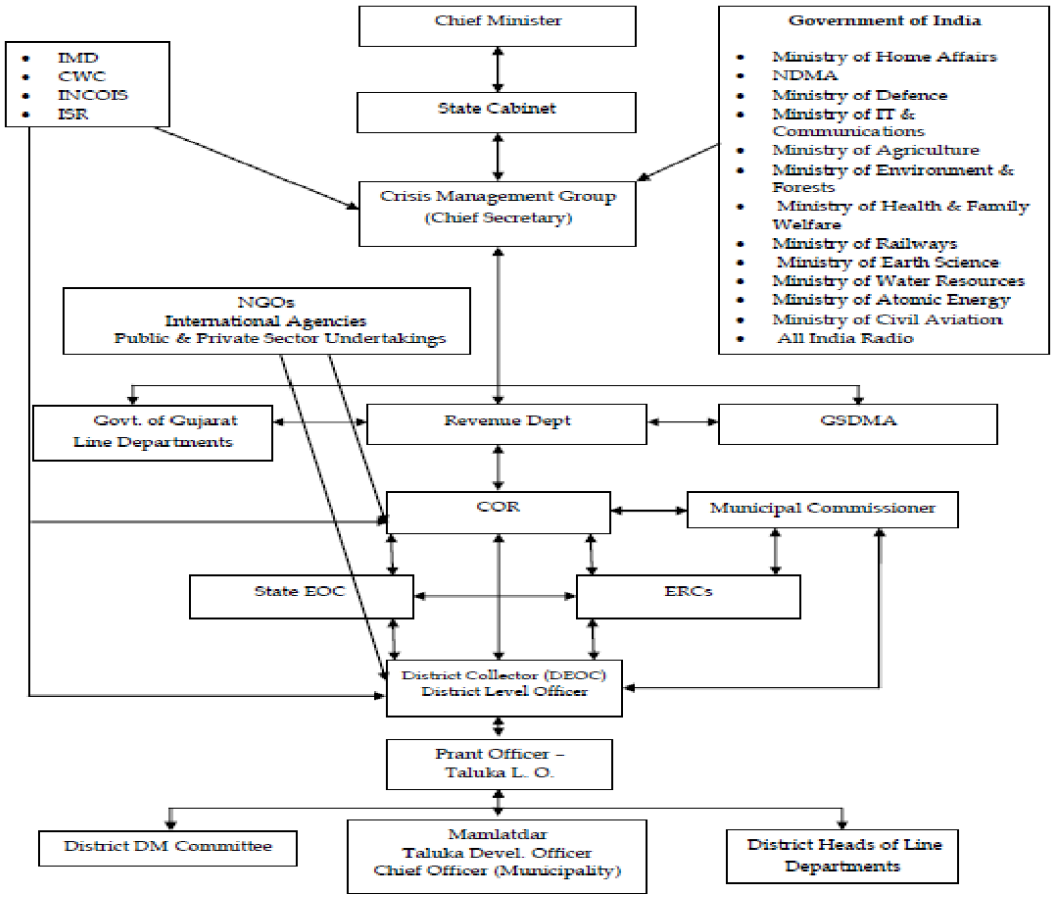


Figure-3 Institutional mechanism at state level

State level Institution /Agencies and their Role and responsibilities

Gujarat State Disaster Management Authority (GSDMA):

- Promotes an integrated and coordinated system of disaster management including prevention or mitigation of disaster by the State, local authorities, stakeholders and communities.
- Collect/cause to be collected data on all aspects of disasters and disaster management and analyze it and further cause and conduct research and study relating to the potential effects of events that may result in disasters.
- Acts as a repository of information concerning disasters and disaster management
- Lays down the policies and plans for disaster management in the State.
- Promotes or causes to promote awareness and preparedness, advices and trains the community and stakeholders

Gujarat Institute of Disaster Management (GIDM):

- Provides training related to disaster management in close coordination with NIDM.
- Undertakes activities for human resource development, public education and community awareness, safety etc. in disaster education and management

State Fire & Emergency Services

- Provides crucial immediate response during any disaster
- Provides regular training to the fire staff in using and maintaining the equipment

State Crisis Group

- Apex body in the state to deal with major chemical accidents and to provide expert guidance for the same
- Review all district off-site emergency plans in the State with a view to examine its adequacy in accordance with the Manufacture, Storage and Import of Hazardous Chemicals, Rules and forward a report to the Central Crisis Group once in three months
- Assist the State Government in the planning, preparedness and mitigation of major chemical accidents in state
- Continuously monitor the post-accident situation arising out of a major chemical accident in the State and forward a report to the Central Crisis Group.

Institute of Seismological Research (ISR)

- Engaged in dedicated seismological research
- Monitors seismic activity of Gujarat round the clock through a dense network of 50 broadband seismograph station (20 connected by VSAT) and 50 Strong Motion Accelerograph in Gujarat
- Reports earthquake location along with magnitudes within 10 minutes of the arrival of

seismic waves

- Engaged in Seismic Microzonation of areas prone to earthquakes
- Provide consultancy services to various private companies in feasibility studies related to seismicity of the area prior to establishing a major project

Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG)

- State level nodal agency to facilitate the use of spatial and geo-spatial technologies for the planning and developmental activities pertaining to agriculture, land and water resource management, wasteland development, watershed development, forestry, disaster management, infrastructure and education.
- Provides specialized services and solutions in implementing map-based Geo-Spatial Information Systems.
- Provides GIS solutions for disaster management and specialized needs of Public Safety agencies like police, fire and ambulance services.
- Provides e-governance solutions to address varying GIS and MIS needs of governments and municipal corporations

State Disaster Response Force (SDRF)

- GSDMA, through the Home Department, has created 11 State Disaster Response Force (SDRF) Companies with a total strength of around 1000 personnel
- 11 Companies of SDRF are stationed at Vadodara (2 Companies), Ahmedabad, Madana, Godhra, Nadiad, Gondal, Valiya, Vav, Gandhinagar and Rajkot.
- A list of equipment to be procured for providing training to the SDRF teams has also been finalized with inputs from NDRF Gandhinagar
- Training of SDRF has started in Basic Course; two teams of 77 personnel have been trained so far. Personnel trained in Basic Course will further be trained in Specialized Courses through NDRF and other training Institutes

District and Local Level

There are District and Local Crisis Group which cater to major chemical accidents in the district and at local level. Their location is mentioned in table 1. The key functions of District and Local Crisis Groups are mentioned in table 2.

Table-1: Location of District & Local Crisis Group

District	Headquarters of District Crisis Groups	Local Crisis Group
	Ahmedabad	Vatva,Narol

Ahmedabad		Naroda
		Odhav
		Sanand
		Dholka, Dhandhuka
		Viramgam
Gandhinagar	Gandhinagar	Gandhinagar
		Kalol
Mehsana	Mehsana	Mehsana
		Kadi
		Visnagar
Sabarkatha	Himatnagar	Himatnagar
Patan	Patan	Siddhpur
Kheda	Nadiad	Matar

Table2: ***Functions of District & Local Crisis Group***

Crisis Group	Functions
District Crisis Group	• Apex body in district to deal with major chemical accidents and provide expert guidance • Assists in the preparation of the district off-site emergency plan • Reviews all the on-site emergency plans prepared by the occupier of Major Accident Hazards installation • Assists the district administration in the management of chemical accidents within the district • Ensures continuous information flow from the district to the Centre and State Crisis Group regarding accident situation and mitigation efforts • Conducts at least one full scale mock-drill of a chemical accident at a site each year and forward a report of the strength and the weakness of the plan to the State Crisis Group
Local Crisis Group	• A body in the industrial pocket to deal with chemical accidents • Coordinates efforts in planning preparedness and mitigation of a chemical accident • Prepares local emergency plan for the industrial pocket • Trains personnel involved in chemical accident management

Other Stakeholders in Disaster Management

There are various agencies, organizations, departments and authorities that constitute a core network for implementing various disaster management related functions and activities. It also includes academic, scientific and technical organizations, media, community, etc. which play

important role in various facets of disaster management.

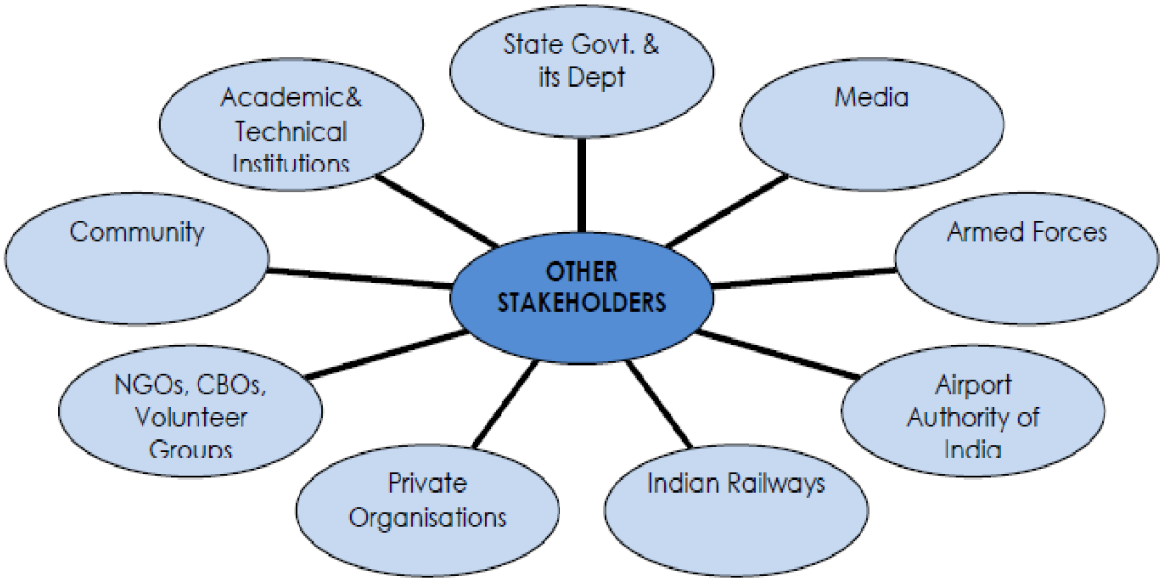


Figure 4: Stakeholders in Disaster Management

Source- (State disaster management plan, GSDMA)

4.5: ROLE OF KEY LINE DEPARTMENTS:

The role of key line department during the different phase of Disasters. The major point of attention for each department and agencies involved in preparedness and meeting are as follows-

- Designate a Nodal officer for emergency response who will act as the contact person for that department / agency.
- Ensure establishment of fail-safe two-way communication with the State, District and other emergency control rooms, as well as within the organization.
- Focus on communication systems used regularly in normal times with more emphasis on the use of VHFs with automatic repeaters, mobile phones with publicized numbers, HF radio sets, etc. It should be remembered that SAT phones fail during prolonged emergencies and electric failure if the phones cannot be re-charged.
- Work under the overall supervision of the District Collector during emergencies.
- Develop Disaster Management Plans; Update the Disaster Management Plan quarterly, with focus on Hazard, Vulnerability, Risk and Capacity Analysis (HVRCA). Plan preparation should involve all concerned line departments and stakeholders in the district.

- Ensure awareness generation of the community to various hazards, its impact, basic do's and don'ts, their roles and responsibility for reducing the risk, as well as their role to support the response mechanism

S. N	Department	Role and Responsibility
1.	**Revenue Department** (In-charge Officer: District Revenue Officer/ ADM Revenue/ Deputy Collector (Emergency)/ any other Officer designated by the District Collector)	• Revenue Department is the nodal department for controlling, monitoring and directing measures for organizing rescue, relief and rehabilitation. All other concerned line departments should extend full cooperation in all matters pertaining to the response management of the disaster whenever it occurs. • Develop relief norms and packages • Arrange with service provider companies for multiple warning messages to community, officials, etc as the need may be • Develop and promote insurance, disaster bonds, tax rebate, etc. against the disaster
2.	**Police** (In-charge Officer: Senior Superintendent of Police/Superintendent of Police)	• Ensure proper functioning of all equipment and vehicles • Prepare for quick deployment of Home Guards and volunteers for providing safety to affected population and evacuated structures/ houses • Prepare plan for management of terrorist attack, bomb blast, stampede, etc. • Train police personnel and staff of PCR van in first aid and basic life support • Prepare communication plan for uninterrupted communication to all police posts and various control room and emergency centres across the state
3.	**Irrigation** (In-charge Officer: Superintendent Engineer, Irrigation)	
4.	**Health** (In-charge officer: Chief Medical Officer of the District)	• Organise awareness camps for hygiene and other public health issue • Develop plan for hospital preparedness and mass casualty management • Prepare a database of registered private hospitals, clinics, diagnostic labs, blood banks, etc. along with their capacities and facilities provided • Establish paramedic cadre through training programmes and accredit / license them • Recognize and accredit trauma centres • Establish state-wide medical emergency access number

		• Ensure authentic medical database enlisting public and private facilities available in the state. This includes details of manpower, logistics, medical equipment's, medicines, antidotes, personal protective equipment's, disinfectant, vaccines, etc. • Standardize and license ambulance services • Ensure availability of adequate supply of life saving equipment and drugs, portable supplies like portable oxygen cylinders, portable x-ray machines, triage tags, etc. • Formulate trained medical first responder, QRMT, stationary and mobile decontamination facilities, identification of poison centres, mobile hospital, antidotes plan and crisis management plan at hospitals for chemical disaster preparedness • Prepare trained psychological and psychosocial care teams • Impart training to manpower for emergency services • Ensure proper and safe management of medical waste • Keep at disposal list various hazardous chemicals present in the state and their antidotes
5.	**Agriculture** (In-charge Officer: District Agriculture Officer/Deputy Director, Agriculture Department/ Head, Agriculture Department at the District)	• Identify area prone to droughts, floods and pest attack and monitor them during vulnerable season • Spread awareness among farmers regarding various crop diseases, prescribed use of fertilisers and pesticides, crop insurance, alternate cropping pattern in disaster prone areas, proper seed and fodder management, etc. • Formulate a trained team for assessing damage to crops, soil and other agricultural damage • Ensure a proper mechanism for communicating early warning to farmers regarding rainfall, flood, droughts, cyclone, etc.
6	**Animal Husbandry** (In-Charge Officer: District Animal Husbandry Officer/ Head, Animal Husbandry Department at the District)	• Ensure proper mechanism for disease surveillance among animals • Prepare a database of veterinary hospitals, clinics and agencies working for animals • Identify source for procurement of fodder • Identify safe locations for cattle camps • Ensure proper administration of de-worming and vaccinations for cattle, sheep and goats, pigs and other relevant measures for disease management • Aware rural population regarding management of sick or diseased animals • Ensure proper transportation facilities for sick or

		critically injured animals ● Identify space for burial of dead animals
7.	**Water Supply and Sanitation** (In-Charge Officer: Superintending Engineer (Public Health)/ Head, Water Supply and Sanitation Department at the District)	
8.	**Forest & Environment Department** (In-Charge Officer: Divisional Forest Officer/ Head, District Forest Office)	● Formulate a team to catch wild animals in case they enter inhabited areas ● Gujarat Pollution Control Board should ensure that all industries are following proper guidelines for hazardous waste management
9.	**Public Works Department (Buildings & Roads)** (In-Charge Officer: Superintending Engineer, PWD (B&R)/ Head, PWD (B&R) of the District)	
10.	**Power Supply** (In-charge officer: Superintending Engineer, Electricity Board/Corporation/Head, Power Supply Department/ Board at the District)	
11.	**Port & Transport Department** (In-Charge Officer: District Transport Officer/ Head, Transport Department at the District)	● Ensure proper functioning of filling station, vehicles and equipment ● Prepare for prompt deployment of vehicles at short notice for various purposes like mass evacuation, transportation of response teams, relief items, victims, etc. ● Prepare mechanical team for prompt repair of equipment and vehicles ● Train drivers, conductors, crew members, port officials in first aid and basic life saving techniques
12	**Food and Civil Supplies** (In-Charge Officer: District Food and Civil Supplies Officer / Head, Food and Civil Supplies Department at the District)	● Prepare for safety of stored food grains in godowns against inundation and water logging, fire and other possible hazards ● Prepare for out movement of stored food grains to a pre-identified safer location ● Enlist godowns and cold storage facilities, refrigerated transportation vehicles present in the

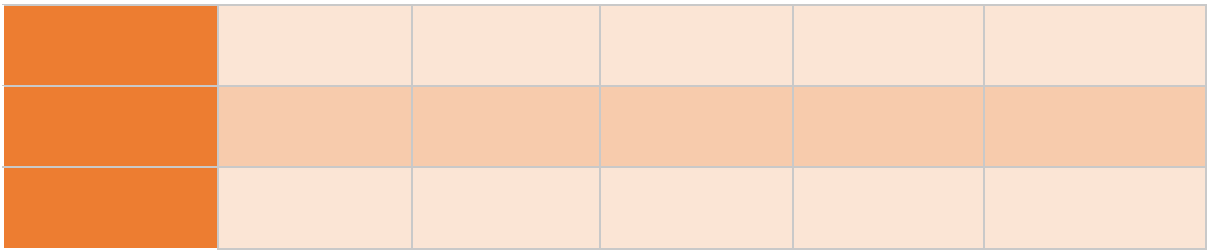
		state along with their storage capacities and facilities available • Enlist private retailers and wholesale dealers of food items and packaged drinking water • Enlist available kerosene depots, petrol pumps, CNG pumps, diesel depots, LPG agencies, etc.
13.	**Industrial Safety and Health**	• Create awareness for health & safety for workers and factory management • Conduct health & hygiene survey and inspection in various industrial sectors • Make a database of MAH units and hazardous installations in the state and their safety officers • Ensure preparation of onsite emergency management plan by all industrial units • Prepare a database of suppliers/ manufactures of antidotes for hazardous chemicals
14.	**Fire & Emergency Services**	• Ensure proper maintenance and functioning of all firefighting equipment's and personal protection equipment's • Prepare a database of private firefighting agencies and their resources • Keep vigil regarding MAH units and other hazardous installations in the state and prepare for possible emergency situation
15	**Information Department**	• Display verified Information Education and Communication (IEC) materials for mass dissemination and awareness among the public • Prepare a database of popular media channels and media persons (both print and electronic) • Ensure proper mechanism/ channels for addressing public so as to avoid and manage rumours with help of various media

GROUP EXERCISE

Facilitator Notes

Before discussing the table on Key Roles of Ministries in Disaster Risk Management, spend 30 minutes on Group Work: Group Participants of the same ministries/departments or same level (township officers, national level officers) to discuss in group to indicate key roles of their ministries/departments/township in different phases of Disaster Risk Management using the format as follow:

Ministries	*Departments*	*Key Role in disaster Management*			
		Normal Time	*Warning Stage*	*Disaster Stage*	*Rehabilitation*



Each group present the results and facilitator summarize the roles and scope of responsibilities of key ministries/departments, referring to the table below while explaining.

Facilitator could further facilitate the discussion on:

- How effective of the current structure and what needs improvement?
- Any constraints that may prevent from effective performing of the functions - sufficient of manpower, workload, resource available and accessible, skills and no how to carry out the assigned tasks, etc
- Challenges encountered such as coordination mechanism, mobilization of manpower and support from other government counterparts.
- Additional supports that will enhance effectiveness of the tasks assigned.

Facilitator could also bring recent disasters -small or large scaled as scenario where the participants could reflect on the actual tasks performed and problems faced if any in the actual incidents.

Reference:

1.*Disaster management of India – MHA*

2. Module on Panchayati raj institution by NIDM

3 State disaster management Plan - GSDMA

LEARNING UNIT 5: *Participatory Rural Appraisal Tools & Technique*

OBJECTIVES:

- To make the participants to understand the importance of Participatory Planning and their benefits.
- Enabling the participants to learn PRA techniques and their usage in Village planning.
- To give hands on experience on practicing PRA techniques with effective mock exercises.
- To impart the training skills on delivery of participatory techniques.

Duration: 60 minutes

Methodology: presentations, interactive sessions, lectures, group work and discussions, brainstorming, field work and practical exercise

Key learning point

5.1:Definition Participatory Rural Appraisal (PRA):

It is a participatory method to gather/ collect information by involvement of Rural/local communities for decision making and implementation of the development project, "for the Rural community, by the Rural community and with the Rural Community". It is a process to involve the community in planning and decision making. Community develop their own skills needed to address issues, analyse options and carry out activities. Participatory decision making reflects respect for human dignity and creating the opportunity for individuals to fulfil their responsibility to exercise the right. ("An approach and methods for learning about rural life and conditions from, with and by rural people"-Chambers 1994)

"Participatory Rural Appraisal (PRA) is a set of tools and techniques used with households to gather and analyse information on community resources, problems, potential and needs".

Why is PRA Used?

- Analyse the current situation and potential in a Village or Community
- Analyse problems and their causes
- Support households to identify activities that respond to difficulties and opportunities

How is PRA Conducted?

PRA is conducted with a group of households from a Village that work with 'Facilitators'

- Facilitators work with groups of households
- PRA is not teaching or lecturing:
- Households and Facilitators learn together
- Facilitators work with and listen to households

What are PRA Tools?

PRA is many different exercises—these are called 'PRA tools':

- Each exercise is conducted differently and has a different purpose and outcome
- Facilitators work with the household/community groups to conduct the PRA Tools

What is a PRA Field Exercise?

- A PRA Field Exercise is conducted with households in a Village
- The households and Facilitators conduct some of the PRA Tools in groups at the PRA Field Exercise
- The results of the PRA Tools are reviewed at the PRA Field Exercise and present to households at the Village Planning Meetings

Why is PRA conducted in Socio-Economic Planning Process (SEPP)?

- Understand the current situation, problems and opportunities according to households
- Analyse causes of particular issues or problems
- As a tool to identify and design implementation activities with households and groups of households
- PRA builds facilitation and community development skills

5.2:PRA FACILITATORS

What are the Responsibilities of Facilitators?

- Facilitators are people that guide discussion between households during PRA exercises
- Facilitators are not teachers—they guide household discussion

Who are Facilitators for PRA?

- District People's Committee Officers
- Commune People's Committee Officers
- Commune Mass Movement Representatives
- Local village Leaders
- Households

What are Characteristics of a Good Facilitator?

- Encourage the participation of households
- An effective communicator
- Someone people like and respect
- Some background knowledge of the people and the Community
- Understand and respect the community culture
- A good listener and is willing to learn

What are Behaviours of a Good Facilitator?

- Enthusiastic
- Respect ideas raised by households
- Encourage women and the poor to voice their ideas
- Manage time effectively
- Create a warm atmosphere
- Have a sense of humour—PRA is enjoyable!

What should Facilitators Avoid?

- Prejudicing or possessing a negative attitude towards
- people
- Using complex terms with households
- Projecting one's own ideas all the time
- Lecturing or teach households

5.3:PARTICIPATORY RURAL APPRAISAL: *TOOLS*

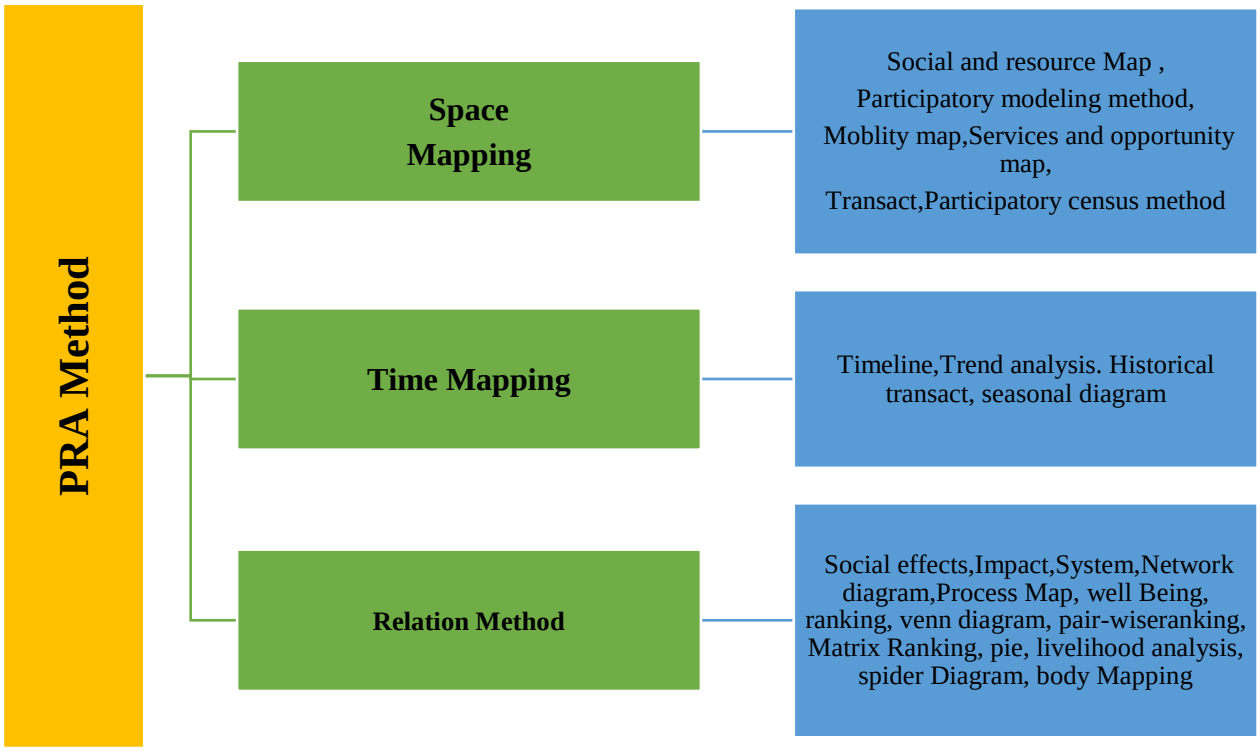
PRA Tools	Purpose
Historical Timelines	• Understand the history of the Village and Commune • Identify key events and trends throughout history • of the Commune or Village—either positive or negative • Discuss the effect (*influences*) of key events in history
Transect Walks	• Facilitates discussion on the status, problems and potential of different land types • Discuss problems and the causes of problems associated with land use
Village Resource Mapping	• Visual map to represent the Village, different resource types and how these are used • Identify resources that are scarce or abundant and propose opportunities to develop
Wealth Ranking	• Identify household perceptions of wealth classes in a Village or Hamlet • Identify the resources and characteristics of each wealth class • Wealth class of individual households in a Village
Seasonal Calendars	• Exercise to identify and discuss seasonal events and activities (cropping, livestock, migration, income/ expenditure)
Linkage Diagrams	• Identify and analyse household farming systems, resources and their uses • Identify options and activities to improve household farming systems, resource productivity and income
Matrix Scoring and Ranking	• Analyse preferences of households of different income generating activities and reasons for preferences • Analyse common problems or issues and score or rank these in order of importance (e.g. health or social problems)

Problem-Cause-Effect-Solution Trees	• Highlights the compounding causes and effects of a specific problems faced by households in a Village • Propose activities to overcome some of the causes and effects of problem faced by households in a Village

STEPS OF PRA

- Transects (Systematic walks and observation);
- Informal mapping (Sketch maps drawn on site);
- Diagramming (Seasonal Calendars, flow and causal diagrams, bar charts, chapati diagrams)
- Innovation assessment (scoring and ranking different actions)

TYPES OF PRA METHODS



5.4:Conduction of PRA

PRA is an assessment and learning process that empowers practitioners / people to create the information base they need for participatory planning and action. Different PRA techniques are employed to assess the prevailing agricultural and socio-economic condition and the problems being faced by the farmers in the study area.

These techniques include mapping, change and trend analysis, seasonality, livelihood analysis, matrix ranking, wealth ranking, Venn diagram and transact walk. In addition, it is also required to collect the secondary data regarding land use, population, area under different crops and their yields, source of irrigation etc. The PRA is to be conducted in an informal environment. Therefore, it is essential to carry out rapport building before other PRA techniques is conducted.

Rapport Building

1. Talk with the villagers in their own language.
2. Make more visits to the villages and initiate talks about the problems the incumbent is facing e.g. adverse weather condition, crop conditions, etc.
3. Try to know the free time of villagers and try to reach during that time possibly with prior intimation. Be punctual.
4. Do not promise for anything and also do not show high expectations.
5. Sit with the villagers in a mixed group, not on the cots and chairs.
6. Visit the houses of people from different strata of the society. Avoid controversial and influential people.
7. Appreciate the problem posed by the villagers.
8. Try to involve female counterparts in PRA, Initially, they may be reluctant to join but during rapport building when we are visiting some houses try to identify those who can come forward. If some of them come forward, many more will join.

Conducting PRA

For conducting PRA, following points should be faithfully observed.

First day some people may be very enthusiastic but second day he may disappear. Those who were silent on first may become very interested on subsequent days. Old people are active in the beginning but younger people take lead later on. We should identify such people and depend on them for subsequent work.

Selection of place for conducting PRA is very important, it should be accessible to all people, may be under a tree on farmer's field or any other place suggested by the villagers.

Team leader should initiate discussion, do not ask questions, do not give suggestions, do not interpret anything, let the villagers discuss among themselves and arrive at consensus. Use local materials like lime, ash, tree leaves, pebbles, rangoli for detailing different features.

Mapping Technique

As the name indicates this technique involves making of maps of the study area. The maps can be drawn for different themes like soil, land use, ground water and social maps depending upon the requirement of the purpose for which the PRA is being conducted. The villagers should assemble at an open place and requested to collect local materials like pebbles, lime powder, ash, rangoli powder, tree leaves etc. Then they could be requested to draw the outer boundary of the village on the ground keeping in mind the north direction, then main roads, bus stand, temple, school, Panchayat and other important locations. During this process, lots of discussion among the villagers will take place and boundaries/locations may change. At this time collected local materials should be used to make the locations more prominent. This will serve as the base map for making the thematic maps like soil, groundwater etc.

Seasonality

Seasonality of rainfall, sowing of Kharif and rabi crops, incidence of insect pests and diseases, availability of fuel, fodder, and labour are crucial for any programme. This information should be collected by making bar diagram with months on the X axis and the quantum on Y axis. Different colours and local material should be used for depicting different quantum. Later on this information would be transferred on paper.

Livelihood Analysis

Through this technique, information on the source of income and expenditure on different head viz agriculture, animal husbandry, food, clothing, medicine and treatment, entertainment and other social obligations are considered. The sources of income may be agriculture, dairy, wool, member of family working as government servant, shop keeper or as labour. The livelihood analysis is conducted for different category of people. The information is collected in separate pie diagrams for income and expenditure.

Time Line

During last five decades every village has some historical events like opening of school, hospital, electricity connections, drinking water supply etc. Similarly, there might have occurred natural calamities like flood, severe drought, famine etc. This information is collected in a tabular form along with the year of the event. Such events have impact on the socio-ecological setting of the watershed and in turn prove very helpful in rural development.

Change and Trend Analysis

During last five decades, many changes have occurred in the villages. These changes may be with respect of increase in population, increase or decrease in the number of cows/buffaloes/sheeps/goats, education, cultivated area, irrigated area, number of farm implements. Changes in these criteria should be enquired from recent to past for every ten years upto last fifty years. Based on these trends, projections are also made for next 10 years. This information indicates whether the village has made progress during last 50 years and if yes then in which direction.

Wealth Ranking

Wealth ranking technique provides information about the number of rich, medium and poor farmers. Out of bigger group a smaller group is selected and they are taken in confidence. They can be requested to write name and number of persons in the family, total area of farm, soil type, irrigated area, type of houses pucca or kachcha, tractor, radio and TV. Based on this information, certain levels of richness are fixed. Then this data can be discussed with the other group and come to conclusion as to whom they consider rich, medium or poor. Later on, total numbers of families in the village are classified according to these criteria. Thus, we have an idea of the economic status of the people for whom we are going to plan development.

Matrix Ranking

Matrix ranking technique enables to ascertain priority, potentially and economic returns of any crop, variety or technique adopted by the farmers. Matrix ranking can be carried out for Kharif crops, rabi crops, animals, varieties, or fruit trees.

Transact walk

Transact walk is planned in any one direction from one end of village to another end. Purpose of this walk is to develop clear ideas about the information given by the villagers and also to verify the information. We may take soil groups like sandy, sandy loam, loam. On each soil

type the crops, grasses, trees, land use, insect and disease infested plants are observed and recorded in tabular form.

Triangulation

The above mentioned techniques are repeated at two or three sites with different groups of people. Later on these are compared and collected. During monthly meeting at Panchayat headquarter this information is discussed with still bigger group of villagers and is finalized.

Reference:

i. *Participatory handbook of Oxfam*

Module6:

Community Based Disaster Management: Empowering Communities from Cope with disaster

Session 6: Communality based Disaster Management

Learning Objectives

- To develop a conceptual understanding of CBDRM
- To explore the important frameworks and tools for CBDRM
- To understand the CBDRM guidelines and initiatives in India

Methodology:

Presentation, Lecture, Group exercise

6.1: COMMUNITY BASED DISASTER RISK MANAGEMENT

Rationale

In Community based Disaster Risk Management, the participation of community is essential in order to make disaster risk reduction efforts successful and sustainable at the local level. This concept led to the development of community based disaster risk management (CBDRM), which aims to encourage community involvement (in the forms of participation, partnership, empowerment and ownership) for disaster risk reduction. The module discusses in details about different aspects of CBDRM. In the first section, the basic idea of CBDRM is explained. In the second section the procedures, components and tools utilised in CBDRM are discussed. In the third section the approaches to CBDRM in India is elaborated

Definition–The process of actively involving community in all phases of disaster risk management is termed as Community Based Disaster Risk Management. Involvement of communities may be in the form of participation, partnership, empowerment and ownership through various activities. Community based disaster risk management is often loosely termed as community based disaster management

Why CBDRM is required?

Effective response -In most of the disaster situations, communities are not only affected primarily but they are automatically geared up as the first responders. The capability of the community in delivering prompt response post disasters can be developed through planned and coordinated CBDRM. Thus, when disaster strikes, a prepared community can deliver efficient response in the golden hour which will help in saving lives and minimizing impacts on human and livestock. Also, during the first few hours or days after a disaster strikes, the essential services are unavailable. A community must be able to act on its own and have the ability to quickly return to work, reopen business, restore essential services and assist intervening agencies. Such communities are in a position to witness swift economic recovery and minimal losses.

Local knowledge -Community has the inherent traditional knowledge of common hazards, potentially affected areas and vulnerability and are often having rich indigenous knowledge of the coping mechanism. The implications disasters are shaped by the socio economic conditions and cultural tradition of a community which can be understood only through community interaction. The community perception and assessment of risks can be analysed through the process and methodologies of CBDRM. The community is also the best assessor of disaster impacts and recovery processes. These data can be easily gathered using CBDRM process. Also it reduces the chance of missing out on essential information which might happen in analysis by external agencies (that might be unaware of the contextual setting).

Development of acceptable plans –In many cases, state and local emergency community management plans are developed without direct community involvement. As a result, community people tend to have little faith in these plans. “On the other hand, disaster planning that includes input from the community produces not only higher quality outputs/strategies, but also far higher levels of community approval and confidence in the plans.” (Carafano, Grassroots Disaster **Response**-Harnessing Capacities of Communities, 2007) It also helps in imbibing a sense of individual responsibility for community safety, not only post disaster but in all phases of disaster.

Awareness -Often the community itself unknowingly generates risk or exposed to the prevailing risks. CBDRM involves members of the community in the risk identification and assessment. It makes the community aware and also makes DRR solutions easily acceptable and thus sustainable.

CBDRM Strategies:

- Organizing the community around disaster risk reduction. An organization or a committee that will carry out the CBDRM process is important. The CBDRM process includes risk assessment, planning, community-managed risk reduction programmes and monitoring and evaluation. Public awareness and capacity building are important aspects of community organizing. Organizing is essential in sustainability.
- **Social Mobilization.** CBDRM brings together the multitude of community stakeholders for disaster risk reduction to expand its resource base. The local community level links up with intermediate and national, even up to the international level, to address the complexity of disaster risks. Networking and building partnerships at all levels is crucial in social mobilization. Advocacy, lobbying and campaigning for favourable policy formulation and legislation on CBDRM are important activities for mobilizing various sectors.
- **Analysis**-Action-Reflection. Before implementing the plan a thorough analysis of the situation is undertaken. During and after implementation, people reflect on what went wrong and what went well in the process. Lessons drawn from practice are always considered to improve performance. Lessons learned continue to build into the theory of CBDRM. Complementary to this approach is documenting CBDRM stories.
- **Utilizing participatory methodologies**. CBDRM utilizes participatory tools such as participatory risk assessment, participatory identification of risk reduction measures, participatory planning, community-managed risk reduction programmes and participatory monitoring and evaluation.

6.2:PROCESS OF COMMUNITY BASED DISASTER RISK MANAGEMENT

There are several guiding principles of CBDRM, which are directly or indirectly linked with each other.

Guiding Principles

1. Multi stakeholder participation
2. Participatory approach with community leading the process
3. Involvement of informed facilitators
4. Time and Resource budgeting

5. Forum for convergence – of governmental schemes and programs with CBDRM processes

6. Inclusive Approach

7. Implementation of CBDRM requires a decentralised bottom up approach with active participation of local Panchayats/ Municipal Bodies and non-governmental bodies.

THE CBDRM PROCESS

The CBDRM process is the whole process of assessment of community's hazards, vulnerabilities, and capacities and planning and implementation of risk reduction activities, projects and programs with the full involvement of the community. The CBDRM process has seven sequential stages, which can be implemented before a disaster occurs or after one has happened to reduce future risks. Each stage grows out of the presiding stage and leads to further action. Together the sequence can build up a planning and implementation system, which can become a powerful disaster risk management tool. Following
are the **seven steps** in the CBDRM Process:

a. Selecting the Community

b. Rapport Building and Understanding the Community

c. Community Based Participatory Disaster Risk Assessment

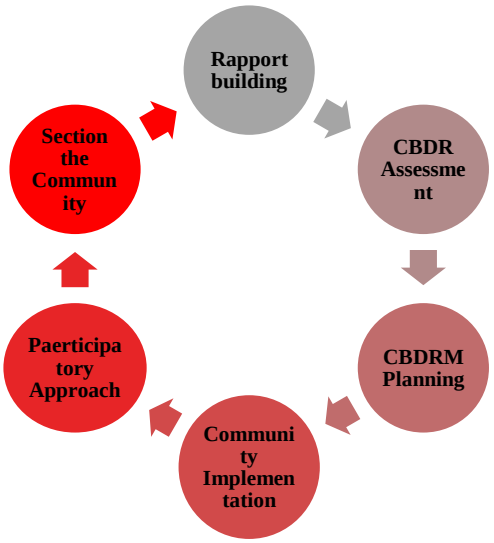
d. Community Based Disaster Risk Management Planning

e. Capacity Building of Community Based Disaster Management Organizations

f. Community Managed Implementation

g. Participatory Monitoring and Evaluation

The stages in the DRR process are given in the figure below:



a. Selecting the community

The first task of local authorities is to conduct a detailed risks assessment survey of the whole area under its jurisdiction. The selection of community for implementation of CBDRM activities depends upon a number of factors and criteria but most importantly the risk exposure of the particular community. Given below is a list of criteria for identifying communities for CBDRM activities:

- Severity of communities' exposure to risk (level of vulnerability)
- Number of people to benefiting
- Readiness of communities to engage in DRR activities
- Poverty status of the community
- Governmental priority of physical social and economic vulnerability
- Budget availability
- Accessibility

All of the above mentioned criteria would not be equally important in given area. The local authority can make decisions on the basis of factors that might be more important locally, than the others. A thorough survey will need to be conducted for the identification of vulnerable communities. The following table can be used to conduct survey for identifying vulnerable communities for a transparent decision-making process.

Community Identification matrix

Criteria								
Communities (villages)	Risk Exposure	Poverty Status	Will to engage in DRR	No. of Potential beneficiaries	Accessibility	Staff Security	Total	Rank

Using matrix ranking decision makers and programme staff can reflect and make better decision in community selection.

How to select communities using matrix ranking?

- Using a set of criteria rank the communities
- The community that receives the highest number is the community that satisfies most of the criteria used.
- Communities should not be, ranked equally.
- As much as possible, only one community should be higher ranked

b. Rapport Building and Understanding

Once the most vulnerable communities are identified it would be important to understand the local social relationships and power structures key economic groups and to build the good informal relationship with the local people. This will be crucial in order to ensure participation of various local groups. Local authorities supporting the community in disaster risk reduction need to build a picture of nature and needs and resources of the community. This step usually involves interacting and integrating with the community and gathering basic information to have a general description of the community.

A relationship of trust and friendship is key in facilitating effective participation. If community members have trust in the outsiders who are working with them, then open sharing about issues, problems concern and solution can take place. Local Authorities can take a number of actions in order to develop trust, with and understanding of the community. This can include the following:

- Living in the community
- Being transparent and open about their purpose

- Participating in daily life activities in the community and cultural events
- Listening to the issue and problems of local people
- Learning new skills from local people
- Performing local task

The behaviour of Local authority is very important in establishing a proper relationship of trust and openness. Ways in which they should behave include:

- Show humility
- Understand local culture, problems and way of life
- Be patient
- Have interest in what people have to say
- Be observant rather than judgmental
- Have confidence that local people can achieve what they set out to do and transmit that confidence.

An understanding of the community's development position and the context upon which disasters will impact includes the following basic elements:

i. Social Groups

- The main ethnic, class, religion and language-based groups in the community
- The majority, the minority and the nature of their relationship.

ii. Cultural Arrangements

- How are the family and community level structures organized?
- What hierarchies exist?
- What are the common ways of behaving, celebrating, expressing?

iii. Economic Activities

- What are the major livelihood sources and what are the associated activities that people carry out?
- What is the division of labour?
- What is the relationship between livelihood activities and seasonality?

iv. Spatial Characteristics

- What are the locations of housing areas, public service facilities (e.g. Schools, temples,Shealth clinics, evacuation centres), agricultural land etc.

v. Vulnerable households and Groups

- Who might be the most vulnerable groups or households, given the location of their houses, sources of livelihoods, ethnic and cultural positions etc?

c. Community Based Participatory Disaster Risk Assessment (CBPDRA)

Community Based Disaster Risk Assessment is a process to identify the risk the communities, villages, communes face and how people overcome those risks. This will be conducted in most vulnerable and priority communities. This process involves hazard assessments, vulnerability assessment, capacity assessment, analysis and prioritization of risk. The CBPDRA will be conducted by the Local Authorities with the involvement of the local people, community leaders and subject experts.

d. Community Based Disaster Risk Management Planning (CBDRMP)

At this stage, further analysis will be conducted jointly by the local authorities and communities to analyse the risks and identify strategies and solutions to address them. Based on this analysis a detailed risk reduction and response plan will be developed for the particular communities. The planning process will involve analysis of local stakeholder and local resources. Roles and responsibilities of the various stake holders for implementation of activities will be clarified.

COMPONENTS OF COMMUNITY BASED DISASTER RISK MANGEMENT PREPERDNESS

- Disaster Management Committee
- Review and analysis of past disasters
- Seasonality Calendar of disasters
- Mapping exercises
- Disaster Mitigation teams(DMTs)
- Mock Drill
- Identification of Hazard Specific Mitigation Activities
- Community Contingency Fund

e. Capacity Building of CBDRM Organizations

To effectively undertake risk reduction measures, it is best to have an organization within the community that will deal with disaster risk management. The form of organization can vary depending upon the situation in the community. It is important to have an understanding of existing organizations within the community. A disaster management committee can be one of the communities within an existing organization. However, if there is no organization yet in the community, a community disaster management organization (CDRMO) can be initiated. The objective of the CDRMO is to enable communities to become better prepared for implementing

disasters and to become disaster resilient in long term.

f. Community Managed Implementation.

The implementation of the plan should be done through the community organization at community level with support from local authorities and technical and research institutions.

The implementation process will include various structural and non-structural activities; e.g. community training, disaster response drills, community early warning systems, disaster resilient construction of houses, forest plantation, diversification of crops, rainwater harvesting, construction of dykes, bridges etc for vulnerability reduction and hazard mitigation. The community-based organization would be responsible for overall management of the disaster management activities. The Local Authority should play a facilitating and coordinating role for the implementation of the community plan and mobilization of the resources. They would also need to provide essential technical assistance to the communities for hazard mitigation and vulnerability reduction since the local communities may not have technical skills and knowledge to undertake various disaster reduction task; e.g. construction of dyke, construction of disaster

resistance houses, or hazard assessment.

g. Participatory Community Monitoring and Evaluation (PCME)

Participatory Community Monitoring and Evaluation (PCME) involves the local community, development agencies, local authorities and other stake holders in measuring the progress made,and identifying necessary follow-up actions. The approach assumes that all concerned parties need to know effective and project efforts have been. It may be challenging, because it encourages people to examine their assumptions on what constitutes progress and to deal with contradictions and conflicts that may emerge.

6.3:COMPONENTS OF CBDRM

(Source – e- Pathshala –on community based disaster management - Rajneesh Ranjan)

The objectives of CBDRM are to make each and every individual of the community to get awareness of the risks they are facing, provide basic knowledge on how to prepare for or mitigate the risks and identify the capacities existing within the community.

The following components form the backbone to attain the aforesaid objectives of CBDRM.

DEVELOPMENT OF CBDMP PLANS – This refers to the development of community based disaster management plans (CBDMP). A **CBDMP** generally includes:

1. ***Area profile***, which contains

- the geographic, socio-economic, environmental and institutional profile of the area
- Village maps with critical information about the community. These maps are rough and not to scale but serve as a good tool to represent geographical data

2.Hazard, Vulnerability and Capacity Assessment, which is conducted with the help of the community. It is based on the community perception and assessment of risks.

a. For each hazard the location, spatial dispersion, intensity, duration, frequency and probability of occurrence is analysed with the help of community participation especially the elderly or knowledgeable people. It is done using

S*easonal calendars* – used to identify time of occurrence of hazards

H*azards maps* – these are not to scale but helps identifying the area which might get affected in a disaster or has been affected in disasters

H*istorical profile* – used to understand the past hazards that the region has witnessed and their nature and characteristics. It enables community youngsters to understand the evolution of risks and the emerging risks

- **E*vent tree*** – helps identifying secondary hazards
- ***Hazard matrix*** – used to prioritize the hazards based on their probability and extent of impact

b. The process of vulnerability assessment sensitizes a community about the vulnerable individuals and helps in generating public awareness. The tools to carry out vulnerability assessment are:

Transect walk – Involves systematic walk through the community area identifying the characteristics and building rapport with the community. It enables future discussions and better participation

Seasonal mapping - Food and resource availability variation etc. across seasons in a year

Vulnerability *mapping* – the vulnerable infrastructure and population

Livelihood analysis – It is used to identify the livelihood pattern and strategies of the community; the livelihood vulnerability due to impact of hazards across the year and mechanisms utilised by the community to deal with these.

Problem tree – helps identify the issues in the community and map the effects of these issues. It is used to identify the relationship between the various aspects of vulnerability, where the root represents the issue and the leaves represent the effects.

Vulnerability Assessment –based on the above tools, the composite vulnerability index can be developed

c. The process of capacity assessment involves identifying the available assets, resources and strengths of the community that can be utilised before during and after disasters. Social, infrastructural and institutional analysis can be utilised in this.

d. Based on the hazard vulnerability and capacity analysis the risk profile of the region can be developed and risk priorities are identified.

The area profile and risk assessment helps in developing the response, preparedness and mitigation plans

3. ***Response plan*** **contains**

a. Standard Operating Procedures for efficient utilization of resources in the aftermath of disasters

b. Mapping of material resources which can be utilized when disaster strikes.

c. Mapping of available human resources, their skills and contact details to enable quick communication and minimising response delays

d. Formation of Village Level Disaster Management Committees (VDMCs), teams and task forces

The VDMCs are groups of 3 to 5 members, with the village head or village level representative of the revenue department leading the team

- The VDMC is assisted by teams and task forces of various kinds
- The teams generally perform back office work viz. administrative support, resource management etc.
- Enthusiastic individuals are chosen to form task forces, generally of 3 to 10 members

These groups are assigned tasks related to specific sectors based on their skillset, e.g.

- ***Early Warning Team*** - inform the community about the impending threat through local means like “drum beat”, “conch” sounds; utilise the vulnerability analysis to convey warning messages to the most vulnerable etc. When the hazard threat weakens, the team conveys the same to the community after verification from competent authorities.
- ***Evacuation Team*** – Evacuates vulnerable areas after receiving message from early warning team, arranges for vehicles/boats to take the victim to nearest hospitals etc.
- ***Search and Rescue team*** - Searches for missing people, rescues people in dangerous locations etc.

- ***Shelter Management*** – Guides the evacuees moving to the relief shelters (e.g. tocarry food stuff and water, location of relief shelters), Registers them, conveys missing information to the Search and Rescue Team, provides support to people residing in relief centres, Co-ordinates with other teams etc.
- ***First Aid and Medical Support Team*** – Provides first aid and medical support till specialized help arrives, Assists specialized medical team
- ***Food, Water and Sanitation Team*** – Stores and maintains required relief, arranges for food and other assistance, Manages the distribution of food and water, assists damage assessment teams, Ensures proper sanitation and solid waste disposal near shelters etc.
- ***Damage Assessment Team***– Prepares authentic list (of people affected and the magnitude of impact on individuals), Ensures hassle free compensation process for affected families
- ***Dead Body Management and Carcass Disposal Team***- Collects bodies, records their details, manages animal carcass etc.

- A definite hierarchy is mentioned in each of the teams and there is a group head and assistant group heads

e. Guidelines related to the roles and responsibilities of different members

f. Contact details of administrative officials, members of the village disaster management committees, teams, task forces and any other key resource

4. Mitigation and Preparedness Plan which contains

- Detailing of community roles and responsibilities to minimize risk exposure, vulnerability and creation of further risks
- Guidelines for risk conscious developmental and natural resource management at the community level
- Guidelines for the village disaster management committees, teams and task forces to conduct and support disaster mitigation and preparedness activities

B. Capacity Building – It helps in enhancing the in-built capacities of the community. It includes the following,

1. *Trainings* - to impart knowledge and build

a) functional capacities like assessment, planning, implementation capacities, capacity for multi stakeholder engagement, capacity to mobilize resources etc. within the community.

b) technical capacities like linking DRR with developmental programs, addressing underlying risks, develop social safety and protection network, risk transfer etc. Specialized training can be provided to help develop disaster response skills as also daily life skills which can help in mitigation and prevention of disasters.

2. *Mock drills* - to be arranged to test the efficiency of the community response, rehearse the roles and responsibilities of each member and test the practicality of the village disaster management plan

3. *Documentation* - involves development of illustrative manuals and guidelines for the community to carry out CBDRM activities both in pre and post disaster scenarios.

4. *Community Contingency Fund* – involves development of an emergency outflow fund. The purpose is to maintain a dedicated fund to carry out disaster management activities in different phases of disaster management life cycle and also to have a readily available lump sum amount in case of emergency. It can be generated by token contribution from each member of the community and maintained by the village administrator or self-help groups. Based on discussions in the community annual meeting, the fund can be utilised.

5. ***Participatory Monitoring and Evaluation*** – Follow up of planned works is one of the key activities of the VDMCs.

C. Awareness Generation – aims to promote public awareness about risks and create a community understanding of disaster risk reduction. The awareness generation campaigns should be oriented towards the community, designed to strike a chord with every section within the community (e.g. both literate and illiterate people) and conducted through both formal and informal channels. Local language and culturally appropriate methods can be utilised in awareness generation campaigns. Print and audio visual media along with community based art forms, rallies, street plays etc. can be used to generate awareness.

Key tools utilised in development of all the components of CBDRM

- Observation
- Focus group discussions
- Interviews

ANNEXURE:

Overall Guideline for developing a CBDP Plan

Following is an overall view at creating a CBDP plan. It takes into account some basic steps to be followed. A set of questions have been suggested at every step, which are expected to lead the initiative logically towards community involvement as well as to arrive at a systematically constructed DM plan.

Sl No.	Activity	Questions to ask
1	Setting aims of the Plan	○ What should be included in the aims and objectives? ○ Who will do it?
2	Preparing community profile	○ Which parameters are to be mapped in the profile? ○ Are any structured formats available? ○ Who is going to do it?
3	Assessment of the Community	○ What are the risks and vulnerabilities in the community? ○ What are the weaknesses and strengths? ○ What are the community resources? ○ How to prepare community maps?
4	Warning Systems	○ What kinds of warning systems are going to be used? ○ Who operates them? ○ Who does what when warnings are received?
5	Evacuation Procedures	○ Who authorises evacuation and when? ○ What routes are to be followed? ○ Who will look after those people in the community who need special assistance?
6	Emergency Shelters	○ What buildings have been chosen for this purpose (e.g. shelter home, schools etc)? ○ What equipment's are available there and who is responsible for their failsafe operation? ○ Who will manage the shelters and how?
7	Search and Rescue	○ Who is responsible? ○ What equipment is available and where is it?
8	Damage/ Needs Assessment—Initial and On-going	○ Who is responsible? ○ How will it be done? ○ Is there a report format available?

9	Road Cleaning/ Debris Clearing	○ Who is responsible? ○ What equipment is available and where is it?
10	Communication	○ How will our community be in contact with the outside world after a disaster? ○ What other means are available?
11	Law and Order/ Security	○ Who is responsible?
12	Transport	○ Who is responsible for arranging transport in an emergency? ○ What vehicles are available and where are they? ○ What arrangements can be made with the owners before a disaster?
13	Repair of Community Services (Water, Electricity, Phones)	○ Who is responsible?
14	Health	○ Who will coordinate First Aid assistance? ○ What clinics, equipment and supplies are available? ○ Who are the trained First Aid personnel in the community and what will be their roles?
15	Personal Support for those Affected by Disasters	○ Who has experience or training? ○ Who will coordinate this assistance?
16	Welfare	○ What will be done to provide shelter, food and clothing for those in need?
17	Relief Supplies	○ Who will identify the most needy and how will it be done? ○ How can emergency supplies be obtained after a disaster? ○ Who will be responsible for obtaining and distributing them?
18	Outside Assistance	○ What is available? ○ How are requests made? ○ Who is responsible for making requests?

19	Testing the Community Plan	○ How will this be done? ○ How will a mock drill be conducted?
20	Revision and Updating of the Community Plan	○ How often will this be done? ○ How will it be done and who will be involved?
21	Making the Community Aware of the Plan	○ How will this be done? ○ How will community members give their input to the Plan? ○ Who is responsible?
22	Risk Reduction (Mitigation) Activities	○ How will these be identified? ○ Who will carry out these activities? ○ How will any such programme be funded?
23	Documents	○ Community maps, VCA details, contact names and addresses, list of people responsible for particular activities, damage/ needs assessment report form, etc.

Community Empowerment

While disasters can strike wide region or a nation, that impact is felt at the community level although it may hit one or several communities at once. It is these communities that constitute what is referred to as "disaster fronts". Being at the forefronts, communities need to have capacity to respond to threats themselves. It is for this reason that communities should be involved in managing the risks that may threaten their well-being.

While different community empowerment programmes related to disaster mitigation have achieved their objectives, they are often short term, and issues on sustainability in these efforts are rarely addressed. Government, non-government and international organizations implement various programmes before and after the disasters. Most of them are very successful during the project period, but gradually diminish as the years pass. There are many reasons for this kind

of phenomena, however, lack of effective participation and capacity building of the local communities to peruse the program remains major factor for lack of sustainability.

It is accepted that governments have the prime responsibility for managing disasters and for taking into consideration the roles played by different players. In the past, top-down and command-and-control approaches were oftentimes used to manage the consequences of disasters. In this approach, decisions come from higher authorities based on their perception on the needs. The communities serve as mere "victims" or receiver of aid. In practice though, this approach was proven to be ineffective. It fails to meet the appropriate and vital humanitarian needs. Moreover, it increases requirements for unnecessary external resources and creates general dissatisfaction over performance despite exceptional management measures employed. This is due to the fact that the community, as the primary stakeholder and recipient of the direct impact of disasters, was not given the chance to participate in the process of decision-making and implementation of activities. On the other hand, communities if left alone have limited resources to fully cope with disasters. In many developing and underdeveloped countries, those who suffer the most are the poor, who, in the first place have limited survival resources and do not enjoy adequate infrastructure and access to social services. Community empowerment for disaster risk management demands their participation in risk assessment, mitigation planning, capacity building, participation in implementation and development of system for monitoring which ensures their stake.

Case studies

The United Nations Centre for Regional Development (UNCRD) has incorporated CBDM as its approach in disaster management planning under the overall organizational mandate of sustainable regional development and human security. The UNCRD Disaster Management Planning Hyogo Office focused on the community initiatives in the Asian region targeting different stakeholders, from local government decision makers to schoolchildren. In all initiatives, attempts were made to ensure that communities are engaged in disaster risk management phases and are empowered to carry over them in long term run. Some case studies of UNCRD initiatives in this regards are discussed below.

Sustainability in Community Based Disaster Management

In the Year 2002, UNCRD launched a three-year project on titled "Sustainability in Community Based Disaster Management", to study the effectiveness of the grass - root projects

and to suggest policy input for sustainability, which will be useful for the different communities to take future actions. This was to help to understand the gaps in the community initiatives, and to take corrective actions in future. The study would be an evaluation of what has been done so far in CBDM with specific examples from field experiences, and what should be done in future for the sustainability of these efforts. In this study, the inter-linkages of government, non-government, academics, and international organizations should be reflected in terms of concrete projects and initiatives, and a model of cooperation would be established.

The goal of the current study is to achieve safety and sustainability of livelihoods for effective disaster mitigation, focusing on three key elements: self-help, cooperation, and education. In order to identify the key factors for successful CBDM, six case studies were chosen in the Asian region targeting three specific hazards: Cyclones (India and the Philippines), earthquakes (Indonesia and Nepal) and floods (Bangladesh and Cambodia). At first, field surveys were carried out and best practices from the case study countries were documented. Based on the analysis of these cases studies, overall framework of action for the sustainability of community based disaster management was prepared. Generic and specific guidelines were developed and field experimentations and testing were made for specific hazards in selected case study countries. From the three-year study, followings were found as key factors for enhancing sustainability:

- The existence of "culture of coping with crisis" and "culture of disaster reduction" exist
- Risk assessment process involves participation of people and incorporating their perception of vulnerability and capacity
- Community and supporting agencies share common motivation and ownership for the initiation and sustainability of CBDM
- Genuine people's participation within capacity building objectives, with specific focus on sectoral groups like women, elderly, children and ethnic minorities
- Well-delivered training inputs in accordance with the objectives of the project and the needs of the community for training
- Wider stakeholders involvement and participation
- Accumulation of physical, technological and economic assets to reduce hazards and vulnerability
- Integration of these projects into regular development planning and budgeting to ensure sustainability

Afgan Training and livelihood Initiative

UNCRD Hyogo Office carried out "Afgan Training and Livlihood Initiative (ALTI)" in Afghanistan from October 2002 to June 2003. Under the need of the holistic rehabilitation after more than two decades of conflict and strife, the urgent need was to build houses of people. As Afghanistan is an earthquake prone country, and is located in one of the most active seismic belts of the world, seismic risk needs to be incorporated in its rehabilitation process. The ALTI focused on developments of guidelines for earthquake safe construction practices, training of masons and engineers, and construction of model houses. All these activities aimed to empower the communities with their active participation in this process. In this community based initiative, livelihood recovery was incorporated through revitalization of vineyards using a cooperative system. These efforts altogether develop human resources, provide sustainable livelihood and are linked to the long term recovery of the country.

Patanka New Life (PNY) Plan

After the Gujarat earthquake of January 2001, PNY was initiated as joint initiative of diverse organizations including government, non-government, academics and international organizations for community based effective rehabilitation. The aim of the initiative was to train and empower local masons and communities with proper earthquake-safer technologies focusing on local tradition and culture. Emphasis was to ensure confidence building and long-term use of traditional technologies. There were two major components of the initiative: one construction and rehabilitation of model village, and training and confidence building of communities through shake-table demonstration testing. The characteristic feature of the initiative was to focus on the holistic approach of the rehabilitation including livelihood. The initiative was successful, especially in terms of community involvement and ownership. The initiative was considered a successful model for sustainable community recovery. The PNY was conceived as a model program right from its inception stage. It sought to empower the affected community to the extent that they are sufficiently resilient against future disasters.

School Earthquake Safety Initiative

The United Nations Centre for Regional Development (UNCRD) is, currently, promoting School Earthquake Safety Initiative through a project "Reducing Vulnerability of School Children to Earthquakes" jointly with UN Department of Economic and Social Affairs

(UNDESA) in Asia-Pacific region. The project aims to make schools safe against earthquakes and build disaster- resilient communities through self-help, cooperation and education. The project includes retrofitting of school building in a participatory way with the involvement of local communities, local governments and resource institutions, trainings on safer construction practices to technicians, disaster education in school and communities. These activities are carried out in Fiji Islands, India, Indonesia and Uzbekistan as demonstration cases which will be disseminated throughout the respective geographical regions.

There are three major aspects of the community empowerment in earthquake disaster risk management through this initiative:

Seismic safety of school buildings: The projects includes seismic vulnerability analysis of some selected schools in a project city of each country and retrofitting of some of them which cover prominent construction typology in the region. This leads to development of country specific guidelines on the earthquake safe construction which incorporates solutions to the practical problems experienced school retrofitting.

Capacity building of communities: Retrofitting of schools in communities serves as a demonstration of proper earthquake technology to them. Masons in the communities get on-job training during the retrofitting of schools. In addition, technicians in each project cities get trainings on earthquake design and construction of houses. Consideration is given to the local practice, material availability, indigenous knowledge and affordability in trainings on earthquake technology.

Disaster education and awareness: The project includes development and wide distribution of educational booklets, posters and guidebook on teachers training and students' drills for earthquake disaster preparedness and response. The guidebooks get verification and updated through trainings and mock drills. The projects also develops an interactive educational tool for awareness raising on earthquake disaster and simple seismic risk assessment of buildings aiming to motivate households for planning seismic upgrading of their houses.

It was learned from earlier programs of UNCRD that the process of making safer schools can be used as an entry points to the communities at risk to facilitate implementation of a training and capacity -building programme for earthquake disaster mitigation technology besides its prime objective of ensuring the safety of school children against future earthquakes. It is achieved by demonstrating how schools can be used as community centres for earthquake

disaster prevention and mitigation. Locally applicable and affordable earthquake-safer construction technology is transferred to these communities.

Lessons

In regards to the issue of engaging and empowering communities for sustainable disaster risk management, followings are the major lessons:

1. Community empowerment and communication help to achieve sustainability in CBDM
2. A holistic secure-livelihood approach enhances sustainability
3. Community based action plans and training improves community's problem solving skills.
4. Because disasters are unpredictable, it is important to maintain the projects and people's awareness of disasters.
5. Transparency of activities and dissemination of knowledge and information encourage people's participation in activities
6. CBDM efforts need stable financial resources.
7. 'What is accepted by the community' is more important than 'what is necessary'
8. Institutionalizing the community and the private sectors can result in more sustainable disaster management programmes

Module7:

Role of PRI in Disaster Management & Community Based Disaster Management planning

LU 7: ***Role of PRI in Disaster Management & Community Based Disaster Management planning***

Objectives

- Enable PRI members to identify their specific roles and functions related to implementation of development programmes at the GP level, as also the related challenges and ways of overcoming identified challenges.

- Describe the concepts, components and issues related to implementation of specific development programmes

Sessions

- Overview of Major National Development Programmes (NDPs) at the Village Level
- Role of PRIs in implementation of national development programmes (NDPs)

Duration: 60 minutes

Methodology: Presentation, Group Exercise &discussion

Key Learning:

It is expected that at the end of this learning unit, the participants would have acquired an enhanced level of awareness and clarity about the roles and responsibilities of PRI members in the implementation of development programmes on the ground.

SESSION PLAN WITH FACILITATION NOTES

Introduction (5 minutes)

Explain the purpose and process of the session and its intended learning outcomes.

Experience Sharing (20 minutes)

Ask the participants to share their experience of different phases of disaster management, particularly in terms of the role of PRIs. Write out the key points from the experiences shared on the white board or flip chart. Group the points culled out from experiences shared into some key categories to highlight the key issues and challenges involved.

It is envisaged that this experience sharing will highlight a range of ideas and yield valuable insights into decentralised management of different phases of the disaster management at the village level.

Group Work (30 minutes)

Distribute one chart paper to each participant and ask each one of them to reflect on their work experience during disasters and write down their 5-10 major responsibilities that they would have undertaken during the pre-disaster, disaster and post disaster phases.

Give each participant 3-5 minutes of time to share their work with other participants.

The methodology of this group work is reflection on experience sharing. On the basis of the experiences shared by the participants during this session, identify the critical roles and functions of PRIs during different phases and stages of the disaster management cycle.

Summarise the key learning from the session. (5 minutes)

TECHNICAL NOTE: ROLE OF PRI BODIES (*Source: PRI Module of UNDP*)

The PRI is a statutory body elected by the local people through a well-defined democratic process with specific responsibilities and duties. The elected members are accountable to the people of the ward, rural community, block and the district.

Keeping the above in view, the PRI, the representative body of the people, is the most appropriate institution from village to the district level in view of its proximity, universal coverage and enlisting people's participation on an institutionalized basis. Their close involvement will go a long way in getting people prepared for countering natural disasters as well as involve them in all possible preventive and protective activities so that the impact of the disasters are mitigated and the people are able to save their lives and property. The PRIs can act as catalysts to social mobilization process and tap the traditional wisdom of the local communities to complement the modern practices in disaster mitigation efforts. Besides PRIs will also provide a base for integration of various concerns of the community with that of the NGOs and CBOs which are engaged in various developmental activities at the grassroots level. Hence there is a need to define the role of PRIs in Disaster Management and sensitize local communities through them to develop coping mechanism in preparedness and mitigation measures of disaster to minimize its destructive effect on life and property at local level. The proposed national workshop will therefore address the relevant issues relating to role of Panchayats in disaster and providing a forum to discuss and evolve strategies to manage crisis situations effectively by these institutions.

The disaster management cycle requires massive efforts in all its aspects like prevention, mitigation, preparedness, response, restoration, rehabilitation reconstruction work. These

include addressing situations like lack of coordination at all levels in the restoration and relief work, non-involvement of the people, over dependency on government, inadequate relief and restoration work, lack of awareness among people regarding potential danger of cyclones and other disasters, lack of knowledge on availability of funds and resources etc,. Thus, the entire preparedness with regard to meeting emergencies like cyclone, flood and drought etc., calls for a constructive role and greater commitment on the part of the PRIs.

Need for involving the PRI Bodies

In general, if the local bodies like Panchayats are not consulted for preparedness-planning, relief and rehabilitation work, it leads to absence of transparency and accountability in the mitigation efforts. The whole approach towards rehabilitation work may end up being 'top down' in nature. As the relief and restoration efforts involve investment of hundreds and thousands of crores of rupees, there should be satisfaction of having utilised them properly and efficiently. Activities like distributing immediate relief in the form of money, food grains, medical care, cloths, tents, vessels drinking water and other necessities, activities of restoration, rehabilitation and reconstruction efforts of damaged villages and towns can be implemented better with the involvement of local bodies.

There is a view that local bodies like Panchayats should be encouraged and empowered to manage the local affairs with the available local resources. The elected leaders and officials of Panchayats should be trained to develop capabilities to handle crisis situation in preparedness, warning, rescue, relief, medical assistance, damage assessment, counseling, water and sanitation and rehabilitation operations. It is felt that in biggest disasters the role assigned to Panchayats was meager in handling the problems of various types at the grassroots level.

The 73d Constitution Amendment (1992) heralded a new phase in the country's quest for a democratic decentralized set-up; more so, in matters appertaining devolution of powers, functions, functionaries and finances. One of the objectives of Panchayati Raj (PR) is to promote popular participation through an institutional framework. The articles 243(G) of the Constitution visualises Panchayats as institutions of self-government. It subjects to extent of devolution and powers and functions to the will of the state legislatures, it also outlines the role of Panchayats in respect of development, planning and implementation of programs of economic development and social justice. A comprehensive list covering 29 subjects which are mostly related to development has also been provided in the Eleventh Schedule to the constitution.

The success of this depends upon adequate devolution of powers, functions, personnel and finances on these bodies, which is yet to make significant progress. Mostly the disaster activities of restoration, rehabilitation and reconstruction fall within the ambit of these development activities. Hence there is an imperative need to involve local bodies in disaster management.

How PRI bodies can lead

It must be conceded that wherever it has strong roots, PRI has played a crucial role in mobilizing people in various situations of crisis. However, it is a fact that it is difficult to preempt disasters and also to predict their magnitude. But the impact of disasters on people living in vulnerable areas and losses to their property can be minimized by a pro-active role played by PRIs at the grassroots level. Apart from great organizing skills, it may call for courage and leading from the front.

The PRI members can play a role of leadership in Disaster Management at all stages. Right from the preparatory stage up to the handling of the long term development activities for risk reduction, PRI can lead in several ways. A broad outline may include activities like:

Pre-Disaster

- Organizing awareness campaign and promoting community education on disaster preparedness
- Articulation of community need for developing preparedness plan through community involvement and Panchayat ownership
- Identifying the resource gaps both physical and manpower and replenish the same through capacity building
- Establishing synergy with local agencies including NGOs/ CBOs
- Dovetailing Risk Reduction into various development programs of national and state governments
- Encouraging people to insure assets and livestock
- Establishing convergence with local institutional structures created for implementing education, health, livelihood, and social justice and so on.
- Activating the DM Plans with the participation of the community
- Formation of Task forces and their capacity building

During Disaster

- Arranging emergency communication through available resources
- Evacuation to temporary shelter and running relief camps
- Supplementing rescue and relief efforts in coordination different agencies
- Monitoring of Relief distribution
- Safe disposal of carcass and arranging safe drinking water and sanitation

Post Disaster

- Damage assessment particularly assisting in identifying victims for compensation and its distribution
- Formulating rehabilitation and reconstruction plan of houses and other local infrastructures
- Enforce minimum specification for safe reconstruction
- Supervise and monitor long term reconstruction and mitigation projects
- Mobilising special funds to use disaster resistant construction technology in vulnerable areas

ROLE OF THE THREE --TIER PRI BODIES IN DISASTER MANAGEMENT

The major role of the Panchayati Raj Bodies in respect of disaster management is in the preparedness planning and its implementation during the impact and post- impact phase as this is the most crucial period for the people facing the Disaster. The village people are the most vulnerable for disasters and therefore the Village Panchayats have to play a major role in association with the higher level bodies of PRIs as well as with the Government agencies.

The involvement of Panchayats is also necessary as this alone can provide quick response and also make people to withstand the threat of the disasters and minimize their dependence on Government response for rescue and relief operation at the time of any crisis. The most important tasks to be performed by the Village, Block and the District Panchayats along with the government machinery at the respective levels during the three phases of disaster management are listed hereunder:

Phase – I
Tasks to be performed by 3- tier Panchayat bodies for Preparedness planning

	Gram Panchayats	Block/ Panchayat Samitis	Zilla Parishads
1	Convening meetings of ward members to ensure proper information regarding the warning signals reached the people through all media modes.	Supervise preparedness of the Gram Panchayats.	Before the onset of monsoon (May) and likely periods of cyclone (May- June & Oct-Nov)1 the District Collector? CEO should have a meeting of all District Heads of the Sectoral Departments and the Members of the Z P for preparedness.
2	Updating information on • Civic amenities • Population • Government and Panchayat properties • Housing and cattle/ livestock population	consolidate village wise information on items listed under GP	All the concerned departments, specially Roads & Buildings, Major and Minor Irrigation, PDS, Communication Police , Revenue Electricity, etc., to take up necessary Repair and maintenance and related works for preparedness to counter Flood& Cyclone Disasters.
3	Selection of location for shifting people/ livestock to safer places	Stock taking with respect to □ Primary health Centers, preparedness of medical staff, medicines, etc. □ Arrangements for transport to assist Gram Panchayats for evacuation □ Keep Cyclone shelters/ safer buildings like schools in ready condition for temporary shelter for the people □ Arrangements for establishing relief and rehabilitation centers and materials required there of □ Arrangements for supply and storage of food and other items of basic necessities	To organize ‘Task Force’ at District, Block and the Village levels.

4	Special arrangements evacuation of handicapped, children and expectant mothers	Engineering staff at the Block / Mandal level should repair drainage/canal/roads etc.	To identify and enlist NGOs who are useful in extending help during disasters
5	Medical sanitation requirements relief camps	Contacting Ex-army / Security forces pe rsonal / volunteers to organize a task force to assist people in emergency	Check the inventories of items required at a short notice for rescue and relief operations during the impact of disasters.
6	Arrangements disconnecting lines during winds/gales	Procure and keep rescue materials including boats ready	At the first warning, call the meeting of the Crisis Management Group and alert all concerned at Block and Village levels.
7	Stocking food grains, drinking water and other necessities	Function as link between the district and village level counter disaster activities	All the members of the Crisis Management Group (CMG) should be asked to keep their personnel in full preparedness, at all levels down the line
8			The District Collector should be the Leader of the CMG and establish a control room which should be managed by senior officers round the clock during the crisis.

PHASE - II

Tasks to be performed by Panchayats for rescue and relief before and during the impact of disasters

1	At the on-set warning of a disaster, the Gram Panchayat Leaders, with the help of District and Block Level officers should start preparations for countering Disaster. Establishment of temporary shelters/ relief camps should start immediately.	With the final warning of cyclone *I* flood disasters, identify the villages likely to be affected and send teams of Task Forces/ Volunteers to the villages to supervise counter disaster measures.	In the event of on-set of a cyclone / flood disaster monitor the situation, identify the Blocks and villages most likely to be affected and issue warnings at close intervals to all concerned.
2	With the final warning, operations for the evacuation of people and the livestock should start so that all are at safer	Arrange transport facilities to evacuate people from villages likely to be affected and help GPs to shelter them in temporary relief camps	Activate control room and keep full watch on the situations

	places before the disaster strikes.		
3	Along with evacuation of people and livestock, storage of food and water for the people and the livestock should be made.	Arrange for emergency communication facility through Police wireless! Ham Radio, etc.	Arrange emergency communication system with the help of Police Wireless / Ham Radio, etc.
4	The Volunteers and the task forces should be kept in full readiness to take rescue operation at the shortest notice.	Arrange and assist GPs to establish temporary shelters/ relief camps.	Activate CMG and put them on job for assisting Block and Village Panchayats for taking counter disaster measures.
5	Medical and other relief teams from the district and Block may be asked to take position at strategic points and coordinate with the village volunteers / task forces	Arrange for the supply and transport of necessary food and other items to relief camps in adequate quantities	Arrange transport for the evacuation of the people and livestock
6	Veterinary aid teams for taking care of livestock and removal and disposal of carcasses and measures for protecting animals from any probable epidemic	Supervise the rescue and relief activities along with District Level officers.	Arrange for temporary emergency shelters/ relief camps and supply and transport of all essential food and non - food items to relief camps
7	After the impact manage the relief centers to provide food, water, medical aid and other necessary services to the affected people.	Inform the CMG in case specific help for rescue and relief operation is required from the Police and Security forces including Army, Navy and Air Force.	Requisitioning of the assistance of the Armed Forces if the need arises.
8	Disposal of dead bodies and measures to prevent any epidemic with the help of medical teams.	Assist the Armed forces in rescue and relief operations	Monitoring of the rescue and relief operations at the village level
9	Assessment of dead persons, livestock, and damage to houses and properties of individuals, agriculture, etc.	Supervise the rescue and relief operations and coordinate with various agencies like Task forces, NGOs and Volunteers engaged in rescue and relief operations	Assisting the Block and village Panchayats in mobilising task forces/ Volunteers/ NGOs for rescue and relief operations
10	Assessment of the damage to the public properties, infrastructure and community assets.		Maintain minute to minute information on the situation during and immediately after the impact and keep

			ready to meet any specific emergency
PHASE - III Reconstruction and long term planning			
1	Assist in the identification of the victims of the disaster and eligible for various types of compensations and assist in the distribution	Assist in Planning and Implementation of Rehabilitation of affected people; Repair and reconstruction of damaged house, physical infrastructure etc and return to normal economic activities including farming etc	Planning and Implementation of Rehabilitation of affected people, repair and reconstruction of damaged houses, physical infrastructure, etc and return to normal economic activities including farming etc
2	Formulate reconstruction plan for individual houses, community and Govt. buildings, roads and other physical infrastructure within the jurisdiction of the GP with the assistance of the technical departments from block and district levels	Assist GP Panchayats in identification of persons eligible for different types of compensation and its distribution.	Compensation for loss of lives, properties of individuals should also begin
3	Enforce minimum code or specifications for the construction of individual houses, community and Government buildings, roads and other physical infrastructure.	Based on hazard and vulnerability prepare village and block level mitigation plan and consolidate and integrate into block plan	Mapping of hazard and vulnerability should be initiated, if it is not available detailed maps should be prepared for each block and district and should be placed in both district and blocks
4	Help district and block level organizations in organizing awareness camps for management and mitigation of disasters and ensure the participation of the villagers	Assist and execute repair and reconstruction activities	The repair and reconstruction activities should be integrated with a long term mitigation planning so that the quality of the reconstruction and repair is in consonance with the specifications provided for disaster resistant structures
5	Organize village level Task Force/ Volunteers and train them in counter disaster measures.	Asist for enforcing the specified code or specification for the construction of houses and buildings, roads and other physical infrastructure	The long term mitigation plan should integrate normal development plan in such manner that protective and preventive measures against the disasters adhered in the

			implementation of all development projects under each and every sector
6	Assist block and district level agencies in all activities related to disaster management and mitigation	Assist in the formulation of long term mitigation planning and its integration with the development plan of the block and the district	Special funding should be made available for the construction of physical infrastructure to include disaster resistant technologies particularly in the construction of houses roads electric transmission lines, drinking water facilities, culverts, telecommunication, irrigation canals, tanks and reservoirs etc. for the sections which are most vulnerable
7	Assist block and district level agencies in the supervision and the monitoring of the reconstruction and development projects within the village	Provide technical assistance to the GP for identifying preventive and protective measures required for countering disasters, planning for them and help in the execution of such projects.	Supervise all construction and development activities
8	Encourage village people to use insurance cover for all their assets/ lives and other aspects. This should be made mandatory for all those who can afford and also take Govt. help for others who can partially / not afford it.	Supervise and monitor all projects implemented by the GPs and block Panchayats relating to reconstruction and long term mitigation of disasters	

ROLE OF PANCHAYAT IN PLANNING AND CAPACITY BUILDING

Community-based disaster preparedness (CBDP) approaches are increasingly important elements of vulnerability reduction and disaster management strategies. They are associated with a policy trend that values the knowledge and capacities of local people and builds on local resources, including social capital. CBDP may be instrumental not only in formulating local coping and adaptation strategies, but also in situating them within wider development planning.

Panchayats have a very important role to play in both preparedness and mitigation in mobilizing and organizing the people as well as facilitate their capacity building. Communities should be motivated to make their own short term and long – term DM plans for Disaster Mitigation for which Panchayat bodies need to lead from the front in building their capacities through regular training in this field. A sustained effort in this direction will not only reduce the dependency of the people on the Govt. but also help mobilize sizeable resources locally to counter disasters and reduce the burden of the Govt. to a great extent.

ROLE OF PANCHAYAT IN MANAGING INFORMATION

Collection, analysis and dissemination are the three phases of managing information. This would not only help in predicting natural disasters, but also help communities plan their agricultural activities.

Collection

Authentic information plays a vital role at the time of need like the disasters. Panchayats should make an attempt to collect information from all relevant sources. In addition, they should make an attempt to check its authenticity and validity before passing it on to the community. Some of the sources from which Panchayats could collect information may be Radio, Television, Govt. sources, District Disaster Mitigation Cell and from Newspapers and News Agencies.

Analysis

Panchayats can form a committee of responsible persons who have access to the sources mentioned above so that they can get the right information at right time In this respect, some of the senior citizens of the local communities should be made members of this committee, so that they can help in identifying certain local geographical indicators, which would enable people to predict future climatic conditions.

Dissemination

Panchayat functionaries can disseminate the information to the people in several ways. This can be done through notice boards, radio, TV, telephone, appropriate signals, word of mouth, volunteers of DMT teams as well as through the local NGOs.

ISSUES IN ROLE OF PRI IN DISASTER PREPAREDNESS AND MANAGEMENT

The role of Panchayats is important in view of their proximity to the local community, universal coverage and enlisting people's participation on an institutionalized basis. It is possible to ensure accountability and transparency through the institution of Gram Sabha.

Hence there is an emphasis to involve Panchayats in Disaster Management and sensitize local communities through them to develop coping mechanism in preparedness and mitigation measures to minimize its destructive effect on life and property at local level. In the event of a disaster all people in its impact zone are affected but the poor and vulnerable (disabled, widow, orphans and children) people suffer the most, as their ability to absorb losses is low. The specific benefits of community participation accrue from involving people in their own development, as can be seen from the following considerations:

- People can be sources of useful ideas, such as those from indigenous technical knowledge and skills;
- People can help adopt technical inputs emanating from outside in order to assimilate various innovations which can be more pertinent under local conditions;
- User groups can set an example to others by testing new knowledge, skills, techniques they have gained, besides institutional interventions formulated by government and;
- Also, the communities and people can participate in decision-making process with regard to implementation of development schemes, which are pertinent to disaster reduction measures. And thus, people's voices and choices can be more appropriately reflected in development programs and the commitment of the implementing functionaries like leaders, officials and NGOs can be reinforced further.

A few more issues need to be considered:

- PRIs need to be trained to evolve a community based disaster preparedness and management plan
- PRIs need to involve/elicit the support or cooperation of other existing formal/informal local organizations in the management of disaster relief and rehabilitation activities
- Based on the mapping of local institutions the PRI need to develop a strategy to orient them on disaster preparedness.
- In social mobilization process, effort should be made to synergies how the local institutions which are found to be better suited as catalysts, be effectively involved to tap the traditional

wisdom of the local communities, to complement the modern practices in the disaster mitigation efforts

- Given the hierarchical nature of bureaucracy (a component of the delivery system) making the officials exclusively responsible for disaster management may not promote participatory approaches.
- Therefore, a synergic approach involving elected representatives along with civil society initiatives like NGOs and CBOs, would provide a broad-based framework for disaster reduction and mitigation. How this process can meaningfully be operationalized should be a core issue.
- Develop community based monitoring system to ensure effective operationalization of disaster mitigation strategies at local level.
- Work out partnership mode of participation between PRIs and line departments and other local organizations so that the productivity of the institutional capital (i.e., resources) be maximized and the Disaster Management can be more effective
- There is a greater need for evolving Management Information System (MIS) to address various components of disaster management (especially planning, preparedness, relief, etc) with the involvement of PRIs. How the networking of local institutions including PRIs and Line Departments should be developed so that MIS can be evolved and utilized with the total participation of the stakeholders.
- Develop an inclusive approach as far as gender and vulnerability are concerned so that the delivery system is sensitive to the needs of all groups, by involving them in the disaster management and preparedness process.

Keeping in view of the importance of the subject of Disaster Management and the role of various agencies and local bodies, it is felt necessary to delineate the role of different organisations for suggesting improvements in the existing coordination mechanism. This would also facilitate convergence of their efforts for effective implementation of rehabilitation and restoration measures to re-build the economy in the aftermath of a large scale devastation caused by natural disasters.

PREPAREDNESS OF THE PRI MEMBERS

As already discussed, a disaster brings in a very critical situation in the community. As the leaders of people the PRI members need to take responsibilities and act, for which they need to be prepared with the right kind of knowledge, skill and attitude. The basic three aspects, therefore, are:

- What they need to do?
- What they need to know? and
- What attitude they must possess?

First of all it is necessary to take note of some of their 'must-do' activities.

I. What the PRI members need to 'DO'

Before a disaster

- Getting to understand the vulnerability of the area and the people
- Facilitation of Disaster Management Plans.
- Resource Mobilization
- Building Capacity of self as well as Team members
- Establishing linkages with other stakeholders
- Involving the DMC and DMTs
- Involvement of women in DM activities
- Inclusion of Disaster Management in the agenda of all meetings

During a disaster

- Involvement in 'response' activities
- Monitoring activities at all levels
- Management of Control Room
- Disbursement of compensation
- Maintaining coordination with related agencies

After a disaster

- Rehabilitation activities
- Maintaining social structures and infrastructures
- Evaluation & Documentation
- Integrating development programs with mitigation of disasters

II. What the PRI members need to 'KNOW'

In order to carry out the aforementioned tasks the members need to gain a good knowledge about the following aspects:

- Concept of DM
- Approaches to capacity building
- Their own roles and responsibilities in DM
- All DM norms/ acts / schemes
- DMP(Process / operations / follow ups)
- Preparedness / awareness

- Technological knowledge / skills
- Process of coordination
- Knowing the stake holders
- DM initiatives taken at all levels
- Convergence & linkages
- Leadership skills
- Methods and approaches to creating dedicated volunteers
- Code of conduct

III. What 'ATTITUDE' the PRI members need to display

One's inner attitude towards a task or a person or towards one's own role counts a lot for the successful execution of a responsibility. This aspect is even more vital in a responsibility connected to the public domain like Disaster Management. Some of these attitudes could be enumerated as:

- Positive disposition towards preparedness activities
- Cognition of local coping mechanism
- Political neutrality
- No blame game and no passing the buck
- Need-based decision making on stakeholders
- Gender equity
- Social service above self
- Ownership of responsibilities
- Openness to learning
- Optimal utilization of resources
- Prioritization of activities
- Never-say-die attitude

Some more Guidelines

Panchayats must adhere to the following principles during relief, rehabilitation and reconstruction activities in order to protect the rights and dignity of each and every victim of a disaster. Relief, they should remember, must be treated as a right rather than as charity.

- Humanitarian imperatives come first.
- Aid should be given regardless of race, creed, nationality, caste and religion.
- Aid priorities must be calculated on the basis of need alone.
- Aid should not be used for a particular political or religious purpose.
- Respect must be shown towards culture and customs.

- Disaster response should build on local capacities.
- Beneficiaries should be involved in the management of relief programs.
- Relief must aim at reducing future vulnerability.
- Honesty, transparency and accountability must be emphasized.
- The dignity of victims must be respected
- Attention should be paid to the issue of gender equity.
- The needs of the children, disabled and stigmatized groups should be addressed on priority.
- All activities should be guided by the principle of inclusiveness.
- Coordination amongst various actors, who come forward to support the disaster affected population, should be maintained.

7.4: INTRODUCTION TO NATIONAL DEVELOPMENT PROGRAMMES (NDPS)

Many national development programmes (NDPs) are launched by Government of India to improve the quality of life of people by enhancing their access to education, health, employment, housing, sanitation, infrastructure etc. These programmes are implemented both by Centre and states and focus on inclusion of the poor and the marginalised including below poverty line (BPL) households, SCs, STs, minorities and women.

Some of the major flagship programmes of the Government are National Rural Livelihoods Mission (NRLM), Indira Awas Yojana (IAY), Nirmal Bharat Abhiyan (NBA), Sarva Shiksha Abhiyan (SSA), National Rural Health Mission (NRHM), Integrated Child Development Scheme (ICDS), Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA), Pradhan Mantri Gram Sadak Yojana (PMGSY).

Some of the National Development Programmes relevant to PRIs

1. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

This is a rural wage employment programme in India. It provides for a legal guarantee of at least 100 days of unskilled wage employment in a financial year to rural households whose adult members are willing to engage in unskilled manual work at a pre-determined minimum wage rate. The objectives of the scheme are:

- To enhance the livelihood security of the rural poor by generating wage employment opportunities; and
- To create a rural asset base which would enhance productive ways of employment, augment and sustain rural household income.

2. Indira Awas Yojana (IAY)

It is one of the major flagship programs of the Rural Development Ministry to construct houses for BPL households in the villages. Under the scheme, financial assistance worth Rs.70,000/- in plain areas and Rs.75,000/- in difficult areas (high land area) is provided for construction of houses. The houses are allotted in the name of the woman of the household or jointly between husband and wife. The construction of the houses is the sole responsibility of the beneficiary and engagement of contractors is strictly prohibited.

3. Nirmal Bharat Abhiyan (NBA)

Nirmal Bharat Abhiyan (NBA) is a revamped version of Government of India's Total Sanitation Campaign (TSC) launched in 1999. TSC had the objective of achieving an open defecation free (ODF) rural India by 2012 by ensuring 100% sanitation coverage and usage in the rural areas of the country. While in 2011 Government of India's online monitoring system indicated around 68% of rural sanitation coverage in the country, but Census of India 2011 data released in the same year reported less than 30% sanitation coverage in the villages of India.

4. Prime Minister's Gram Sadak Yojana (PMGSY)

Pradhan Mantri Gram Sadak Yojana (PMGSY) is a centrally sponsored scheme to provide road connectivity in rural areas of the country. The programme envisages connecting all habitations with a population of 500 persons and above in plain areas and 250 persons and above in Hill States, Tribal (Schedule V) areas, the Desert Areas (as identified in Desert Development Programme) and in the Left Wing Extremism (LWE) affected / Integrated Action Plan (IAP) districts as identified by the Ministry of Home Affairs/Planning Commission.

5. National Rural Health Mission (NRHM)

National Rural Health Mission was launched by the Ministry of Health and Family Welfare, Government of India in 2005 to provide universal health care through a well- functioning health system throughout the country with special focus on eighteen states which have unsatisfactory health indicators and/or weak public health infrastructure. The NRHM aims to provide accessible, affordable, equitable and qualitative health care to rural population by rejuvenating the health delivery system. One of the key components of the Mission is the female health activist known as Accredited Social Health Activist (ASHA). She is the interface between the community and the health facility and is the first line of assistance for any health related demand. There shall be one ASHA for every village. Her work includes creating awareness among the community on health and its social determinants, providing primary medical care for minor ailments and first aid for minor injuries, mobilizing the community towards local health planning, motivating women to give birth in hospitals, bringing children for

immunization, assisting the Gram Panchayat in preparation of comprehensive village health plan, etc. She is paid on the basis of performance (incentive) for the task she undertakes. The success of NRHM, to a large extent, depends on the performance of ASHA

6. Integrated Child Development Services Scheme (ICDS)

ICDS is Government of India's primary social welfare scheme to tackle malnutrition and health problems in children below 6 years of age and their mothers. The target group of the programme are the girl children up to adolescence, all children below 6 years of age, and pregnant and lactating mothers. The gender promotion of the girl child by trying to bring her at par with the male child is a key component of the scheme.

7. Sarv Shikhsha Abhiyan (SSA)

SSA aims at the universalisation of elementary education in a time bound manner, as mandated by the 86th amendment to the Constitution of India making free and compulsory education to children of ages 6–14 (estimated to be 205 million in number in 2001) a fundamental right. Preparing Long Term Training and Capacity Building Strategy for Disaster Risk Reduction under NCRMP: SSA interventions include inter alia, opening of new schools and alternate schooling facilities, construction of schools and additional classrooms, toilets and drinking water, provisioning for teachers, periodic teacher training and academic resource support, textbooks and support for learning achievement.

8. Mid-Day Meal Scheme

This is a multi-faceted programme that, among other things, seeks to address issues of food security, lack of nutrition and access to education on a pan nation scale. It involves provision for free lunch on working days for children in Primary and Upper Primary Classes in Government, Government Aided, Local Body, Education Guarantee Scheme (EGS) and Alternate Innovative Education (AIE) Centres, Madarsa and Maqtabs supported under Sarva Shiksha Abhiyan and National Child Labour Project (NCLP) Schools run by Ministry of Labour.

The primary objective of the scheme is to provide hot cooked meal to children of primary and upper primary classes. With other objectives of improving nutritional status of children, encouraging poor children from disadvantaged sections to attend school more regularly and help them concentrate on classroom activities, thereby increasing the enrolment, retention and attendance rates.

9. National Rural Livelihoods Mission (NRLM)

National Rural Livelihoods Mission (NRLM) was launched by the Ministry of Rural Development (MoRD), Government of India in June 2011. This scheme is focused on

promoting self-employment and organization of rural poor. The basic idea behind this programme is to organize the poor into self-help groups (SHGs) and make them capable for self-employment. NRLM has set out with an agenda to cover 7 Crore BPL households, across 600 districts, 6000 blocks, 2.5 lakh Gram Panchayats and 6 lakh villages in the country through self-managed Self Help Groups (SHGs) and federated institutions and support them for livelihoods collectives in a period of 8-10 years.

Group Exercise

Reference: -

Module8:

Role of NGOs in Disaster Management

(Source Book on Disaster Management – MHA)

NGOs are vibrant, effective and appropriate agency in handling disaster Management in view of their inherent strength like closer to the people need -oriented, flexible, small group, accessible, reach faster to the place of occurrence, spirit of dedication, etc. The country has leading NGOs like Rama Krishna

Mission, Indian Red Cross Society (IRCS) and many other NGOs have done commendable job in disaster management. In fact, it is impossible to disaster without the active support of the active NGOs. The District Administration is to identify the capable NGOs who could be enthused with appropriate disaster management related work.

Strength of NGOs in disaster management system.

- It is proved beyond doubt that in Disaster Management both before and after, NGO/ CBOs can play very crucial role in preparing the community.
- Able to organize the community very quickly.
- NGOs have the advantage of flexibility in its procedure, economic in operation and accessible to people at all time.
- Have more Women - members trained for effectively in dealing with the vulnerable groups like children, women old - aged and impaired people etc.
- NGOs are local small, regional and have good understanding of the people and local situation
- High Powered Committee (HPC) have identified core NGOs at regional level and also NGO network at District Level to be constituted namely VASUDEVA in 2000 exclusively to network among the NGOs. (For handling disaster)
- District level NGOs networking to be done at the district level for quicker and faster action.
- NGOS Can easily create the safety culture in the society. NGO's could be the vehicle for taking insurance to be the people and make the people conscious of safety codes, health, hygiene and sanitation, etc.

District administration and NGO interface

- Identify the NGO's know their expertise and strength capability, operational area- base etc. The District Administration to entrust specific job in an earmarked area in much advance is a pre / determined way to optimize their efficiency and to avoid overlapping and to all areas.
- The District Administration should organize interactive meeting with all the NGos, stationed in the district (This would avoid duplication and overlapping especially during disaster whem manpower is under server shortage)
- Keep ready the list / contact persons address with phone number of NGOs
- Arrange an exclusive NGOs meeting before the regular disaster seasons (Example flood/ drought /cyclone season etc.) Use their experience in preparing a quick response plan by themselves and help them on preparation. Involve them in updating of the Disaster Management Plan of the District / Panchayat or at local body level.
- NGOs who are active to be encouraged to have their own action plan which could be strengthened & institutionalized and linked with District Disaster Management Plan.

- As Indian Red Cross Society is the national nodal agency for relief work the NGOs at District level could be brought under the banner of Red Cross Society where mostly the District Collector is the President.
- Periodic convening of meeting and interaction would bring together all the other NGOs, and could facilitate in exchanging sharing of resources / expertise / equipment's etc.
- NGO's could give a give good timely feedback to the district administration.

NGOs - action points

- Make aware the people of the area about the vulnerability of the area / habitat including the root cause to the various disaster.
- Take steps for information dissemination, education and train the people especially the vulnerable on the preventive steps.
- Impart training to the local people / volunteers on disaster management and how to use the local resource.
- Supply / coordinate / arrange medicines, food grains, cloths, relief materials / equipment / safety kits.
- Identify safe places for shelter both temporary (tents) and permanent buildings for both human and care.
- As part of the coping mechanism - rehearsal and practical demonstration to be done. Like raised platform in flooded areas (Assam - 2002)
- Identify volunteers / capable men / ex- servicemen / retd. Officials and make use of their services in disaster management.
- Plan in advance relief material transport including alternative ways to reach to reach the affected peoples.
- Impact training in rescue, running relief camps, counselling etc.
- If possible, NGOs to plan for its own control room at the District level including site -affected area also and to be direct touch with the District Control Room.
- NGOs also to pool resource from sister NGos who are based in non - affected areas if need be.
- NGOs to take up work like running relief kitchens, maintaining sanitation, awareness creation imparting training to community and counselling etc.
- Make a disaster management plan including a people friendly rehabilitation etc.
- Create awareness of hygienic living full sanitation, rain water harvesting etc.
- If all panchayats could have the disaster plan - the district and state would have the plan.

Module9:

Psychosocial Care for Disaster Affected People

(Source Book on Disaster Management – MHA)

"An adequately robust disaster management plan has to be in place to effectively cope with situation arising from natural and man- made calamities".

The overall development of mental health care with emphasis on decentralized mental health services involvement of a wide variety of personnel for such care, utilizing strengths of the

family and community, and strong emphasis on sharing of knowledge and skills with the general population (destigmatization) are in line with the disaster - care goals. The increasing recognition of the mental health aspects of disaster will enhance the value of mental health by the community.

Symptoms of morbid or pathological grief reaction

Symptoms of Morbid Grief Reaction	Percentage
1. Attributing to Karma and being worried	97.1
2. Over - idealization	91.2
3. Preoccupying thoughts / memories /perceptual anomalies	89.7
4. Chronic grief	74.3
5. Sleep disturbance	66.9
6. Eating problems	57.4
7. Excessive guilt	51.5
8. Problems of general health	56.3
9. Change in pattern of social and recreational activities	44.9
10. Dreams	39.0
11. Excessive anger	36.3
12. Change in attitude towards God	30.9
13. Misidentification	19.1
14. Death wish	18.4
15. Inhibited grief	13.2
16. Suicidal ideas or ruminations	7.4

Features PTSD

Manifestation	% PTSD teachers
1. Recurrent memories , thoughts, images	35.9
2. Nightmares	14.1
3. Reliving experience	33.0
4. Reminders	38.9
5. Autonomic hyperactivity	34.1
6. Autonomic of talks or felling	48.9

7. Avoidance of activities / situations	47.1
8. Loss of memory	28.2
9. Lack of interest	55.3
10. Feeling of estrangement	48.3
11. Emotional numbing	24.7
12. Foreshortened future	52.4
13. Sleep disturbance	42.9
14. Anger outbursts	38.2
15. Hyper - alertness	72.9
15. Easily started	52.3

Loss learnt from disaster

The following lessons learnt from all these activities.

1. Psychosocial care is an essential constituent of response to prevent adverse aspects of disaster
2. The emotional reaction seen among survivors of disaster is a normal response to an abnormal situation
3. Emotional reactions are related to the intensity of experience of the disaster.
4. Symptoms are determined by biological changes.
5. Post- disasters events are important for a full recovery
6. All those who experience disaster need psychical care.
7. Early care to survivors of disaster leads to a better out come.
8. Care is possible for a variety of people in the community.
9. Psychosocial care is a right of survivors of disasters.
10. The experience from the recent Gujarat shows that it is possible to develop and implement a psychosocial care programme for survivors disasters.
11. There is a major advantage in providing psychosocial care to survivors disasters. Besides the improvement in well- being of the population experiencing distress, the general population will become sensitive to the overall mental health needs of such people as apparently ' normal " people develop and recover from psychological symptoms when exposed to disasters as well as when help is provided. This can result in the general population looking at psychological problems as part of life (normalcy deviancy model)

12. Mental health professional and institutions have an important rule in developing care programmes for survivors of disasters such as :
    I. sensitizing key players in relief , rehabilitation, reconstruction and reconciliation to the psychosocial needs of survivors of disasters;
    II. developing training matches and programs suitable for a variety of personnel :
    III. training of trainers ;
    IV. evaluation of the intervention ; and
    V. policy development at the state and national level

Problems among children following the gujarat earthquake

- Many of the children who were victims had started behaving after the event;
- Children become sensitive to after - shocks. (They would shout and get disturbed. After any major after - shock, there was a decrease in the attendance for a day or two following it);
- A few of the children totally lost interest in their studies.
- The children would be alarmed by sounds such as those due to failing of any material, starting of a car just near their classrooms;
- During the initial stages, the school dropout rate was high. Even after one year of the incident, about 3-5 children from each class were not attending school.
- Irregularity in attendance in schools increased after the earthquake.

How to do psychosocial care

1. Psychosocial interventions need to be designed after needs assessment, which is carried out professionally based on a clear culture understanding of the situation and the phase / nature of the disaster.
2. Psychosocial intervention must be placed with other services and support being provided. They need to be supplemented with other physical aspects of recovery.
3. As far as possible, intervention must be community based, with a central role for the community / volunteers.
4. Community - based services and intervention need to be linked to or supplemented with professional service and referral services.
5. Sustainability of the intervention needs to be planned.

The term Community-Based Disaster Risk Management generally encompasses a similar definition to DRM but is particularly relevant to, or has a focus on, the community level. Community participation at many (or indeed all) stages and levels of such interventions has been seen as a central component of CBDRM initiatives. The objective of Community Based Disaster Risk Management (CBDRM) interventions is typically to "reduce vulnerabilities and to increase the capacities of vulnerable groups to prevent or minimize loss and damage to life, property, livelihoods and the environment, and to minimize human suffering and hasten. 'Disasters' occur when a community is faced with a situation that exceeds its capacity to cope (UNISDR 2009b). Such situations affect the community in both economic and social terms, with the scale of damage determined by the form and magnitude of the disaster event, as well as the vulnerability and resilience of the community and the agencies with which it relates. Resource-poor, low and middle-income countries are often at great risk and have increased vulnerability, reduced resilience and reduced capacity to respond. Within a community, disasters typically magnify inequalities, exacerbating prior social problems. Minority groups, the poor and socially marginalised, and within all communities, women, children, elderly, people who are unwell and those with disabilities, are often at higher risk of negative social and economic impacts during, and following, disaster events.[6]

The impact of a natural disaster is rarely uniform across all households in a community or region, and the specific impacts depend on the nature of the disaster. Nevertheless, natural disasters typically impact the finances of poor households in a number of ways. Beyond the immediate devastation caused by disasters, they post long-term, negative, social and economic consequences, particularly for vulnerable communities. As these communities struggle to recover, they find themselves facing health problems, indebtedness and unemployment. While the initial humanitarian and emergency response to crisis is crucial, there is a growing recognition of the value of Disaster Risk Reduction (DRR) strategies in preparing for and thus reducing economic losses associated with disasters[7].

[6] https://eppi.ioe.ac.uk/cms/Portals/0/PDF%20reviews%20and%20summaries/CDBRM%202013%20Zwi%20protocol.pdf?ver=2013-06-12-143922-063

[7] Role of Microfinance Sector In Disaster Risk Reduction In India.Research Team: Parul Agarwal, Amulya Champatiray, Rupika Singh, Shambhavi Srivatava (Ifmr Lead)

Microfinance can effectively be used to enhance disaster risk management by reducing vulnerability and increasing coping mechanisms. Micro-credit, micro-insurance, savings and other safety nets can contribute to disaster risk reduction and build on or expand traditional disaster and risk coping strategies. The poor are acutely vulnerable to disaster and experience disasters differently from the wealthy. For the wealthy, a disaster is an extraordinary exception whereas disaster is an all too familiar part of life for the poor directly impacting their livelihood. The poor face high uncertainty and are constantly vulnerable to the threat of individual disaster. A disaster represents the aggravation of this existing vulnerability due to a precarious livelihood and a lack of assets. International community places increasing emphasis on disaster risk reduction, there is growing interest in the potential of risk financing solutions, of which risk transfer is a major component, as part of an overall disaster risk management strategy. Recent developments in this field include the use of a range of risk transfer mechanisms such as catastrophe bonds, catastrophe pools, index-based insurance and micro-insurance schemes. Social protection programmes such as safety nets and calamity funds can also provide effective financial instruments for managing risk and dealing with natural disaster shocks.

Micro-insurance

Micro-insurance is defined as “the protection of low-income people against specific perils in exchange for regular monetary payments (premiums) proportionate to the likelihood and cost of the risk involved.” As with all insurance, risk pooling allows many individuals or groups to share the costs of a risky event. To serve poor people, micro-insurance must respond to their priority needs for risk protection (depending on the market, they may seek health, car, or life insurance), be easy to understand, and affordable.

Micro-insurance has grown out of the micro-finance movement, where savings, credit and other services have proven successful in helping low-income communities better manage their resources and create their own opportunities. While standard micro-finance products can provide some risk management, the subject of micro-insurance is attracting wide interest as a growing body of evidence demonstrates the potential benefits of micro-insurance for low-income houses and businesses that are traditionally excluded from conventional insurance services.

The intent of micro-insurance is to provide easily accessible insurance cover for small-scale assets at affordable premiums by keeping transaction costs low. The first micro-insurance programmes generally focused on health care and funeral cost products, with new developments and innovations not only improving existing products but also expanding to cover new risks like natural disasters.

Traditional hazard insurance

Traditional insurance products covering natural hazards are written on what is often termed an "indemnity" basis, where the policyholder insures a defined property, economic activity or other entity, such as a building or a business, against specific hazards such as earthquake, wind or flood. In the event of the insured item being lost or damaged as a result of a covered hazard, the policyholder is compensated for their financial loss. Therefore, insurers pay claims based on actual losses.

For many traditional insurance schemes, for instance covering automobiles for accidents and thefts, assessing risk is relatively straightforward due to a large volume of data and experience yielding sound probabilities for losses. Risk assessment for natural hazards, however, is more difficult, due to challenges in assessing both the hazard as well as the insured item's vulnerability to a specific hazard.

Furthermore, natural hazards tend to impact large areas, thus affecting large portions of the population or risk pool at the same time. This can challenge the resources of a local insurance provider who may only do business in the affected area. Reinsurance helps reduce these risks by providing geographic and hazard diversification.

Traditional insurance requires extensive networks of claims adjusters who assess individual losses following an event. At the same time, the possibilities of insurance fraud (called "moral hazard"), as well as only people or organisations at high risk purchasing insurance (called "anti-selection" or "adverse selection"), are relatively high. These factors contribute to the cost of traditional insurance.

Index-based insurance

Index-based insurance (also called parametric insurance) is distinguished from traditional indemnity-based insurance in that it features contracts based on a physical measurement of a

hazard, such as rainfall, temperature or wind speed. Index-insurance is often used for crop risks, where farmers collect insurance compensation if the index reaches a certain measure or "trigger" regardless of actual losses. These schemes may offer a viable alternative to traditional crop insurance, which has failed in many countries, mainly because of the high costs associated with settling claims on a case-by-case basis.

Index-based crop-insurance contracts are sold in standard units by rural development banks, farm cooperatives, or microfinance organisations, and the "premium" varies from crop to crop. As payouts are not coupled with individual loss experience, farmers have an incentive to engage in loss-reduction measures, for example, by switching to a more robust crop variant. A physical trigger also means that claims are not always fully correlated with actual losses, but this "basis risk" may be offset by the reduction of moral hazard and the elimination of long and expensive claims settling. As the claim is a pre-fixed amount per unit of protection, transactions are greatly simplified.

The major advantages of index-based insurance are therefore the reduction of moral hazard and transaction costs. Index-based mechanisms are also more transparent, as they are based on a physical trigger and the payout is fixed in advance. The major downside of index insurance is the basis risk: if the trigger is insufficiently correlated with the losses experienced then no payout may occur, even if the losses are substantial.

Catastrophe pools and bonds

In a catastrophe pool, different but similar entities such as national governments or insurance companies combine resources to form a fund which provides financial protection against catastrophic risks. The amount paid into the pool by participating entities depends on their individual exposure to the covered hazards.

In some cases the fund itself pays out to the individual pool members when claims are made (risk sharing); in others the fund is used to purchase insurance or reinsurance for all involved (risk transfer). In the case of risk sharing, if there are no claims no capital is lost such that the capacity of catastrophe protection increases. For risk transfer, pooling helps lower the cost of (re)insurance, such that the coverage acquired is greater than could have been attained separately by each individual member.

Catastrophe bonds (also known as cat bonds) are risk-linked securities that transfer a specified set of risks from the insured to the global financial markets (investors). Although much discussed, cat bonds are not yet common in developing countries, partly because they are relatively new and generally more expensive than traditional reinsurance.

Cat bonds are usually offered through the creation of a special intermediary entity. If a bond is not triggered, meaning no covered hazard occurs during the predefined period, investors make a healthy return. But if the bond is triggered, then the principal initially paid by the investors and/or the interest is used to pay claims to the insured. Investors find cat bonds attractive because for the same level of risk, cat bonds offer higher interest relative to alternative investments, and they are not correlated with the ups and downs of the financial markets.

Risk financing

Catastrophe risk financing refers to the combination of all methods used to pay for financial losses incurred during a disaster. This has in the past in developing countries focused on post-disaster aid and lending. It is clear, however, that such “ex-post” strategies are not efficient or sufficient. Risk financing now stresses “ex-ante” (before the disaster) measures such as risk transfer and sharing. While use of ex-ante risk financing methods is increasing, during most disasters in developing countries some degree of ex-post support will always be needed.

A truly integrated risk financing strategy should utilise all appropriate and effective methods, in combination as appropriate. Just as risk financing should form an integral part of a general disaster reduction strategy, risk transfer should form an integral part of a risk financing strategy. Aiming to strengthen the flow of resources for effective disaster risk management both “ex-post” and “ex-ante”, risk financing in this sense is relevant at macro-levels for countries as well as at micro-levels for individuals, households, and communities.

Module10:
Best practices

Gujarat Emergency Earthquake Reconstruction Project (GEERP) - A Success Story of Reconstruction

The devastating earthquake of January, 2001 which occurred in Kutch was one of the worst natural disasters to strike Gujarat in terms of scale and intensity. More than 19 Districts and 7633 villages were severely affected in the earthquake. More than a million houses were either destroyed or damaged. The massive impact posed an enormous challenge to evolve and execute a comprehensive Rehabilitation & Reconstruction programme. Government of Gujarat, immediately after the earthquake, launched rescue and relief operations on an unprecedented scale. Lifelines and basic infrastructures like power, water supply, tele-communications were restored within 36 hours. Thousands of doctors and paramedical staff were rushed to the affected areas. More than 5000 heavy machines, earthmovers, cutters and GCBs were pressed into service. More than 25000 civil servants and thousands of armed personnel were deployed for relief and rescue. The restoration activity which was done in 36 Hrs is considered better than international norms of 48 to 72 Hrs. for external assistance in major calamities.

After the emergency phase, the Government of Gujarat embarked on a momentous journey of reconstruction with a vision to go beyond reconstruction and make Gujarat economically vibrant, agriculturally and industrially competitive with a better quality of life and a capacity to mitigate and manage future disasters. Reconstruction after any massive disaster is a challenging task. The task was tough due to the heavy damage, the geographical spread and remoteness of the affected areas. The programme had to have balance between desires and needs, expectations and realities, strengths and limitations. Short term objectives and long term objectives have to be blended to produce a realistic as well as futuristic programme.

Rehabilitation Packages were declared immediately and a comprehensive rehabilitation programme was launched within a month. Loan agreements were signed quickly with the World Bank and Asian Development Bank in the shortest possible time, which is a record not only for the State but also for the funding agencies. The comprehensive reconstruction programme aims at not only recreating the buildings but also aims at rehabilitation of livelihoods, human resource institutions, social rehabilitation and long term disaster management planning. The programme aims to go beyond brick and mortar to rebuild lives, hopes, faith and confidence.

927726 houses were partially damaged and 215355 were totally collapsed. Damage assessment of about 12 lakh houses through house-to-house survey, opening of 6,60,000 bank accounts and removal of 11 million tons of rubble were simultaneously launched. Six Housing Packages catering to different

areas and types of construction were announced for providing financial assistance in housing reconstruction and repair. 100% of the reconstruction work of houses has been achieved.

To instill confidence in the minds of people who were living outside the house, more than millions of pamphlets, thousands of posters, technical books and instructive manuals were prepared and distributed. Through a series of campaigns, through audio-visual shows, folk music, folk dance and even jokes awareness was created about earthquake resistant construction and repair. Confidence followed knowledge.

In a State, where there were no trained engineers and masons capable of multi-hazard resistant construction mere awareness creation would not have done the job. Government undertook the massive job to train thousands of engineers and masons. Qualified training institutions like IITs and experts from India and abroad were roped in, and hundreds of training programmes were launched to train more than 30,000 masons and 7000 engineers in multi-hazard resistant construction.

The fastest way to finish reconstruction programme is to outsource the activity of building to the big companies who have the expertise and capacity. They would have finished the job in 6 months, wound up and disappeared saving the Government from allegations and criticisms but that would have resulted in the continued existence of untrained local masons and engineers without capacity for hazard resistant construction. People would not have understood the need and method of construction of hazard resistance houses, leaving the future generations as vulnerable as ever. Government took the hard option of owner driven construction which was resulted in long term disaster management capacity building. This housing programme of Gujarat can be easily set to be the biggest ever community participated disaster management capacity building programme in the entire world.

But adoption of owner driven construction does not mean that Government absolved itself of the responsibility. Government appointed more than 2700 engineers to provide technical inputs and guidance and materials banks were opened to provide subsidized cement and steel. A third-party quality audit was put into operation for quality check of all newly constructed houses for seismic safety.

Government is imparting training to engineers and masons on a continuous basis. Reconstruction is the fine art of balancing between perfection and practicality. It is aiming at long-term results without losing sight of immediate needs.

In addition to the largest housing rehabilitation programme undertaken by Government of Gujarat, all the damaged buildings in health sector, education, and public buildings are reconstructed to multi-hazard resistant standards. Along with reconstructing and repairing damaged buildings and structures, strengthening of 245 dams for earthquake safety has also been under taken. As part of public infrastructure, 23 water supply schemes have been launched and repairing and strengthening of

transmission and distribution lines in power sector is under progress. The four worst affected towns of Kutch viz. Bhuj, Bhachau, Rapar and Anjar and other 10 towns are being reconstructed as state of the art towns at a cost of Rs. 540 crores.

As stated earlier Government of Gujarat does not look at this rehabilitation & reconstruction programme as a programme of re-creating the destroyed structures and buildings, but also as a program for restoration and creation of livelihoods to reduce economic vulnerability. So far 77967 artisans- inclusive of 30,000 masons, 18258 small industrial units, 183036 framers have been provided with assistance for livelihood restoration. As part of empowering women and uplifting them economically, 9993 women beneficiaries have been provided financial and technical assistance along with skill impartation/up-gradation. A component of retrofitting undamaged public buildings in all sectors has been taken up as a part of rehabilitation programme as a measure of a earthquake disaster mitigation in the state.

The real human face of the programme has been social rehabilitation of women, orphans, handicapped, destitute and aged. Apart from Rs. 2 lakh kept in the joint account of the Collector and the orphan child the State government has also evolved a monthly assistance scheme for orphan children. Special pension is being provided to widows and the old people. Bal & Balika Kutir and Old Age Homes have been created for aged. Handicapped have been provided with employment/skill up gradation apart from injury assistance.

Availability of funds, commitment of government and resilience of the people made Gujarat Rehabilitation and Reconstruction Programme successful. But the most important factor which made this programme a success is the participation of people at all stages. Participation of the community was ensured in identification of the problems, arriving at solutions and implementation of the programme. A decision to relocate or build in-situ was taken by the communities themselves in the Gram Sabha meetings. Houses are built by the owners. Design, choice of material and location were decided by the owners themselves. Village Civil Work Committees were involved in repair of school rooms.

The Chinese word for crisis consists of two characters which also means danger as well as opportunity. The crisis which struck Gujarat has been converted in to an opportunity by the government by taking initiatives towards disaster prevention and mitigation. The Gujarat State Disaster Management Authority was created with the short-term objective of coordinating the Rehabilitation & Reconstruction programme and the long-term objective of disaster management capacity building. The Authority has been undertaking activities like training, sharing of international experience, publishing guidelines in multi-hazard building construction, technology transfer, documentation of lessons learnt, communication activities and mutual exchange programmes. The Gujarat State Disaster Management Policy was approved by the State in November 2002 and Gujarat is the second state in the country to have a policy for disaster management. The Gujarat State Disaster management Act was enacted in

March 2003 and Gujarat has become the first in the country to have a legal and regulatory framework for disaster management in the country.

Ten studies on various aspects of disaster prevention and mitigation such as vulnerability and risk analysis, preparation of vulnerability Atlas, damage and loss assessment methodologies, early warning and emergency communication, review of building codes, writing of GDCR, streamlining of issue of building permissions, risk insurance and risk transfer mechanisms, have been initiated by GSDMA.

Gujarat is vulnerable to many disasters due to its vast geographical situation. Cyclones, floods, earthquake, chemical and nuclear disasters, road accidents are some of the few disasters which are likely to impact Gujarat. Long-term disaster management capacity building aiming at vulnerability reduction and awareness creation through structural and non-structural measures will be the high priority areas of Gujarat in the field of disaster management. Among the structural measures, implementation of building codes for earthquake safety, wind safety, fire safety and in all government and private buildings, revision of GDCR to ensure not only safe construction but also safe town planning is also under progress. We are also conducting a feasibility study on seismic microzonation to identify the cities were Microzonation studies should be conducted for better preparedness and planning. A special study for establishment of regional emergency response centers has also been initiated. After the study regional response centers based in Ahmedabad, Surat and Rajkot will be created and State-of-the-art search and rescue equipment's, trained manpower and infrastructure for search and rescue and emergency response during any disaster will be provided. A special chemical response center will be set up in Baroda considering the high concentration of chemical and petrochemical industries in that area.

In order to collect data and study the seismic activity in Gujarat, a network of 16 seismological observatories, 40 Strong Motion Accelerograph will be established/up-gradated in different locations across the state. Multi-disciplinary teams have been sent to Netherlands and Germany for training in emergency response. These trained teams are now functioning as trainers for search and rescue. 500 people across the state from fire service and SRP will be trained for urban search and rescue in 2003. 90 municipalities have been identified and emergency rescue equipment's will be provided to them by government of Gujarat. The purchase of equipment's is under process.

The syllabus of 9 engineering colleges has been revised to include seismic engineering as a part of the civil engineer course. Similarly the syllabus in civil engineering in polytechnics has also been revised to include seismic engineering as a part of curriculum. Syllabus revision of schools is under way and the basic information about the disaster management has been included in the text books of 3, 4th standards. A special committee has been set up to look into the requirements of syllabus revision from class three to XII and suggest suitable changes.

Gujarat state has taken step towards insurance of private houses by individuals against 14 types of perils, including earthquake. Government of Gujarat is also setting up an Institute of Seismological Research, an apex scientific institute for higher studies and research in the field of seismology. Gujarat Institute of Disaster management has also been established as a premier institution in India to provide ongoing training to administrators, volunteers, fire and rescue teams, NGOs, Doctors and engineers (will be operational soon). The future plan of the institute will also offer Post- graduate and undergraduate courses in disaster management, including distance education. The institute will have practical lessons and simulation exercises and hands-on training for search and rescue and emergency response. It will also network with similar institutions in the world for knowledge and transfer/sharing technology transfer and has mutual exchange programmes. GSDMA with UNDP have launched a community based disaster management programme in 11 highly vulnerable hazard prone Talukas of the state covering 3000 villages. The project is to train communities for rescue, relief, emergency response and sustain till the arrival of external help. The communities will be taught to identify the hazards and vulnerability in their villages and prepare village level emergency plan and form volunteer groups for ensuring emergency medical help, drinking water, communication etc. This will not only promote the spirit of volunteerism but also create the preamble for disaster management within the communities. State level Resource network has been launched to create a web based data base on available resources in terms of material manpower etc. GSDMA is concentrating on GIS based disaster management for hazard and vulnerability assessment, review and allocation of inventories and for effective decisions making.

Post-Training Evaluation & Conclusion

Context & Description

At the end of the training, evaluation of the knowledge, skill and attitude of the participants would determine their exit behaviour. The level of increase of knowledge and skill from the inputs given through the training has to be evaluated. Feedback from trainees regarding the training and related facilities would help in modifying future modules to make it more effective.

Objectives

- To assess the exit behavior of the participants at the end of the course.
- To evaluate the knowledge and skills gained during the course.
- To carry out formal internal evaluation

Duration: 60 mins

Methodology

Any one of the following methods can be followed, according to the trainers' discretion:

- Formal structured questionnaire – Each trainee is asked to fill up a structured questionnaire that evaluates their knowledge gained through the course.
- Quiz on the course – Divide into groups and give points for correct answers. The group that wins gets a small prize.
- Informal discussion– The trainees divide into groups and identify the key learning points of the training and write them on a flip chart. After they finish, they move on to the next flip-chart and add or comment on the points raised by other groups. At the end of the exercise, all the points are collated by the trainer and discussed.

Trainers' Note and Session Plan

The session should be covered in two parts; evaluation of knowledge and exit behaviour and feedback of the training. The first 30 minutes of the training should be devoted to evaluation of knowledge gained during the course of the programme through any of the methods described above. The last 30 minutes should be devoted to taking feedback from the trainees and their suggestions for more effective implementation of training in future. This can be done either through a structured questionnaire or through discussion wherein the training team notes down the suggestions of participants.

Training/ Performance Aids

Depending on the methodology chosen:

- Copies of pre-decided questionnaires or
- Flip charts, Markers, Tag-boards to pin the handouts

This successfully concludes the "Training Programme on Urban Risk Reduction & Resilience".

A formal closing ceremony can be organized according to the protocol/tradition followed by the host organization after the