



# Training Module on INTEGRATION OF DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION INTO RURAL DEVELOPMENT POLICIES AND PROGRAMMES





Training Module  
on  
**INTEGRATION OF DISASTER  
RISK REDUCTION AND CLIMATE  
CHANGE ADAPTATION INTO  
RURAL DEVELOPMENT POLICIES  
AND PROGRAMMES**



**August 2020**

**National Institute of Disaster Management (NIDM)**

*(Ministry of Home Affairs, Government of India)*

A-wing, 4th Floor, NDCC-II Building, Jai Singh Road, New Delhi - 110001

Website : [www.nidm.gov.in](http://www.nidm.gov.in)

**Training Module  
on  
Integration of Disaster Risk Reduction and Climate Change  
Adaptation into Rural Development Policies and Programmes**

ISBN No.: 978-93-82571-36-0

© Author and NIDM, New Delhi

Edition: 2020

**Authors**

Dr. Sushma Guleria, Assistant Professor  
Ms. Aradhna Moktan, Young Professional

**Published by**

National Institute of Disaster Management (NIDM), Ministry of Home Affairs,  
New Delhi-110001

**Citation**

Guleria Sushma and Moktan Aradhna (2020) : Training Module on Integration of Disaster Risk Reduction and Climate Change Adaptation into Rural Development Policies and Programmes. National Institute of Disaster Management, New Delhi-110001, Pages 174.

**Disclaimer**

This document may be freely reviewed, reproduced or translated, in part or whole, purely on non-profit basis for humanitarian, social and environmental well being with permission from the Institute and with due credits to the author. Receiving information and suggestions on its adaptation or use in actual training situations are welcome. The contents of this document have been written/ compiled by the author from the various sources mentioned in the book.

The document can be downloaded from the website <http://www.nidm.gov.in>

नित्यानन्द राय  
NITYANAND RAI



गृह राज्य मंत्री  
भारत सरकार  
नार्थ ब्लॉक, नई दिल्ली - 110001  
MINISTER OF STATE FOR  
HOME AFFAIRS  
GOVERNMENT OF INDIA  
NORTH BLOCK,  
NEW DELHI - 110001



### संदेश

भारत सरकार ने विकासोन्मुखी योजना के द्वारा आपदा जोखिम न्यूनीकरण को मुख्य धारा में लाने की नीति अपनायी है, जिसके अन्तर्गत बहु-क्षेत्रीय परिकल्पनाओं और ऐसे प्रतिष्ठित राष्ट्रीय महत्व के सर्वोत्तम कार्यक्रमों का समायोजन होगा। इनका मुख्य उद्देश्य सामाजिक आधारभूत संरचना का सृजन तथा शिक्षा, कृषि, प्राकृतिक संसाधन, पेयजल, स्वच्छता और स्वास्थ्य जैसे महत्वपूर्ण क्षेत्रों का सुदृढ़ीकरण करना है। ग्रामीण भारत में सुधार लाने के लिए राष्ट्रीय महत्व के विषयों पर सर्वश्रेष्ठ योजनाओं के प्रभावशाली और कुशल कार्यान्वयन में पंचायतों की एक महत्वपूर्ण भूमिका रहती है। इस कारण यह आवश्यक हो जाता है कि ग्राम पंचायत विकास योजनाएं बनाते हुए आपदा प्रबंधन को भी उसमें शामिल किया जाए। इसके अतिरिक्त, प्रधानमंत्री के 10 बिन्दु एजेंडे में आपदा जोखिम प्रबंधन के सिद्धांतों का पालन और समुत्थानशीलता निर्माण के लिए आह्वान किया गया है।

इसी संदर्भ में "आपदा जोखिम न्यूनीकरण तथा जलवायु परिवर्तन अनुकूलन का ग्रामीण विकास नीतियों और कार्यक्रमों में समायोजन" विषय पर इस प्रशिक्षण माड्यूल की रूपरेखा भारत में ग्रामीण विकास क्षेत्र की आवश्यकताओं के अनुरूप तैयार की गई है। इसे भारत सरकार की राष्ट्रीय चक्रवात जोखिम शमन परियोजना के अन्तर्गत 'प्रशिक्षकों के बुनियादी प्रशिक्षण' माड्यूल के आधार पर विकसित और संशोधित किया गया है।

राष्ट्रीय आपदा प्रबंधन संस्थान द्वारा विकसित किए गए इस माड्यूल में ग्रामीण विकास के विभिन्न पहलुओं से संबंधित चार उप-माड्यूल को शामिल किया गया है। इस माड्यूल को भारत में ग्रामीण विकास क्षेत्र के अन्तर्गत नीति निर्माण, योजना और कार्यक्रम प्रक्रियाओं में आपदा जोखिम न्यूनीकरण तथा जलवायु परिवर्तन अनुकूलन को मुख्यधारा में लाने के लिए अपने उपयोगकर्ताओं को प्रशिक्षित करने के लिए एक उपकरण के रूप में विकसित किया गया है।

इस प्रकाशन के माध्यम से ग्रामीण विकास के इस महत्वपूर्ण और अभिन्न क्षेत्र को अपनाने के लिए मैं राष्ट्रीय आपदा प्रबंधन संस्थान को अपनी शुभकामनायें देता हूं। मुझे विश्वास है कि इस प्रशिक्षण माड्यूल से ग्रामीण विकास से जुड़े स्थानीय स्तर के कार्यकर्ताओं, पेशेवरों, नीति निर्धारकों, ग्रामीण विकास से जुड़े राज्य प्रशिक्षण संस्थानों, शोधकर्ताओं और अन्य सभी हितधारकों को लाभ होगा।

(नित्यानन्द राय)

अगस्त, 2020  
नई दिल्ली।



## Foreword

The Sustainable Development Goal encompasses the agenda of people, planet and prosperity. Its ultimate goal is to promote a new worldview and provide the beginnings of a plan to end poverty without imposing significant costs on Earth's life support systems. The SDGs can go long way in setting new societal norms. The goals may help develop a shared understanding of interconnected risks and solutions for various communities. India is predominantly a rural country with two third of its population residing in rural areas. As per the 2011 Census, 68.8 per cent of country's population and 72.4 per cent of workforce resided in rural areas. Rural economy constitutes 46 per cent of national income. Despite the steady rise in urbanization, more than half of India's population is projected to be rural by 2050. Thus growth and development of rural economy and population must be recognized as the key to overall growth and inclusive development of our nation. The Department of Rural Development (RD) under the Ministry of Rural Development (MoRD) plays a vital role in the overall implementation of development and welfare activities in the rural areas. The vision and mission of the Ministry is sustainable and inclusive growth of rural India through a multipronged strategy for eradication of poverty by increasing livelihoods opportunities, providing social safety net and developing infrastructure for growth. Rural Development implies both the economic betterment of people as well as greater social transformation. Increased participation of people in the rural development programmes, decentralization of planning, better enforcement of land reforms and greater access to credit are envisaged for providing the rural people with better prospects. This is the largest employment providing sector in the country and growth of the secondary and tertiary sectors is directly and many times indirectly dependent on it. Thus Rural Development becomes one of the imperative and most important sectors of the Indian economy in many ways. In Addendum, Climate change is also likely to threaten India's food security, increase water stress, and increase occurrences of diseases. Lack of availability and access to technological and financial resources coupled with a high dependence on climate sensitive sectors-agriculture, fisheries, forestry-have made India highly vulnerable to vagaries of extreme weather events. This makes Rural Development as one of the key sectors which is closely linked with agriculture, irrigation, rural livelihoods and rural infrastructure. It is therefore of paramount importance to continue enhancing capacities for Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in the RD sector, across local, sub-national, national and regional levels, and with the active participation of grass root levels.




(Major General Manoj Kumar Bindal, VSM)  
Executive Director,  
National Institute of Disaster Management  
New Delhi, India

आपदा प्रबंधन महाविचार: पूरा भारत भागीदार



# Preface

By 2050, the world population will reach nearly 9.5 billion, which effectively means that we will have to produce 70% more food for over two billion additional mouths roughly. Hence, the food and agriculture systems need to adapt fast to the changing climate and become more resilient, productive and sustainable. It has been analysed that about 14% percent of the population living in developing countries suffers from chronic hunger. Most of them live in rural areas and depend on agriculture, fisheries, forests and livestock for their livelihoods. Agriculture is one of the sectors most affected by natural hazards and disasters, which enhance vulnerabilities of resource-poor farmers/fishers/herders in particular and often, threaten their livelihood security. Over the past decade, natural disasters have caused an estimated USD 1.3 trillion in damages, causing the loss of life of 1.1 million and affecting another 2.7 billion people. A generic trend is that damage and losses from mega disasters in agriculture are higher in countries where the contribution of agriculture to GDP is still high and where agriculture provides a main source of employment such as India. On top of the recorded events, recurrent “silent disasters” (extensive disasters) – more frequent, smaller in size, often localized and not systematically recorded by governments – account for an additional estimated 50% of damages and losses. Given this scenario, as well as other complex global trends and constraints, agriculture is challenged to move towards resilient food systems that are more efficient and productive, preserve the natural resource base and ecosystem services, while being able to withstand risks, shocks and long-term climate variability. This transition requires a major shift towards sector specific Disaster Risk Reduction (DRR) measures, technologies and practices, as well as towards a more sustainable use and management of vital resources such as land, water, soil nutrients and genetic resources. Hence, mainstreaming Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) within the policies and programmes of the agriculture sector and allied sectors are indispensable steps towards more resilient Rural Development sector.

The author has conducted various field based training programmes on the related areas of Integration of DRR and CCA into the Rural Development sector such as Panchayat Raj, Community Based Disaster Risk Management and Village Disaster Management Plans for more than four years before developing this Module. She also served as a Technical Steering Committee (TSC) Member for many years and had contributed in reviewing the Base Module which was

developed under the National Cyclone Risk Mitigation Project (NCRMP) in 2012. The experiences gained by the author from these activities have been used to compile this module for enhancing the knowledge and information related to Rural Development sector and its user stakeholders.

It is hoped that the present module will provide an insight to the trainees in the basic understanding about integration of DRR and CCA into the Rural Development sector and the various measures required for reducing the risks at different levels. The trainees are encouraged to interact with field experts and resources persons in this field to prepare themselves better for building the capacity of the Rural Development sector.



(Dr. Sushma Guleria)  
Author

# Acknowledgement

At the outset, The Authors would like to express their sincere thanks to Major General Manoj Kumar Bindal, VSM, Executive Director, National Institute of Disaster Management (NIDM), New Delhi for his kind encouragement and support in revising and updating this module. We would like to place on record the significant contributions made by different resource persons in compiling the information, tables, case studies related to the Rural Development sector in the country. To begin with, we are particularly thankful to the National Cyclone Risk Mitigation (NCRM) Project Team who had prepared the base module in 2012. Various Training Programmes conducted based on the base module provided valuable insights and enriching experiences for us to revise the module.

We sincerely acknowledge the contributions made by the reviewers Dr. Suresh Babu, Associate Professor, National Institute of Rural Development and Panchayat Raj, Hyderabad, Dr. K. R. Sastry, Ex. Deputy Director, National Institute of Rural Development and Panchayat Raj, Hyderabad and currently Consultant, World Bank Project on DRR for their value addition and useful comments which indeed helped us hone the module and refine it further for better usage.

It gives us immense pleasure in acknowledging the cooperation of our Head of Department, Dr. Anil Kumar Gupta, Professor who ever smilingly guided us all the while with his inputs based on his vast experience, other colleagues, Shri Santosh Tiwari and Ms. Karanpreet Kaur Sodhi, Young Professional from the Library Team, and supporting staff at NIDM, as without them it would not have been possible to refine this document. We would also like to express our sincere gratitude to faculty members and staff of disaster management centres from across the county who have helped in various capacities by sharing their experiences, resources, database etc. and made valuable contributions to this effort.

Finally, and above all, the Authors are grateful to the Almighty God, who is a universal guiding light and without whose benevolence, it would not have been possible to carry any task successfully.



**(Dr. Sushma Guleria)**  
Assistant Professor



**(Ms. Aradhna Moktan)**  
Young Professional



# Contents

|                                                                                                            | Page      |
|------------------------------------------------------------------------------------------------------------|-----------|
| <b>Foreword</b>                                                                                            |           |
| <b>Introduction</b>                                                                                        | <b>1</b>  |
| <b>1. SUB MODULE-1: DEVELOPMENT, DISASTER AND CLIMATE CHANGE: IN THE CONTEXT OF RURAL DEVELOPMENT</b>      | <b>9</b>  |
| 1.1: Basic Concepts of Disaster Management Duration                                                        | 16        |
| 1.2: Disaster Management Cycle: Stages and Inter-relations                                                 | 26        |
| 1.3: Development, Disasters and Climate Change Duration                                                    | 34        |
| 1.4: Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in the context of Rural Development | 38        |
| <b>2. SUB MODULE-2: DISASTER MANAGEMENT AND RURAL DEVELOPMENT</b>                                          | <b>49</b> |
| 2.1: Institutional Framework for Disaster Management in India                                              | 52        |
| 2.2: Overview of Rural Development Sector                                                                  | 57        |
| 2.3: Rural Development: Disaster Management Issues and Challenges                                          | 60        |
| <b>3. SUB MODULE-3: PANCHAYAT RAJ INSTITUTIONS AND VILLAGE LEVEL DISASTER MANAGEMENT PLANNING</b>          | <b>69</b> |
| 3.1: Role of PRI in Rural Development Sector                                                               | 72        |
| 3.2: Village Disaster Management Plan: Need and Framework                                                  | 78        |
| 3.3: Village Disaster Management Committees (VDMCs) and Disaster Management Teams (DMTs)                   | 81        |
| 3.4: Integration of DRR into Gram Panchayat Development Plans (GPDP)                                       | 93        |
| <b>4. SUB MODULE-4: FIELD VISIT</b>                                                                        | <b>99</b> |

|                 |                                                                                                           |            |
|-----------------|-----------------------------------------------------------------------------------------------------------|------------|
| <b>5.</b>       | <b>SUB MODULE-5: RISK TO RESILIENCE BUILDING FOR SUSTAINABLE DEVELOPMENT</b>                              | <b>101</b> |
|                 | 5.1: Disaster Risk, Climate Change and Rural Development: Resilience Building                             | 103        |
|                 | 5.2: Integrating DRR and CCA in Rural Development Schemes                                                 | 106        |
| <b>HANDOUTS</b> |                                                                                                           |            |
|                 | Handout 1: Basic Terms of Disaster Risk Reduction; UNISDR (2009)                                          | 116        |
|                 | Handout 2: Hyogo Framework for Action (2005-2015)                                                         | 122        |
|                 | Handout 3: Sendai Framework for Action (2015-2030)                                                        | 124        |
|                 | Handout 4: Sustainable Development Goals (SDGs)                                                           | 126        |
|                 | Handout 5: Potential Impact of Climate Change on the Sustainable Development Goals                        | 127        |
|                 | Handout 6: DRR and CCA: Differences and Signs of Coverage                                                 | 129        |
|                 | Handout 7: Adaptive Resilience Framework                                                                  | 132        |
|                 | Handout 8: First-Aid Tips                                                                                 | 133        |
|                 | Handout 9: Indigenous Warnings and Remedies for Basic Health Concerns                                     | 136        |
|                 | Handout 10: Examples of (likely to very likely) Impacts from Projected Changes in Extreme Climatic Events | 137        |
|                 | Handout 11: Legislative and Policy Framework for Disaster Management in India: An Overview                | 138        |
|                 | Handout 12: National Flagship Programs of the Ministry of Rural Development, Government of India          | 140        |
|                 | Handout 13: Baseline Indicators for Disaster Resilience                                                   | 142        |
|                 | Handout 14: Progress Checklist for Climate Change Adaptation Mainstreaming                                | 144        |
|                 | Handout 15: Possible Entry Points for Mainstreaming into National Development Planning                    | 145        |
|                 | Handout 16: Social Inclusiveness                                                                          | 146        |

## ANNEXURE

|                       |     |
|-----------------------|-----|
| Coldwave              | 147 |
| Thunder and Lightning | 148 |
| Epidemics             | 150 |
| Earthquake            | 151 |
| Drought               | 152 |
| Heat Wave             | 153 |
| Floods                | 154 |
| For Road Safety       | 155 |
| Forest Fire           | 156 |
| Landslide             | 157 |
| Fire                  | 158 |
| Tsunami               | 159 |
| Cyclone               | 161 |



India is the seventh-largest country and most populous democracy in the world. In India, even after 56 years of independence 64% work force is engaged in agriculture, which contributes to about 24% of GDP. India's wealth per adult has grown at an average of 11 per cent between 2000 and 2019. The growth in India's wealth has been consistent with 2008 being an exception when it dipped by 29 per cent.

India has unique topographical features - plains of central India, rain forests of the north east, icy cold Himalayan region and dry arid desert in west, among others. The cultural, linguistic and religious diversity of India is as much diverse as its geography. Thus with varied topography come varied hazard and disaster. Out of the 29 states and 7 union territories, 22 are disaster-prone. India is vulnerable to wind storms spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan mountains, floods brought by monsoons, and droughts in the country's arid and semi-arid areas. Almost 57% of the land is vulnerable to earthquake (high seismic zones III-V), 68% to drought, 8% to cyclones and 12% to floods. India has also become much more vulnerable to tsunamis since the 2004 Indian Ocean tsunami.

Rural development is one of the key sectors and besides sector specific policies, plans and programs it is closely linked with agriculture, irrigation, rural livelihoods and rural Infrastructure. Climate change is a major challenge for agriculture, food security and rural livelihoods for billions of people (Dev Mahendra, 2011). Reliance on subsistence agriculture means the impact of stresses and shocks (such as droughts or floods) are felt keenly by rural poor people, who depend directly on food system outcomes for their survival (Mark davis, et al., 2008). It is evident from several studies that effects of climate change on livelihood security and welfare of the rural population are alarming, leading to disappearance of flora and fauna and other natural habitat that constitute their livelihoods. However, rural community negated the risks and uncertainties by adopting local wisdom or traditional indigenous knowledge with considerable experiences of coping and risk management strategies in agriculture. For developing countries like India, the aim of achieving 9 per cent or double digit GDP growth, will not take place without achieving 4 per cent growth in agriculture on a sustainable basis. Kim Chang (2010) in his study states that it is necessary to understand that the countermeasures of the agricultural sector against climate change are to minimize the risks of climate change and utilize it as an opportunity. For this, proper education and training programs for agriculture workers, public officials and the personnel from the related agencies should be developed and put into practice so that they can properly cope with climate change.

Government of India (GoI) has taken several steps to address climate change and reduce the vulnerability of rural populations to adverse impacts of climate change through implementation of National Missions and preparation of State Action Plans on Climate Change (SAPCC). GoI has adopted the strategy of mainstreaming DRR through developmental planning inclusive of multi-sectoral approaches, integration of prestigious national flagship programmes that aims to create social infrastructure and strengthen risk reduction in key sectors such as education, agriculture, natural resources, drinking water, sanitation and health to bring the poor within the ambit of development addressing the challenges of climate change issues. Provisions are provided under the Centrally Sponsored Schemes (CSS) for stakeholder participation during the stages of design, appraisal, implementation and review (such as social audit) of the projects. Currently, the understanding of these issues is limited to some sections of the management whereas the need of the hour is to promote this understanding across the board through orientation training and capacity building programmes. Appropriate training and capacity building of staff (at Gram Panchayat both elected representatives and panchayat officials), especially at the operational level, is important not only for programme implementation but also for DRR and CCA mainstreaming.

MoRD has initiated another important programme known as Gram Panchayat Development Plan (GPDP). Gram Panchayats have been mandated for the preparation of Gram Panchayat Development Plan (GPDP) for economic development and social justice utilizing the resources available to them. The GPDP planning process has to be comprehensive and based on participatory process which involves the full convergence with Schemes of all related Central Ministries / Line Departments related to 29 subjects enlisted in the Eleventh Schedule of the Constitution. Panchayats have a significant role to play in the effective and efficient implementation of flagship schemes on subjects of National Importance for transformation of rural India. The component of Disaster Management may also be included while preparing the GPDP.

The Panchayati Raj Institution (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. 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. The PRI members can play a vital role of leadership as local governance in Disaster management at all stages, right from the preparatory stage up to the handling of the long term development activities for risk reduction. Panchayats must adhere to the humanitarian imperatives during relief, rehabilitation and reconstruction activities in order to protect the rights and dignity of each and every victim of a disaster (Debabrata Mondal, Sarthak Chowdhury and Debabrata Basu, 2018. Role of Panchayats in Disaster: A New Vista for Disaster Management. Int. J. Curr. Microbiol. App. Sci. Special Issue - 7: 133 - 138).

It is in this context, that this Module is designed to cater specifically to the rural development sector in India. It has been revised and developed on the base Training of Trainers' Module developed under the National Cyclone Risk Mitigation Project (NCRMP) by Government of India. The base module was run for about three years by NIDM in collaboration with National Institute of Rural Development and Panchayati Raj, (Ministry of Rural Development, Government of India), Hyderabad and significant inputs from the trainings conducted have been duly incorporated in this module.

## DURATION

The duration of the training programme can be customized for duration of 3-5 days depending upon inclusion of a field visit or just class room based sessions only. This module can also be combined with Training Skills and utilized as a Training of Trainers' (ToT) module as well. The modular structure allows freedom and flexibility to its users in terms of making their independent choices for running both the base and training of trainer modules either as one compact training event or as separate training events as required. For this, initial three days can be content based and two days can have orientation on training skills required to run this course.

## GUIDANCE NOTE FOR TRAINERS AND FACILITATORS

### Who can facilitate this Training?

The facilitator will ideally have practical experience and a good conceptual understanding of DRR and CCA including knowledge of mainstreaming issues and challenges into rural development sector. One way to do this is to have two facilitators working together, one with domain experience of disaster management and the other of Rural Development issues. Facilitators need to be confident trainers, with a working knowledge of monitoring and evaluation practices. They need to be flexible, willing themselves to learn, and passion for promoting learning.

### Who shall use this Module and Group Size

This training module is developed for local level functionaries like Disaster Management Practitioners, Revenue Officials, Trainers in Disaster Management, State Institutes of Rural Development Faculties, Civil Defense Volunteers, Elected Representatives from Gram Panchayat, Community Based Organization (CBO) and Non-governmental Organization (NGO) members. After completing the programme, these participants will be expected to train grass root level workers such as Disaster Management Workers, ICDS Workers, Anganwadi Members, ASHA Workers, Auxiliary Health Workers, Panchayat Development Officers (PDO), Block Development Officers (BDO) and Patwaris, Local NGO's working in the respective area etc. Since this is field and group exercise based

training programme, the ideal number of participation per programme should not be more than 30. It is also encouraged to have a good number of women participations in the programme. As it is hard to achieve these numbers for a variety of reasons, it is important to initiate the process of seeking nominations fairly in advance.

### About the Training Module

This training module is developed as a tool to train its users for mainstreaming Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) elements into policy making, planning and programming processes within the rural development sector in India. The entire module is learner centered where the involvement of the participants will play a major role.

The module is divided into 4 Sub-modules and each Sub-module is divided into different learning units and each learning unit into a number of sessions. Each session begins with a statement of its purpose, process, the skills needed by the facilitator, and materials required. All the modules, learning units and sessions therein are built on the basis of the principles of adult learning and it has been tried to keep the sessions based on experiential learning methods. While the focus of training approach and methodology is on experiential methods, the manual uses a combination of traditional learning methods, such as presentations and discussions, along with more participatory and experiential learning approaches, e.g. case studies, group work, and reflections on personal experience. A list of hand outs, sources, references and further readings is also provided in the module.

The module has been designed in a particular order, yet, it is flexible in usage and allows the trainers to revise it as per the clientele group and specific contexts. The modules and sessions can be used in the order presented, on their own, or in combination with other individual sessions and modules. The material can be adapted by the facilitator and contextualized. Other case studies and relevant references can be added or substituted. The way the sessions are delivered will largely depend upon the expertise the facilitators bring in the sessions. Rough estimated timings for sessions are offered, but these should be adapted to fit the time available and the level of participants.

### Venue

This is a field based programme and so, the venue is the field itself. The training programme can be conducted at either of the following places:

Community Hall/Field Panchayat Office

Block Development/Revenue Office Premises

State Institute of Rural Development Premises

Any other suitable Training Hall

## Language of Instruction

The medium of instruction most suited will be use of the local language. However, external Resource Persons who are called for specific sessions may use Hindi as an alternative or English wherever suited.

## Structure of the Module

The module has been divided into four sub modules. The detailed work plan is as follows:

### Day 1

| Topic                                                                                                                 | Time        |
|-----------------------------------------------------------------------------------------------------------------------|-------------|
| Introduction of the participants<br>Setting the tone of the Training Programme                                        | 30 minutes  |
| <b>Sub-Module 1: Development, Disaster and Climate Change:<br/>In the context of Rural Development (330 minutes)</b>  |             |
| Basic Concepts of Disaster Management                                                                                 | 150 minutes |
| Disaster Management Cycle: Stages and Inter-relations                                                                 | 75 minutes  |
| Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in the context of Rural Development                 | 60 minutes  |
| Orientation on Panchayati Raj Institutions:<br>Roles and Responsibilities in Disaster Management and Local Governance | 45 minutes  |

### Day 2

| Topic                                                                            | Time        |
|----------------------------------------------------------------------------------|-------------|
| <b>Sub-Module 2: Disaster Management and Rural Development<br/>(330 minutes)</b> |             |
| Institutional Framework for Disaster Management in India                         | 150 minutes |
| Overview of Rural Development Sector in India                                    | 60 minutes  |
| Rural Development: Issues and Challenges in context of Disaster Management       | 120 minutes |

## Day 3

| Topic                                                                                                        | Time        |
|--------------------------------------------------------------------------------------------------------------|-------------|
| <b>Sub-Module 3: Panchayat Raj Institutions and Village Level Disaster Management Planning (330 minutes)</b> |             |
| Role of PRI in Rural Development Sector                                                                      | 60 minutes  |
| VDMP Framework: Need and Steps                                                                               | 60 minutes  |
| Overview of VDMCs and DMTs                                                                                   | 60 minutes  |
| GIS based Disaster Management Plan                                                                           | 60 minutes  |
| Integration of DRR into Gram Panchayat Development Plan (GPDP)                                               | 160 minutes |

## Day 4

**Sub-Module 4: FIELD VISIT (FULL DAY)**

## Day 5

| Topic                                                                                      | Time        |
|--------------------------------------------------------------------------------------------|-------------|
| <b>Sub-Module 5: Risk to Resilience Building for Sustainable Development (240 minutes)</b> |             |
| Disaster Risk, Climate Change and Rural Development: Resilience Building                   | 60 minutes  |
| Integrating DRR and CCA in Rural Development Schemes                                       | 120 minutes |
| Preparation of Action Plan: A Way Forward                                                  | 60 minutes  |

## Opening the Course

As opening session is going to set the tone of the programme, it has to be planned and conducted prudently. Run an opening session of not more than one hour on the first day of the course. This session is the opportunity to share the purpose and objectives of the training course, lay out the agenda, and set ground rules. It is also an opportunity for the participants to introduce themselves and their experience, explain their motivation for joining the training, and state their expectations from the course. You may want to use an 'ice-breaker' exercise like the one below to facilitate participants get to know each other, and to put them at ease, comfort and motivate participants to interact freely. Following days can have scope for half-an-hour recapitulation sessions before beginning the day formally.

### Rapport Building

Building rapport and trust with the participants is essential in adult learning. The whole idea to make a session interesting and receptive will largely depend upon how comfortable the participants feel in presence of their Trainer. For this, a relationship of trust, friendship and rapport is the key to facilitation of appropriate participation.

### Knowing Each Other

After a brief introduction about yourself, ask the participants to assemble in the middle of the training hall. Once the participants are fully with you, ask them to start walking inside the training hall in any direction they wish. After about 60 seconds, ask them to increase the pace of their walk. After another 60 seconds, ask the participants to walk as fast as they can without hurting anyone or bumping into each other. This milling around loosens people up both physically and mentally. End by telling people to group into pairs of twos' by either identifying the person having a date of birth closest to theirs or assign two people with the same number and ask them to assemble. This process will require monitoring and facilitation. Partners in each pair are then asked to know the following about each other:

- Name and current assignment
- Educational background
- Work experience
- Expectations from the workshop.
- Any Hobby etc.

After about 5-7 minutes, ask each pair to introduce to the class their partner/buddy and their expectations from the training to the entire group. This entire exercise can be completed in 30 minutes, if facilitated properly.

## Feedback from Participants

Feedback is the way to learn about the training sessions as well the Resource Persons and their efficacy from the participants' perspective. This can be conducted as an end of module feedback from the participants. Concurrent feedback can also be observed and tapped as it is for learning about participants' reactions, responses and percent reviewed. Based on the feedback, facilitators can assess the strengths, weakness and gaps of the sessions and refine the module accordingly. This process can be done at the end of each day by spending about 15 minutes on feedback or on the final day of the course, a dedicated slot can be marked for feedback.

### **Suggested Methods for Concurrent and End-of-module Feedback are as Follows:**

1. One method for capturing feedback in real time is to create a space within the training hall and call it 'Parking Lot'. This is a method to ensure that all the comments and suggestions of the participants are posted for everyone's review that they are free to express their opinions and feedback on different sessions on the module and stick it on the 'parking lot' as and when convenient during breaks without disturbing a running session.

Training facilitators should get the posted comments and feedback typed out on a daily basis for review, reflection and sharing with the participants for them to address the same within the ongoing training course.

2. Another method will be to administer an end-of-the-module feedback form to be filled up by the participant at the end of each module after all the sessions have been conducted.

This will be a relatively more structured feedback and will seek to draw the feedback of the participants in the form of their responses to specific questionnaire developed by the training organizing team.

# DEVELOPMENT, DISASTER AND CLIMATE CHANGE:

## In the context of Rural Development

### Learning Objectives

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

- Explain the basic concepts of disaster management
- Engage in analysis of different stages of the disaster management cycle and their interrelations.
- Examine critical linkages across development, disasters and climate change sectors in the context of rural development.

**Duration: 330 Minutes (excluding time for Lunch and Tea Breaks)**

#### Equipments and Materials Needed:

Flip Charts, Markers, Pens, Sticky Notes, Laptop, LCD/Projector, Chart Papers, and Blackboard.

**USEFUL HANDOUTS: 1, 2, 3, 4, 5 & 6**

#### Method(s):

- ☐ Interactive Lecture Presentation
- ☐ Questions and Answers
- ☐ Problem Solving
- ☐ Group Activity
- ☐ Discussion & Use of Audio-Video Aids

#### Session Plan

The trainer/facilitator should start the session with an informal interaction with the participants to first know their understanding of disaster management and various terms, development, disaster and climate change web. Invite them to share their views and make a note of the points made either on a flip chart or white board. This can be more like an expectation setting exercise. Then make a brief presentation explaining the basic concepts in disaster management and highlighting the critical linkages across development, disasters and climate

## Development, Disaster and Climate Change

change. This presentation should cover the evolution of the discourse and action on all the three inter-related domains of development, disasters and climate change globally over the years. Focus should be on mapping out the conceptual field and outlining various policy approaches, particularly with reference to the inter-connections across development, disasters and climate change. Follow it up with an open house discussion inviting comments and questions. Come up with facts, analysis and arguments to respond to the doubts and divergent opinions expressed during the discussion.

**Wrapping up the discussion:** Form 4-5 working groups of participants (depending upon the size of the batch) and ask them to examine the inter-related nature of disaster risk reduction (DRR) and climate change adaptation (CCA) in the light of their own work experience in their respective fields. They can carry this out as a group work. Ask the working groups to share their findings and analysis in a presentation in the plenary. Groups will have the freedom to use power point, flip charts, cards, or just speech for making this presentation. Give 5 minutes at the end for some questions and answers or scope for discussion on each presentation. Close the session with a presentation summing up the key learning from the session and highlighting the points from Sub-Module1.

### Context

This learning unit aims at helping the participants understand the basic concepts, terminologies used in Disaster Management. It also helps examine the critical linkages across development, disasters and climate change in the specific context of rural development. Since, Poverty reduction and sustainable development have been the two core concerns of rural development globally, as also in India over last few decades. These are also embodied in the Sustainable Development Goals (SDGs) therefore, this aspect will also be discussed in this session to emphasize the imperative need for integrating DRR and CCA into the Rural Development Sector.

By 2050, the world population will reach nearly 9.5 billion, which effectively means that we will have to produce 70% more food for over two billion additional mouths. Hence, the food and agriculture systems need to adapt fast to the changing climate and become more resilient, productive and sustainable, there are currently 842 million undernourished people; about 14% percent of the population living in developing countries suffers from chronic hunger (quote reference & year). Most of them live in rural areas and depend on agriculture, fisheries, forests and livestock for their livelihoods. Agriculture is one of the sectors most affected by natural hazards and disasters, which enhance vulnerabilities of resource-poor farmers/fishers/herders in particular, and often threaten their livelihood security. Over the past decade, natural disasters have caused an estimated USD 1.3 trillion in damages, causing the loss of life of 1.1 million and affecting another 2.7 billion people. For 2013, the

Centre for Research on the Epidemiology of Disasters, registered 334 natural disasters that affected 97 million people and caused over USD 118 billion in economic damages.

Large shocks and extensive risks cause serious long-term damage to livelihoods and food security, often diminishing or reversing gains in poverty reduction, agricultural development and in the reduction of hunger. Damage due to various types of hazards on agriculture is massive and varies from area to area, depending where the hazard strikes. A generic trend is that damage and losses from mega disasters in agriculture are higher in countries where the contribution of agriculture to GDP is still high and where agriculture provides a main source of employment such as India. On top of the recorded events, recurrent “silent disasters” (extensive disasters) - more frequent, smaller in size, often localized and not systematically recorded by governments - account for an additional estimated 50% of damages and losses. Given this scenario, as well as other complex global trends and constraints, agriculture is challenged to move towards resilient food systems that are more efficient and productive, preserve the natural resource base and ecosystem services, while being able to withstand risks, shocks and long-term climate variability. This transition requires a major shift towards sector specific disaster risk reduction (DRR) measures, technologies and practices, as well as towards a more sustainable use and management of vital resources such as land, water, soil nutrients and genetic resources. Considerable changes in regional, national and local governance, legislation, policies and investments in the sector are needed to strengthen resilient agricultural production systems.

To reduce underlying vulnerabilities and the exposure to current and future losses and damage caused by natural hazards and disasters it is crucial to systematically mainstream DRR into the agricultural sector, in synergy with climate change adaptation and natural resources management.

The World Conference on Disaster Reduction was held from 18 to 22 January, 2005 in Kobe, Hyogo, Japan, and adopted the present Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (here after referred to as the “Framework for Action”). The Conference provided a unique opportunity to promote a strategic and systematic approach to reducing vulnerabilities and risks to hazards. It underscored the need for, and identified ways of, building the resilience of nations and communities to disasters.

The Sustainable Development Goal encompasses the agenda of people, planet and prosperity. The SDGs will form the overarching international political vision relating to sustainability during the lifetime of the new Future Earth initiative. The ultimate goal of the SDGs is to promote a new worldview and provide the beginnings of a plan to end poverty without imposing significant costs on Earth’s life support systems. The SDGs can go long way in setting

new societal norms. The goals may help create a fresh global narrative around a common future to mobilize collective action and help develop a shared understanding of interconnected risks and solutions.

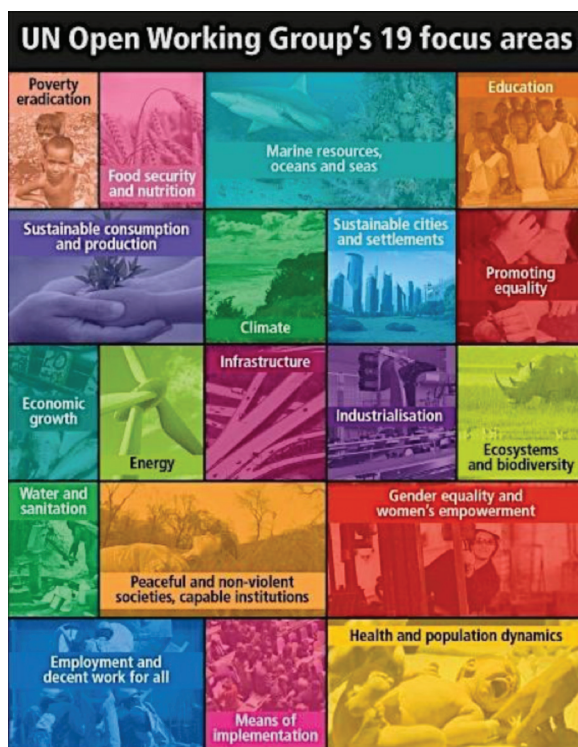
The agriculture sector has an important role in reducing disaster risks, adapting to climate change and enhancing resilience. DRR planning processes in the agriculture sector help bridging short-term humanitarian and long-term development interventions, as emergency response on the one and sustainable economic development and climate change adaptation on the other hand, cannot be achieved without resilient agricultural livelihoods able to withstand shocks, while providing food and nutrition security to the most vulnerable people.

As three-quarters of the world's poor are farmers, mainstreaming DRR into the agriculture sector and vice versa is essential for ensuring sustainable development (FAO 2017b).

While the agriculture sector is at risk, it can also be the foundation upon which more resilient livelihoods are built. In fact, a cost benefit analysis of farm-level DRR has as shown, that, on average, the DRR good practices bring benefits 2.5 times higher than previously used practices under hazard conditions, making it both necessary and worthwhile to place agriculture at the heart of DRR action (FAO2017a).

Effective DRR from the local to the global level depends on sustained political commitment and investment by governments. Mainstreaming DRR within the policies and programmes of the agriculture sector and mainstreaming of agriculture within DRR policies are indispensable steps towards more resilient agriculture development.

People, particularly living in rural areas are poor and the marginalized, and their vulnerabilities constitute the core concern of all the three domains of development, disaster and climate change adaptation in the rural areas.



Vulnerabilities are multi-dimensional and include physical, environmental, social and economic in nature and can have many more dimensions. Vulnerabilities and capacities to cope with disaster related emergencies are intimately inter-linked.

Based on an in depth review of different plans and interviews with stakeholders involved in the DRR-Agriculture planning processes, a number of criteria for the successful mainstreaming of DRR in agriculture and vice versa could be identified, including a better understanding of disaster risks in the agriculture sector, ownership, participation and coordination of the processes, an enabling environment, planning processes that are linked across sectors and levels, ensuring funding for DRR in the agriculture sector and building capacities for the successful implementation of the plans. Key findings include:

- The spatial and temporal complexity of disaster risks for agriculture require sector – specific risk and vulnerability assessments, which take into consideration both, the often highly localized low-impact hazards, as well as the high range of different types of extreme events to which the sector is exposed. Both have devastating impacts on the livelihoods of farmers in the long run.
- During the planning process, strong and lasting ownership and responsibility for the implementation of the DRR plans in agriculture needs to be created. It is therefore important that focal points or units are created early in the planning process and embedded within responsible institutions to enhance ownership throughout the process, to provide internal guidance and insights and to ensure that the plans will be implemented.
- While the different planning documents are important instruments for promoting DRR in the agriculture sector, it is the planning process itself and its ownership that is most important for the successful mainstreaming of DRR into agriculture, and vice versa, as well as its application at the local level through the implementation of DRR and vulnerability reduction measures.
- In order to integrate DRR into agricultural development, an enabling policy environment is the key. Policy frameworks are particularly catalytic when they address the nexus between disaster risk, poverty reduction and sustainable development, as DRR mainstreaming process permeates more easily into development planning.
- DRR planning in the agriculture sector should not be done in isolation from other planning processes. Due to its heavy reliance on climate and its vulnerability to climate extremes, the agriculture sector is particularly well placed at integrating DRR planning processes with climate change

planning processes. The timing of DRR planning in agriculture and careful analyses of timelines of other plans/instruments (whether completed or on-going) are also important.

- The availability of specific DRR-Agriculture plans can enhance the opportunity to include agriculture issues into the crosscutting national DRR planning efforts as well as into CCA and development plans. The inclusion of agriculture into the national DRR planning processes, and the mainstreaming of DRR within climate and development plans should always be ensured.
- Stand-alone funding for DRR in agriculture is difficult to obtain. However, agriculture might attract more resources for DRR, if legislation on mandatory budget allocations for DRR (in addition to the often already existing emergency contingency funds) across sectors were established for the implementation of resilient development pathways.
- In 2009, the Government of India directed all State Governments and Union Territories to prepare State Action Plans on Climate Change (SAPCC), consistent with the strategy outlined in the National Action Plan on Climate Change (NAPCC). Accordingly, all states have developed the SAPCC on Agriculture which has addressed the issues of DRR and CCA considering prevailing agro-climatic conditions in the respective state. Further, Central Research Institute for Dryland Agriculture (CRIDA) has developed the District Contingency plans for all the districts. Besides, Comprehensive District Agriculture Plans (C-DAP) were also available on district websites developed under Rashtriya Krishi Vikas Yojana (RKVY). Funds allocated exclusively for preparation of the SAPCC, C-DAP, RKVY, etc. District Climate Resilience Plan (DCRP) in Jhansi and Chitrakoot districts are the first of its kind attempted to integrate climate resilience requirements and approaches into the district level planning framework in the vulnerable and under developed regions of India, as a follow up to the SAPCC.
- The overarching sectoral development plans are most suitable instruments to promote, through corporate resource mobilization, the uptake of both DRR and the underlying causes of vulnerability in an integrated way including issues related to land tenure, environmental services, access to key natural resources and markets, which are all necessary to effectively address the issues that hamper agricultural smallholders from enhancing their resilience.
- There is significant scope for undertaking an even more comprehensive policy coherence review, which would take into account climate change (in particular CCA) planning processes, as DRR and CCA often overlay and reinforce each other, especially in agriculture.

This learning unit captures the basics of disaster management and also tries to analyze its linkages with development and the changing climate variations so as to enable us address the impact of these inter-linkages in Rural Development context. This will aim at a) to encourage the participants to examine the relative merits and demerits of different policy options in terms of their potential to offset disaster related vulnerabilities on the ground, in the light of their own work experience; b) to trigger them to think through and find solutions in terms of what kind of development measures could possibly pre-empt and mitigate disasters and disaster related risks. Changing and increasingly variable climate is among the major challenges to ensuring food and livelihood security of populations world over. Historical trends and a number of model based projections point to a noticeable increase in surface temperature in India. Keeping the need to make Indian agriculture more resilient to changing and increasingly variable climate, the Indian Council of Agricultural Research launched a megaproject “National Initiative on Climate Resilient Agriculture (NICRA) during February 2011. This initiative, being coordinated by CRIDA, Hyderabad, is a collaborative and participatory effort by a number of institutes addressing the specific sub-sectors within agriculture. In order to develop and target appropriate adaptation measures, it is important to identify regions that are more affected by climate change. This identification process involves assessment of vulnerability of different regions and brought out an atlas on vulnerability of Indian agriculture to Climate change.

This learning unit will seek to locate the discussion within the specific context of the policies and programmers of the Ministry of Rural Development, Government of India. However, this will be done against the overall backdrop of evolving policy approaches and implementation frameworks and strategies for addressing vulnerabilities and enhancing coping capacities of communities at risk globally.

## 1.1: Basic Concepts of Disaster Management

**Duration:** 150 minutes

**Training Methodology:** Power Point Presentation, Discussion & Audio-Video

**Training Note:** The trainer/facilitator is encouraged to utilize initial few minutes of the session by asking the participants to brainstorm and discuss on what they know about disaster management and related terms. The Trainer can use few Audio-Video clippings to make the session interesting.

### Technical Notes

Disasters have always been a result of human interaction with nature, technology and other living entities. Sometimes unpredictable and sudden, sometimes slow and lingering, various types of disasters continually affect the way in which we live our daily lives. Human beings as innovative creatures have sought new ways in which to curb the devastating effects of disasters. However, for year's human conduct regarding disasters has been reactive in nature. Communities, sometimes aware of the risks that they face, would wait in anticipation of a disastrous event and then activate plans and procedures. Human social and economic development has further contributed to creating vulnerability and thus weakening the ability of humans to cope with disasters and their effects.

Disaster Management is the process of reducing the risk of, and vulnerability to hazards. Traditionally Disaster Management meant the measures taken to bring quick and effective relief to disaster hit areas. However, contemporary studies of Disaster Management focus on preventing disasters by pre-planning effective measures for regions that are prone to disaster; both man made as well as natural. Disaster Management can thus be defined as the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels.

To understand Disaster Management, it is necessary to understand the concepts of Vulnerability, Risk, Hazard and Disaster that are embedded in the process of Disaster Management. These have been discussed below:

Hazard is a natural or man-made phenomenon that may cause physical damage, economic loss and threaten human life and well-being or has the potential to cause damage to objects, buildings and the environment. Such phenomena may affect different places singularly or in combination at different times. The hazard has varying degrees of intensity and severity. A hazard is measured and defined by its nature (type of hazard), location and extent, scope and intensity (damage potential) and its probability of occurrence, duration and frequency (repetition cycles) (DM Act, 2005).

As per the High Power Committee report of 2001, it followed a highly process-oriented and participatory approach at the national, state and district levels

involving all concerned governments, ministries, departments, scientific, technical, research & development organizations, social science institutions and covering more than a hundred non-governmental organizations. As the deliberations of the Committee intensified into a nation-wide consultation at all levels, the country continued to face several disasters including Orissa Super-cyclone of October, 1999, drought in various parts of the country and the worst ever earthquake in Gujarat in January, 2001. It is said that disasters offer a unique opportunity to learn, and the Committee indeed tried to learn lessons from various disasters which took place in the country and outside, and to incorporate their lessons in its thinking in terms of improving the proposed strategy to cope with disasters. The set-up that the committee is proposing would provide for such a process of continuous learning at all levels 33 potential hazards have been identified for Indian context which can be further classified based on their origin as follows:

### Disasters Identified by the High Powered Committee

| Water and Climate Related Disasters                                                                                                                                                                     | Geologically Related Disasters                                                      | Chemical, Industrial and Nuclear Related Disasters     | Accident Related Disasters                                                                                                                                                                                                                    | Biologically Related Disasters                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Floods and Drainage Management<br>Cyclones<br>Tornadoes and Hurricanes<br>Hailstorm<br>Cloud Burst<br>Heat Wave and Cold Wave<br>Snow<br>Avalanches<br>Droughts<br>Sea Erosion<br>Thunder and Lightning | Landslides and Mudflows<br>Earthquakes<br>Dam Failures/<br>Dam Bursts<br>Mine Fires | Chemical and Industrial Disasters<br>Nuclear Disasters | Forest Fires<br>Urban Fires<br>Mine Flooding<br>Oil Spill<br>Major Building Collapse<br>Serial Bomb Blasts<br>Festival Related Disasters<br>Electrical Disasters and Fires.<br>Air, Road and Rail Accidents<br>Boat Capsizing<br>Village Fire | Biological Disasters and Epidemics<br>Pest Attacks<br>Cattle Epidemics<br>Food Poisoning |

## List of few Important Disaster Events in the Country

| Name of Event      | Year | State & Area                                                    | Fatalities                                                                                   |
|--------------------|------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Corona Virus       | 2020 | Entire Country                                                  | 114 (as on 7.04.2020)                                                                        |
| Fani               | 2019 | Ganjam, Gajapati, Khurda and Jajpur                             | 8 lakh people evacuated.                                                                     |
| Kerela Floods      | 2015 | Kerela                                                          |                                                                                              |
| Floods             | 2014 | Jammu & Kashmir                                                 | —                                                                                            |
| Cyclone Hudhud     | 2014 | September 2014                                                  | —                                                                                            |
| Odisha Floods      | 2013 | Odisha                                                          | 21 Fatalities                                                                                |
| Andhra Floods      | 2013 | Andhra Pradesh                                                  | 53 Fatalities                                                                                |
| Cyclone Phailin    | 2013 | Odisha and Andhra Pradesh                                       | 23 Fatalities                                                                                |
| Floods/ Landslides | 2013 | Uttarakhand and Himachal Pradesh                                | 4,094 Fatalities                                                                             |
| Cyclone Mahasen    | 2013 | Tamil Nadu                                                      | 08 Fatalities                                                                                |
| Uttarakhand Floods | 2013 | Uttarkashi, Rudraprayag and Bageshwar                           | 52 Fatalities                                                                                |
| Cyclone Nilam      | 2012 | Tamil Nadu                                                      | 65 Fatalities                                                                                |
| Assam Floods       | 2012 | Assam                                                           | —                                                                                            |
| Cyclone Thane      | 2011 | Tamil Nadu, Puducherry                                          | 47 Fatalities                                                                                |
| Odisha Floods      | 2011 | 19 Districts of Odisha                                          | 45 Fatalities                                                                                |
| Sikkim Earthquake  | 2011 | North Eastern India with epicenter near Nepal Border and Sikkim | 97 People Died (75 in Sikkim)                                                                |
| Cloudburst         | 2010 | Leh, Ladakh in J&K                                              | 257 People Died                                                                              |
| Drought            | 2009 | 252 Districts in 10 States                                      |                                                                                              |
| Krishna Flood      | 2009 | Andhra Pradesh, Karnataka                                       | 300 People Died                                                                              |
| Kosi Floods        | 2008 | North Bihar                                                     | 527 Deaths, 19,323 Livestock Perished, 2,23,000 Houses Damaged, 3.3 Million Persons Affected |

|                        |      |                               |                                                                          |
|------------------------|------|-------------------------------|--------------------------------------------------------------------------|
| Cyclone Nisha          | 2008 | Tamil Nadu                    | 204 Deaths                                                               |
| Kosi-Bihar Floods      | 2008 | Bihar                         | 434 Dead Bodies                                                          |
| Tsunami                | 2004 | Tamil Nadu, Kerala, Karnataka | 10,749 Casualties, 5,640 People Missing                                  |
| Gujarat Earthquake     | 2001 | Kutch                         | 13,805 Death, Injured another 167,000                                    |
| Orissa Super Cyclone   | 1999 | Bhubaneswar                   | More than two lakh animals were killed and 25 lakh people were marooned. |
| Maharashtra Earthquake | 1993 | Latur                         | 10,000 People Died, while another 30,000 were Injured.                   |

National Policy for Disaster Management was brought out by NDMA in 2009. The hazard maps prepared for the Vulnerability Atlas of India (2006) was referred in National Policy for describing the extent of earthquakes, flood and cyclone hazards in the country. The objectives of the policy, inter alia, include promoting a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education, besides mainstreaming disaster management into development planning process. Given the increasing concern about the impact of disasters, the broader global awareness of the social and economic consequences of disasters caused by natural hazards developed as the decades progressed. The Hyogo Framework for Action (2005-2015) Building the Resilience of Nations and Communities to Disasters was 2 an outcome of the 2005 Conference. The present Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted at the Third UN World Conference on Disaster Risk Reduction (WCDRR) is built on the basis of the experience matured in the implementation of the Hyogo Framework for Action and other relevant international frameworks. India is also committed to make all efforts to contribute to realization of the global targets by improving the entire disaster management cycle in India by following the recommendations in the Sendai Framework and by adopting globally accepted best practices. The four priorities of Sendai Framework are (i) Understanding disaster risk, (ii) Strengthening disaster risk governance to manage disaster risk, (iii) Investing in disaster risk reduction for resilience, and (iv) Enhancing disaster preparedness for effective response and to Build Back Better in recovery, rehabilitation and reconstruction. A mile stone in the history of disaster management in India is the National Disaster Management Plan which has been drawn by NDMA in 2016, with the vision “Make India disaster resilient, achieve substantial disaster risk reduction, and significantly decrease the losses of life, livelihoods and assts-

economic, physical, social, cultural, and environmental – by maximizing the ability to cope with disasters at all levels of administration as well as among communities”. Since the publication of Vulnerability Atlas of India (2006), there has been invaluable feedback from users on the Atlas. Also, Vulnerability Atlas of India was brought out in digitized CD form in 2008 and was also uploaded on National Informatics Centre (NIC) platform. National Institute of Disaster Management (NIDM), Government of India also used the Atlas for training SAARC countries so as to prepare the region towards disaster risk reduction. There have been subtle changes in the available knowledge and information in the area of disaster mitigation and management. New datasets with respect to earthquake occurrence, cyclones, wind storms, landslides, thunderstorm etc. have been brought out by nodal government agencies. There are demographic changes also on account of formation of new states and new districts.

Hazard identification and analysis is essential to determine the events which are most likely to affect a community and to make decisions about who or what to protect as the basis of establishing measures for prevention, mitigation, and response. In the face of a particular hazard, it is important to determine how each hazard interacts with each and every dimension of vulnerability. Therefore, a study of vulnerability is a study of what might happen to people or communities and while it is not certain that a crisis might occur; it definitely affects different populations in a different manner.

Vulnerability is a term used to describe exposure to hazards and shocks and can be defined as the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a hazard. It involves a combination of factors that determine the degree to which someone’s life, livelihood, property and other assets are put at risk by a discrete and identifiable event (or series or cascade of such events) in nature and society. Communities or individuals can become more vulnerable if they are more likely to be badly affected by events outside their control. It has two components: exposure to hazards and difficulty (through lack of resources) to cope with, and recover from them. The dimensions of vulnerability include social, geographical, economic, environmental and political processes that influence how hazards affect people in varying ways and with different intensities. Some groups are more prone to damage, loss and suffering in the context of differing hazards and the key variables explaining variations of impact include class, occupation, caste, ethnicity, gender, disability and health status, age and immigration status and the nature and extent of social networks.

Hazard identification and analysis is essential to determine the events which are most likely to affect a community and to make decisions about who or what to protect as the basis of establishing measures for prevention, mitigation, and response.

In the face of a particular hazard, it is important to determine how each hazard interacts with each and every dimension of vulnerability. Therefore, a study of vulnerability is a study of what might happen to people or communities and while it is not certain that a crisis might occur; it definitely affects different populations in a different manner.

### THINK TANK

Vulnerabilities get amplified if the exposure to hazards is high

Vulnerabilities at no given point is ZERO, they can only be minimized/reduced. In order to reduce vulnerabilities, capacities need to be enhanced. Therefore, both the terms are inversely proportional.

Development projects can lead to increased vulnerability in a multitude of ways. Juxtapose, Disasters can provide a specific window of opportunity for all areas of development, social, economic and environmental.

Capacities are also vulnerable and thus, need to be strengthened in order to be of use during emergencies.

### *The four different types of Vulnerability are:*

**Physical Vulnerability:** The physical vulnerability of an area also depends on its geographic proximity to the source and origin of the disasters e.g. if an area lies near the coast lines, fault lines, unstable hills etc. it makes the area more vulnerable to disasters as compared to an area that is far away from the origin of the disaster. Physical vulnerability includes the difficulty in access to water resources, means of communications, hospitals, police stations, fire brigades, roads, bridges and exits of a building or/an area, in case of disasters. Furthermore, the lack of proper planning and implementation in construction of residential and commercial buildings results in buildings those are weaker and vulnerable in earthquakes, floods, landslides and other hazards.

**Social Vulnerability:** Socially vulnerable community has weak family structures, lack of leadership for decision making and conflict resolution, unequal participation in decision making, weak or no community organizations, and the one in which people are discriminated on racial, ethnic, linguistic or religious basis. Other social factors such as culture, tradition, religion, local norms and values, economic standard, and political accountability also play a vital role determining the social vulnerability of a community.

**Economic Vulnerability:** Economic vulnerability of a community can be assessed by determining how varied its sources of income are, the ease of access and control over means of production (e.g. farmland, livestock, irrigation, capital etc.), adequacy of economic fall back mechanisms and the availability of natural resources in the area.

**Environmental Vulnerability:** Livelihoods located in areas experiencing high loss of natural vegetation cover are vulnerable to soil loss and low groundwater recharge. (The latter could lead to reduced freshwater availability in the long-term).

Capacity and Vulnerability are inversely proportional. Capacities represent the resources people have to resist, cope with, or recover from a hazard, or “capacities”. Vulnerability is about “not having” while capacities are about “having”. Individuals, households, communities and nations have resources that can resist the impact of a hazard and/or recover quickly from them. A hazard does not cause a disaster unless there are people affected by it; people who do not have the capacity to resist. People’s capacities are also highlighted by what are known as “coping strategies”. These are responses linked to capacities (or resources) which, in the face of a hazard determine how vulnerable or resilient an individual or household can be towards impact of disasters. Community resilience and capacity to deal with different hazards have been found to be lacking in most human societies.

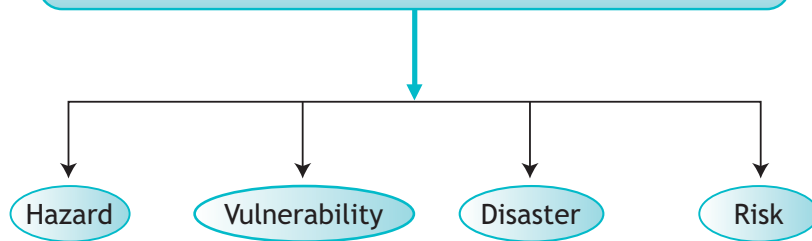
### Uses of Participatory Capacity Vulnerability Assessment (PCVA) Tools in Climate Risk Analysis

| Tool/Approach           | Uses                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Historical Timeline     | <ul style="list-style-type: none"> <li>• Narrates the history of disaster and significant weather/climate events that have happened in the community (over at least 30 years)</li> <li>• Reflects changes in climate trends during the time period covered</li> </ul>                                                                                                           |
| Hazard and Resource Map | <ul style="list-style-type: none"> <li>• Identifies through maps, drawings or illustrations, vulnerable members or sections of the community</li> <li>• Lists down the resources available at the community level and capacities, skills and resources available at the community’s disposal</li> </ul>                                                                         |
| Seasonal Calendar       | <ul style="list-style-type: none"> <li>• Identifies seasonal changes and related hazards, disease, community events, and other information related to specific months of the year</li> <li>• The calendar allows us to see when certain livelihood activities will take place and helps predict if they will happen when a climate hazard is also expected to happen</li> </ul> |

|                     |                                                                                                                                                                                                                                                                                                                         |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ranking             | <ul style="list-style-type: none"> <li>• Facilitates analysis of problems or weighing of solutions</li> <li>• Facilitates discussion and negotiation over why problems, needs, or solutions must be ranked or ordered in a certain way</li> <li>• Facilitates ranking of vulnerabilities, risks, and impacts</li> </ul> |
| Transect walk       | <ul style="list-style-type: none"> <li>• Identifies slow-onset and emerging vulnerability/risk</li> <li>• Maps out land use pattern and resources</li> </ul>                                                                                                                                                            |
| Historical Transect | <ul style="list-style-type: none"> <li>• Allows graphic representation (that is, drawings, pictures, illustrations) of the history of disasters and developments in the community</li> </ul>                                                                                                                            |

Source: Abarquez and Murshed (2001) and IIED (2009)

## Basic Terms in Disaster Management



Hazard may be defined as “a dangerous condition or event, that threat or have the potential for causing injury to life or damage to property or the environment.” A hazard may be any event that threatens life and property and disrupts normal life.

Vulnerability is a very relative concept. It refers to the inability of an individual, group, society, or a nation to deal with disasters effectively. It has been observed that when a disaster strikes any region, the people most affected are more likely to be poor, women, children, and old.

Disaster is a serious disruption of the functioning of a community or a society. Disasters involve widespread human material economic or environmental impacts, which exceed the ability of the affected community or society to cope using its own resources.

Risk is a ‘probability’, a measure of the expected losses (deaths, injuries, property, economic activity etc.) due to a hazard of a particular magnitude occurring in a given area over a specific time period.

## Think Tank

When cyclone struck few coastal districts of Odisha in 1999, almost 10,000 people lost their lives and property worth millions were destroyed. After learning through mistakes of 1999, new techniques and new technologies were incorporated in management of cyclones. Using these techniques, in 2014 and 2015, the loss because of equally deadly cyclones was reduced to minimal.

Hazards may be unavoidable, disasters are preventable.

This means, there are no such things as natural disasters, but there are natural hazards. A disaster is the result of a hazard's impact on society. So the effects of a disaster are determined by the extent of a community's vulnerability to the hazard (conversely, its ability, or capacity to cope with it). This vulnerability is not natural, but the result of an entire range of constantly changing physical, social, economic, cultural, political and even psychological factors that shape people's lives and create the environments in which they live.

## 1.2: Disaster Management Cycle: Stages and Inter-relations

**Duration:** 75 minutes

**Training Methodology:** Power Point Presentation, Discussion

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their field experiences or put up some concern/observation related to the particular sub session or in general about rural sector before the start of the session so as to break the monotony. Trainer can also indulge the group into some playful ice-breaking activities as short breaks during the course.

### Technical Notes

Disaster management aims to reduce, or avoid the potential losses from hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. The disaster management cycle illustrates the ongoing process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred.

**Prevention:** All the measures taken to ensure that any approaching hazard does not convert into a detrimental disaster event and can be avoided as best possible. It is the concept and intention to completely avoid potential adverse impacts through action taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. It is however not always possible to prevent a hazard event from taking place, in this case the task transforms to that of mitigation which aims to minimize the hazard impact.

**Mitigation:** Disaster Mitigation refers to all the steps that are taken to reduce the vulnerability of people to disasters. Thus providing irrigation and water harvesting techniques in drought prone area, creating embankments in flood prone area, and building strong and resistant infrastructure in earthquake prone areas come under mitigation measures. Mitigation is the lessening or limitation of the adverse impacts of hazards and related disasters. 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.

**Preparedness:** Goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes. During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations.

**Response:** The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. The provisions of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

**Recovery (Reconstruction and Rehabilitation):** As the emergency is brought under control, the affected population is capable of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability.

Ideally, there should be a smooth transition from recovery to on-going development. Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life-support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counseling programs; and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned. The reconstruction phase calls for a build back better (BBB) component wherein there is scope to integrate safe structural measures into the new constructions. Similarly, in Rehabilitation, a holistic approach is advocated whereby not only emphasis on livelihood generation is encouraged but to ensure those impacted psychologically are also well socially established post a disaster.

For the process of sustainable development to take off in continuation with reconstruction, it is important that the end objective is not limited to only getting people back upto the base line levels after any disaster, but, seek a holistic rehabilitation as well. It has been reported in Orissa, that in Adivasi villages, where development activities of improved shelter, land and water management and livelihoods were in progress at the time of the super cyclone, not only was the loss of property and life minimal, the loss in economic time was only to the tune of 5 to 10 days. People could bounce back to their normal routines very soon after the cyclone. While in adjacent villages, months after the cyclone, families were still unable to get back to regular work leading to longer term economic decline. This is a very strong argument in favour of “total rehabilitation” as opposed to only reconstruction. Reconstruction and rehabilitation need to be in a seamless continuum with restoration efforts.

## DISASTER MANAGEMENT CYCLE

Disaster is an event or a series of events which gives rise to casualties and/or damage or loss of property, infrastructure, essential services or means of livelihood on a scale that is beyond the normal capacity of the affected communities to cope with unaided.

**Disaster** is defined as:

*“...A serious disruption of the functioning of a society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using its own resources.”*

*The United Nation defines disaster as “the occurrence of a sudden or major misfortune which disrupts the basic fabric and normal functioning of a society (or community) “.*

*Disaster may be defined as a “catastrophic situation in which the normal patterns of life have been disrupted and extraordinary emergency interventions are required to save and preserve human lives and the environment”.*

### Risk

*Risk is a measure of the expected losses due to a hazard event of a particular magnitude occurring in a given area over a specific time period. Risk is a function of the probability of particular occurrences and the losses each would cause. The level of risk depends upon:*

- ☐ Nature of the hazard
- ☐ Vulnerability of elements which are affected
- ☐ Economic value of those elements

## Hazard and Vulnerability

A disaster is the product of a **hazard** such as earthquake, flood or windstorm coinciding with a vulnerable situation, which might include communities, cities or villages. Without **vulnerability** or hazard there is no disaster.

Hazard is defined as *“a phenomenon that poses a threat to people, structures or economic assets and which may cause a disaster. It may be either man-made or naturally occurring in our environment”*. A natural hazard pertains *“to a natural phenomenon which occurs in proximity and poses a threat to people, structures and economic assets caused by biological, geological, seismic, hydrological or meteorological conditions or processes in the natural environment.”*

There are four types of hazardous events that put societies at risk:

1. Those based in nature: earthquake, droughts, floods, etc.
2. Those based in violence: war, armed conflict, physical assaults, etc.
3. Those based in deterioration: environmental degradation declining health, education and other social services.
4. Those based in failing industrialized society: fire, gas leakage, transport collisions, etc.

We are, however, concerned only with natural events of hazardous nature falling in category (1) as mentioned above.

The extent of damage from a disaster depends on:

1. The impact, intensity and characteristics of the phenomenon, and
2. How people, environment and infrastructure are affected by that phenomenon

The relationship between hazard and vulnerability is best represented as an equation:

$$\text{Disaster Risk} = \text{Hazard} \times \text{Vulnerability/Capacity}$$

## Vulnerability

As stated above that India is the most vulnerable to natural disasters in the world. The disaster is the product of hazards like floods, cyclones, landslides, earthquakes, etc. and these are not rare, while the vulnerability varies from region to region. Vulnerability analysis results in an understanding of the level of exposure of persons and property to the various hazards identified.

## **Capacity**

The resources as manpower and equipments required or which are available to tackle emergencies.

## **Key Stages of Disaster Management**

There are three key stages of activity within disaster management.

1. **Pre-Disaster:** Before a disaster to reduce the potential for human, material or environmental losses caused by hazards and to ensure that these losses are minimized when the disaster actually strikes.
2. **During Disaster:** It is to ensure that the needs and provisions of victims are met to alleviate and minimize suffering.
3. **Post Disaster:** After a disaster to achieve rapid and durable recovery which does not reproduce the original vulnerable conditions.

Traditionally people think of disaster management only in term of the emergency relief period and post disaster rehabilitation. Instead of allocated funds before an event to ensure prevention and preparedness. A successful disaster management planning must encompass the situation that occurs before, during and after disasters. These phases can be best represented as shown in the following figure.

## **Pre-disaster Phase**

### **Prevention and Mitigation**

Reducing the risk of disasters involves activities, which either reduce or modify the scale and intensity of the threat faced or by improving the conditions of elements at risk. Although the term 'prevention' is often used to embrace the wide diversity of measures to protect persons and property its use is not recommended since it is misleading in its implicit suggestion that natural disasters are preventable. The use of the term reduction to describe protective or preventive actions that lessen the scale of impact is therefore preferred. Mitigation embraces all measures taken to reduce both the effect of the hazard itself and the vulnerable conditions to it in order to reduce the scale of a future disaster.

In addition to these physical measures, mitigation should also be aimed at reducing the physical, economic and social vulnerability to threats and the underlying causes for this vulnerability. Therefore, mitigation may incorporate addressing issues such as land ownership, tenancy rights, wealth distribution, implementation of earthquake resistant building codes, etc.

## Preparedness

This brings us to the all-important issue of disaster preparedness. The process embraces measure that enable governments, communities and individuals to respond rapidly to disaster situations to cope with them effectively. Preparedness includes for examples, the formulation of viable emergency plans, the development of warning systems, the maintenance of inventories, public awareness and education and the training of personnel. It may also embrace search and rescue measures as well as evacuation plans for areas that may be 'at risk' from a recurring disaster. All preparedness planning needs to be supported by appropriate rules and regulations with clear allocation of responsibilities and budgetary provision.

Local community capacities are built to address the issues of preparedness including adaptation and mitigation strategies. Community is involved to plan for their village or prevailing local conditions such as preparation of dissemination of early warning system, evacuation plan, management of shelter (including supply of food, drinking water and sanitation), search and rescue and first-aid. Capacities of vulnerable sections are developed especially the women, children and aged. Basically local governance and line department will ensure to develop a disaster management plan for their concerned local habitation.

### *Early Warning*

This is the process of monitoring situations in communities or areas known to be vulnerable to slow onset hazards, and passing the knowledge of pending hazard to people in harm's way. To be effective, warning must be related to mass education and training of the population who know what actions they must take when warned.

Establishment of Indian National Centre for Ocean Information Services (INCOIS) at Hyderabad has opened up new avenues in addressing early warning systems. It provide the best possible ocean information and advisory services to society, industry, government agencies and the scientific community through sustained ocean observations and constant improvements through systematic and focused research especially to the coastal districts.

### **The Disaster Impact**

This refers to the "real-time event of a hazard occurring and affecting elements at risk. The duration of the event will depend on the type of threat; ground shaking may only occur for a matter of seconds during an earthquake while flooding may take place over a longer sustained period.

## During Disaster Phase

### Response

This refers to the first stage response to any calamity, which include for examples such as setting up control rooms, putting the contingency plan in action, issue warning, action for evacuation, taking people to safer areas, rendering medical aid to the needy etc., simultaneously rendering relief to the homeless, food, drinking water, clothing etc. to the needy, restoration of communication, disbursement of assistance in cash or kind.

The **emergency relief** activities undertaken during and immediately following a disaster, which includes immediate relief, rescue, and damage needs assessment and debris clearance.

### *The Post-disaster Phase*

#### Recovery

Recovery is used to describe the activities that encompass the three overlapping phases of emergency relief, rehabilitation and reconstruction.

#### **Rehabilitation:**

Rehabilitation includes the provision of temporary public utilities and housing as interim measures to assist longer-term recovery.

#### **Reconstruction:**

Reconstruction attempts to return communities to improved pre-disaster functioning. It includes such as the replacement of buildings; infrastructure and lifeline facilities so that long-term development prospects are enhanced rather than reproducing the same conditions, which made an area or population vulnerable in the first place.

#### Development

In an evolving economy, development process is an ongoing activity. Long-term prevention/disaster reduction measures for examples like construction of embankments against flooding, irrigation facilities as drought proofing measures, increasing plant cover to reduce the occurrences of landslides, land use planning, construction of houses capable of withstanding the onslaught of heavy rains/wind speed and shocks of earthquakes are some of the activities that can be taken up as part of development plans.

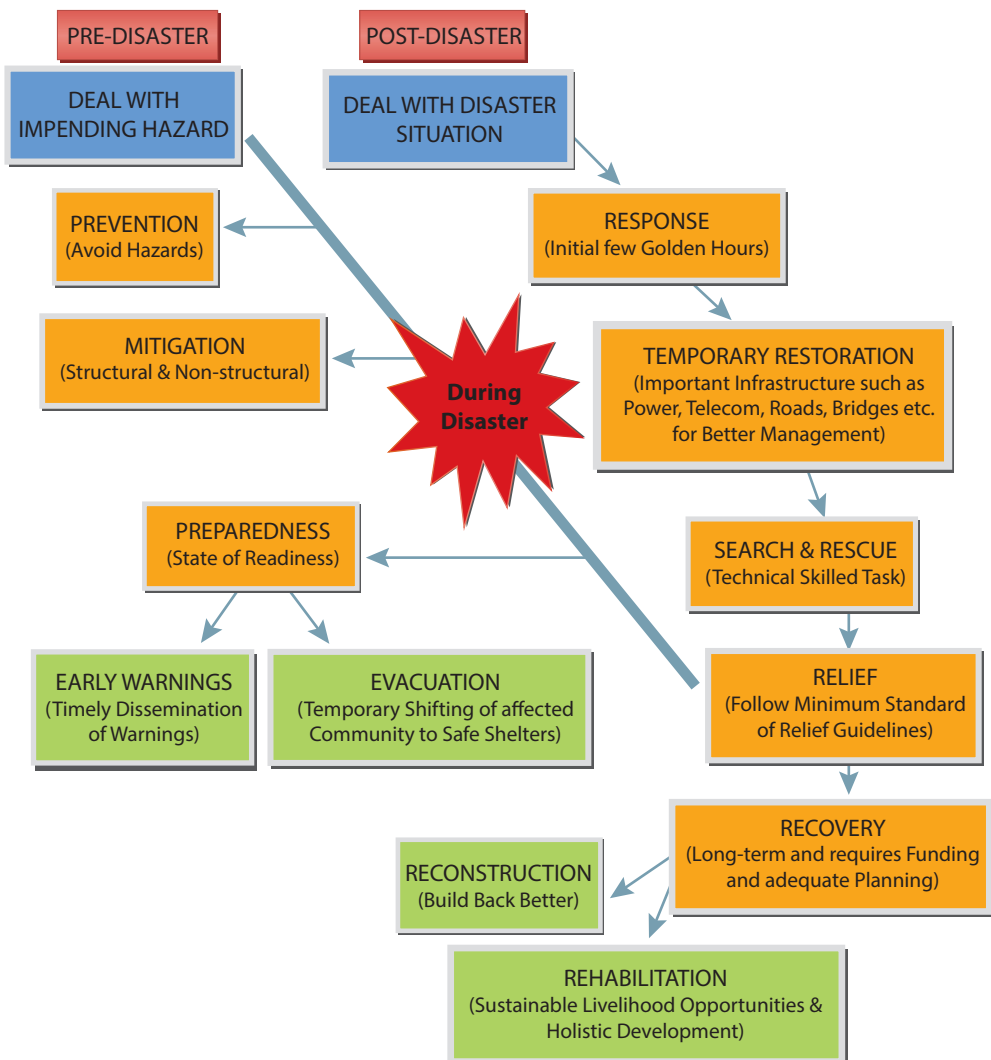
#### To Summarize:

**Before a Disaster (pre-disaster):** Pre-disaster activities those which are undertaken to reduce human and property losses caused by a potential hazard. For example, carrying out awareness campaigns, strengthening the existing

weak structures, preparation of the disaster management plans at household and community level, etc. Such risk reduction measures taken under this stage are termed as mitigation and preparedness activities.

**During a Disaster (Disaster Occurrence):** These include initiatives taken to ensure that the needs and provisions of victims are met and suffering is minimized. Activities taken under this stage are called emergency response activities.

**After a Disaster (Post-disaster):** There are initiatives taken in response to a disaster with a purpose to achieve early recovery and rehabilitation of affected communities, immediately after a disaster strikes. These are called as response and recovery activities.



## 1.3: Development, Disasters and Climate Change

**Duration:** 60 minutes

**Training Methodology:** Power Point Presentation, Discussion

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their field experiences or put up some concern/observation related to the particular sub session or in general about rural sector before the start of the session so as to break the monotony. Trainer can also indulge the group into some playful ice-breaking activities as short breaks during the course.

### Technical Notes

Many of the developing countries in the Asia and Pacific region are situated in the world's hazard belts and are subject to floods, droughts, cyclones, earthquakes, windstorms, tidal waves and landslides, etc. The major disasters triggered by these natural hazards occur periodically in this region are largely due to climatic and seismic factors. Climate related disasters are by far the most frequent natural disasters causing immense loss of lives, impacting livelihood causing harm to infrastructure. Climate Change is impacting on hydro meteorological by altering their frequency or intensity and it's expected to be more intense in future. Climate Change will have long term impacts such as gradually increasing temperature, changing seasons and unpredictable rains and rising sea levels. Climate Change poses a threat to sustainable development, if not mitigate it has potential to undermine achievement of poor development goals.

Recent research has estimated the average annual damages from disasters triggered by climatological, hydrological and meteorological hazards in 2002 - 2011 at US \$ 103 billion, US\$ 24 billion and US\$ 52 billion, respectively (Guha-Sapir et al. 2013). This research has also shown that 47.9 per cent of damages occurred in Asia, 38.6 per cent in the America, 9 per cent in Europe, 3.7 per cent in Oceania and less than 0.8 per cent in Africa. While total economic losses are highest in developed countries, fatality rates and economic losses in terms of GDP are higher in developing countries.

### Inter-linkage between Disasters, Development and Climate Change:

Climate is fundamentally linked to every aspect of human life. Agriculture and rural based livelihoods have been one of the first sectors to feel the changes in climate, as climate influences the availability and condition of livelihood resources such as soil, water, farm-to-market roads, to mention only a few concern over the adverse impacts of climate on livelihoods is not new. Disaster risk reduction efforts in the past have, by and large, focused on mitigating the

impacts of extreme climate events, such as floods and droughts on livelihoods. Over the past few years, this concern has intensified and has gained renewed emphasis in the context of climate change.

Climate change and disaster risk are fundamental threats to sustainable development and the eradication of poverty. The negative impacts threaten to roll back decades of development gains. Building resilient and sustainable societies means addressing both climate and disaster risks, and integrating these risks, as well as potential opportunities, into development planning and budgeting.

Climate change is a great concern for humanity because it is expected to reconfigure the risks that most societies face, in a way that would have potentially negative consequences on the prospects of development, especially for the poor. While climate is not the only factor that undermines the sustainability of livelihoods and development, it is one of the key realities of our time and demands our most urgent attention. There is a pressing need not only to deal with current climate risks but also to adapt to the changes taking place, the magnitude of which is yet unknown. Therefore, as disaster management professionals and implementers, it is now urged to integrate disaster risk reduction and climate change adaptation measures into the livelihood programmes.

Climate change is also likely to threaten India's food security, increase water stress, and increase occurrences of diseases. Lack of availability and access to technological and financial resources coupled with a high dependence on climate sensitive sectors-agriculture, horticulture, fisheries, forestry-have made India highly vulnerable to climate change. A large and growing population with high population density and a low-lying coastline, and an economy closely tied to its natural resource base, further aggravates the vulnerability. Rural development is one of the key sectors and besides sector specific policies, plans and programs it is closely linked with agriculture, irrigation, rural livelihoods and rural infrastructure. Integration of disaster risk and climate change resilience into sectoral and sub-sectoral plans and strategies would have large scale implications on the development outcomes and their sustainability over time. Various important sectors including drinking water, sanitation, housing, electrification, transport, employment/livelihoods are equally important for improvement of quality of life of rural masses.

### **Disasters and Development: Issues and Challenges**

Some of the common challenges in linking disasters and development can be summarized as follows:

- Conceptual and Perceptual issues, misguided perceptions that disasters are simply an 'act of god' and cannot be stopped have been common for long, but the human hand in making of disasters is now

being increasingly recognized. The concept that a disaster is not simply a result of a natural hazard but a complex process involving various other natural, social and economic processes needs to be implicit so that the link between disasters and development can be better understood.

- Incentives are stacked against DRR. It is a long-term, low-visibility process, with no guarantee of tangible rewards in the short term, either for politicians in affected countries or for donors.
- Disaster risk reduction falls into the gap between donor's humanitarian and development wings.
- Assumptions such as poverty-focused developed will automatically reduce disaster risk.
- Inadequate exposure to and information on disaster issues.

### **Identifying entry Points in the Development Planning Framework for Mainstreaming DRR**

Integrating disaster risk reduction and adaptation will help enable us to manage climate risks to our livelihood projects and also fits well with our ultimate goal of empowering the poor by securing their livelihoods. Some of the most compelling reasons for integrating disaster risk reduction and adaptation into livelihoods include the following:

1. Global efforts to reduce greenhouse gas emissions is on, some degree of warming that will have far-reaching impacts on livelihood resources must be addressed.
2. Climate change will have different impacts on different localities, and again each such locality will have different capacities to deal with such detrimental impacts. Even the slightest shifts in climate averages can have damaging impacts on livelihoods, particularly in marginal areas. Examples of these are semi-arid zones and rain-fed regions etc.
3. Most of the rural livelihoods are dependent on the natural resource base (such as water, soil, forest, and related ecosystem services), which are sensitive to both episodic and extreme climate events, and changing dynamic climate trends that are often caused by a combination of climatic and non-climatic factors.
4. Many a times, rural communities have very limited capacities to cope. Recurrent exposure to adverse climate conditions (for example, prolonged droughts or recurrent floods) or to extreme

climate events, can weaken their capacities further to cope and diminish their livelihood resources.

5. Any interventions must be carefully designed and mainstreamed as they have immense potential to enhance or diminish the capacity to adapt to long-term climate changes.

Integrating disaster risk reduction and climate change adaptation into our livelihood projects aims to: (1) reduce the risk of livelihood failure due to climate risks; (2) take advantage of opportunities that may be presented by favorable climate conditions (e.g. double cropping during wet years); and (3) ensure that the project contributes to strengthening the capacity of producer groups to adapt to future climate changes.

Some of the entry points for mainstreaming DRR are:

- National flagship programmes such as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Rural Livelihood Mission (NRLM), IAY, National Rural Health Mission (NRHM), Swachh Bharat Abhiyan (SBA), National Rural Drinking Water Programme (NRDWP) and other national policies and plans.
- Physical framework/land use plans.
- Processes related to implementation of plans; investment programming, budgeting and financing, project appraisal, implementation, monitoring and evaluation.
- Project cycle of individual projects.
- Environmental policies and plans.
- Sectoral policies, plans and programs.

## 1.4: Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in the context of Rural Development

**Duration:** 45 minutes

**Training Methodology:** Power Point Presentation, Discussion

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their field experiences or put up some concern/observation related to the particular sub session or in general about rural sector before the start of the session so as to break the monotony. Trainer can also indulge the group into some playful ice-breaking activities as short breaks during the course.

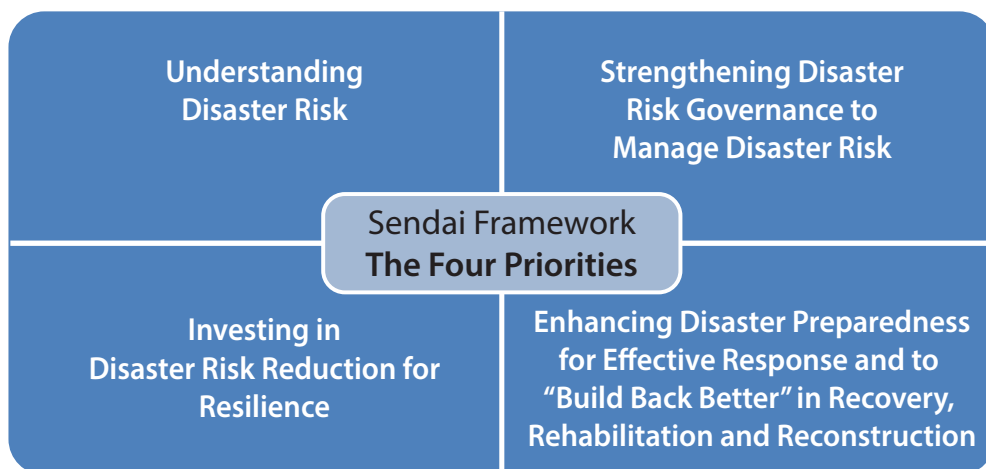
### Technical Notes

The 10-year Hyogo Framework for Action (HFA) 2005-2015, endorsed by 168 countries including India, was the first global covenant to unambiguously enunciate the link between disaster risk reduction (DRR) and sustainable development while stating its central priority of building the resilience of nations and communities to disasters so as to substantially reduce disaster losses by 2015:

*The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.*

The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations held from July 2014 to March 2015, which were supported by the UNISDR upon the request of the UN General Assembly. UNISDR has been tasked to support the implementation, follow-up and review of the Sendai Framework. It aims to strengthen social and economic resilience to ease the negative effects of climate change and man-made hazards. The EU played a key role in the negotiations of the agreement and supports EU Member States and non-EU countries in achieving the seven Sendai targets.

The Sustainable Development Goals Report is submitted every year to the High-level Political Forum (HLFP), drawing on data collected and reported by country on an annual basis. The first Sendai Framework Progress Report is expected in 2019 and will exceptionally cover trends in implementation for the two biennial cycles 2015-2016 and 2017-2018. In 2019, reporting on progress in achieving



the SDG targets related to disaster risk reduction and in implementing the Sendai Framework, will be shared at the High-level Political Forum and Sixth Global Platform for Disaster Risk Reduction respectively. Here is recognition in the proposals for both the SDGs and the Sendai Framework that their desired outcomes are a product of complex and interconnected social and economic processes with overlap across the two agendas. As a reflection of this, important synergies exist between reporting on the two frameworks. Monitoring of the Sendai Framework is intended to complement monitoring of 11 SDG indicators.

### Climate Change: How are Weather and Climate Different?

Weather and climate are often metaphorically differentiated as, "Climate is what we expect, and weather is what we actually get". Weather is what we actually experience from day to day, while climate is the average weather in a specific location. This average is generally taken over a long period of time, typically over thirty years or more, for locations ranging from a single place, to a whole country, to the globe. When we refer to climate as long-term averages, this includes climate variations like the range (lowest and highest recorded during the period) and frequencies of occurrence above or below certain defined threshold limits experienced over a specified location or geographic area. Climate is the sum total, the statistical aggregation, of past weather over a specific geographic area or location. It is what we expect the weather to be in a place, based on past weather trends.

### What are Greenhouse Gases?

Under natural conditions, the Earth is kept warm by, in addition to the direct sunlight, gases (water vapour, carbon dioxide, methane, nitrous oxide and other gases) that occur in very small quantities in the air. These gases trap the warmth emitted by the Earth's surface which is heated directly by sunlight,

thereby creating a kind of greenhouse (see Figure 2.1) that supports life and living conditions on this planet. This is generally termed as “natural greenhouse effect”. In nature, these gases originate from biological sources from respiration and degradation processes. Human activities that involve burning fuel like coal, petrol, firewood, and other plant material are significant sources of carbon-dioxide and other greenhouse gases. Fertilizer use, cattle, paddy cultivation, and sewage add some of the other greenhouse gases. Increase of human activities that release greenhouse gases has resulted in a sharp build-up of these gases in the Earth’s atmosphere, adding to the greenhouse effect, termed as the “enhanced green house effect”.

The climate of a region or a location depends on various factors including the local landscape (topography – whether plains, hilly, mountainous or coastal); vegetation and the environment, including the built-up environment and other factors affecting the landscape, latitude, proximity to oceans or mountains, and how temperature changes influence local weather systems. This is the reason for the varied kinds of changes experienced at local levels resulting in large natural day-to-day and year-to-year variations. At the local level, climate change is therefore not very noticeable and remains hidden in the “noise” of complex variations. This is, however, most important for communities as they are directly influenced by local climate. It is, therefore, important to monitor climate changes at the local level.

### **What Causes Global Warming?**

The build-up or accumulation of carbon dioxide and other greenhouse gases since the beginning of Industrialization has resulted in the enhanced trapping of the Sun’s energy by Earth. This seems to be the primary cause for rising global temperatures. At the local scale, this effect plus non-climatic changes, such as land use changes and urbanization, have resulted in changes in climate. For example, when a large stretch of forested area is converted into agricultural land, this influences the local environment around it. Similarly, conversion of previously forested or agricultural areas into built areas (for human settlements, for example) does not allow normal wind flow and causes heat islands and wind tunnels to form that could influence local climate.

### **What is the Difference Between Climate Variability and Climate Change?**

Variations on different time-scales are part of climate. Climate at a place constantly changes from time to time within a domain defined by the long period average (at least 30 years) based on past data. For example, temperature over a particular location in January could be 25°C varying between a range from 22-28°C based on tracked or documented experience of 30 years.

Often in a specific location, the average may remain unchanged but variations within the range may increase. This is common in the case of rainfall, when certain years will show consistently less than average rainfall. When conditions of less than average rainfall occur during consecutive years, this could lead to severe water shortages and drought. Even without a change, increased variability is often experienced over a particular location. On the other hand, climate change is a permanent shift in the mean temperature as well as the range. Note however that there are differences in the way climate change is defined. The Intergovernmental Panel on Climate Change (IPCC) includes both natural and anthropogenic climate change, change caused by human activities, while the United Nations Framework Convention on Climate Change's (UNFCCC) definition includes only anthropogenic warming and, understandably so, since the UNFCCC is primarily a convention for curbing greenhouse gas emissions.

### **What is the Difference Between Disaster Risk Reduction and Adaptation?**

In context to the development sector, it often becomes a challenge to defend whether activities so taken lead to risk reduction or adaptation. The link between disaster risk reduction and climate change adaptation has to do with the expectation that climate will change, or is already changing in some places, causing more intense and frequent extremes in climate. The most apparent difference is in the type of hazards both concepts address. The term “disaster risk reduction” covers all types of hazards including those caused by climate, changes in the Earth's surface (geological, such as earthquakes) and other hazards. Adaptation, on the other hand, is concerned only with hazards brought by climate. Both have the same approach to constructing vulnerability, defined by Sperling and Szkeley (2005) as – “the degree of vulnerability to natural hazard or climate change is a function of the magnitude of physical exposure and prevalent environmental and socio-economic conditions, which may lessen or exacerbate the risk for a negative impact associated with a hazard or climate change.”

Put another way, the extent to which people are vulnerable to natural hazards or climate change depends on the extent to which they are exposed to such hazards, and their socio-economic and environmental conditions can either lessen or worsen this vulnerability. Using both disaster risk reduction and adaptation approaches will allow us to address the root causes of climate impacts.

Disaster risk reduction here is being considered as one of the main approaches to climate change adaptation, particularly in Southeast Asia, a region perennially exposed to extreme weather conditions and climate events, and where the two – disaster risk reduction and adaptation – are indistinguishable in terms of actions at the community level. Therefore, as implementers and development

practitioners, we should not emphasize on whether rainwater harvesting or planting drought tolerant crops is a disaster risk reduction or an adaptation project. What is more important is to move beyond such concerns and start doing operational projects on the ground. We should not get stuck making these distinctions because we are ultimately addressing the same hazards (Interview with GenelaBuhia, 2009). With a few exceptions such as in coastal zones susceptible to sea level rise, or irrigated agriculture fed by glaciers, the projected impacts of climate change on agriculture tend to amplify (and sometimes reduce) the substantial challenges that climate variability already imposes (Hansen, et al.2007).

The same observation applies to other natural resource-based livelihoods. In the context of Southeast Asia and in most regions with tropical climate, it is difficult to make a distinction between short-term risk reduction and long-term adaptation because there is no widely accepted methodology for disassociating the impacts of climate change from “normal” climate variability in the short to medium term. Wilby et al. (2009) observed that “formal detection and attribution of human influences in regional precipitation records will not be possible for decades because of the relatively small anthropogenic or human-created climate change signal in relation to large natural variability. The human climate signal will be even harder to discern at the water management scale of individual river basins.”

**Disaster Risk Reduction:** Disaster risk can be significantly reduced through strategies that seek to decrease the vulnerabilities and exposure to hazards within a larger development framework to address poverty and inequality. Rural development deals with sectors like agriculture, irrigation, rural livelihood and rural infrastructure. Rural development and its relation with disaster risk reduction and Climate change have large scale implication on development. Various important sectors including drinking water, sanitation, housing, electrification, transport, employment/livelihoods are equally important for improvement of quality of life of rural masses and have knock on effects on the overall gains of DRR and CCA sensitive development planning. Integration of DRR and CCA in the development plans and programs is important for sustainable development and resilience building of all the sectors.

The agriculture sector is exposed to a wide range of risks, including socio-economic, natural hazards and food chain crises<sup>2</sup>, which occur at different levels and at different temporal scales. Given its crucial reliance on weather, climate and water, the agriculture sector is particularly vulnerable to climate and weather-related extremes, as well as to pests and diseases. Climate change adds another layer of risk, as it not only alters the intensity and frequency of climate extremes (IPCC 2012), but also decreases the resilience of many poor households and communities due to factors such as decreasing agricultural

productivity and increasing disease vectors and shortages of water and energy in many disaster-prone regions (UNISDR 2009).

Agriculture is important in India for the obvious reason of its centrality, given that it accounts for a large share in GDP (gross domestic product) (16%), and an even larger share in employment (49%). Agriculture continues to be vulnerable to the vagaries of weather, and the looming threat of climate change has the potential to expose to vulnerability. Perhaps it is even more important because, as the experience of the last few years illustrates, it has the potential to hold back Indian development: poor agricultural performance can lead to high inflation, rural distress, and political restiveness. Guiteras (2009) finds that crop yields will decline by 4.5-9% in the short-run (2010-2039) and by a whopping 25% in the long-run (2070-2099) in the absence of adaptation by farmers. Further, Burgess et al. (2014) find that a one standard deviation increase in high temperature days in a year decreases agricultural yields and real wages by 12.6% and 9.8%, respectively, and increases annual mortality among rural populations by 7.3% in India. By contrast, in urban areas, they find virtually no evidence of an effect on incomes and a substantially smaller increase in the mortality rate.

The 2018 Food and Agriculture Organization (FAO) report on the impact of disasters and crises on agriculture and food security showed that the agriculture sector alone absorbed 23 percent of all damage and loss caused by medium-to large-scale disasters triggered by natural hazards in developing and low – and mid-income countries between 2006 and 2016. When only climate – related disasters (floods, drought, and tropical storms) are considered, the share of damage and loss for agriculture increased to 26 percent. Drought affects the agriculture sector disproportionately: 83 percent of all damage and loss caused by drought was absorbed by agriculture. The crop and livestock sub-sectors are most affected by this slow-onset hazard (FAO 2018c).

The same study highlighted that “disasters impact agriculture beyond the short-term; the sector often endures long-lasting and multi-prolonged consequences such as loss of harvest and livestock, outbreaks of disease and destruction of rural infrastructure and irrigation systems” (FAO 2018c) reversing development gains. The sector continuously faces the challenge to anticipate and reduce the negative impacts that hazards may cause, such as loss of life, damage to property and environment, the destruction of agricultural livelihoods, disruption of services, reduced production and consumption, as well as negative effects on employment, incomes and prices, which often hamper access to markets, trade and food supply.

The agriculture sector is among the most important economic sectors, as it provides roughly half of the total employment in less economically developed countries and significantly contributes to the national gross domestic product (GDP), constituting up to 30 percent in developing countries (FAO, 2018a). Worldwide, the livelihoods of 2.5 billion people depend on agriculture. Small-scale farmers manage over 80 percent of the world's estimated 500 million farms and provide over 80 percent of the food consumed in a large part of the developing world (IFAD and UN Environment 2013). These small-scale farmers, herders, fishers and forest-dependent communities are particularly at risk from disasters and are disproportionately affected when a hazard hits (FAO 2017b).

At the same time, they are custodians of the environment; the way they manage their natural resources can avoid the development of disasters. Risk-sensitive agriculture is part of the solution, as it offers cost-effective measures to reduce disaster risk, while promoting sustainable resources management, greater biodiversity and socio-economic development, thereby fostering long-term resilience building. Agriculture can also help to maintain the volume and genetic diversity of food supply, *“which results in both benefits and risk reductions against nutritional deficiencies, ecosystem degradation, and climate change”* (Fanzo 2017). Along these lines, it is evident that the agriculture sector plays a critical role in reducing disaster risks and in adapting to climate change for enhancing resilient and sustainable development.

It is therefore of paramount importance to continue enhancing capacities for DRR in the agriculture sector, across local, sub-national, national and regional levels, and with the active participation of smallholder farmers.

Priority for Action 2 of the Sendai Framework for Disaster Risk Reduction (SFDRR) on “Strengthening disaster risk governance to manage disaster risk” stresses the importance to *“mainstream and integrate disaster risk reduction within and across all sectors and [to] review and promote the coherence and further development, as appropriate, of national and local frameworks of laws, regulations and public policies”* (UNISDR 2015).

Consequently, complementary planning processes on DRR, climate change adaptation (CCA) 4 and agriculture should be and are currently being promoted in many high-risk countries through one or more of the following:

- (i) National DRR plans including the agriculture sector perspective.
- (ii) Mainstreaming of DRR into agriculture sector development plans 5.
- (iii) Specific DRR plans for the agriculture sector (DRR-Ag plans).

## Emerging Issues in Rural Development

1. **The paradox:** The majority of the poor still live in rural areas, and yet donor support for agricultural and other rural development has slumped.
2. **A diminishing urban-rural divide:** Rural and urban livelihoods are inter-dependent, and there is rarely a sharp geographical divide between rural and peri-urban. Rural development strategies must take account of the urban links and context.
3. **Diversified livelihoods:** There are few full-time farmers now, as households pursue multi- functional and multi-spatial livelihoods: support to the non-farm rural economy and to migration is as important as agricultural support.
4. **Small-holder farming in less-favored areas faces new challenges:** More households consist of part time farmers, work smaller plots and are headed by the elderly, young and women, so face severe credit and input constraints; access to subsidies and extension services has diminished; market changes increase the need for specialist techniques, quality control, information-intensive technologies and marketing involving high transaction costs – factors which provide larger farms with economies of scale. Targeted assistance is needed where small-scale farming can be competitive; otherwise small farmers need good exits from farming.
5. **Reverse state compression:** A strong state is needed to underpin the market and enable private sector development. Public interventions are needed to increase access to new opportunities (agricultural or nonfarm) specifically by the poor, and to establish the institutional framework for effective market development.
6. **Technological targeting:** Production increases based on the seed-fertilizer model of the Green Revolution have slowed. New technologies are likely to be more crop and region specific, and information-intensive. Technical change is biased against the poor. Policies to target technologies need to be location specific. Public intervention is particularly required in developing technologies and information channels appropriate to poor farmers.
7. **Rethinking institutional capacity and governance:** Many recommended measures for rural development cannot be effective without significant capacity building and institutional support. In some areas, decentralization should be promoted to reinforce positive trends for

increased accountability. But in some areas, states are dysfunctional (e.g. conflict zones), or crippled (high HIV incidence), and second best solutions would be more effective than attempts at business as usual.

8. **Growing divergence between low and high potential areas:** Less favored (low potential) areas have very different needs to (high potential) areas where modernization is already underway. They generally still need agriculture-based development, are least likely to gain from globalization opportunities, and will generate lower returns because of their inherent disadvantages (remoteness, poor soils etc). Therefore, policy must adapt to specific context.
9. **Rural risks and vulnerability:** The rural poor face new risks due to increasing natural disasters and rapid economic change. External support for risk-mitigation and coping strategies is generally insufficient. Public and private roles in supporting insurance and risk-coping need to be strengthened, which in turn depends on the fiscal burden being addressed.
10. **Preventing and managing conflict:** Conflict has a debilitating impact on rural livelihoods, and increasing levels of conflict threaten the achievement of poverty reduction targets. Donors will need to escape from the conceptual and programmatic constraints of a linear approach to relief and development.
11. **Aid modalities:** As a topic, rural development fits well with ideas about the Comprehensive Development Framework and with Poverty Reduction Strategy Papers. However, it does not sit so well with Sector Wide Approaches, which are hard to implement in the agricultural sector. There will be real problems in reaching the rural poor in poorly performing countries.

### Reading References:

- 1) Basic Concepts-Self Study Programme-NIDM Website (available at [www.nidm.gov.in](http://www.nidm.gov.in)) Standard Operating Procedure for responding to Natural Disasters 2010 (<http://ndmindia.nic.in/SOP-NDM-2010.pdf>)
- 2) Burgess R, O Deschene, D Donaldson, and M Greenstone (2014), 'The Unequal Effects of Weather and Climate Change: Evidence from Mortality in India', Working Paper, MIT. Available at: [http://econ.lse.ac.uk/staff/rburgess/wp/WD\\_master\\_140516\\_v3.pdf](http://econ.lse.ac.uk/staff/rburgess/wp/WD_master_140516_v3.pdf)
- 3) Guiteras R (2009), 'The Impact of Climate Change on Indian Agriculture', Mimeo, Department of Economics, University of Maryland. Available at: [http://econdse.org/wp-content/uploads/2014/04/guiteras\\_climate\\_change\\_indian\\_agriculture\\_sep\\_2009.pdf](http://econdse.org/wp-content/uploads/2014/04/guiteras_climate_change_indian_agriculture_sep_2009.pdf)
- 4) National Policy on Disaster Management 2009 <http://www.ndma.gov.in/images/guidelines/national-dm-policy2009.pdf>
- 5) National Plan on Disaster Management, India. 2016 <http://ndma.gov.in/images/policyplan/dmplan/National%20Disaster%20Management%20Plan%20May%202016.pdf>
- 6) A Study on Mainstreaming DRR and CCA in Development Planning by The Disaster Management Division, Ministry of Home Affairs, Government of India and The United Nations Development Programme [https://www.ndmindia.nic.in/images/pdf/Mainstreaming%20Report\\_Final\\_sept7.pdf](https://www.ndmindia.nic.in/images/pdf/Mainstreaming%20Report_Final_sept7.pdf)



# DISASTER MANAGEMENT AND RURAL DEVELOPMENT

## Learning Objectives

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

- Understand the Genesis and Evolution of Disaster Management in India
- Understand the constitutional mandate and salient provisions of DM Act 2005
- Understand the current scenario of Rural Sector in India
- Examine the shift in focus from risk resilience within disaster management approaches for the Rural Sector

**Duration: 330 Minutes (10.00 a.m-17.00 p.m: excluding time for Lunch and Tea Breaks)**

### Equipments and Materials Needed:

Flip Charts, Markers, Pens, Sticky Notes, Laptop, LCD/Projector, Chart Papers, and Blackboard.

**USEFUL HANDOUTS: 3, 4, 8, 10 & 12**

### Method(s):

- Interactive Lecture Presentation Questions and Answers
- Group Work Problem Solving
- Discussion & Use of Audio-Video Aids

### Session Plan:

The trainer/facilitator can start the session with a recapitulation of the previous days learning's. This can be done in various creative ways such as posing questions (can be quiz format/general), asking participants to present it in their own ways, showing various pictures, videos and then reiterating the contents etc. There can be an informal interaction about the contents of sub-module 2 to know their understanding about the Rural Development sector and

related concerns. Invite them to share their views and make a note of the points either on a flip chart or white board. Then make a brief presentation explaining the evolution of disaster management and its genesis and also explaining the institutional set-up established in our country on disaster management.

Gradually, move towards the rural sector and its current status and the issues and challenges the sector phases with respect to disaster management and its integration. Trainer can emphasize on how rural development sector needs to safeguard itself from the wrath of disaster. Follow it up with an open house discussion inviting comments and questions.

**Wrapping up the Discussion:** Form 4-5 working groups of participants (depending upon the size of the batch) and group work based on the sub sessions may be given for better brainstorming. Ask the working groups to share their findings and analysis in a presentation format. This also encourages a two-way learning and makes the sessions more interesting and interactive. Give 5 minutes at the end for some questions and answers or scope for discussion on each presentation. Close the session with a presentation summing up the key learning from the session and highlighting the points from Sub-Module 2.

## Context

It is convincingly believed that India is one of the most disasters prone countries in the world, and therefore, management of disasters have been quite a complex and comprehensive activity. Though the roots of present day disaster management in India may be traced back to colonial period, the nature and scale of managing disasters in current times is an outcome of the global and domestic push over the last two decades. Further, greater involvement of civil society organizations in management of disasters along with the rise of certain issues and challenges during the course of disaster management (such as law and order, corruption, discrimination in disaster relief etc.) are also prominent aspects that merit critical analysis by way of studying disaster management in India. In contemporary times, effective management of disasters has become a global movement given the massive loss of lives and property entailed by the catastrophic events. As a result, almost all the countries in general, and most disaster prone countries, like India in particular, have evolved a comprehensive framework of disaster management consisting of legal framework, policy perspective, and implementation machinery along with ancillary support systems. This therefore, advocates and encourages inculcating a culture of safety and resilience across all communities.

Agriculture and allied sectors have been considered as the mainstay of Indian agriculture where approximately 54.6% population is engaged (Annual Report, MoAFW, 2017-18) to support their livelihoods. India's population has grown and is amplifying at an alarming rate from 541 million in 1971 to 1210 million in 2011 (Census, 2011). To support its large and growing population,

India made a significant progress in agricultural production, doubling its food grain production capacity from 108 million tons in 1970's to 264 million tons in 2013-14 and has achieved a status of self-sufficiency to surplus agricultural produce. The accolade for such a tremendous growth undoubtedly can be attributed to "Green Revolution" that made India develop from a country of food grain importer to food grain exporter. India has also made a huge progress and overcome worse situations of famines by managing its drought. As per an estimate, it has been projected that population of India will reach 1.7 billion by 2050 and would require 450 million tons (Gol Report, 2006) of food grains annually to support its people.

As per statistical handbook of Ministry of Panchayat Raj (MoPR), India comprises of 662986 census villages and 7933 towns. Almost 68.2 percent from amongst this 1210 million people are living in the rural areas. In terms of GDP it is estimated that urban contribution is 65 percent to GDP, but agriculture still remains the primary sector. It is the largest employment providing sector in the country and growth of the secondary and tertiary sectors is directly and many times indirectly dependent on it. Thus rural development is one of the most important sectors of the Indian economy in many ways. Climate change is also likely to threaten India's food security, increase water stress, and increase occurrences of diseases. Lack of availability and access to technological and financial resources coupled with a high dependence on climate sensitive sectors-agriculture, fisheries, forestry-have made India highly vulnerable to vagaries of extreme weather events. This makes the rural development as one of the key sectors as besides it is closely linked with agriculture, irrigation, rural livelihoods and rural infrastructure.

## 2.1: Institutional Framework for Disaster Management in India

**Duration:** 150 minutes

**Training Methodology:** Power Point Presentation, Discussion, Problem Solving

**Training Note:** Trainer/facilitator may initiate a dialogue on the difference between the terms droughts and famines and how India has witnessed many decades of famines and emphasizing the need for drought management and how Indian history has ample evidence of Famines and the subsequent need for considering Droughts as a disaster which was looked after by Ministry of Agriculture and thereby keeping all this discussion at the center, move towards the evolution of the subject of disaster management.

### Technical Notes

The institutional and policy mechanisms for carrying out response, relief, reconstruction and rehabilitation after disasters in India had been well-established since Independence. The increasing frequency and ferocity, the rising extent along with the mounting human and economic toll due to disasters necessitated a reappraisal of institutional and policy frameworks and development of new frameworks for holistic disaster management of disasters. A specific legal framework was considered as a prerequisite for a robust disaster management in the country. Such a framework can lay down the guiding principles and supporting structures for better management of disasters.

The traditional perception relating to the management and prevention of natural disasters has been limited to the idea of “calamity relief,” which was seen essentially as a non-plan item of expenditure. However, the impact of major disasters cannot be mitigated by the provision of immediate relief alone, which is the primary focus of calamity relief efforts. Disasters can have devastating effects on the economy; they cause huge human and economic losses, and can significantly set back development efforts of a region or a State. With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus a need to look at disasters from a development perspective as well.

In India, the move towards a legal framework was made with the setting up of the High Power Committee (HPC) on disaster management in 1999. The committee drafted a federal law on the subject of DM. Eventually; the subject of DM has been within the legislative jurisdiction of the States. In view of

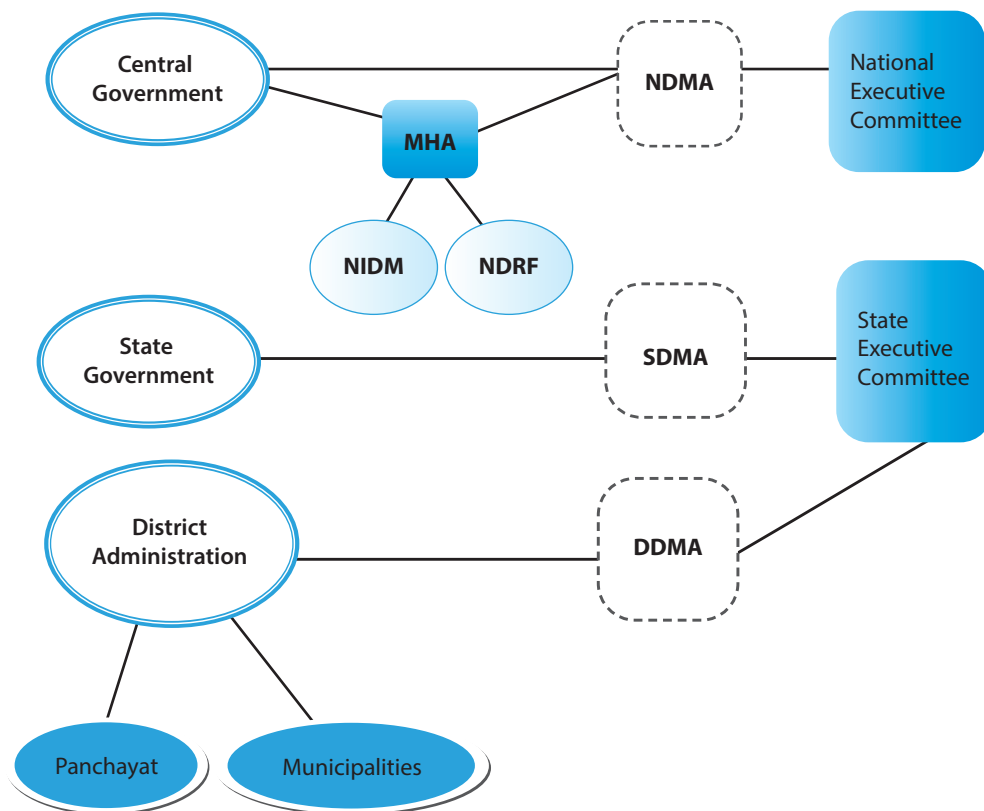
this, a holistic National Disaster Management Framework was developed in 2004, which highlights the interdependence of economy, environment, and development. This framework also links the issues of poverty alleviation, capacity building, community empowerment and other structural and non-structural issues of prevention and preparedness, response and recovery for effective disaster risk mitigation and management. A comprehensive legal and institutional framework for disaster management has been set up through the Disaster Management Act passed by the Indian Parliament in 2005 which presently constitutes the core of legal framework of disaster management in the country and the National Policy on Disaster Management that was approved in 2009.

### Institutions

The Disaster Management Act, 2005 has provided the legal and institutional framework for disaster management in India at the national, state and district levels. In the federal polity of India the primary responsibility of disaster management vests with the State Governments. The Central Government lays down policies and guidelines and provides technical, financial and logistic support while the district administration carries out most of the operations in collaboration with central and state level agencies. In the Central Government there are existing institutions and mechanisms for disaster management while new dedicated institutions have been created under the Disaster Management Act of 2005.

The Cabinet Committee on Management of Natural Calamities (CCMNC) oversees all aspects relating to the management of natural calamities including assessment of the situation and identification of measures and programmes considered necessary to reduce its impact, monitor and suggest long term measures for prevention of such calamities, formulate and recommend programmes for public awareness for building up society's resilience to them. The Cabinet Committee on Security (CCS) deals with the matters relating to nuclear, biological and chemical emergencies.

The National Crisis Management Committee (NCMC) under the Cabinet Secretary oversees the Command, Control and Coordination of the disaster response. The Disaster Management Act, 2005 has created new institutions at the national, state, district and local levels. The new institutional framework for disaster management in the country is as under:



The National Disaster Management Authority (NDMA) under the Chairmanship of the Prime Minister is the apex body responsible for laying down policies, plans and guidelines for disaster management and for coordinating their enforcement and implementation throughout the country. The policies and guidelines will assist the Central Ministries, State Governments and district administration to formulate their respective plans and programmes. NDMA has the power to approve the National Plans and the Plans of the respective Ministries and Departments of Government of India. The general superintendence, direction and control of National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA.

The National Executive Committee (NEC) is mandated to assist the NDMA in the discharge of its functions and further ensure compliance of the directions issued by the Central Government. The NEC comprises of the Union Home Secretary as the Chairperson, and the Secretaries to the GoI in the Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defence Staff of the Chiefs of

Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and Secretary, NDMA are special invitees to the meetings of the NEC. The National Executive Committee is responsible to prepare the National Plan and coordinate and monitor the implementation of the National Policy and the guidelines issued by NDMA.

The Ministry of Home Affairs (MHA) in the Central Government has the overall responsibility for disaster management in the country. For a few specific types of disasters the concerned Ministries have the nodal responsibilities for management of the disasters, as under:

**Table: Concerned Ministries for Specific Disasters**

|                                  |                                                   |
|----------------------------------|---------------------------------------------------|
| <b>Drought</b>                   | <b>Ministry of Agriculture</b>                    |
| Epidemics & Biological Disasters | Ministry of Health and Family Welfare             |
| Chemical Disasters               | Ministry of Environment, Forests & Climate Change |
| Nuclear Disasters                | Ministry of Atomic Energy                         |
| Air Accidents                    | Ministry of Civil Aviation                        |
| Railway Accidents                | Ministry of Railways                              |
| Natural Hazards                  | Ministry of Home Affairs                          |

The National Institute of Disaster Management (NIDM) has the mandate for human resource development and capacity building for disaster management within the broad policies and guidelines laid down by the NDMA. NIDM is required to design, develop and implement training programmes, undertake research, formulate and implement a comprehensive human resource development plan, provide assistance in national policy formulation, assist other research and training institutes, state governments and other organizations for successfully discharging their responsibilities, develop educational materials for dissemination and promote awareness among stakeholders in addition to undertake any other function as assigned to it by the Central Government. The National Disaster Response Force (NDRF) is the specialized force for disaster response which works under the overall supervision and control of the NDMA.

At the State Level the State Disaster Management Authority (SDMA), headed by the Chief Minister, lays down policies and plans for disaster management in the State. It is also responsible to coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures.

The State Disaster Management Department (DMD) which is mostly positioned in the revenue and relief Department, is the nodal authority for disaster management at the state level. At the district level the District Disaster Management Authority (DDMA) is headed by the District Magistrate, with the elected representative of the local authority as the Co-Chairperson. DDMA is the planning, coordinating and implementing body for disaster management at district level. It will, inter alia prepare the District Disaster Management Plan and monitor the implementation of the National and State Policies and the National, State and the District Plans. DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the SDMA are followed by all departments of the State Government at the district level and the local authorities in the district.

The Local Authorities both the rural local self-governing institutions (Panchayati Raj Institutions) and urban local bodies (Municipalities, Cantonment Boards and Town Planning Authorities). These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with guidelines of the NDMA, SDMAs and DDMA.

***GROUP WORK (30 minutes):***

Trainer can divide the batch into 4-5 groups and distribute copies of the DM Act 2005 and ask them to deliberate and discuss amongst their respective groups about the strengths and gaps in the Act and each group can be asked to make presentations of the same.

## 2.2: Overview of Rural Development Sector

**Duration:** 60 minutes

**Training Methodology:** Power Point Presentation, Discussion

**Training Note:** Trainer may like to show any video related to the rural development or related sector and have a short brainstorming session with the participants to get fresh insights into the linkages between disaster management and rural development and acknowledge the need to build in disaster management approaches as a part of the larger rural development agenda in the country.

### Technical Notes

This famous observation made by the Father of the Nation many years ago, still holds true. According to him “Villagers comprise the core of Indian society and also represent the real India. And it is for these villagers that we need to make sure we build a system that delivers basic social infrastructure in an effective manner. In order to ensure that the fruits of India’s progress are shared by all sections of the society, the government has identified several elements of social and economic infrastructure, critical to the quality of life in rural areas. Well, before we discuss in detail about the services and facilities being planned and provided by the government, it’s important to know what constitutes the rural sector in India. *“India lives in its villages”*

### **Mahatma Gandhi**

India is predominantly a rural country with two third of its population residing in rural areas. As per the 2011 Census, 68.8 per cent of country’s population and 72.4 per cent of workforce resided in rural areas. Rural economy constitutes 46 per cent of national income. Despite the steady rise in urbanization, more than half of India’s population is projected to be rural by 2050. Thus growth and development of rural economy and population must be recognized as the key to overall growth and inclusive development of our nation. Undoubtedly, traditionally, agriculture is the prime sector of rural economy and rural employment. The transition in composition of output and occupation from agriculture to more productive non-farm sectors is considered as an important source of economic growth and transformation in rural and total economy off late. However, steady transition to urbanization over the years is leading to the decline in the rural share in population, workforce and GDP of the country. Between 2001 and 2011, India’s urban population increased by 31.8 per cent as compared to 12.18 per cent increase in the rural population. Over fifty per cent of the increase in urban population during this period was attributed to the rural-urban migration and re-classification of rural settlements into urban settlements. Population projections indicate that India will continue to be

predominantly rural till the year 2050 after which urban population is estimated to overtake rural population. It is often felt that unplanned rural to urban migration, particularly in search of better economic opportunities, has been putting severe pressure on urban amenities and forcing a large number of low wage migrants from rural areas to live in unhygienic and deprived conditions. Thus, to check unplanned migration from rural to urban areas and to improve socio economic conditions of vast majority of population in the country, there is a need to make rural economy stronger and create employment opportunities in rural economic activities. The improvement in economic conditions of rural households is also essential for reducing the disparity in per capita rural and urban income which has remained persistently high. This requires significantly higher growth in rural economy as compared to urban India.

#### **Rural Development (RD) programmes comprise of following:**

- Provision of basic infrastructure facilities in the rural areas e.g. schools, health facilities, roads, drinking water, electrification etc.
- Improving agricultural productivity in the rural areas.
- Provision of social services like health and education for socio-economic development.
- Implementing schemes for the promotion of rural industry increasing agriculture productivity, providing rural employment etc.
- Assistance to individual families and Self Help Groups (SHG) living below poverty line by providing productive resources through credit and subsidy.

Department of Rural Development under Ministry of Rural Development plays a vital role in the overall implementation of development and welfare activities in the rural areas. The vision and mission of the Ministry is sustainable and inclusive growth of rural India through a multipronged strategy for eradication of poverty by increasing livelihoods opportunities, providing social safety net and developing infrastructure for growth. Rural development implies both the economic betterment of people as well as greater social transformation. Increased participation of people in the rural development programmes, decentralization of planning, better enforcement of land reforms and greater access to credit are envisaged for providing the rural people with better prospects ([rural.nic.in](http://rural.nic.in)).

With an annual budget of around INR.75,000 crore, the Ministry of Rural Development's Schemes have an immense potential to contribute to the goal of sustainable poverty reduction and efficient use of natural resources, including improved land use planning and management practices in rural India (reference

year). For the people in rural areas, particularly the marginalized communities, healthy ecosystems support sustainable agriculture-based livelihoods and essential services such as drinking water, sanitation and health care. Investing in natural resources also strengthens adaptation and resilience of communities towards climate change and natural disasters. Poverty reduction and economic growth can be sustained only if natural resources are managed on a sustainable basis. Greening rural development can stimulate rural economies, create jobs and help maintain critical ecosystem services and strengthen and strengthen climate resilience of the rural poor. Conversely, environmental challenges can limit the attainment of development goals and disasters add to such losses exponentially. Therefore, recognizing the national and global imperatives for regenerating natural resources and conserving ecosystems, efforts towards integrating efficient mitigation measures need to be advocated and incorporated.

Gram Panchayats have been mandated for the preparation of Gram Panchayat Development Plan (GPDP) for economic development and social justice utilizing the resources available to them. The GPDP planning process has to be comprehensive and based on participatory process which involves the full convergence with Schemes of all related Central Ministries/Line Departments related to 29 subjects enlisted in the Eleventh Schedule of the Constitution. Panchayats have a significant role to play in the effective and efficient implementation of flagship schemes on subjects of National Importance for transformation of rural India. The People's Plan campaign initiated under "Sabki Yojana Sabka Vikas" will be an intensive and structured exercise for planning at Gram Sabha through convergence between Panchayati Raj Institutions (PRIs) and concerned Line Departments of the State ([gdpd.nic.in](http://gdpd.nic.in)). GPDP may also facilitate in preparing a localized disaster management plan involving the community.

## 2.3: Rural Development: Disaster Management Issues and Challenges

**Duration:** 120 minutes

**Training Methodology:** Presentation, Discussion, Audio-Video, Problem Solving

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their field experiences or put up some concern/observation related to this particular sub session or in general about rural sector before the start of the session so as to break the monotony. Trainer can also indulge the group into some playful ice-breaking activities as short breaks during the course.

### Technical Notes

#### Challenges of Indian Agriculture/Livelihood

Agriculture and allied sectors play a pivotal role in India's economy. With the engagement of more than 50% of population (Census, 2011) in this sector, it contributes to 17% of the country's Gross Value Added (Annual Report, MOAFW, 2016-17). But the sector is under continuous threat of risks, which are exacerbated by a variety of factors, ranging from frequent natural disasters, climate variability and changes, uncertainties in yields and prices, weak rural infrastructure, changing market dynamics, and lack of appropriate financial services including policy interventions for risk mitigation instruments such as credit and insurance. These factors have multiplier impact on the farmer's livelihood and incomes and also undermine the ability of the agriculture sector and its potential to become a part of the solution to the problem of endemic poverty of the farmers and the agricultural labour (Niti Aayog Report, 2012). Increasing population and related socio-economic problems including poverty and hunger, poor water use efficiency, water scarcity, extreme weather events like incessant rainfall and subsequent flooding, as well as delay in monsoons triggering droughts and unequal access to the water are common concerns of the agriculture sector.

The current Indian Government has set a target of doubling farmers' income by the year 2022, and the zeal to raise 5 trillion dollar economy and ease of living by 2024. However, these targets can only be attained with an all-inclusive approach and therefore, will require concerted efforts to improve this scenario of Indian agriculture and also to protect the sector from detrimental impacts of natural hazards and subsequent disasters through proper mitigation and management.

Indian agriculture, like India's landscape is vulnerable to multiple disasters of natural and anthropogenic nature, and also aggravated by the impact of changing weather patterns. This calls for the need to understand India's agriculture challenge concurrently in many dimensions.

When emergencies happen to rural communities, especially disasters that are severe or prolonged in nature, the demands and pressures on local response agencies and healthcare facilities can quickly consume most of the in-hand available resources leaving huge challenges mostly for the rural marginal and poor to cope in time. Therefore, rural communities can deal more effectively with large-scale emergencies by planning and preparing before the occurrence of disasters.

Rural residents, communities, local governments, and others involved in emergency preparedness and response face challenges that can include:

- Resource limitations, such as equipment and supplies, training, skills, and infrastructure dearth
- Better access to health care facilities
- Remoteness and geographical isolation
- Low population density
- Telecommunication and warning dissemination concerns

| Challenges       | Description                             |
|------------------|-----------------------------------------|
| Food insecurity  | Chronically undernourished population   |
|                  | Increasing population, limited land     |
|                  | Rampant urbanization                    |
|                  | Unsustainable life style, food wastage  |
|                  | Declining agricultural land             |
|                  | Desertification                         |
| Water insecurity | Fodder concerns for domestic animals    |
|                  | Growing water stress                    |
|                  | Declining per capita water availability |
|                  | Agriculture becoming water intensive    |
|                  | Overexploitation of groundwater         |
|                  | Droughts and floods                     |
|                  | Upstream-downstream dependence on water |

|                     |                                                                        |
|---------------------|------------------------------------------------------------------------|
| Energy insecurity   | Food production becoming energy intensive                              |
|                     | Energy required in transportation                                      |
|                     | Energy required in storage                                             |
| Social insecurity   | Forced migration                                                       |
|                     | Small and marginal farmers                                             |
|                     | Education and awareness                                                |
|                     | Gender                                                                 |
| Climate variability | Changing weather pattern, erratic rainfall, extreme heat or cold waves |
|                     | Glacial melt                                                           |
|                     | Uncertainty in water availability                                      |

### Hazard and Disaster Specific Challenges

Every year farmlands and other related sectors are being challenged by natural hazards like excessive rainfall, droughts, hailstorms, heavy winds, pest attacks, etc. Frequency and severity of these hazards make such farmlands vulnerable to disasters of severe nature which are on a rise and continuously increasing. India still has large dependency on agrarian economy and relies mostly on rain-fed farming practice which amplifies the vulnerability of this sector since farming heavily depends directly on the climate, weather, water and land. The agriculture disaster related challenges are highlighted as follows:

| Disaster | Challenges                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drought  | Decline in cultivated area thereby decreasing the production, fall in employment, fall in purchasing power, scarcity of drinking water, food-grains and fodder, rise in inflation rate, intake of food and widespread malnutrition, health and spread of diseases caused by malnutrition, hunger and starvation, migration of people from drought affected areas in search of livelihood and better work opportunities etc. |
| Flood    | Massive losses like crop loss specially standing crops and yield reduction, damage to soil, damage to machineries, damage to stored inputs, damage to roads, etc.                                                                                                                                                                                                                                                           |

|                           |                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cyclones                  | Direct damage by high wind speed, torrential rains and extensive flooding. High tide may also affect the agriculture by bringing in saline water and sand mass making the fields unsuitable for farming. Indirect impacts may include infection and crop diseases. Agricultural marketing and trade gets severely affected due to lean seasons of animal, fish and crop production. |
| Hailstorms                | Hailstorm and powerful winds can physically damage crops across large areas. The falling hailstorms and strong winds bend and break plants and strip them of leaves and bark. A small piece of hail can even destroy vegetables such as cabbage, lettuce, tomatoes etc.                                                                                                             |
| Heat Waves/<br>Cold Waves | May affect the crop production both in quality and quantity and such crop loss is usually encountered due to flower drop and high mortality in new plantations.                                                                                                                                                                                                                     |
| Pest attack               | Some species feed on endosperm causing loss of weight and quality of food grain while other species feed on the germs.                                                                                                                                                                                                                                                              |
| Earthquake                | Damage to infrastructure like dams, farm resources, buildings, warehouse, transport facilities etc.                                                                                                                                                                                                                                                                                 |

### Understanding Risk within the Agriculture Sector

- A sector-specific risk and vulnerability assessment must be undertaken to inform the DRR planning process in the agriculture sector.
- The planning process should assess and build on existing capacities to cope with disaster risks in the agriculture sector.
- Risks for agriculture vary widely across diverse agro-ecosystems. While benefitting from overarching DRR frameworks, including early warning and other information systems, systematic risk reduction in agriculture calls for situation – and context-specific, spatial analyses and tailor-made, often localized interventions thereafter.
- Specific measures for (vulnerable) community/target group are needed to reduce multiple hazard exposure and enhance resilience.

Priority 1 of the SFDRR on understanding disaster risks calls for any effort on DRR planning and implementation to be built around a comprehensive context, sector- and hazard- specific disaster risk analysis that takes into consideration “all its dimensions of vulnerability, capacity, exposure of persons and assets,

*hazard characteristics and the environment.*” This type of comprehensive risk analysis allows decision-makers to understand the negative impacts of disasters on societies and economies and identify opportunities that could derive from implementing prevention measures (Bahadur et al. 2014). Planning processes for DRR in the agriculture sector need to be based on a sector-specific risk analysis. Often there are different agro-ecological zones (AEZ) in one country that create diverse risk patterns. In addition, hazards threatening agriculture, in particular climate-related ones, can be extremely localized. While a region might suffer from a dry spell, a specific or neighboring village can experience strong rains at the same time. Therefore, a planning process should include an analysis of observed climate variability’s, extremes and trends in different locations considered to be representative of the climate patterns in an AEZ.

As an example: As reported by the Department of Agriculture and FAO officers involved in the DRR-Agriculture planning in the Philippines, the planning process, for instance, was informed by a range of decentralized risk and vulnerability assessments conducted in various regions. This provided additional insights on how small-scale climate hazards (even without manifesting as major hazards or disasters), in the present as well as in the long run, challenge agriculture communities based on their patterns/timing of occurrence/recurrence. Risk assessments in the agriculture sector also need to consider that and how the frequency and intensity of natural hazards might change in the future due to climate change. They should also go beyond climate hazards; other exposures like animal and plant pest and diseases pose equally important risks.

In addition to assessing hazards and the exposure of people and assets, a sound understanding of existing capacities to cope with disaster risks in the agriculture sector is key. As agriculture in itself is sensitive to risks, there are often already some practices and institutional mechanisms in place that reduce disaster risks but may not always be labelled as such. Several case study countries outline in their agriculture development plans some measures that were not tagged as DRR activities, but clearly serve to reduce disaster risks, including for instance the establishment of an early warning system (e.g. Myanmar), the diversification of agricultural production (e.g. Cambodia), research on stress tolerant varieties and breeds of crops, livestock and fish (e.g. Myanmar) and the rehabilitation of irrigation and water management systems (Pakistan), more examples of development measures serving DRR for the agriculture sector can be seen in seen in The DRR for the agriculture sector planning process should take into consideration what technical capacities, tools, methods and approaches are already available within existing institutions to operationalize DRR at national and local levels. Additionally, it should be analyzed what existing agricultural good practices (of either indigenous and/or scientific origin) may already be applied at local level to strengthen community resilience against climatic and other natural hazards.

However, risk awareness and an understanding of the immediate damages a disaster may cause have often not been a sufficient incentive to take up DRR planning proactively. Country experience shows that only when the negative impacts of disasters on long-term development are fully understood or felt, DRR planning in the agriculture sector is really taken up. Therefore, in addition to a sound understanding of disaster risk, additional awareness creation on the nexus between disaster risk, poverty reduction and sustainable development is a continuing precondition for the successful mainstreaming of DRR into the agriculture sector and vice versa.

### Affects of Climate variations on Livelihood Resources

| Resource Type                 | Definition                                                                                                                                                                                                             | Examples of Climate Influence                                                                                                                                                                                                                        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Capital               | The natural resource stock (soil, water, air, genetic resources etc.) and environmental services (hydrological cycle, pollution sinks etc.) from which resource flows and services useful for livelihoods are derived. | Less frequent but intense episodes of rains could limit groundwater recharge; prolonged dry seasons could cause forest fire.                                                                                                                         |
| Economic or Financial Capital | The capital base (cash, credit/ debt, savings, and other economic assets including basic infrastructure and production equipment and technologies) which are essential for the pursuit of a livelihood strategy.       | Typhoons or cyclones and floods destroy bridges, farm-to-market roads and other agricultural infrastructure.                                                                                                                                         |
| Human Capital                 | The skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies.                                                              | Outbreaks of climate-related diseases (which often follow periods of increased rainfall and/or temperature), limit labour availability for agriculture; incidence of water- borne diseases increases as water sources dry up or become contaminated. |

|                |                                                                                                                                                                                                  |                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Social Capital | The social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions. | Repeated climate shocks may cause social dislocation and hence, can weaken social capital. |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|

Ministry of Rural Development, Government of India has one of largest sector budgets involving massive amount of investment in the rural development sector in the country. Traditionally the primary focus of the rural development ministry has been on reducing the incidence of poverty in the country. Poverty reduction within rural development is sought to be achieved through enhancing access of poor people to housing, employment, income and sustainable livelihoods opportunities. As disasters impact the poor most adversely, disaster management approaches need to be integrated into the programme design and implementation strategies of these rural development schemes and projects. For instance, housing for the poor has to take into account the specific hazard proneness of the below poverty line (BPL) households while considering the location and design of the house to be built under Indira Aawas Yojana (IAY). Similarly, disaster risk profile of the poor households including their identified vulnerabilities and capacities has to be drawn in order to feed into the planning and implementation of other programmes such as National Rural Livelihoods Mission (NRLM) and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). A review of the guidelines of all the development programmes of the Ministry of Rural Development needs to be undertaken in order to run the reality check of their sensitivity to disaster management issues, particularly with reference to the design features and implementation strategies of these programmes.

The beneficiary households reported several types of benefits being derived from the NRM assets created in MGNREGA. Increase in irrigation potential was reported as the prime benefit from the creation of community assets. Both individual and community assets beneficiaries experienced increase in ground water table. Similarly, NRM assets have helped small and marginal farmers to improve livelihood opportunities. Besides, a significant proportion of household beneficiaries found that access to water for livestock has increased. These are important factors contributing to sustainability of rural livelihood of small and marginal farmers. The assets created under MGNREGA are facilitating the rural community in sustaining and improving livelihoods.

### MGNREGA Success Story:

A structure to restrict sea water from damaging field crops in Honnavar Block, Karki Panchayat of Uttara Kannada district in Karnataka.



The pond like structure is created to restrict sea water during upper tide from damaging field crops. The above structure of around 20 and 15 feet of length and width with depth of 6 feet restricts saline water from going to agricultural land in adjacent areas.

This structure saves around 25 hectare of agriculture land from intrusion of saline water. In due course saline water fish may also be cultivated in the structure. It has been made at a total cost of Rs. 1,02,397 in 312 man days.

**Trainer Note:** Trainer/facilitator may like to quote more such similar examples wherein rural Development schemes must integrate components of disaster management (pre and post both).

### GROUP WORK (45 minutes):

Form 4-5 working groups of participants and ask them to identify the key policy issues and challenges related to disaster management in the specific context of rural development in India. This activity may include a short Hazard, Vulnerability, Risk and Capacity assessment for this sector as well. Participants will be briefed to have an in-depth discussion within their respective groups to discuss few policy issues and challenges regarding disaster management in general and disaster management during different phases of the disaster management cycle in particular.

### Group Presentation and Discussion

All the working groups will then be asked to make their presentations which can be followed up by a question and answer session.

**Reading References:**

- 1) ToT Module on Integrating Disaster Risk Reduction (DRR) & Climate Change Resilience (CCR) Into Rural Development (RD) Policies and Programmes developed under NCRMP (<http://nidm.gov.in/pdf/ncrmp/Deliverable%209-2.pdf>)
- 2) Training Module on Strengthening PRIs for mainstreaming DRR and CCA into development (<https://nidm.gov.in/pdf/ncrmp/Deliverable%209-1.pdf>)
- 3) Problems of Rural Development S C Gupta Studies in the Problem of Growth of a Rural Economy by Dr G C. Mandal, Agro-Economic Research Centre, VisvaBharati University, The World Press, Calcutta. 1961. Pp. 116 ([https://www.epw.in/system/files/pdf/1962\\_14/11/problems\\_of\\_rural\\_development.pdf](https://www.epw.in/system/files/pdf/1962_14/11/problems_of_rural_development.pdf))
- 4) EMERGING ISSUES IN RURAL DEVELOPMENT AN ISSUES PAPER Simon Maxwell, Ian Urey and Caroline Ashley Overseas Development Institute London January 2001 (<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5898.pdf>)
- 5) Rural Development Report 2016 Fostering inclusive rural transformation, 2016 by the International Fund for Agricultural Development (IFAD) (<https://www.ifad.org/documents/38714170/39155702/Rural+development+report+2016.pdf/347402dd-a37f-41b7-9990-aa745dc113b9>)
- 6) Agriculture and Disaster Risk A contribution by the United Nations to the consultation leading to the Third World Conference on Disaster Risk Reduction (WCDRR), UN World Conference on Disaster Risk Reduction, Sendai, Japan 2015 (<https://www.wcdrr.org/documents/wcdrr/prepcom1/UN/ATTFONWO.pdf>)

# PANCHAYAT RAJ INSTITUTIONS AND VILLAGE LEVEL DISASTER MANAGEMENT PLANNING

## Learning Objectives

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

- Understand the role of PRI in disaster management
- Describe the components of the VDMP
- Devise a framework of Village Disaster Management Plan(VDMP)
- Highlight the Standard Operating Procedure for VDM Committees and Disaster Management Teams (DMTs)
- Understand the need to integrate DRR into Gram Panchayat Development Plans (GPDP)

**Duration: 330 Minutes (10.00 a.m-17.00 p.m: excluding time for Lunch and Tea Breaks)**

### Equipments and Materials Needed:

Flip Charts, Markers, Pens, Sticky Notes, Laptop, LCD/Projector, Chart Papers, and Blackboard.

**USEFUL HANDOUT: 8, 9, 12 & 16**

### Method(s):

- Interactive Lecture Presentation
- Questions and Answers
- Group Work
- Problem Solving
- Discussion & Use of Audio-Video Aids

## Session Plan

The trainer/facilitator can start the session with a recapitulation of the previous days learning's. This can be done in various creative ways such as posing questions (can be quiz format/general), asking participants to present it in their own ways, showing various pictures, videos and then reiterating the contents etc. There can be an informal interaction about the contents of sub module 3 to know their understanding about the need for village level planning and preparedness. Invite them to share their views and make a note of the points either on a flip chart or white board and gradually, move towards the first learning unit.

**Wrapping up the Discussion:** Depending upon the size of the training batch, form 4-5 working groups of participants and give them table-top exercises based on the sub sessions for better comprehension. Ask the working groups to share their findings and analysis in a presentation format. This also encourages a two-way learning and makes the sessions more interesting and interactive. Give 5 minutes at the end for some questions and answers or scope for discussion on each presentation. Close the session with a presentation summing up the key learning from the session and highlighting the points from Sub-Module 3.

## Context

Panchayats have been one of the basic features of the Indian society. Mahatma Gandhi advocated for panchayats and village republics. Since independence, we had multiple provisions of Panchayats in India from time to time finally reaching epitome with the 73<sup>rd</sup> Constitutional Amendment Act of 1992. The 73<sup>rd</sup> and 74<sup>th</sup> amendments paved the way for the popularly elected local governments to play a substantive role in matters of immediate local concern. These include sustainable development and disaster management. Since the 9<sup>th</sup> five year plan, panchayats have been made the central agencies for implementing various rural development schemes and during emergencies; these programmes can be reoriented according to need of the disaster affected areas.

### Three Tier Structure of Panchayati Raj

**Zila Parishad-district Level**

**Anchalik Pachayat-block Level**

**Gaon Panchayat-village Level**

The rationale for involving communities in disaster preparedness and mitigation activities is based on the assumption that community is both the actually sufferer and the first responder and it needs to develop its own coping mechanisms and strategy to reduce the impact of impending disasters. It is imperative to appreciate this local knowledge and resources, and to build on them in order to improve the capacity of the people to withstand the impact of disasters. Moreover, ownership of disaster reduction should not be stripped from local people who would be left even more powerless in case external intervention does not occur. In fact building community leadership and a chain of trained community cadres through participatory approach can help harness the resilience and resourcefulness of the community to cope up with exigencies. Involvement and participation of the communities will ensure a collective and coordinated action during emergencies. Hence, disaster reduction activities should be based on participatory approaches involving local communities as much as possible, considering them as proactive stakeholders and not passive targets for intervention. Furthermore many times, it is necessarily not the severe disasters that destroy life and livelihoods. At times, accumulated losses from small floods, droughts, earthquakes and landslides etc can exceed the losses from big disasters and contribute significantly and amplify vulnerabilities at the local level. These disasters attract little media attention and communities are often left on their own to cope with the destruction. This provides another reason to invest in Community Based Disaster Risk Management. It is the realization of this pivotal role played by the communities that necessitates the development of Village Disaster Management Plans (VDMP). Preparations of such plans can help develop decentralized planning emphasizing the need to reframe new Gram Panchayat Development Plans (GPDP) with integration of disaster management into them with intended actions based on local priorities and available resources to achieve specific development goals within a specific timeframe. These are based on local needs and have the rational which matches the local priorities along with available resources and tackles the ownership issues as these are locally developed and accepted by the people in the Gram Sabha for better implementation.

### 3.1: Role of PRI in Rural Development Sector

**Duration:** 60 minutes

**Training Methodology:** Power Point Presentation, Discussion & Audio-Video

**Training Note:** The trainer/facilitator is encouraged to utilize initial few minutes of the session by asking the participants to discuss the pre-independence Panchayat system established in India and its current institutional set-up, powers and responsibilities. The Trainer can use few Audio-Video clippings to make the session interesting.

#### Technical Notes

Natural Disasters cannot be prevented, but their impact on the lives and the socio-economic aspects of the people can be reduced to a considerable extent. In the past, people have countered the effects of the disasters with their own efforts and have overcome the trauma of the calamity. While the Government has the role to help its people in distress, the people themselves have greater responsibility to withstand together to face such eventualities and help the Government to help themselves in this process, rather fully depending on it. No state-level administration will be able to meet the requirements of communities, unless communities come forward to solve their own problems. The Panchayati Raj Institution (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 Non Governmental Organizations (NGOs) and Community Based Organizations (CBOs) which are engaged in various developmental activities at the grassroots level. The Panchayati Raj Institution (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. Panchayats must adhere to the humanitarian imperatives 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.

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 utilized 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.

Panchayat Raj is a system of rural local self-government in India. It has been established in all the States of India by the acts of the state legislature to build democracy at the grass root level. It is entrusted with rural development responsibilities and was constitutionalized through the 73<sup>rd</sup> Constitutional Amendment Act of 1992. The passage of the Constitution (73<sup>rd</sup> Amendment) Act, 1992 (or simply the Panchayati Raj Act) marked a new era in the federal democratic set up of India. It was based on the recommendation of Balwant Rai Mehta committee. It came into force with effect from April 24, 1993. It has a 3-tier system of Panchayati Raj for all States having population of over 20 lakh. The Committee, in its report in November 1957, recommended the establishment of the scheme of ‘democratic decentralization’, which ultimately came to be known as Panchayati Raj. It recommended for a three tier system at village, block and district level and it also recommended for direct election of village level panchayat. Rajasthan was the first state to establish Panchayati Raj at it started from Nagaur District on October 2, 1959. After this, Ashok Mehta Committee on Panchayati Raj was appointed in December 1977 and in August 1978 submitted its report with various recommendations to revive and strengthen the declining Panchayati Raj system in the country. Its major recommendation were two tier system of panchayat, regular social audit, representation of political parties at all level of panchayat elections, provisions for regular election, reservation to SCs/STs in panchayats and a minister for panchayati raj in state council of ministers.

### **Main Features of the 73<sup>rd</sup> Amendment Act**

- Gram Sabha may exercise such powers and perform such functions at the village level as the Legislature of a State may, by law, provide.

## Panchayat Raj Institutions and Village Level Disaster Management Planning

- There shall be constituted in every State, Panchayats at the village, intermediate and district levels in accordance with the provisions of this part.
- Panchayats at the intermediate level may not be constituted in a State having a population not exceeding twenty lakhs.
- All the seats in a Panchayat shall be filled by persons chosen by direct election from territorial constituencies in the Panchayat area and, for this purpose, each Panchayat area shall be divided into territorial constituencies in such manner that the ratio between the population of each constituency and the number of seats allotted to it shall, so far as practicable, be the same throughout the Panchayat area.

### Powers and Functions of PRIs

- 1) Mandatory Functions: Public Health, Public Utilities, Protection of Public Properties, Licenses & Penalties
- 2) General Functions: Planning, execution and supervision of all developmental programmes
- 3) Sectoral Functions: Plan and implement schemes for economic development and social justice in respect of **29 subjects listed in XI Schedule**

|                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agriculture<br>Land improvement<br>Water management<br>Wasteland development<br>Animal husbandry<br>Fisheries<br>Minor forests produce<br>Small scale industries including food processing<br>Rural housing<br>Village and cottage industry<br>Fuel and fodder<br>Education<br>Adult education<br>Technical training and vocational education | Social and farm forestry<br>Maintenance of community assets<br>Soil conservation<br>Minor irrigation<br>Dairy and poultry<br>Public distribution<br>Cultural activities<br>Khadi<br>Drinking water<br>Roads<br>Culverts, bridges, ferries, waterways<br>Rural electrification<br>Social welfare-backward class issues |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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. They can further be engaged to promote participation of grass root communities in various pre and post disaster management activities such as:

- Act as catalysts to social mobilization process;
- Tap the traditional wisdom of the local communities to complement the modern practices in disaster mitigation efforts;
- Provide a base for integration of various concerns of the community with that of the Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs), which are engaged in various developmental activities at the grass roots level;
- Sensitize local communities, and through them develop coping mechanisms in disaster preparedness and mitigation measures;
- Discuss and evolve strategies to manage crisis situations effectively;
- Ensure transparency and accountability in the mitigation efforts;
- Streamline activities like distributing immediate relief in the form of money, food grains, and medical care, clothes, tents, vessels for drinking water and other necessities;

- Coordinate activities of restoration, rehabilitation and reconstruction;
- Act as leaders to the community;
- Gather, analyze and disseminate information;
- Articulate community needs and expectations;
- Converge with local, state, national and international organizations involved in disaster management;
- Form disaster management task forces;
- Arrange for emergency relief;
- Encourage damage appraisal, vulnerability assessment and risk reduction strategies;
- Organize awareness campaigns and promote community education on disaster preparedness;
- Activate disaster management plans;
- Provide for safe disposal of carcasses.

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 synergize 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 organizations 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 rebuild the economy in the aftermath of a large scale devastation caused by natural disasters.

#### **Some Guidelines for Panchayats:**

They 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.

Include a sub-module on GIS based planning in Sub-module-3. GIS based planning is part of GPDP using either BHUVAN or India Man chitra images. With the support of Satellite images we can also indicate the vulnerable areas which are frequently affected considering the intensity of the disaster with the support of District NIC department.

## 3.2: Village Disaster Management Plan: Need and Framework

**Duration:** 60 minutes

**Training Methodology:** Power Point Presentation, Discussion, Audio-Video

**Training Note:** The trainer/plan and what they want to achieve by preparing the same. Facilitator may like to show some video, encourage participants to share their views on disaster management plans and brainstorm to discuss on what they understand about village disaster management

### Technical Notes

#### The Need for VDMP

The purpose of village level DM plan will be helpful for ensuring speedy approach for rescue, rehabilitation in the affected area. The plan will guide the community at the time of disaster preparedness and at the time of relief operation, provides courage to the community to face the eventuality more effectively. Village Disaster Management Plan (VDMP) is a document prepared by the village community themselves based on their own hazard, vulnerability, risk, resource and capacity analysis, containing village profile supported by maps, emergency response and disaster risk reduction plans, listing out activities and pin pointing responsibility of the Village Disaster Management Committee (VDMC), Task Force Members and the community at normal times, before, during and after a disaster in order to save lives, livelihood and property and integrating it into the long term sustainable village developmental plan. All the activities in the emergency response plan are so well planned, practiced, rehearsed and synchronized that they take place simultaneously in minimizing loss of time and order. Development of a village disaster management plan is a process through which every unit in the village is made aware of the various facets of disaster preparedness and response and their capacity is enhanced to meet the exigency framework:

Therefore, by advance planning rural communities may be able to save their assets and income for use during emergencies and thus, a VDMP can prove to be beneficial as:

- It outlines the process by which the village should manage any disaster.
- It can be used to tap human and material resources in the aftermath of a disaster.
- It lists down the contact details of important administrative officials ensuring quick communication with them.

- It describes the roles and responsibilities of the concerned officials and teams in the wake of a disaster.
- It can play a vital role in helping to avoid mistakes or recognize hidden opportunities.

Nobody can predict and prevent the occurrence of hazards, however, it is possible to minimize the impact of a disaster and reduce the loss of life and property if adequate preparations are made at the household and village level.

The village disaster management plan is a document which details out the past hazard profile of the village and the present vulnerability status on the basis of which we can prepare our future. The plan is essentially a preparedness tools which can be used during an emergency by the administration as well as the community to have an insight into the location of available men and material local resources in the village. The VDMP must have the following features:

- Have a clearly stated objective or set of objectives.
- Reflect a systematic sequence of activities in a logical and clear manner.
- Assign specific tasks and responsibilities.
- Offer a benchmark against which actual performance can be measured and reviewed.
- Integrate its activities, tasks and responsibilities to enable the overall objective or series of objectives to be achieved.

### Framework for VDMP

The development of disaster management plan at the village level aims at building the capacity and resilience of the community to equip them with skills so that management of various hazards becomes a way of life for them. The framework of VDMP is built around the following four pillars.

- Development of Village Disaster Management Plan by the local community members ensures ownership and reflects local conditions. The plan has to be prepared through a participatory approach on the basis of facilitation provided by external resource persons.
- Disaster Management Committees and Teams have to be formed at the village level to facilitate the process of Community Based Disaster Risk Reduction and Management.

- Mock Drills check the response of the community in a simulated environment. They have to be conducted at regular intervals on the basis of plan prepared by the community. The mock drills will be a form of rehearsal in which the response of the community and the efficacy of the administration can be tested.
- Awareness has to be generated amongst the community through various mediums like televisions, radio and print media. These campaigns are carried out through rallies, street plays, competitions in schools, distribution of IEC materials, wall paintings on do's and don'ts for various hazards. Meetings with key persons of a village such as the village head, health worker, school teachers, elected representatives and members of the youth clubs and women also motivate the villagers to carry forward the preparation of these plans for a safer living.

### 3.3: Village Disaster Management Committees (VDMCs) and Disaster Management Teams (DMTs)

**Duration:** 120 minutes

**Training Methodology:** Power Point Presentation, Discussion, Problem Solving

**Training Note:** The trainer can initiate the session by asking the participants about how a disaster management committee is different from a disaster management team and the need for such committees and teams.

#### Technical Notes

Over the past two decades, there has been an increase in disaster occurrences costing human and economic losses. This is due to the ever increasing vulnerabilities of people to natural disasters. The need is felt to reduce disaster risks by improving capabilities of people and ensuring preparedness, mitigation and response planning processes at various levels. The objective is to look at the entire cycle of disaster management in reducing risk and linking it to developmental planning process. In the past, disasters were viewed as isolated events, responded to by the Governments and various agencies without taking into account the social and economic causes and long term implications of these events. In short, disasters were considered as emergencies. The recent disasters and its socio-economic impact on the country at large, and in particular the communities has underscored the need to adopt a multi dimensional approach involving diverse scientific, engineering, financial and social processes to reduce vulnerability in multi-hazard prone areas. In view of this, the Government of India has brought about a paradigm shift in its approach to disaster management. The change is from “relief and emergency response” to a balanced approach covering all phases of the Disaster Management Cycle.

This approach acknowledges disaster management as a part of the development process, and investments in mitigation are perceived to be much more cost effective than relief and rehabilitation expenditure. In this regard, Government of India has taken various initiatives in area of disaster preparedness, mitigation and response through networking of various institutions, institutional capacity building, and policy interventions at all levels. India, besides evolving effective post-disaster management operations, has also formulated and implemented pre-disaster mitigation programs and sectoral development programs to reduce the impact of disasters as well as reduce the socio-economic vulnerabilities. The reconstruction programs in the aftermath of disasters such as cyclones

and earthquakes are also aimed at building disaster resistant structures to withstand the impact of natural hazards in the future. Community participation and community ownership in disaster risk reduction is one of the key factors in reducing vulnerabilities of people and minimizing the loss. The Government of India's focus on Community Based Disaster Preparedness (CBDP) approach promotes community involvement and strengthening of their capacities for vulnerability reduction through decentralized planning process. This document deals with the concept, component and some of the best practices.

### **Disaster Management Committees (DMCs)**

As part of the VDMP preparation, there is a strong need for setting up DMCs at the village levels to carry out the following functions:

1. To take village level decisions.
2. To coordinate the activities of the Disaster management Teams.
3. To account for and to maintain the inventory of resources.
4. To be able to ensure a continuous monitoring of preparedness.

The aim of setting up of Village Disaster Management Committees (VDMC) is for better utilization of local skills, resources, manpower and leadership in order to equip them with tools and strategies to managed disasters until better government disaster relief efforts can be set in. For example, during an earthquake, local people trained in basic relief efforts such as clearing rubble, early medical help, first-aid, search and rescue of those trapped can facilitate response before professional help arrives. Same is the case in times of any flood situation where in a prepared community can be mobilized and alerted for such events and so, they can take care of each other and use basic survival methods to improve chances of getting through the initial hours of flooding safely. Such planning can be very helpful, as India is a vast Nation with many remote and deserted pockets of populations which cannot be reached easily or quickly. Also, due to limited budgets it has not been economically feasible for government to set up disaster relief teams in each and every town.

A VDMC can therefore, help to save property and even lives and can provide firsthand account of problems and solutions before professionals arrive. They can facilitate and guide professional rescue workers to save trapped people, or survivors who need urgent medical support.

### Suggested membership of the VDMC is as follows:

| External Ex-officio Members               | No. of Persons | Reasons for being Member                                                                                                                    |
|-------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| BDO or his representative                 | 1              | To allow access to the govt. schemes and to act as a arbitrator if conflict arises amongst the members that cannot be settled by consensus. |
| Government Engineer                       | 1              | To give a technical know how back up to DMT's and to periodically verify the condition of the shelter and other structures.                 |
| Member Panchayti Raj Institution          | 1              | To allow access to the DMC to the facilities available.                                                                                     |
| Member from a facilitating inst. or NGO   | 1              | To allow the community to communicate with the implementing agency and the required feedback.                                               |
| Gram Mukhya or Village Head               | 1              | Already enjoy a degree of respect and are usually a part of all decision making processes.                                                  |
| Mahilamandal and women's representative   | 1 or more      | To specifically represent gender needs.                                                                                                     |
| Youth representatives like NYKS, NCC, NSS | 1 or more      | To present the needs and requirements of the youth.                                                                                         |
| Self help group                           | 1 or more      | Groups are already organized and have a large contributory role to the village processes.                                                   |

|                         |           |                                                                                                                                                                                       |
|-------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other groups            | 1 or more | Representation of backward class, or scheduled caste or scheduled group or other ethnic groups.                                                                                       |
| School Committee Member | 1 or more | To participate in any decision regarding the usage of shelter and to spread awareness through school. Besides, teachers and school committees are usually respected by the community. |
| Village Members         | 2 or more | Chosen by the communities to represent the needs of the community members.                                                                                                            |
| DMT Member              | 1         | Chosen by the DMT members                                                                                                                                                             |

**The roles and responsibility of the Disaster Management Committee are as follows:**

The President would preside over all meetings and be responsible for overall management. All the Task Force Members would be directly managed by him. The committee would be responsible for: Developing the Village Disaster Mitigation Plan Maintaining peace during operations and maintaining all accounts of the committee. Keeping contact with Block Administration and other related agencies and also in assisting the various team members in performing their responsibilities, trying to wipe out bottlenecks/lacunas in the contingency plan. In addition, the roles and responsibilities of VDMC will include the following: Check the household preparedness before any disaster-situation and teach the villagers to reinforce the roof and wall wind and flood water. Strengthening of safe shelters should be attended to before monsoon season, latest by end of May. Keep some temporary shelter materials in the village for emergency purpose and identify the safe shelter for keeping the evacuees. Coordinate with the owner of the houses for use as safe shelter during the time of the disaster. DMT members should be trained and help the community in the time of emergency. DMT members should watch the situation and keep contact with the villagers for any eventuality. VDMC would have link with GP and Block for information and support in terms of relief and search and rescue. VDMC would ensure the effective functioning of the all DMTs in the villages and update the information in the VDMP and other information. VDMC would have linkages with local PHC for medicine and up gradation of their skill. Help the medical unit for their ongoing work in rural areas. They should ensure the availability of common medicine in the village. They should also ensure that villagers are familiar with the practice of disinfection of flood water and use of ORS. VDMC

should ensure necessary preparations by respective DMTs. For example, they should ensure that the water and sanitation team establishes linkages with RWSS for bleaching powder, repair of tube wells and tanks. Keep some dry food, either collect from each house hold or purchase from the market. DMT should coordinate with block and gram Panchayat for relief materials. Pre-position of food stock should be ensured in the village by VDMC members along with relief DMT members. Keep all vulnerable groups confident to face the disaster and keep everyone ready for rescue, food, drink and safe shelters.

### Disaster Management Teams

The villagers engaged in developing the plan can list from among themselves motivated and responsible men, women and youth volunteers who can implement and supervise the activities of the disaster management plan for e.g. Members of the village youth clubs, women members of the village self help groups, literate youth of the village, school teachers, Auxiliary Nurse Midwife (ANM), ward members and so on. These individuals then form small action groups of 5 to 10 members each, depending on the convenience of the community. Each group can be given a particular responsibility and will have distinct activities to carry out before, during and after a disaster. The different DMT's can be as follows:

1. Warning Team
2. Evacuation and Response
3. First Aid
4. Sanitation
5. Shelter Management
6. Relief Management
7. Carcass Disposal
8. Counseling
9. Damage Assessment
10. Reconstruction and Rehabilitation Team

These DMTs can be separate teams or activities can be combined depending upon the number of suitable volunteers available with the respective village. The DMT's have certain Standard Operating Procedures in the three phases of disasters with their specific roles and responsibilities as mentioned below:

| Search Rescue & Evacuation Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Pre:</b></p> <p>Keep all lists ready. Specially the name of vulnerable people, fishermen, sick and ailing, children and women.</p> <p>Check and keep all equipments/ materials required to evacuate and rescue villagers ready, such as cycle, bullock cart, rickshaw, boats etc. If any shortfall is found, it should immediately be arranged/replaced or repaired.</p> <p>For better transportation, bad roads or block roads should be repaired with the help of responsible Govt agencies.</p> <p>Dwellers of thatched/ weak houses may be advised on how to retrofit their houses using locally available resources.</p> <p>Mound to be arranged to evacuate domestic animals with fodder. Farmers/people may be advised to set their domestic animals free.</p> | <p><b>During:</b></p> <p>Warn/prevent fisherman/farmers to venture outside during emergency.</p> <p>Help the evacuees to get in to their respective shelters with minimum belongings.</p> <p>Rush to the spot if any casualty informed, if require take the help of First Aid team</p> <p>Arrange shifting of acute cases to the PHC.</p> <p>Advice evacuees to maintain peace and sanitation during staying in the shelters.</p> <p>Keep vigil not allow any one to go out during fatal time.</p> <p>If possible, try to find out missing persons within the community.</p> | <p><b>Post:</b></p> <p>Try to arrange vehicle/boat to shift acute cases to the nearest hospital.</p> <p>Clean roads/ garbage in order to establish proper transportation/ movement.</p> <p>Help the people to go back their homes.</p> |

| Shelter Management Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Pre:</b></p> <p>Check well in advance the identified shelters in the community. Emphasis should be given to see whether the doors, windows, electrification, latrine, water tank etc. are in order.</p> <p>Arrange dry ration, water, medicines, candle, kerosene, utensils for at least one week, out of village contingency fund.</p> <p>The team would make necessary arrangements to keep proper health and sanitation during their staying.</p> <p>Temporary latrines to be made separately for men and women.</p> <p>Special arrangement should be made for pregnant women and ailing patients.</p> | <p><b>During:</b></p> <p>Ensure that people come to shelters with some food/water/candle/match box and other day to day requirements at least for three days. Register the name of the evacuees. If any one found missing inform the Search and Rescue Team immediately. Make special arrangements for pregnant women and ailing persons. The team should strictly maintain health/hygiene in the shelter. Evacuees may be asked to use their own foodstuff first. Emphasis to be given to given on the use of safe drinking water. Emphasis should be given to maintain peace in the shelters. People should be especially motivated and persuaded not to pay any heed to rumors. The team may arrange activities (Bhajan/Kirtan etc.) to divert the attention of the panicked people.</p> | <p><b>Post:</b></p> <p>Provide all kind of support to the people so as to help them go back to their homes.</p> <p>Arrange/collect relief items from other sources to maintain buffer stock.</p> <p>Maintain cleanliness inside and outside the shelter.</p> <p>Make necessary arrangement to have community feast.</p> <p>Make necessary arrangements to repair, if any, shelters immediately after the event is over.</p> <p>Support other teams.</p> <p>Submit expenditure report, if any, to VDMC.</p> |

| Sanitation Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Pre:</b></p> <p>Collect disinfectants from nearest PHC/ ANM.</p> <p>Collect kerosene/ petrol/ fire wood to destroy decomposed bodies in advance.</p> <p>Ensure regular disinfections of tube wells by RWS &amp; S Dept.</p> <p>Take measures to protect water sources from polluting due to flood.</p> <p>Arrange/use lime to purify pond/well etc.</p> <p>Arrange temporary latrines near cyclone shelter with adequate disinfectants.</p> <p>Keep the sewerage system clean.</p> | <p><b>During:</b></p> <p>Ensure proper sanitation near shelters.</p> <p>Arrange/ensure evacuees take boiled/purified water for drinking.</p> <p>Inform/demonstrate how to use chlorine/ halogen tabs for drinking water.</p> <p>Use disinfectants in the wells/tube wells.</p> <p>Ensure that the water reserved by shelter management team is safe enough to use.</p> | <p><b>Post:</b></p> <p>Use disinfectants to keep the community out of spreading epidemics.</p> <p>Help Rescue Team to clean garbage.</p> <p>Help the Carcass Disposal Team to destroy dead bodies of animals.</p> <p>Use disinfectants in those areas for better hygiene.</p> <p>In case of human dead bodies take the permission of the concerned/ authorized government department.</p> <p>Document and should keep photographs of the deceased person for identification in the future.</p> <p>Make the community aware regarding the use of disinfectants for drinking water and ensure that people follow it.</p> |

| Relief Team                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Pre:</b></p> <p>Arrange stock of dry food, water, baby food, medicine, fuel and other necessary items according to the population before hand to face any kind of eventuality</p> <p>Support/help Block functionaries to stock foodstuff in the specified places.</p> <p>Arrange materials for providing temporary shelter, such as bamboo sticks, rope, polythene sheets, cutter, Shaw, straw etc.</p> <p>Store fodder and medicines for the domestic animals.</p> <p>Estimate and arrange dry food requirements for the specified shelters at least for the first three days.</p> | <p><b>During:</b></p> <p>Store required amount of relief materials in the specified shelters.</p> <p>Make individual family card for the evacuees to distribute dry food ration properly.</p> <p>Distribute the food stuff and proper care should be taken to see that no individual is left out.</p> <p>The team member should inform the leader about any shortfall or additional requirements.</p> | <p><b>Post:</b></p> <p>Arrange Govt./ Non-Govt. relief and help them to make proper distribution.</p> <p>Give proper beneficiary list to the external relief teams/ organizations.</p> <p>Ensure that the Damage Assessment Team make proper report and submit it as quickly as possible to the different organizations to avail adequate benefit to the victims.</p> <p>Arrange food and other assistance for the people who need more support from the community.</p> |

**Evacuation and Response Team*****(During Disaster)***

- Picking up the vulnerable community from the sea and riverbanks in case of flood or a cyclone.
- Directing the rescue community to the shelters.
- Securing rescue boats and rescue kits.
- Evacuating cattle and livestock.

***(Post Disaster)***

- Village inspection and rescuing stranded and injured people.
- Maintaining a “missing persons” register and updating it after each rescue trip and assisting government in enumeration of damaged property.
- Transporting doctors, volunteers and other relief materials.

**EVACUATION AND RESPONSE TEAM**

Keep information of more vulnerable group.

Update information every year.

Identify safe routes to reach the vulnerable population and plan their evacuation.

Keeping transportation ready for use to evacuate people.

Informing officials for road repair and get it done.

Prepare a **“RESCUE KIT”**

Keep tools handy-cutting saw, blades, crowbar, hammer, nails.

Identify highlands for evacuating cattle and livestock with enough fodder for about a week.

**First Aid Team*****(During Disaster)***

- Moving medicine stocks and first aid kits to the shelters or safe places.
- Looking after the medical needs of the evacuees.
- The team must be indoors when the disaster strikes and also ensure that no one leaves the shelter during the disaster like cyclone/flood on any pretext.

***(Post Disaster)***

- Attending to injuries of the rescued people.
- Informing the relief group about medical supplies which are running low.
- Helping doctors and paramedics shift the sick and the injured to hospitals.
- Isolating cases with infectious diseases and prevent from spreading after giving due primary care.
- Providing preventive medication if there is a danger of epidemic outbreak like cholera, dysentery, malaria etc.

**FIRST AID TEAM:**

Maintaining list of vulnerable groups and ensure their medical needs.

Keeping a **“FIRST AID BOX”** well in advance.

Distributing basic medicines like chlorine tablets, ORS packets etc. and demonstrating their use, to families in advance.

Keeping stretchers ready to bring injured people.

**Carcass Disposal Team**

- Collecting dead bodies and record their descriptions for families to identify them.
- Cremating carcasses and bodies and disinfecting the area with bleaching powder.

**CARCASS DISPOSAL TEAM**

Maintaining stores of fuel wood, kerosene and sackcloth to cover dead bodies.

Identifying elevated areas to serve as cremation grounds.

**Psychosocial Counseling Team**

- Allow the people to express their grief.
- Whenever a person is sharing his/her feelings and experiences member should listen to him/her patiently and try to realize what the survivor went through by keeping him/herself in the survivor's position.
- Good listening is an important skill to provide emotional support to the survivor.
- Help the survivors in contacting their relatives so that they can get social support.
- Emphasis on engaging the disaster survivors in some kind of activities that interest them in order to give them a sense of being productive.
- Engaging the disaster survivors in relaxation/breathing exercises help in the healing process. Encourage the survivors to undertake these exercises at least twice a day regularly. This helps to gain control over their anxiety.
- It is necessary to encourage the disaster survivors to practice their religious beliefs and rituals. Practicing religious beliefs help in the recovery process.

**PSYCHOSOCIAL COUNSELING TEAM**

Mapping of the more vulnerable groups like women, children, aged, people with critical disabilities etc.

Generate awareness on general psychosocial wellbeing of the community.

**Damage and Loss Assessment Team**

- Help in assessing damages to infrastructure like roads, water supply, electricity, markets and distribution networks.
- Hastening the government enumeration process to assess the damage and loss incurred by the affected community.
- Helping families with paperwork to follow compensation proceedings especially relating to death certificates, insurance etc.
- Ensuring that the assessment and concerned papers reach the government department which is responsible for compensation to ensure timely assistance.

**Reconstruction and Rehabilitation Team**

- To plan for Ex-Gratia payments for lives lost compensation and. for wholly and partially damaged houses from the government.
- To ensure access of reconstruction materials to the community.
- Accessing government services for rebuilding damaged public infrastructure and following it up till rebuilding is completed.
- To help families in reconstruction of their houses.
- Helping families to initiate livelihood through loans and other financial services.
- Seeking the assistance of government and NGO's in restoration of support facilities.

**RECONSTRUCTION & REHABILITATION TEAM**

Get the water sources in the village purified.

Making a list highlighting the various support facilities necessary to restart the economic activities.

Preparing a reconstruction and rehabilitation plan for the vulnerable community.

Please mention about mock drills, Provide SoP for organizing mock drills.

**GROUP WORK (45 minutes)**

Instead of a lecture method, the trainer can use a group activity for the VDMC and DMT formulation component of this unit. Trainer can Form 4-5 working groups of participants and ask them to identify the key personnel's according to them who would suit the best to be VDMC members at village levels. Further different DMTs can be assigned to different groups and they can be asked to brainstorm and chalk out the SOPs for their respective DMT in both pre and post disaster phases. Groups can then be asked to make formal presentations and discuss the same.

**Trainer Note:** For more learning and understanding about the Village Level Disaster Management Plans and details about the SOPs of DMTs in pre and post disaster scenario the Trainer can refer to the VDMP Module developed by NIDM.

### 3.4: Integration of DRR into Gram Panchayat Development Plans (GPDP)

**Duration:** 160 minutes

**Training Methodology:** Power Point Presentation, Discussion, Problem Solving

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their views about what constitutes in a Gram Panchyat plan and if they feel it important to integrate DRR activities with GPDPs considering by now they have a fair idea about the country's' hazard and vulnerability profile.

#### Technical Notes

Gram Panchayats have been mandated for the preparation of Gram Panchayat Development Plan (GPDP) for economic development and social justice utilizing the resources available with them. The GPDP planning process has to be comprehensive and based on participatory process which involves the full convergence with Schemes of all related Central Ministries/Line Departments related to 29 subjects enlisted in the Eleventh Schedule of the Constitution. Panchayats have a significant role to play in the effective and efficient implementation of flagship schemes on subjects of National importance for transformation of rural India. The People's Plan campaign initiated under "Sabki Yojana Sabka Vikas" has been an intensive and structured exercise for planning at Gram Sabha through convergence between Panchayati Raj Institutions (PRIs) and concerned Line Departments of the State. Juxtapose, these plans cannot be seen in isolation and must be integrated with adequate measures for disaster risk reduction for sustainable development of the rural sector and its economy.

The main objectives that drive GPDP are:

- i. To schedule and manage Special Gram Sabha at Gram Panchayat Level.
  - ii. To help in uploading Geo tagged photographs of the Gram Sabha meetings and Public Information Board.
  - iii. Provide feedback by the facilitator online about the special Gram Sabha.
- Need to develop a SoP on preparation of GPDP inclusive of DM Plan.

### Few Flagship Schemes/Programmes run by Ministry of Rural Development:

| Name of the Programme                                     | Suggested DRR Interventions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indira Awas Yojana                                        | <ul style="list-style-type: none"> <li>i. Inclusion of such measures like application of Hazard resistant design in construction of IAY houses, appropriate sitting of IAY housing in guideline of IAY.</li> <li>ii. Development of model design for IAY houses which could be easily referred to by DRDAs at district level and used for community awareness depending on the geographical location. Capacity Building of Rural masons on safe construction.</li> <li>iii. Capacity Building of PRIs.</li> <li>iv. Community Awareness.</li> <li>v. Capacity Building Programmes for officials on DRR issues.</li> </ul>                                                                                                                                                                                                          |
| Mahatma Gandhi National Rural Employment Guarantee Scheme | <ul style="list-style-type: none"> <li>i. Utilisation of MGNREGS funds to reduce the vulnerability of Panchayat vis a vis natural hazards such as landslide, drought, forest fire, cloud burst, flash floods, earthquake etc.</li> <li>ii. Giving priority to those works which reduce the vulnerability of area over the works which enhances the vulnerability of the area to natural hazards.</li> <li>iii. Identified works are available which take into account the hazard profile and offer continuous employment opportunities in the event of disasters to ensure livelihood security in the event of disasters.</li> <li>iv. Works which reduce disaster risk are given priority in plans-such as local mitigation works etc.</li> <li>v. Any other implement able suggestion within the ambit of the scheme.</li> </ul> |

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pradhan Mantri Gram Sadak Yojana | <ul style="list-style-type: none"> <li>i. The Master Plan for rural roads, the district rural road plan and identification of core network under the planning process of this scheme should, which the overall guidelines of its preparation, explicitly address the disaster risk reduction concerns and accord priority to connect the vulnerable habitations.</li> <li>ii. The technical guidelines should explicitly provide for suitable protection and inclusion of disaster risk concerns explicitly – while provision of cross drainage, slope stabilization, protection works are already included, in multi-hazard and especially flood and landslide prone areas fair weather roads need to be upgraded on a priority basis.</li> <li>iii. The maintenance guidelines are modified to ensure that in case of disasters these roads get provision for restoration to ensure all weather connectivity.</li> </ul> |
| National Rural Health Mission    | <ul style="list-style-type: none"> <li>i. Ensure that the village Health Plan and the District health plan explicitly address the disaster risk reduction concerns in the vulnerable habitations and the vulnerable districts and the disaster management plan as per DM Act 2005 takes links itself to the District and village Health plans.</li> <li>ii. Provide training to the ASHA workers on disaster health preparedness and response.</li> <li>iii. Strengthening of Disease Health Surveillance System in rural areas.</li> <li>iv. Ensuring structural safety of the CHC/ PHC and other health care service delivery centers in rural areas.</li> <li>v. Training of doctors and hospital staffs on mass casualty management and emergency medicine.</li> <li>vi. Community awareness on disaster management.</li> </ul>                                                                                        |

**GROUP WORK (30-45 minutes)**

Trainer can form 4-5 working groups of participants and ask them to brainstorm DRR interventions in them. Groups can then be asked to make formal presentations and discuss the same. Other Schemes which can be discussed depending upon the schedule and time available, the trainer can discuss the following as well:

- RKVY (Rashtriya Kisi Vikas Yojana)
- NFSM (National Food Security Mission)
- NMSA (National Mission for Sustainable Agriculture)
- KCC (Kissan Credit Card)
- PMFBY (Pradhan Mantri Fasal Bhima Yojana)
- KUSUM (Kisan Urja Suraksha evam Utthaan Mahabhiyan)
- PKVY (Paramparagat Krishi VikasYojna)
- NPOF (National Project on Organic Farming)
- MKSP (Mahila Kisan Sashaktikaran Pariyojanav)
- NHM (National Horticulture Mission)
- MIDH (Mission for Integrated Development of Horticulture)
- RGM (Rashtriya Gokul Mission)
- NLM (National Livestock Mission)

**Reading References:**

- 1) Role of Panchayats in Disaster: A New Vista for Disaster Management: Article (<https://www.ijcmas.com/special/7/Debabrata%20Mondal,%20et%20al.pdf>)
- 2) Training Module on Village Disaster Management Plan-NIDM (<http://nidm.gov.in/PDF/modules/village.pdf>)
- 3) Community Based Disaster Management: Empowering Communities to Cope with Disaster Risks; Bishnu Pandey and Kenji Okazaki- United Nations Centre for Regional Development, Japan <https://pdfs.semanticscholar.org/b76c/55e5d2b32d900aa765e4aefe01540ba6cffa.pdf>
- 4) Building PRI Capacities for Disaster Preparedness and Management: Training Manual; GoI-UNDP Disaster Risk Management Programme 2002-2009 ([https://www.preventionweb.net/files/13483\\_Pri.pdf](https://www.preventionweb.net/files/13483_Pri.pdf))



# FIELD VISIT

## Learning Objectives

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

- Understand and experience the practical part of the previous 3 sub sessions learning's'.

**Duration: FULL DAY (10.00 a.m-17.00 p.m)**

### TRAINER NOTE: Field Visit

Field Trips are important to help bridge the gap between class room knowledge and hands-on experience. The purpose of any such trip is usually observation for education and non-experimental. It provides the participants an opportunity to have first-hand experiences along with a chance to interact with what they are learning by this way of unique social experience.

Identify a single village or more than one village in the neighborhood where the participants can be taken for a field visit to practically see and gather information related to hazards and vulnerabilities of the respective villages and also understand the status of the various rural development schemes implanted/being implemented and how best DRR interventions can be strategized and incorporated.

Participants can be divided into different groups and either asked to collect information/data on the above in general across the village or may be asked to look at the village with specifically assigned schemes. Once they re-assemble in the class room, they can analyze all the learning's' with respect to resilience building of the particular study area they visited.

Participants must be adequately briefed before the start of the visit and may be provided inputs as and when need arises by the facilitator(s)/trainer. The field visit must be planned in advance by the training course team in collaboration with the local Panchayat heads/district administration and any relevant local NGO etc taking into account that the participants shall be able to get the desired facilitation for their field work and related information as part of their training.



# RISK TO RESILIENCE BUILDING FOR SUSTAINABLE DEVELOPMENT

## Learning Objectives

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

- Examine the shift in focus and perspective from risk to resilience within disaster management approaches.
- Explain strategies for mainstreaming disaster risk reduction into ongoing schemes.

**Duration: 180 Minutes (10.00 a.m-1.00 p.m: Excluding Time for Lunch and Tea Break followed by Valedictory Session)**

### Equipments and Materials Needed:

Flip Charts, Markers, Pens, Sticky Notes, Laptop, LCD/Projector, Chart Papers, and Blackboard.

**USEFUL HANDOUTS: 5, 6, 7, 10, 13, 14 & 15**

### Method(s):

- ☐ Interactive lecture presentation
- ☐ Questions and Answers
- ☐ Group Work
- ☐ Discussion

### Session Plan

The trainer/facilitator can start the session with a brief discussion regarding the previous days' field visit and the participants experience regarding the same. There can be an informal interaction about the contents of final sub module 5 to know about what the participants understand by policy implication and resilience building in the context of Rural Development.

Invite them to share their views and make a note of the points either on a flip chart or white board. Then make a brief presentation explaining the need for holistic resilience building and mainstreaming it with the SDGs. Gradually, move towards the different learning units of this sub-module.

**Wrapping up the Discussion:** Form 4-5 working groups of participants (depending upon the size of the batch) and group work based on the sub sessions may be given for better brainstorming. Ask the working groups to share their findings and analysis in a presentation format including the learning's' from the field visit. This also encourages a two-way learning and makes the sessions more interesting and interactive. Give 5 minutes at the end for some questions and answers or scope for discussion on each presentation. Close the session with a presentation summing up the key learning from this session and highlighting the points from Sub-Module 5.

## Context

Developmental initiatives are foreseen within the context of specific sectors but both disaster risk reduction and climate change adaptation are not stand-alone sectors or programmes. Both DRR and CCA are cross-cutting and involve multiple sector integration and call for inter institutional processing. Hence, mainstreaming DRR and CCA essentially means integrating it into specific development sectors across a wide variety of institutions and stakeholders to ensure resilience building.

CCA and DRR efforts can therefore focus on building adaptive capacity, or on transforming that capacity into specific actions. An important part of CCA and DRR is the strengthening of social-ecological systems, and fostering them to be more resilient. Another is investing in innovations with the potential to transform systems along more sustainable pathways. While some of the threats from climate change may be relatively new, such as unprecedented climate conditions and extreme weather events which have detrimental impacts. Mainstreaming can also be a form of cross-sectoral policy integration. For example, there is a recognized need to take into account the potential long-term effects of climate change when making decisions concerning investments in long-lived infrastructure, or when providing development assistance that will shape future patterns of human settlement and livelihoods. Similarly, many aspects of CCA and DRR build on longstanding efforts, such as imbibing the 'build back better' mitigation concepts into developmental initiatives and thereby promote reducing the risk of impending disasters. Accordingly, it is clear that CCA and DRR have the potential to align closely with major development objectives.

The expected benefits of mainstreaming climate change adaptation and disaster risk reduction into development activities include avoided policy conflicts; reduced risks and vulnerability; greater efficiency compared to managing CCA and DRR in silos, and; leveraging the much larger financial flows in sectors affected by climate risks than the amounts available for financing CCA and DRR separately. CCA and DRR policies need not develop specific and detailed response options, but rather facilitate their development and implementation as part of existing sectoral policies itself.

## 5.1: Disaster Risk, Climate Change and Rural Development: Resilience Building

**Duration:** 60 minutes

**Training Methodology:** Power Point Presentation, Discussion

**Training Note:** The trainer/facilitator may like to show some video, encourage participants to share their perspective about long term impacts of changing weather patterns and climate variability and how timely interventions in the development sector can minimize future risks associated with natural and human-induced hazards.

### Technical Notes

Development opportunities face a growing threat from changing climate, particularly through the impact of more extreme events causing disasters. Organization for Economic Co-operation and Development (OECD) estimates show that up to 50% of development assistance may be at risk because of climate change. Although, DRR and CCA measures have evolved in isolation, DRR can be seen as the first line of defense by dealing with climate variability's and therefore, become an essential part of adaptation. Conversely, for DRR to be successful, it needs to take account of the shifting risks associated with climate change and ensure that prevention and mitigation measures do not increase vulnerability to climate change in the medium to long-term.

So far there has been limited integration of DRR and adaptation despite the two agendas sharing similar goals and conceptual overlaps, and both are struggling to be mainstreamed into regular development planning. Therefore, in order to mainstream DRR in the development planning process at the sub-national level the following broad steps would need to be followed:

- Analyze the risk from natural hazards the area faces (risk on the physical framework and land-use planning).
- The risk identified should be factored in formulating the development goals, objectives and targets and which would be reflected in the development plan.
- The development plan should correspondingly identify the measures to reduce the risk.

Implementation of the plan should ensure DRR is mainstreamed in all stages; investment programming, budgeting, project appraisal, implementation, monitoring and evaluation.

Integrating risk assessment in development sectors involves considering three generic issues:

- How the activities of the sector impact disaster risks;
- How to apply risk assessment in planning the sector's development;
- Any sector-specific considerations in mainstreaming disaster risk assessment in development strategies and programmes.

### Key Areas for Mainstreaming:

**Poverty Reduction:** Effective mainstreaming of risk assessment in poverty reduction interventions involves regulating those interventions to avoid or minimize their contribution to disaster and other development risks. This integration depends on adopting risk sensitive development policies. This is facilitated by determining, during the risk assessment process, how poverty reduction interventions can cause or exacerbate disaster risks, as well as identifying constraints to adopting poverty risk assessment in development planning.

Decision-making in poverty risk assessment involves identifying what the poor do to deal with disaster risks they face, including the strengths and weaknesses of their survival and coping strategies. In addition, it is necessary to determine what levels of risk are acceptable for the poor and the suitability of measures and options for addressing unacceptable risks for the poor. Effective participation of the poor in the process is essential in identifying risks in their relevant context and in evaluating and selecting appropriate measures to prevent or reduce those risks.

**Agriculture and Rural Livelihoods:** Agricultural and rural livelihoods depend significantly on the natural resource base. Consequently, several effects of natural hazards and climate change affect agriculture and rural development. Natural hazards and disasters impact agriculture through three main pathways, namely:

- (1) Input systems (including biological inputs),
- (2) Services (such as processing and marketing infrastructures) and
- (3) Management practices (such as water use and disease control).

In turn, negative agriculture and rural development practices exacerbate some hazards. Therefore, mainstreaming disaster risk reduction in agriculture and rural livelihoods should aim to reduce the impact of disasters on the sector and the negative effects of sectoral practices on disaster risks.

**Environmental Management:** In terms of disaster risks that can be caused by a development sector, environmental degradation damages the

natural resource base and severely alters the natural ecosystem processes underlying environmental outcomes. Mainstreaming disaster risk assessment in environmental management requires assessment of disaster risks arising from environmental factors. Environmental risk assessment (ERA) offers an approach than can be adapted to country and local circumstances. This is essentially an environmental impact assessment (EIA) that incorporates risk assessment with decision outputs on alternative risk management solutions. Risk-based environmental impact assessment is best conducted early in the cycle of developing environmental management interventions and during the implementation review stage. Specific issues in the relationship between environment, poverty and sustainable development to be analyzed during environmental risk assessment include the following:

- Environmental consequences of disaster reduction interventions;
- How environmental management interventions can cause or exacerbate disaster risks;
- Environmental policies and practices that reduce disaster and livelihood risks;
- Extent of use of environmental valuation in development decision-making.

**Land use Planning:** Mainstreaming disaster risk assessment in land use planning implies applying integrated land use management to reduce disaster risks and to meet land management objectives at the same time. This also implies using land resources as a risk-reducing factor through risk-sensitive land use planning. In land use risk assessment, the planning background stage includes identifying the risks to be assessed, analyzing the resource profile of target communities, establishing the regulatory context for land use planning, and reviewing existing land use plans.

**Infrastructure:** Development investments in infrastructure are physical risk reduction measures that contribute to reducing structural vulnerability. Hence, the design and construction of hazard-resistant buildings and infrastructures is an effective way of reducing disaster risks. This depends on applying risk assessment in infrastructure development. At the problem identification stage, issues to consider include the status of present infrastructure protection programmes and procedures to determine the criticality of infrastructure assets.

## 5.2: Integrating DRR and CCA in Rural Development Schemes

**Duration:** 120 minutes

**Training Methodology:** Power Point Presentation, Discussion

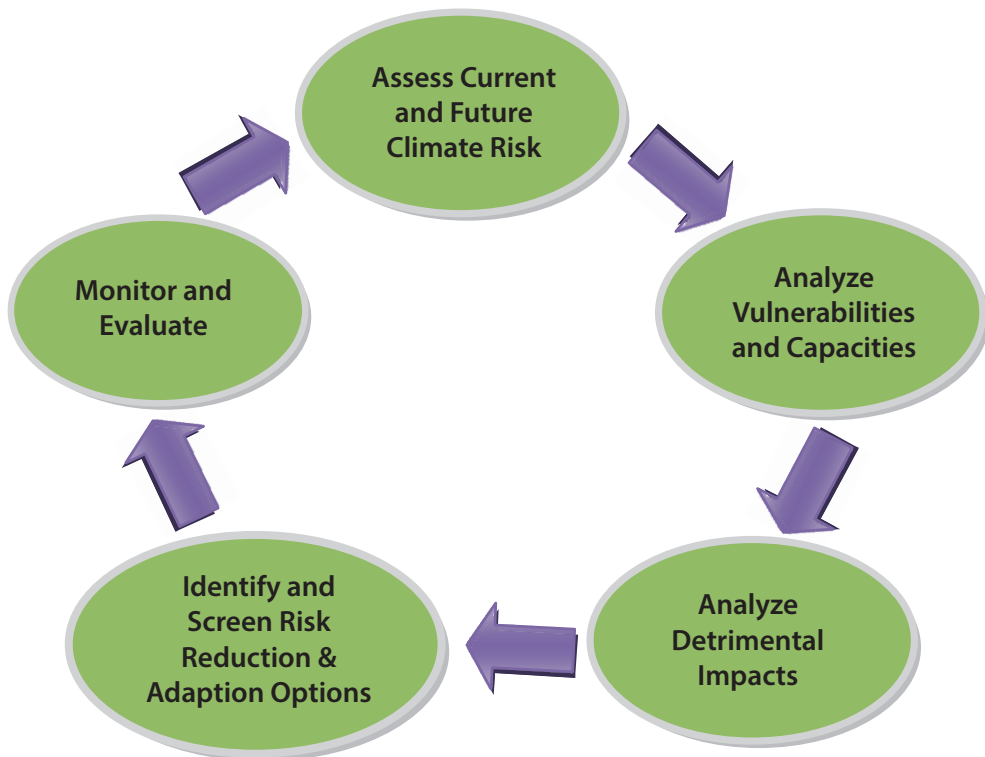
**Training Note:** The trainer/facilitator may initiate this session by recalling few previous learning units and linking it with the previous unit. This session can be culminated with a group work given to participants based on the inputs from field visit and brainstorming on integrating DRR and CCA measures into Rural Development Schemes and Programmes.

### Technical Notes

In the last two decades globally, there has been an exponential increase in the frequency and intensity of disasters whose economic impact has proved to be devastating for many a developing country. These can be largely attributed to the failures of development policies and practices that distort the trajectories of sustainable development, affecting the poorest sections the most. Therefore, integrating disaster risk reduction and adaptation will help enable us to manage climate risks into an important concern of rehabilitation that will fulfill the ultimate goal of empowering the poor by securing their livelihoods. This is so emphasized because even the slightest shifts in climate averages can have damaging impacts on livelihoods, particularly in marginal areas. Further, being an agrarian Nation, most rural population in India is still dependent on the natural resource base (such as water, soil, forest, and ecosystem services), which is sensitive to both episodic and extreme climate events. Most vulnerable section of our communities' possess limited capacities to cope. Recurrent exposure to adverse climate conditions (for example, prolonged droughts or recurrent floods) or to extreme climate events, can further weaken their capacity to cope and diminish their livelihood resources. Therefore, all schemes and projects related to rural development must be carefully designed to enhance the capacity to adapt to long-term climate changes.

Ministry of Home Affairs (MHA), the nodal ministry for disaster management, is of the view that the Centrally Sponsored Schemes (CSS) or National Flagship Schemes are ideal vehicles for mainstreaming/integrating DRR and CCA principles and measures. Since the CSS programmes span sectors such as housing, health, rural development and urban infrastructure aimed at creating opportunities for the poor and marginalized sections to enter the socio-economic space, investing them with DRR and CCA elements has the potential to create resilience among the poor and disadvantaged sections, both in the sense of being able to withstand disaster risk and move towards sustainable development.

Bringing together the dimensions of disaster risk reduction and climate change adaptation into rural livelihood projects involves can be conducted as seen in the figure below. As societies and risks are dynamic and ever changing, each step is not a one-time exercise and must be constantly performed and updated throughout the project implementation cycle and hence is a cyclic process.



Knowing something in advance enables us to prepare well. Assessing current and future climate risks in the project communities allows us to design livelihood programs that take these risks into consideration and prepare the communities and their livelihoods for the changes and risks that may occur. To assess climate risks, we need to understand historically what the community's "normal" climate pattern has been over time, and if there are deviations or departures from this regular pattern, which presents risks. Based on the observed changes, go further and try to anticipate how the risks will change because of changing climate. As project managers and planners, we will have to understand the climate patterns in the setting of the livelihood project, both in the context of regional and global climate change. This will help ensure that livelihood projects are planned and developed in a sustainable way, and are designed to adapt to some expected climate changes.

## Status of Mainstreaming Disaster Risk in Agriculture

### 1. Progress in Addressing Disaster Risk in Agriculture, including:

#### Agriculture Planning

Initial progress has been achieved in addressing disaster risks in agricultural development planning, but continued efforts are necessary to support implementation of planning frameworks and achieve broader progress across countries. A strong need remains for in-depth planning to define vision, priority needs, and strategic measures that reduce risks within the agriculture sector of countries, informed by multiple key stakeholders, including civil society, the private sector and research institutions.

#### Post/Disaster Recovery Assessment and Planning

DRR is not yet mainstreamed adequately into post-disaster recovery efforts in the agriculture sectors. Capacity development and investments for DRR are usually lacking in the fabric of building-back-better strategies that could ensure the sustainability of recovery investments through all sub-sectors.

#### Agriculture Legislation/Policies

Even though some countries adopt international standards – like Voluntary Guidelines on the Responsible Governance of Land Tenure, on Securing Sustainable Fisheries, on Fire Management or the Code of Conduct on the Distribution and Use of Pesticides – the principles and practices outlined provide limited direct guidance on systematic disaster risk reduction. Some countries have laws for land use, but these do not include risk considerations as criteria for land use planning. There is a need to ensure that legislation and policies for the agriculture sector integrate DRR to inform sector planning and investment and do not underrate the importance of equitable land use rights to achieve more sustainable land stewardship.

#### Capacities for DRR in Agriculture Sector Agencies

The state of existing technical capacities and know-how for DRR within the agriculture sector varies considerably from one country to another. Often DRR-related activities are not labeled or earmarked as such, given that they have long been part of regular development activities in agriculture, such as breeding of hazard tolerant varieties and the monitoring and mitigation of plant pests and diseases. In general, more support and capacities are needed within sectoral ministries to enable them to proactively address DRR, such as sector specific technical expertise, clear responsibilities, earmarked funding and outreach capacity to local levels in a coherent and coordinated way. The DRR related capacity needs assessment in agriculture; however, remain difficult since such sector-specific information is not reported in the HFA progress reports.

### **Agriculture Preparedness (EWS, Assessment, other Tools)**

Early warning and preparedness measures are the most common aspects of DRR adopted in the agricultural development plans of many countries, reflecting their direct relevance to the sector. This focus also reflects the continued emphasis countries put on disaster management rather than on proactive DRR. There is a need to further support capacity development for agriculture sector specific applications of risk assessments and early warning systems and to establish them as key elements in the wider context of systemic DRR addressing all five priority areas of the HFA in an integrated way.

### **Annual Budget Allocation**

Disaster risk related budget allocations in most countries are done for DRM, rather than for DRR, and most of the resources used for emergency funds and response. Even in the rare cases where national funding is specifically allocated to DRR, it hardly ever reaches into the agriculture sector. Beyond stand-alone budget allocations for DRR – usually targeting national and local DRR-specific agencies – financial resources should be mainstreamed across ministries/ departments, including at sub-national level.

### **Agriculture Specific Institutional Mechanisms and Set-Up**

Progress in addressing DRR in agricultural development planning has in most countries not yet translated into enabling institutional structures within the sector. The existence of agriculture specific institutional mechanisms to coordinate within and across related sectors, drive policy formulation and planning for DRR in agriculture, and oversee implementation at all levels is still incipient and needs to be strengthened in the future to accelerate progress. It will require strong offices and/or focal points in the key ministries/ departments, at all levels, with clearly defined and coordinated responsibilities vis-à-vis DRR, to which research institutions, civil society and other relevant national actors contribute to the sector specific planning and implementation of DRR in agriculture.

### **Implementation of DRR in Agriculture (Agriculture's Capacity to Deliver at National and Local Levels)**

While DRR is increasingly being integrated into agricultural planning, the implementation of proactive DRR measures through the agriculture sector is lagging behind and remains a gap, often due to lack of capacities and financial resources for DRR. Implementation will require the allocation of sector-specific responsibilities and funding for DRR and strengthened technical capacities to facilitate the planning and implementation of DRR processes and measures from national to local levels, including sub-national mechanisms and actions that benefit local farming communities and promote resilient livelihoods. In this process the agriculture sector has a key responsibility in promoting at much bigger scale than achieved at present the wide replication of good practices and technologies for DRR and natural resource management.

## 2. Emerging Trends

A recent trend observed is the increasing integration of DRR and CCA linkages into sector planning instruments and institutional mechanisms (e.g. Nepal, Peru, Philippines), reflecting the increasing recognition of the complementarities and overlaps between CCA and DRR. This trend is also emerging in the institutional arrangements within ministries; where in some countries a technical unit or office is formally mandated to oversee either or both DRR and CCA (e.g. Bangladesh, Peru, and Pacific States).

Another emerging trend is the development of agriculture-specific plans for DRR/M that integrates a comprehensive set of strategic measures in the sector along the HFA priorities for action. (e.g. Plans of Action for DRR/M in Nepal, Lao PDR, Bangladesh, Peru, Saint Lucia, Jamaica, Grenada, Saint Vincent and Grenadines, Commonwealth of Dominica, Guyana).

A third, more specific trend in the integration of DRR into the agriculture sectors is the growing recognition of the importance of national drought management policies for preparedness and early response. More countries are implementing such policies. Progress in many regions is under way facilitated also by the current joint capacity building campaign of FAO, WMO, CBD and UNCCD coming out from the 2013 High Level Meeting on National Drought Management Policies.

### Challenges in Mainstreaming

Lack of awareness of climate change within the development community and limitations on resources for implementation are cited reasons for difficulties in mainstreaming. Other underlying reasons can be:

- Barriers within governments: Climate change and disaster risk expertise is typically the domain of environment departments in governments and donor agencies, and such departments have limited leverage over sectoral guidelines and projects. Sectoral managers and country representatives may also face “mainstreaming overload”, with issues such as gender, governance and environment also vying for integration in development activities. Moreover, as many development projects are funded over three to five years, they may not be the best vehicle for long-term climate and disaster risk reduction.
- Insufficient relevance of available information to development-related decisions: Development activities are sensitive to a broad range of variables, only some of which can be reliably projected by various models for climate change and disaster risk. Temperature, for example, is typically easier to project than rainfall. Climate extremes, which are often critical for many development-related decisions, are much more difficult to project than mean trends.
- Effective mainstreaming at the sub-national level would require having in place the various stages of the planning process. Though in most

countries the planning process is well defined, the actual implementation on the ground is not always up to date. For example, due to lack of resources and capacity sometimes sub-national development plans are not updated. This is particularly true for land-use and physical plans, and in case of mainstreaming DRR this is an essential starting point.

- The linkages between development planning and investment planning sometimes have little correlation due to various factors and thus increases the difficulty in prioritizing DRR from goals and strategies to implementable programs and projects with available finances.
- The linkages between sectoral planning and socio-economic development planning is not sufficient and this leads to inconsistency and overlaps between different types of planning and particularly impacts cross sectoral issues such as DRR.
- In some cases there are specific guidelines for each stage of the planning process; therefore the challenge remains in deciding if a separate stand-alone guideline on mainstreaming DRR is required, or whether DRR should be integrated into the existing guideline documents.

### **Risk Governance (Previous PFA 1)**

Disaster Risk Reduction is an integral part of national agriculture, food and nutrition related policies and plans and/or the national policy for disaster risk reduction and/or management has an explicit and comprehensive inclusion of agriculture, food, nutrition and/or related sectors.

- Existence of a well-functioning disaster risk reduction/management structure within agriculture, food and nutrition and related sectoral agencies.
- Adequate levels of human and financial resources allocated towards risk reduction for agriculture, food security and nutrition.

### **Risk Knowledge (Previous PFA 2 and 3):**

- Systems are in place to collect, monitor and share data on key hazards and vulnerabilities for risks affecting agriculture, food and nutrition.
- Loss and damage data are systematically collected for the agriculture sector, not only in generic terms.
- Early warning systems are in place for all major risks affecting agriculture, food and nutrition with outreach to communities.

**Preventing New Risk (Previous PFA 4)**

- Prevention and mitigation measures are applied to reduce risks for agriculture, food and nutrition at all administrative levels. (e.g. sustainable land management techniques and drought management measures to restore and rehabilitate desertified, degraded and drought-prone areas and prevent future degradation/desertification).
- Sector development policies, planning instruments and public investments have DRR mainstreamed and tools are available to risk proof new development investments.

**Reducing Existing Risk (Previous PFA 5)**

- Multi-hazard disaster preparedness and/or contingency plans for agriculture, food and nutrition are in place and effective for DRR at all administrative levels and/or the national contingency plan has an explicit and comprehensive inclusion of agriculture, food, nutrition and/or related sectors.
- Disaster risk reduction measures for agriculture, food and nutrition are integrated into emergency response, post disaster recovery and transition-development planning and interventions.

**Strengthening Resilience**

- Agriculture, food and nutrition related social and economic support and services provided to communities at risk to reduce their vulnerabilities.

**DRR and Agriculture Sector Planning Processes**

Agriculture actors have always been aware and very conscious of the need to keep risks low and promote and implement vulnerability reduction measures. Measures have been both autonomous at the local level and introduced as part of DRR and development programmes and plans.

In line with SFDRR Target E on promoting national and local DRR strategies by 2020, there are different possibilities for mainstreaming DRR into agriculture sector planning processes and vice versa, as described below and illustrated in Figure 1

- i. **National DRR plans** are multi-hazard and multi-sartorial and cover the different development dimensions (economic, social and environmental). In view of its socio-economic role, especially in developing countries (in terms of livelihoods, food security and nutrition, employment and income and natural resource management), the agriculture sector should be included in national DRR planning processes along with and linked to other sectors' actions and demands.

- ii. **Thorough agriculture development plans** offer a good opportunity to address root causes of vulnerability and exposure to multiple hazard risks reinforcing coping capacities, in order to reduce the impacts of disasters on the agriculture sector and people depending on agricultural livelihoods. The agriculture sector development plans are usually essential building blocks of the national socio-economic development plans. When they include DRR measures, they can strongly contribute to risk-sensitive development, promoting resilient and sustainable development results.
- iii. **Specific DRR plans for the agriculture sector (DRR-Ag)** entail dedicated planning processes for the sector and its sub-sectors, which should be based on a context (local, sub- national, national or regional) and multiple hazards-specific risk analyses that consider future risk scenarios that might be exacerbated by climate change. Depending on the type of agricultural livelihoods in a given area, a DRR-Ag plan could cover crops, livestock, fisheries and aquaculture and forestry (as well as other renewable natural resources such as water and soil, etc.), to prevent new, to reduce existing and to manage residual risks in the face of multiple hazards, including food chain threats. These DRR-Ag plans should feed into the national DRR (multi-sector and multi-hazard) plan and the agriculture development plan. DRR-Ag planning processes can also offer opportunities to stipulate the sustainable management of natural or modified agro-ecosystems, therefore, simultaneously providing ecosystem and biodiversity benefits that contribute to enhance the resilience of agricultural livelihoods. The DRR-Ag planning process recognizes the essential role the sector plays in providing food and income for the majority of those threatened or affected by disasters and crises on a stable basis, sustaining the means to prevent food insecurity (FAO 2018b).

### **GROUP WORK (90 minutes)**

Trainer can form 4-5 working groups of participants and ask them to brainstorm DRR & CCA interventions in them. Groups can then be asked to make formal presentations and discuss the same. Other schemes which can be discussed depending upon the schedule and time available, the trainer can discuss them as well.

**Trainer Note:** Since this shall be the last day of the training programme, post lunch a formal/informal valedictory session can be organized and a road map ahead can be discussed before wrapping up the course.

**Reading References:**

- 1) Mainstreaming DRR and CCA across sectors and actors ministry of disaster management and relief, bangladesh, february, 2015 <https://www.unescap.org/sites/default/files/mainstreaming%20drr%20%26%20cca%20in%20bangladesh%20by%20qayyum.pdf>
- 2) Disaster risk reduction and agriculture sector interrelated planning processes lessons learnt rebecakoloffon, sophie von loeben, food and agriculture organization of the united nations [https://www.unisdr.org/files/66301\\_f340koloffondisasterriskreductionan.pdf](https://www.unisdr.org/files/66301_f340koloffondisasterriskreductionan.pdf)
- 3) Mainstreaming DRR & CCA into development process at local level, Asian disaster preparedness center sm tower, 24th floor 979/69 paholyothin road samsennai, phayathai, bangkok 10400thailand [https://www.adpc.net/igo/category/id791/doc/2015-r74ypd-adpc-publication\\_mainstreaminghandbooksindhweb.pdf](https://www.adpc.net/igo/category/id791/doc/2015-r74ypd-adpc-publication_mainstreaminghandbooksindhweb.pdf)
- 4) Training module on mainstreaming disaster risk reduction into Sectoral planning, HPSDMA, HP secretariat, Shimla - 171002 <https://www.hpsdma.nic.in/writereaddata/links/final%20drr%20mainstreaming%20training%20modules413f99f4-ddb9-4ca0-affd-0156c7cb7343.pdf>
- 5) A best practices notebook for disaster risk reduction and climate change adaptation guidance and insights for policy and practice from the catalyst project , capacity development for hazard risk reduction and adaptation [https://twas.org/sites/default/files/catalyst\\_d65\\_best\\_practices\\_policy\\_notebook.pdf](https://twas.org/sites/default/files/catalyst_d65_best_practices_policy_notebook.pdf)

**References :**

- 1) ToT Module on Integrating Disaster Risk Reduction (DRR) & Climate Change Resilience (CCR) Into Rural Development (RD) Policies and Programmes developed under NCRMP (<http://nidm.gov.in/pdf/ncrmp/Deliverable%209-2.pdf>)
- 2) Training Module on Village Disaster Management Plan-NIDM (<http://nidm.gov.in/PDF/modules/village.pdf>)
- 3) Training Module on Strengthening PRIs for mainstreaming DRR and CCA into development (<https://nidm.gov.in/pdf/ncrmp/Deliverable%209-1.pdf>)
- 4) Basic Concepts – Self Study Programme – NIDM Website (available at [www.nidm.gov.in](http://www.nidm.gov.in)) Standard Operating Procedure for responding to Natural disasters 2010 (<http://ndmindia.nic.in/SOP-NDM-2010.pdf>)
- 5) A Study on Mainstreaming DRR and CCA in Development Planning by The Disaster Management Division, Ministry of Home Affairs, Government of India and The United Nations Development Programme [https://www.ndmindia.nic.in/images/pdf/Mainstreaming%20Report\\_Final\\_sept7.pdf](https://www.ndmindia.nic.in/images/pdf/Mainstreaming%20Report_Final_sept7.pdf)
- 6) Integrating disaster risk reduction and adaptation into rural livelihood programming, Kareff Rafisura and G. Srinivasan: A guide for Oxfam staff and partners in Southeast Asia, 2010.
- 7) Abarquez, Imelda and Zubair Murshed (2004) Community-based Disaster Risk Management: Field Practitioners' Handbook. Bangkok: Asian Disaster Preparedness Center.
- 8) Role of Panchayats in Disaster: A New Vista for Disaster Management Debabrata Mondal<sup>1\*</sup>, Sarthak Chowdhury<sup>2</sup> and Debabrata Basu, International Journal of Current Microbiology and Applied Sciences ISSN: 2319-7706 Special Issue-7 pp. 133-138 Journal homepage: <http://www.ijcmas.com>  
<https://www.ijcmas.com/special/7/Debabrata%20Mondal,%20et%20al.pdf>
- 9) Building PRI Capacities for Disaster Preparedness and Management: Training Manual; Gol-UNDP Disaster Risk Management Programme 2002-2009  
[https://www.preventionweb.net/files/13483\\_Pri.pdf](https://www.preventionweb.net/files/13483_Pri.pdf)

## HANDOUTS

### Handout 1: Basic Terms of Disaster Risk Reduction; UNISDR (2009)

**Acceptable Risk:** The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

**Adaptation:** The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

**Anthropogenic Climate Change:** Man-made climate change – climate change caused by human activities as opposed to natural processes. (BBC)

**Biological Hazard:** Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

**Building Code:** A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

**Capacity:** The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

**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.

**Climate:** The average of weather over at least a 30 year period. Note that the climate taken over different periods of time (30 years, 1,000 years) may be different. The old saying is climate is what we expect and weather is what we get. (NOAA/CPC)

### CLIMATOLOGY

1. The description and scientific study of climate.
2. A quantitative description of climate showing the characteristic values of climate variables over a region. (CPC/NOAA)

**Climate Anomaly:** The deviation of a measurable unit, (e.g. temperature or precipitation) in a given region over a specified period from the long-term average, often the thirty year mean, for the same region. (NOAA/CPC)

**Coping Capacity:** The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters. (ISDR)

**Climate Change:** (a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as:- a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing or to persistent anthropogenic changes in the composition of the atmosphere or in land use. (b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as – a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

**Climate Extreme:** A rare climatic situation, generally resulting from cumulative occurrence of weather extremes, causing extraordinary economic and social (loss of life or livelihood) damage. (IPCC, 2001 Third Assessment Report; Easterling et al., 2000)

**Critical Facilities:** The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

**Climate Mean:** The arithmetic average or the middle point between two extremes. (NOAA/CPC) also called climate normal.

**Climate Modeling:** An approximate numerical/mathematical representation of the Earth's climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes, and accounting for all or some of its known properties.

**Contingency Planning:** A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

**Climate System:** The system consisting of the atmosphere (gases), hydrosphere (water), lithosphere (solid rocky part of the Earth), and biosphere (living) that determine the Earth's climate. (NOAA CPC)

**Climate Variability:** Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events. The term is often used to denote deviations of climatic statistics over a given period of time (e.g. a month, season or year) from the long-term statistics relating to the corresponding calendar period. In this sense, climate variability is measured by those deviations, which are usually termed anomalies. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability). (WMO)

**El Niño Southern Oscillation:** ENSO referred to El Niño-Southern Oscillation, or the combined atmosphere/ocean system during an El Niño warm event. The ENSO cycle includes La Niña and El Niño phases as well as neutral phases, or ENSO cycle, of the coupled atmosphere/ocean system though sometimes it is still used as originally defined. The Southern Oscillation is quantified by the Southern Oscillation Index (SOI). (NOAA/CPC)

**Environmental Impact Assessment:** Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision-making processes with a view to limiting or reducing the adverse impacts of the project or programme.

**Exposure** People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

**Forecast:** A weather forecast, or prediction, is an estimation based on special knowledge of the future state of the atmosphere with respect to temperature, precipitation, and wind. Weather forecasts are now routinely provided for up to 14 days in advance and outlooks for seasonal and longer timescales. (NOAA/CPC)

**Forecast Skill:** Quantification of the performance of a weather/climate prediction over and above the conditions expected based on climate statistics from the past records of allocation.

**GCMs (General Circulation Models):** These computer simulations reproduce the Earth's weather patterns and can be used to predict change in the weather and climate. (NOAA/CPC)

**Geological Hazard:** Geological process or phenomenon 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.

**Greenhouse Gases:** Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

**Hazard:** A 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.

**Hydro Meteorological Hazard:** Process or phenomenon of atmospheric, hydrological or oceanographic nature 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.

**Land-Use Planning:** The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

**Livelihood:** Comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. (Scoones 2007)

**Mitigation:** The lessening or limitation of the adverse impacts of hazards and related disasters.

**Monsoons:** Seasonal winds. They are caused primarily by the greater annual variation in air temperature over large land surfaces compared to ocean surfaces though other factors like land- relief are important. (NOAA/CPC)

**National Platform for Disaster Risk Reduction:** A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and interdisciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

**(Natural) Hazard:** Natural process or phenomenon 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. (ISDR)

**Non-Structural Measures:** Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

**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.

**Prevention:** The outright avoidance of adverse impacts of hazards and related disasters.

**Public Awareness:** The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

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

**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.

**Resilience:** The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

**Response:** The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduces health impacts, ensures public safety and meet the basic subsistence needs of the people affected.

**Retrofitting:** Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

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

**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.

**Risk Management:** The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

**Risk Transfer:** The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other

party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

**Socio-Natural Hazard:** The phenomenon of increased occurrence of certain geophysical and hydro meteorological hazard events, such as landslides, flooding, land subsidence and drought that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

**Spatial Resolution:** Generally refers to the size, or aerial extent of the smallest spatial unit (grid box) that a climate/weather model uses to perform its mathematical calculation. It gives an idea of the scale of the weather phenomena that a particular model can be expected to detect.

**Structural Measures:** Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;

**Sustainable Development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Technological Hazard:** A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

**Temporal Resolution:** Is the size of the time segment (or step) that a climate/weather model uses to perform its mathematical calculation.

**Weather:** Weather is the specific condition of the atmosphere at a particular place and time. It is measured in terms of such things as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour-to-hour, day-to-day, and season-to-season. (Weather Channel Interactive).

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

## Handout 2: Hyogo Framework for Action (2005-2015)

### BUILDING THE RESILIENCE OF NATIONS AND COMMUNITIES TO DISASTERS

*The HFA is a 10-year plan to make the world safer from natural hazards.*

It was endorsed by the UN General Assembly in the Resolution A/RES/60/195 following the 2005 World Disaster Reduction Conference.

Weblink: [https://www.unisdr.org/files/8720\\_summaryHFP20052015.pdf](https://www.unisdr.org/files/8720_summaryHFP20052015.pdf)

**Priorities for Action :** Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. Strong national and local commitment is required to save lives and livelihoods threatened by natural hazards. They must also allocate sufficient resources to support and maintain them. This includes: Creating effective, multi-sector national platforms to provide policy guidance and to coordinate activities; Integrating disaster risk reduction into development policies and planning, such as Poverty Reduction Strategies; and, Ensuring community participation, so that local needs are met. 1 Make Disaster Risk Reduction a Priority Collaboration is Key Madagascar's National Platform for Disaster Reduction includes: Government departments, such as Education, Water, Transport and Communication, Agriculture and Livestock, Land, and the Office of the Prime Minister; NGOs; the media; the donor community; and the UN. It carries out disaster reduction training, and has enhanced disaster preparedness by constructing cyclone refuges.

**Priorities to Identify, assess, and monitor disaster risks – and enhance early warning:** Identify, assess, and monitor disaster risks – and enhance early warning. To reduce their vulnerability to natural hazards, countries and communities must know the risks that they face, and take actions based on that knowledge. Understanding risk requires investment in scientific, technical, and institutional capabilities to observe, record, research, analyze, forecast, model and map natural hazards. Tools need to be developed and disseminated: statistical information about disaster events, risk maps, disaster vulnerability and risk indicators are essential. Most importantly, countries need to use this knowledge to develop effective early warning systems, appropriately adapted to the unique circumstances of the people at risk. Early warning is widely accepted as a crucial component of disaster risk reduction. This early warning system has proven its effectiveness. During 2004, when Hurricane Charley hit, 70,000 houses were severely damaged and four people were killed. When Hurricane Ivan struck the following month, over 2 million people were evacuated. No one was killed.

**Priorities to use knowledge, innovation, and education to build a culture of safety and resilience at all levels:** Use knowledge, innovation, and education to build a culture of safety and resilience at all levels. Disasters can be reduced

substantially if people are well informed about measures they can take to reduce vulnerability - and if they are motivated to act. Key activities to increase awareness of disaster prevention include: Providing relevant information on disaster risks and means of protection, especially for citizens in high-risk areas; Strengthening networks and promoting dialogue and cooperation among disaster experts, technical and scientific specialists, planners and other stakeholders; Including disaster risk reduction subject matter in formal, non-formal, and informal education and training activities; Developing or strengthening community-based disaster risk management programmes; and, Working with the media in disaster risk reduction awareness activities. Local Knowledge is Critical for Disaster Reduction.

**Priority to Reduce the underlying risk factors:** Reduce the underlying risk factors. Vulnerability to natural hazards is increased in many ways, for example: Locating communities in hazard-prone areas, such as flood plains; Destroying forests and wetlands, thereby harming the capacity of the environment to withstand hazards; Building public facilities and housing unable to withstand the impacts of hazards; and, Not having social and financial safety mechanisms in place. Countries can build resilience to disasters by investing in simple, well-known measures to reduce risk and vulnerability. Disasters can be reduced by applying relevant building standards to protect critical infrastructure, such as schools, hospitals and homes. Vulnerable buildings can be retrofitted to a higher degree of safety. Protecting precious ecosystems, such as coral reefs and mangrove forests, allow them to act as natural storm barriers. Effective insurance and micro- finance initiatives can help to transfer risks and provide additional resources. Building Resilience Protects Communities Unsafe buildings and the lack or non-enforcement of building codes often cause more deaths than natural hazards themselves.

**Priority to be prepared and ready to Act:** Strengthen disaster preparedness for effective response at all levels. Being prepared, including conducting risk assessments, before investing in development at all levels of society will enable people to become more resilient to natural hazards. Preparedness involves many types of activities, including: The development and regular testing of contingency plans; The establishment of emergency funds to support preparedness, response and recovery activities; The development of coordinated regional approaches for effective disaster response; and, Continuous dialogue between response agencies, planners and policy-makers, and development organizations. Regular disaster preparedness exercises, including evacuation drills, also are key to ensuring rapid and effective disaster response. Effective preparedness plans and organization also help to cope with the many small and medium-sized disasters that repeatedly occur in so many communities. Natural hazards cannot be prevented, but it is possible to reduce their impacts by reducing the vulnerability of people and their livelihoods.

## Handout 3: Sendai Framework for Action (2015-2030)

### MAKING THE DIFFERENCE FOR POVERTY, HEALTH AND RESILIENCE

*The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR).*

Weblink: <https://www.unisdr.org/we/coordinate/sendai-framework>

The Sendai Framework is a 15-year, voluntary, non-binding agreement which recognizes that the state has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. It aims for the following outcome:

*The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.*

The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations held from July 2014 to March 2015, which were supported by the UNISDR upon the request of the UN General Assembly. UNISDR has been tasked to support the implementation, follow-up and review of the Sendai Framework.

### The Seven Global Targets

- a) Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015.
- b) Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020-2030 compared to the period 2005-2015.
- c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
- d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.

- f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

## The Four Priorities for Action

### ***Priority 1: Understanding Disaster Risk***

Disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response.

### ***Priority 2: Strengthening Disaster Risk Governance to Manage Disaster Risk***

Disaster risk governance at the national, regional and global levels is very important for prevention, mitigation, preparedness, response, recovery, and rehabilitation. It fosters collaboration and partnership.

### ***Priority 3: Investing in Disaster Risk Reduction for Resilience***

Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets, as well as the environment.

### ***Priority 4: Enhancing Disaster Preparedness for Effective Response and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction***

The growth of disaster risk means there is a need to strengthen disaster preparedness for response, take action in anticipation of events, and ensure capacities are in place for effective response and recovery at all levels. The recovery, rehabilitation and reconstruction phase is a critical opportunity to build back better, including through integrating disaster risk reduction into development measures.

## Handout 4: Sustainable Development Goals (SDGs)

### THE GLOBAL GOALS

For Sustainable Development



## Handout 5: Potential Impact of Climate Change on the Sustainable Development Goals

The impact of the climate agreement on global development by 2030 will be significant and, although it is unlikely to significantly impact global warming or the frequency and severity of weather-related disasters in the period up to 2030, it will play a major role thereafter. A high-ambition agreement that provides a clear policy framework for action on climate change, incentivizes international cooperation, and mobilizes additional resources for mitigation and adaptation activities is essential to give us the best chance of achieving the SDGs by 2030. Likewise, strong SDGs will help to lay the policy groundwork for achieving and implementing a more ambitious climate agreement impacts on development over the next 15 years, including economic impacts, under two scenarios for the 2015 climate change agreement: a high-ambition agreement and a low-ambition agreement, with associated policies and levels of investment in mitigation and adaptation. The high-ambition scenario used is based on the UNFCCC aim to limit global warming to a 2°C increase on pre-industrial temperatures. We have associated this higher ambition scenario with the nearest RCP, RCP 4.5, which would see average global temperature rise by 1.1 to 2.6°C by 2100, on a 1986-2005 baseline.

Achievement of the SDGs requires an ambitious climate agreement. – The decisions that were taken at UNFCCC COP20 in Lima and those that will be taken at COP21 in Paris will have a significant impact on global development by 2030, even before the resulting impacts on the climate are felt. – A high-ambition agreement that aims to limit global warming to 2°C by 2100 is essential to have the best chance of achieving the SDGs by 2030. – The climate agreement is unlikely to impact global warming or the frequency and severity of weather-related disasters in the period up to 2030; it will, however, play a significant role thereafter. A high-ambition climate agreement can provide a clear policy framework and the legal basis for action on climate change, incentivize international cooperation, and mobilize additional finance and resources for mitigation and adaptation activities that support climate compatible development. Both the policy reforms and the additional finance play complementary roles in supporting such development. – This can potentially have a significant impact on the state of the economy and social well-being in the poorest and most climate vulnerable countries before 2030, improving the likelihood that they will achieve the SDGs. Likewise a low ambition agreement puts their sustainable development trajectories at risk. An ambitious climate agreement requires ambitious SDGs. – The decisions taken in finalizing the SDG framework of goals, targets and indicators, and FFD commitments to 2030 will have a significant influence on climate change impacts to 2100. – Strong SDG targets and strong FFD commitments are essential to have the best chance of achieving a high-ambition climate agreement that limits global warming to

2°C by 2100. Ambitious SDGs will promote national policies that will underpin the delivery of de-carbonization pathways to achieve a high-ambition climate agreement.

Disaster management in India has evolved from a relief-based approach to a multidimensional, proactive institutionalized setup with multiple stakeholders (MoEF 2012). Initially, activities to address natural hazards were kept within the purview of provincial and state agencies. During the 1990s, the Natural Disaster Management (NDM) division was created within the Ministry of Agriculture. However, following a series of disasters such as the Latur (1993), Malpa (1994), and Bhuj earthquakes (2001) and the Orissa super cyclone (1999), a systematic and comprehensive approach for disaster management was initiated, and the NDM was transferred in 2002 to the Ministry of Home Affairs. Further, a legal framework was created through the Disaster Management Act of 2005, which provided a mechanism for coordinated actions of response, preparedness, and mitigation at the national, state, and district levels. The National Disaster Response Force was also created for response and a National Institute of Disaster Management for capacity development.

Focused action on CCA came with the ratification of various international treaties and conventions, most notably the Vienna Convention in 1993, the Montreal Protocol in 1992, the UNFCCC in 1993, the Kyoto Protocol in 1997, and the Paris Climate Change Agreement in 2015. Further, several acts and policy measures have been implemented to regulate and mainstream environmental and climate-related issues. The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal ministry for all climate change-related activities within the country. The Prime Minister's Council on Climate Change was created in 2008 to coordinate national actions for assessment of, adaptation to, and investigation of climate change. The National Action Plan on Climate Change (NAPCC) was launched in 2008 (MoEFCC 2008) to address various core issues of sustainable energy, energy efficiency, habitat, water, the Himalayan ecosystem, a green India, agriculture, and strategic knowledge.

## Handout 6: DRR and CCA: Differences and Signs of Coverage

Historically, disasters have been perceived as devastating events that cause a break in the development of a country. In the last two decades, the combined insights gathered through national experiences, international dialogues and global initiatives have pointed to the fact that disasters “don’t just happen”; on the contrary, they often result from the shortcomings of development itself which increases vulnerability to hazards. Further, increased exposure and vulnerability to disaster risks is largely a consequence of lopsided development policies and processes such as rapid and unplanned urban expansion into hazardous terrain, expedient environment policies leading to degradation and the sheer inadequacy of livelihood opportunities for the poor, brought together by a lack of political will exhibited in governance response at all levels.”

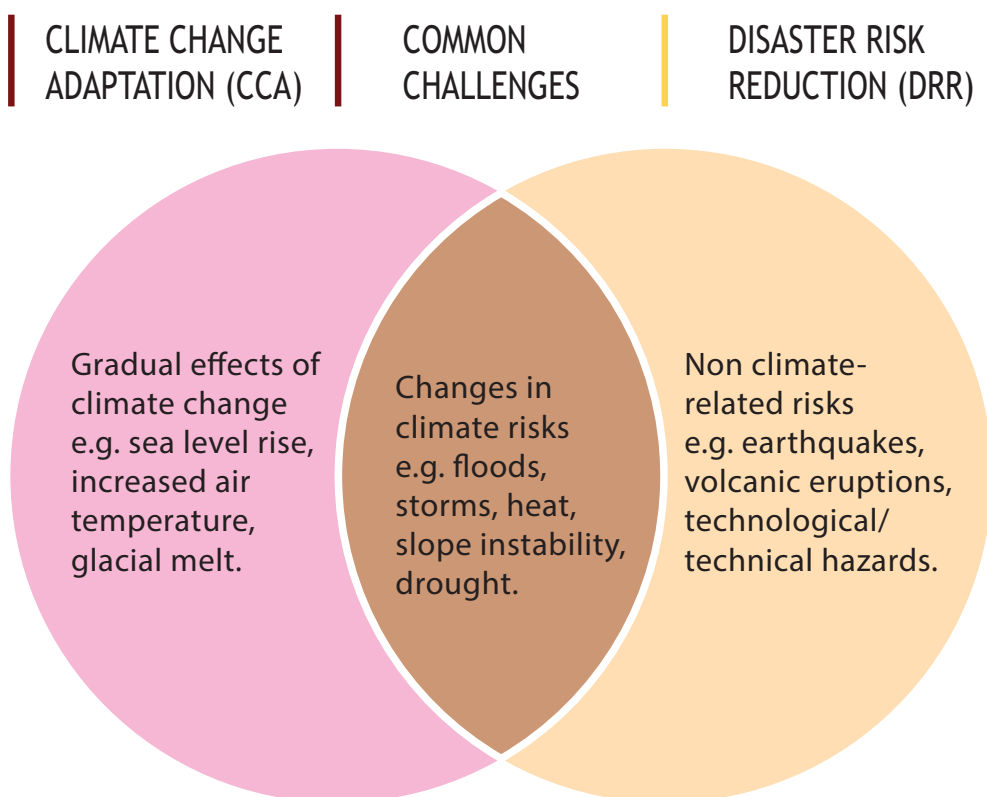
However, it is the view of the Ministry of Home Affairs (MHA), the nodal ministry for disaster management, that in spite of the integration of some DRR measures in some sectoral programmes such as health and education, and despite the attempt of ministries/departments of the Gol to include aspects of risk reduction through the Environmental Impact Assessment, the schemes and programmes being implemented by them lack a clear statement on DRR and climate change adaptation (CCA) concerns which is required for a comprehensive thrust toward mainstreaming/integration of DRR principles into development planning. Since skewed development processes themselves are the root of the problem, ‘giving development more security from natural hazard’ would be a more efficient and cost-effective way of reducing vulnerability to disaster risk and simultaneously addressing issues of poverty and inclusive growth. For instance, reducing livelihood vulnerability to natural hazards addresses the issues of disaster risk as well as poverty and inequity.

The Gol has adopted the strategy of mainstreaming DRR through the developmental planning route, either through its Five-Year Plans or one-year plans or through its prestigious national flagship programmes most of which aim to create social infrastructure to bring the poor within the ambit of development or address the grave issue of unplanned urbanization in cities that are emerging as ‘hotspots’ for disaster risks.

The Gol has underscored the need for an integrated, multi-sectoral approach to DRR mainstreaming by strengthening risk reduction in key sectors such as education, agriculture, urban development, environment and health. The most disadvantaged groups, whose marginalization is linked to their lack of access to social infrastructure, are also the most vulnerable to disasters. Flagship programmes that are animated by the objective of creating social infrastructure to enable such sections to be included in the growth process are thus ideal for mainstreaming DRR concerns and reducing vulnerability at

various levels. As the GoI views it, DRR objectives are aligned to the vision, objectives and provisions of the CSS, which are aimed at reducing the socio-economic vulnerabilities of the poor sections of society. While specific DRR actions taken for flood mitigation or seismic safety, among others, may be of a techno-legal nature, they need to be perceived in a larger context of socio-economic, operational and managerial aspects such as:

- Inclusion of the socially marginalized;
- Gender inequality;
- Behavioural change;
- Institutional capacities;
- Community participation;
- Learning and implementing lessons;
- Governance.



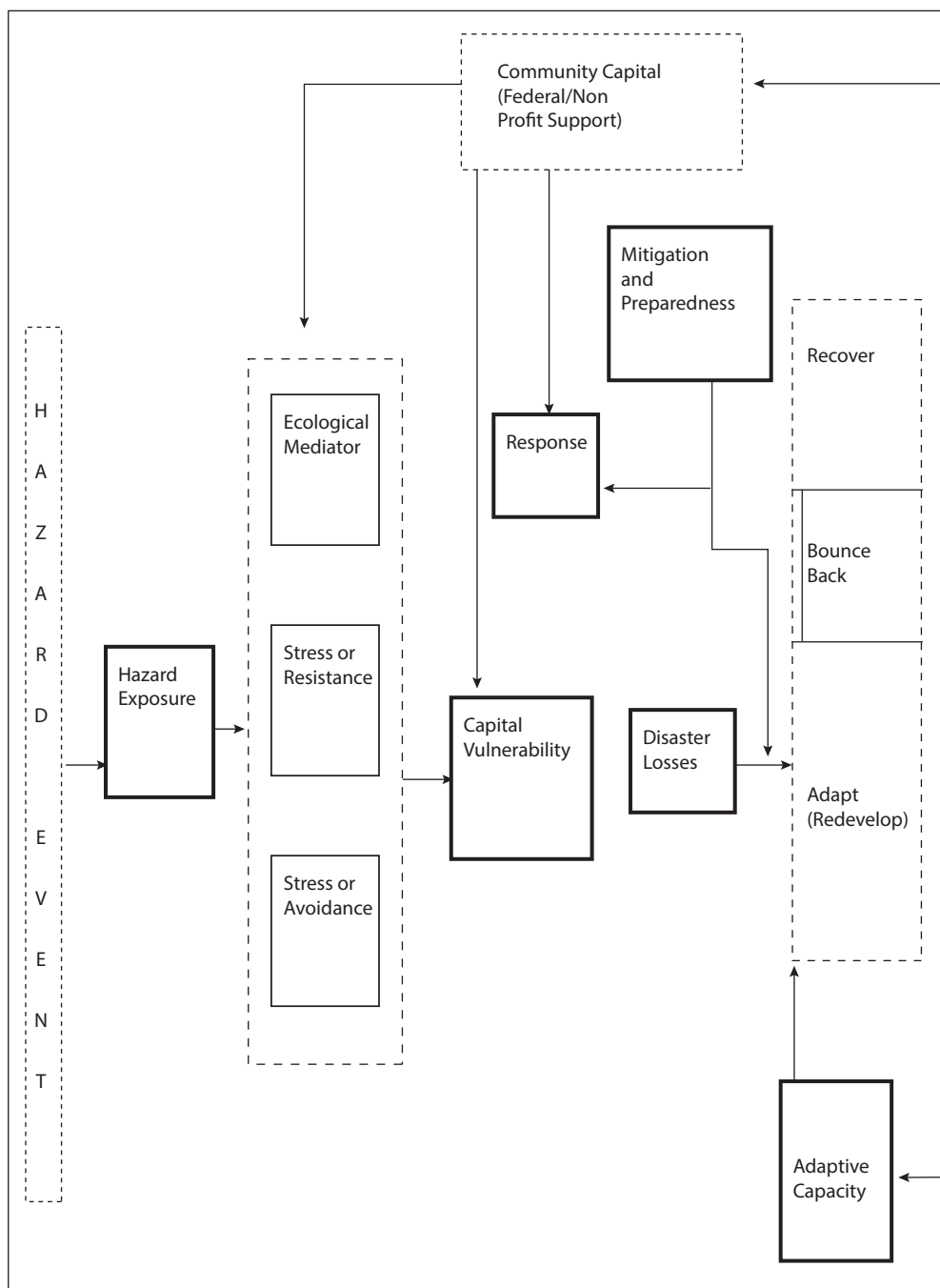
Adaptation to Climate Change – Examples for Rural Areas Impact assessments, monitoring, early warning; Land use planning; Upgrading physical infrastructures; Adapting farming systems, for example: expanding or improving irrigation systems, diversifying production structures away from the emerging drought or moisture risks, breeding plants and animals with greater pest resistance and tolerance to new stress factors. Insurance and new risk transfer mechanisms; Adaptations in rangeland and wildlife management.



Being one of the sources of climate change, rural areas can and should also contribute to mitigation. Examples of mitigation in rural areas may include bio-fuel generation from agricultural biomass or solar energy replacing power using fossil energy, afforestation and reforestation for carbon sequestration. Mitigation should also include the livestock sector. According to a recent study.

The livestock sector is a major player, responsible for 18 percent of greenhouse gas emissions, measured in CO<sub>2</sub> equivalents.

## Handout 7: Adaptive Resilience Framework



## Handout 8: First-Aid Tips

**HOW TO ATTEND INJURED/COLLAPSED VICTIM...**  
Understanding & observing the first-aid priorities save lives

- 1. Is there any Danger**  
Only approach to a casualty once you are sure that there is no danger for you, injured persons or bystanders
- 2. Check for response**  
If injured person gives no response, then person may be unconscious
- 3. Shout for help....**  
**Call for Ambulance**
- 4. Clear the airway & give two artificial breaths if not breathing**
- 5. If not breathing after artificial breath, then start Cardiopulmonary Resuscitation (CPR) Cycles of 30 chest compressions followed by 2 artificial breaths for 2 minutes**  
**Continue till victim's condition Improves or help arrives.**

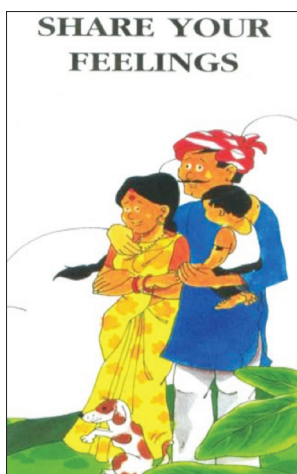
### Basic Cardio-Pulmonary Resuscitation (CPR) Technique



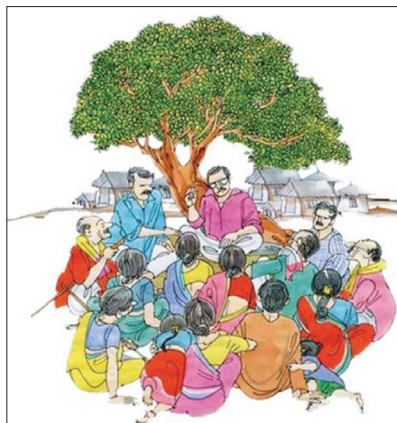
## Basic Technique for Hand-wash



## Provide Psychological First-Aid in All Disasters



Share and disseminate information with family and community use local medium and folk art to communicate



**Handout 9: Indigenous warnings and remedies for basic health concerns****Forecasting cyclone**

Observing wind speed and size of waves in deep sea § Strong wind from the east during Baisakh- Jaystha (summer)/ Kartika Agrahayan (late fall).

Crabs climbing on houses Vata fish coming near the river ghat.

Dense clouds forming in the sky Heron flying in flocks.

Many dogs barking together and Crows crowing in the night.

**Treatment for injury bleeding**

Juice of garman leaf, applied locally.

Juice of arum, applied locally.

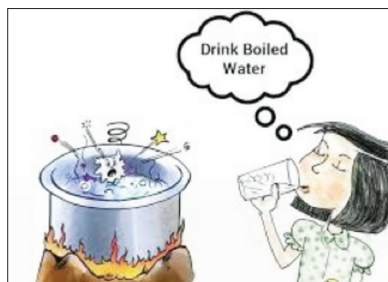
Juice of ganda leaf or Juice of durba grass, applied locally.

Juice of akanda or josory leaf, applied locally.

**PURIFYING WATER**

If water supplies run low and main water is contaminated, you will have to purify water.

- If you can see particles floating in water, strain it through some paper towels then boil it, add purifying tablets, or disinfect it.
- Boil some water for 10 minutes to purify it, and then allow it to cool before drinking.
- Use chlorine-based tablets to purify water.
- To disinfect water, use regular household bleach containing 5.25 percent sodium hypochlorite only. A stronger percentage is dangerous.
- Add two drops of bleach to 1 pt (500 ml) of water stir and leave it to stand for 30 minutes. The water should smell slightly of bleach. If it does not, repeat the process and leave the water to stand for 15 minutes more.



## Handout 10: Examples of (likely to very likely) impacts from projected changes in extreme climatic events

| Projected changes in extreme climate phenomena during the 21 <sup>st</sup> Century                                         | Representative examples of projected impacts                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Simple extremes</b><br>Higher maximum temperatures, more hot days and heat waves over nearly all land areas.            | Increased incidence of death and serious illness in older people and urban poor.<br>Increased heat stress in livestock and wildlife.<br>Increased risk of damage to several crops. |
| Higher (increasing) minimum temperatures: fewer cold days, frost days and cold waves over nearly all land areas.           | Decreased cold-related human morbidity and mortality.<br>Decreased risk of damage to several crops.<br>Extended range and activity of some disease vectors                         |
| More intense precipitation events.                                                                                         | Increased flood, landslide, avalanche and mud-slide damage.<br>Increased soil erosion.<br>Increased flood run-off.                                                                 |
| <b>Complex extremes</b><br>Increased summer drying over mid-latitude continental interiors and associated risk of drought. | Decreased crop yields.<br>Decreased water resource quantity and quality.<br>Increased risk of forest fire.                                                                         |
| Increased tropical cyclone peak wind intensities, mean and peak precipitation Intensities.                                 | Increased risk to human life, risk of infectious disease epidemics.<br>Increased coastal erosion.<br>Increased damage to coastal ecosystems and coral reefs.                       |
| Intensified droughts and floods associated with El Niño events in many different regions.                                  | Decreased agriculture and range-land productivity in drought-prone and flood prone regions                                                                                         |
| Increased Asian summer monsoon precipitation variability                                                                   | Increased flood and drought magnitude and damages in temperate and tropical Asia.                                                                                                  |

## Handout 11: Legislative and Policy Framework for Disaster Management in India: An Overview

Legal framework constitutes the foundational pivot around which different aspects of an activity are interwoven. It is probably for this reason that in constituting modern democratic political systems, it has been found essential to ordain that on the basis of a written Constitution. The issues and activities that could not find place in the scheme of a written Constitution, for obvious reasons, have been provided a sound legal basis by enacting a framework law on the subject. In India, one such issue has been the management of disasters. Despite being one of the most disaster prone countries in the world, the subject of disaster management could not find a place in the Constitution of India for reasons explained later in the paper. In fact, for a fairly long period of time, disasters, both natural and manmade, had been found to be managed in the classical colonial mode of trial and error resulting into untold miseries for the people and massive loss of lives and properties. The lurking dangers of climate change and its colossal impact on the occurrence of natural disasters prompted the international community to go for a recasting of the disaster management system in all parts of the world. In such an overhaul of the disaster management systems, central place was afforded to the provision of a sound legal framework. In the wake of these persuasions, Indian Parliament enacted the Disaster Management Act in 2005 to provide for the legal framework in which the structures, functionaries and activities related to management of disasters are organized and operationalized in order to make the country disaster free. Interestingly, for obvious reasons, management of successive devastating disasters, till recently, has predominantly been based on discretionary trial and error approach of disaster managers in the absence of any specific constitutional stipulation or dedicated statutory enactment on the subject. In other words, owing to lack of categorical constitutional-legal stipulations, the issue of disaster management was conjecturally decided on the basis of its operational dynamics. Thus, for a long time, disaster management was supposed to fall within the exclusive legislative competence of the states with the central government having no or very limited say in the matter.

Contradictory, policies and followed haphazard approaches on managing disasters despite commonality of causes and impacts of such disasters on the lives and assets of the people. Moreover, quite a large number of states thought it fit to continue with the relief-centric colonial policy without any innovation or improvisation in the policy of disaster management. In these circumstances, a subject of national importance with far reaching implications for the life and livelihood of the people, on the one hand, and sustainable economic development of the country, on the other, apparently fell to extreme

apathy of the central government, and the states relegated the subject to utter insignificance presumably due to lack of any political mileage being drawn from it. The only avenue where states could not do without involvement of the central government has been financing of disaster management operations for which centre has been providing both plan as well as non-plan grants to states from time to time. But on other aspects of management of disasters, role of the central government had been bare minimum despite the colossal magnitude of a disaster or the inability of a state government to manage such disasters efficiently and effectively.

## Handout12: National Flagship Programs of the Ministry of Rural Development, Government of India

The Ministry of Rural Development, inter alia, is implementing Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM), Deendayal Upadhyay – GraminKaushalya Yojana (DDU- GKY), Pradhan Mantri Awaas Yojana – Gramin (PMAY-G), Pradhan Mantri Gram Sadak Yojana (PMGSY), Shyama Prasad Mukherjee National RuRBAN Mission and National Social Assistance Programme (NSAP) to bring about overall improvement in the quality of life of the people in rural areas, including in the states of Madhya Pradesh and Jammu and Kashmir, through employment generation, strengthening of livelihood opportunities, promoting self- employment, skilling of rural youths, provision of social assistance and other basic amenities. State/UT wise funds allocated under various rural development programmes.

### ***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 major works include:

- Soil and Water Conservation Related Works (Including Non Water Related Works)
- Ground Water Recharge Related Works
- Irrigation Related Works
- Drainage and other Related Works
- Land Related Works for Livelihood support

### ***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.

### ***Prime Minister's Gram Sadak Yojana (PMGSY)***

- The Pradhan Mantri Gram Sadak Yojana (PMGSY), was launched by the Govt. of India to provide connectivity to unconnected Habitations as part of a poverty reduction strategy. Govt. of India is endeavoring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network.
- According to latest figures made available by the State Governments under a survey to identify Core Network as part of the PMGSY programme, about 1.67 lakh Unconnected Habitations are eligible for coverage under the programme. This involves construction of about 3.71 lakh km. of roads for New Connectivity and 3.68 lakh km. under upgradation.

### ***Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)***

- Aajeevika - National Rural Livelihoods Mission (NRLM) was launched by the Ministry of Rural Development (MoRD), Government of India in June 2011.
- Aided in part through investment support by the World Bank, the Mission aims at creating efficient and effective institutional platforms of the rural poor, enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services.
- NRLM set out with an agenda to cover 7 Crore rural poor 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.
- In addition, the poor would be facilitated to achieve increased access to rights, entitlements and public services, diversified risk and better social indicators of empowerment. DAY-NRLM believes in harnessing the innate capabilities of the poor and complements them with capacities (information, knowledge, skills, tools, finance and collectivization) to participate in the growing economy of the country.
- In November 2015, the program was renamed Deendayal Antayodaya Yojana (DAY- NRLM).

## Handout 13: Baseline Indicators for Disaster Resilience

1. **Increased community capacity to deal with hazards and emergencies in a manner that reduces the chances of possible damage and loss due to disasters:** Sub-indicators include increased awareness of people about the possible hazards and their mitigation measures; identification of vulnerable people and places; community resources such as land, water, and forest mapped and protected; organized community groups such as self help groups (SHGs) playing an active role in disaster management activities at the community level; people have increased access to information and decision making opportunities.
2. **Disaster risk reduction addressed in mainstream development plans and programs at the local level:** Sub-indicators include disaster risk audit (DRA) of mainstream development programs carried out by community groups such as SHGs; required changes made in plans, programs and their implementation strategies; community initiatives for prevention of and preparedness for possible hazards/disasters integrated into on-going programs.
3. **Social/financial inclusion and security:** Active formal/informal social networks in place; people, particularly women, have access to credit and insurance, particularly health insurance; collective decisions taken in community wide meetings held at regular intervals; SHGs engaged in social enterprises including business activities with development goals; SHGs having substantial savings and effective bank linkages; community based local platforms for mutual help.
4. **Grassroots women empowered to function as community leaders and DRR activists:** Women and their groups involved in hazard/vulnerability/capacity/resource mapping leading to identification of risk and risk reduction measures; women and their groups having substantive engagement with local authorities and government on issues that concern them; women and their groups involved in setting the agenda and taking investment decisions; women and their groups engaged in handling development funds.
5. **Reduction in the number of unsafe places of residence and public utility within the community:** Sub-indicators include identification, repair and retrofitting of unsafe residences and other built up structures such as schools, health centres etc. or resettlement of people in safe areas as against their earlier residence in unsafe areas.
6. **Enhanced livelihoods and food security through diversified livelihood practices and protection of natural resource base such as land, water and forest:** Sub-indicators include diversification of livelihoods with an increased number of households having more than one source of income;

increased number of households having a stable source of income throughout the year; community engagement with concerned local authorities and collective local action to conserve natural resources.

7. **Improved preparedness to deal with emergencies by preventing or/and containing damage and losses due to disasters:** Sub-indicators include disaster management task forces trained in search, rescue, relief, and resettlement on one hand and having community organizations and social networks to rebuild lives and livelihoods on the other.

## Handout 14: Progress Checklist for Climate Change Adaptation Mainstreaming

### Finding the Entry Points and Making the Case

- Entry points for adaptation mainstreaming agreed on and related roadmap taken into account in the work plan for the next stage of the effort.
- Key ministries (e.g. environment, finance, planning, sectors) and other non-governmental actors (e.g. representatives of communities and the private sector) relevant to the agreed entry points are members of the steering committee or task force of the adaptation mainstreaming effort.
- Adaptation mainstreaming champions liaising with in-country donor coordination mechanisms.
- Increased awareness that poor people are likely to be the most affected by climate change, that national development goals and key sector strategies (e.g. agriculture, health, energy, tourism) can be affected by climate change and that national development and sectors can in turn affect the vulnerability of the country and the poor.
- Activities to be implemented in collaboration with finance and planning or relevant sector ministries included in the work plan for the following stage of the effort.

### Mainstreaming Climate Change Adaptation into Policy Processes

- Adaptation-related indicators linked to policy documents of national development planning integrated in the national monitoring system.
- Increased budget allocations and public expenditures for adaptation policy measures of non-environment ministries and sub-national bodies.
- Adaptation mainstreaming established as standard practice in government and administrative processes, procedures and systems (e.g. budget call circulars, systematic inclusion of adaptation in public expenditure reviews, coordination mechanisms, systematic climate-proofing, monitoring).

## Handout 15: Possible Entry Points for Mainstreaming into National Development Planning

| Planning level                                  | Entry Points                                                                                                                      |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| National government and cross-sector ministries | Poverty reduction strategy paper national development plan                                                                        |
| Sector ministries                               | MDG-based national development strategy                                                                                           |
| Subnational authorities                         | National budget allocation process or review (e.g. medium-term expenditure framework, public expenditure review)                  |
| Sector ministries sector                        | Sector strategies, plans and policies (e.g. agricultural sector plan)<br>Preparation of sector budgets Public expenditure reviews |
| Subnational authorities                         | Decentralization policies Preparation of subnational budgets                                                                      |

## Handout 16: Social Inclusiveness

The social significance of an inclusive approach goes beyond their economic relevance. In a society divided by caste, religion, and ethnicity, equal opportunity of access to “primary goods” such as health, nutrition, and education can create the basis for social mobility and social cohesion. Since it cares about the poorest, this can prove to be an effective vulnerability reduction measure. States have an obligation to promote, respect and fulfill fundamental human rights of people affected by disasters irrespective of gender, race, caste, class, ethnicity, citizenship, religion, migration and registration status and other factors. Therefore, it is imperative that due sensitivity must be displayed towards the relatively more vulnerable groups and their needs and concerns should be addressed on priority in all initiatives taken for disaster management. In some cultures, caste discrimination is still strong and may prevent relief assistance reaching low caste communities. It would be a prime responsibility of the people’s representatives to see that Government and other aid agencies should implement relief and reconstruction activities without any discrimination based on caste, class, ethnicity, religion, and other factors. Government and aid agencies should ensure that socially marginalized groups like the lower caste people have equal access to relief supplies like food, water, health services, compensation benefits and housing. In many parts of India Dalits, or the so called untouchables, are denied their basic human rights and face the most terrible forms of deprivation and abuse under normal circumstances. The misery caused by disasters gets further aggravated by the problems of discrimination for the vulnerable groups. Such vulnerable groups may include: Old persons, Pregnant women, Lactating mothers, Widows, Physically and mentally challenged persons Women of all age groups Children Dalits People belonging to minor and marginalized groups However, experience suggests that the women and children have been the most affected and exploited during the post disaster care in particular. Women seeking shelter during cyclones have been exposed to sexual harassment and assault. Concerns were raised that children misidentified as cyclone ‘orphans’ were trafficked into sex work following the Orissa cyclone and the Gujarat earthquake. Lack of protection from male relatives for widows and other sole women was cited as one of the factors.

## ANNEXURE

### Dos' and Don'ts' For Various Hazards/Disasters

#### COLDWAVE

##### Before & During

- Keep ready the emergency kit with basic and specific medicines, heaters, wood for fireplace and adequate warm clothings.
- Buy low-wattage electric heaters that you can leave on overnight to keep rooms above freezing.
- Listen to local Radio Station for critical information about the weather.
- Stay indoors; Minimize travel during peak extreme cold hours (very early in the morning and late evenings).
- Keep dry. Change wet clothing frequently to prevent loss of body heat.
- Watch for signs of frostbite like loss of feeling and white/pale appearance in fingers, toes, ear lobes, and the tip of the nose.
- Maintain proper ventilation when kerosene heaters or coal oven to avoid build-up of toxic fumes.
- Take regular hot drinks.

##### After

- Go to a designated public shelter if your home loses power supply or heat during periods of extreme cold.
- Continue to protect yourself from frostbite and hypothermia by wearing warm, loose-fitting, clothing in several layers.
- If you live in an avalanche area and an avalanche warning is issued, stay inside unless told to evacuate.

#### COLD-WEATHER CAR KIT

(Shovel, blanket, coats, flashlight, batteries, high-energy food, water, other essentials)

## THUNDER AND LIGHTNING

### Before & During

- If you hear thunder, you may be close to be struck by lightning.
- Keep monitoring local media for updates and warning instructions.
- Keep ready an Emergency/Survival Kit with important medication.
- Postpone outdoor activities. Stay indoors. Ensure the same for children and animals.
- Remember, rubber-soled shoes and rubber tires provide NO protection from lightning.
- Unplug any electronic equipment well before the storm arrives. Use your battery-operated Radio for updates from local officials.
- Avoid contact with electrical equipment or cords. Unplug appliances and other electrical items, metal fences, and turn off air conditioners. Keep away from utility lines. Do not go close to TV mast, pipes or vertical metal fixtures.
- Do not lie on concrete floors and do not lean against concrete walls.
- If outdoors, get off bicycles, motorcycles or other vehicles. Look for a safe shelter.
- Do not take shelter under trees, as they conduct electricity.
- Remove tree timber which may cause a flying accident.
- Livestock may gather under trees during thunderstorms, which can affect them. Help move animals into a closed shelter.
- Avoid bathing and stay away from running water as lightning can travel along metal pipes.
- If outside, do not lie flat on ground, crouch down with feet together and head down to make yourself a smaller target.
- As far possible, find shelter in low lying area and make sure that the spot chosen does not get flooded. Be alert for flashfloods.
- If boating or swimming, get to safe land/shelter quickly.
- During a storm, remain in your vehicle until help arrives or the storm passes.

- If in a vehicle during a storm, remain inside, without touching metal from inside, keep windows up and park vehicle away from trees and power lines.
- Do not go near forest areas, If, in a forest, seek shelter in low area under a thick growth of small trees.

### After

- Continue to listen to local radio and television stations for updated information or instructions, as access to roads or some parts of the community may be blocked.
- Help people who may require special assistance, such as infants, children and the elderly.
- Stay away from drowned power lines and report them immediately.
- If possible, give First-aid to the person struck by lightning, take to nearest hospital.
- Remember, person struck with lightning carry NO electrical charge and can be handled safely.
- Victims of lightning strike may suffer varying degrees of burn, look for injury marks and treat accordingly.

### If someone is struck by lightning

- A bolt of lightning can be fatal if it strikes someone on the head and then travels down to the ground. It can also cause severe burns, broken bones, cuts, and unconsciousness; and it can set clothing on fire.
- Do not touch someone who has been struck by lightning if he or she is very wet or in water: you could be electrocuted because the electrical discharge is still within his or her body.
- Dial Ambulance at 102 immediately, even if the person appears to be unharmed.
- If the person's clothing is on fire, follow the instructions on p16.
- Treat the burns, give first aid.
- If the person is not breathing, start rescue breathing.

**If the person has no signs of circulation, start CPR, else call medical help immediately.**

## EPIDEMICS

### Before & During

- Store drinking water and food to last for few days. Use boiled or filtered water to avoid contamination.
- Periodically check your regular prescription drugs to ensure a continuous supply in your home.
- Keep a stock of non-prescribed basic medicines such as pain relievers, stomach remedies, cough and cold medicines, fever, fluids with electrolytes, and vitamins, sanitary pads, baby food items etc.
- Volunteer with local groups to prepare and assist with emergency response, If possible.
- Keep your surrounding clean and do not let the water be stagnant in neighborhood.

### After

- Avoid close contact with people who are sick. If possible, stay at home when you are sick. Do not share usable items. You will help prevent others from catching your illness.
- When sick, keep your distance from others to protect them from catching infections.
- Cover your mouth and nose with a tissue when coughing or sneezing.
- Washing your hands (with soaps if possible) often will help protect you from germs.
- Avoid touching your eyes, nose or mouth to prevent spread of germs.

## EARTHQUAKE

### Before & During

- Make new constructions earthquake resistant in consultation of professional structural engineer, if possible.
- Prepare a family disaster plan including:
  - Preparation of emergency kit which will make you self-sufficient for a minimum of three days with adequate supply of drinking water, dry food items, stock of basic medicines, sanitary pads, baby food items etc.
  - Identification of few safe family meeting places; pick easy to identify, open and accessible places that you can easily reach.
  - Conduct regular Mock Drills for school children.
- Falling objects must be given additional fixing so that they don't fall while shaking and cause harm.
- During an earthquake stay calm; if inside, Stay inside. "DROP, COVER and HOLD! Drop under firm furniture. Cover as much of your head and upper body as you can. Hold onto any secure furniture. Move to an inside wall and sit with your back to the wall, bring your knees to your chest and cover your head. Stay away from mirror and windows. Do not exit the building during the shaking. Do not use lift.
- If outdoors, move to an open area away from all structure, especially building, bridges, trees and overhead power lines.

### After

- Move cautiously, and check for unstable objects and other hazards above and around you.
- Check yourself for injuries. Help those in need.
- Check all power connections at home/office before switching them ON.
- BEWARE: chances of Short circuits might happen.
- Stay out of damaged buildings.
- Anticipate aftershocks, especially if the shaking lasted longer than two minutes.
- Listen to the radio or watch local TV for emergency information and additional safety instructions.

## DROUGHT

- Never waste water, use it to water your indoor plants or garden especially in summers.
- Repair dripping taps by replacing washers.
- Check all plumbing for leaks and get them repaired.
- Choose appliances that are more energy and water efficient.
- Plant drought-tolerant grasses, shrubs and trees (plants that thrive on less water).
- Install irrigation devices that are most water efficient for each use, such as micro and drip irrigation.
- Consider rainwater harvesting wherever practical.
- Avoid flushing the toilet unnecessarily.
- Avoid letting the water run while brushing your teeth, washing your face or shaving etc.
- Use buckets instead of showers while bathing.

## HEAT WAVE

### Before

- Install temporary window reflectors such as aluminum foil-covered cardboard so as to reflect heat back outside. This will help keep the rooms pleasant.
- Cover windows that receive morning or afternoon sun with drapes, shades.
- Listen to local weather forecasts and stay aware of temperature changes.
- Know those in your neighborhood who are elderly, young, sick or overweight. They are more likely to become victims of excessive heat and may need help.
- Get trained in first aid to learn how to treat heat- related emergencies.
- Plant trees for shades.

### During

- Never leave children or pets alone in closed vehicles or under direct sunlight for long.
- Stay indoors as much as possible and limit your exposure to the sun.
- Stay on the lowest floor out of the sunshine if air conditioning is not available.
- Eat well-balanced, light and regular meals.
- Drink plenty of water; even if you do not feel thirsty. Keep yourself hydrated.
- Persons with epilepsy, heart, kidney, or liver disease; on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.
- Protect face and head by wearing a hat or cloth.

## FLOODS

### Before & During

- All your family members should know the safe route to nearest shelter / raised shelters.
- Tune to your local radio/TV for warnings and advice.
- Have an emergency kit ready with basic medicines and sanitary pads, baby food items, important documents etc.
- Keep dry food, drinking water and clothes ready.
- Drink preferably boiled water. Keep your food covered, don't take heavy meals.
- Use sandbags to seal entry points around doors and vents. Also seal windows if the water is likely to rise that high.
- Do not let children and pregnant woman remain empty stomach.
- Be careful of snake bites which are common in post floods.

### After

- Pack warm clothing, essential medication, valuables, personal papers, etc. in waterproof bags, to be taken with your emergency kit.
- Move to high rise floor, raise furniture, clothing and valuables onto beds, tables etc. from getting wet.
- Turn off the main power supply. Do not use electrical appliances, which have been in floodwater.
- Do not get into water of unknown depth and current.
- Do not allow children to play in, or near floodwaters.

## FOR ROAD SAFETY:

- While driving, exit the roads if flood water is above half tyre height. If this happens, start reversing or change the route, whichever possible.
- Drive in 1 gear and keep reviving the engine to avoid water from entering exhaust pipe.
- Turn on headlights so that you can easily be spotted.
- Car electrical systems may shut down, if the car stalls and engine doesn't restart, leave the vehicle or you may get trapped.
- For cars which have single button to disengage all locks, open a window or sunroof to escape.
- Keep a hammer close to drivers' seat or use the headrests which have metallic tongs at bottom to break open any window during emergency.

## FOREST FIRE

- Do not smoke near thick vegetation, do not leave a lighted cigarette/ bidi in dry vegetation areas;
- Do not leave any open fire in forest area after use.
- Lightning in places of dry vegetation causes fires, create a buffer zone to manage such fires, if possible, else alert forest officials and seek help.
- Try to put the fire out by digging or circle around it by water, if not possible, call a Fire brigade.
- Move farm animals & movable goods to safer places.
- During fire, listen regularly to Radio for advance information & obey the instructions cum advice regarding moving to safe locations.
- Teach the causes and harm of fire to your family, friends and others. Make people aware about forest fire safety.
- Do not be scared when a sudden fire occurs in the forest, be calm & encourage others & community to deal patiently.
- After adventure activities, ensure no lighted bon-fire is left.
- One should not leave the burning wood sticks in or near the forest vegetation.
- Don't enter the forest during the fire.
- Discourage community from using slash & burn method for cultivation. This also has severe health impacts as CO<sub>2</sub> levels rise.

## LANDSLIDE

### Before & During

- Avoid building houses near steep slopes, close to mountain edges, near drainage ways or along natural erosion valleys.
- Become familiar with land around you. Avoid areas with debris flow.
- In mudflow areas, build channels to direct the flow around buildings.
- Stay alert and awake. Stay calm and do not panic. Stay together.
- Listen for unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together.
- Move away from the path of a landslide or debris flow as quickly as possible.
- Avoid river valleys and low-lying areas.
- If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and notice whether the water changes from clear to muddy. It is a sign of mudslide/landslide nearby.
- Inform nearest tehsil/district headquarters.
- Plant trees and mesh the hillocks to protect soil from eroding.

### After

- Go to designated public shelter if you have been asked to evacuate.
- Stay away from the slide area as there may be danger of additional slides.
- Check for injured and trapped persons near the slide, without entering the direct slide area. Direct rescuers to their locations.
- Do not move injured person without rendering first aid unless in acute danger state.
- Do not drink contaminated water from rivers, springs, wells etc.

## FIRE

### Do's

- Get your premises fire audited; check for loose electric connections; don't store combustible material near loose electric wires.
- In case of fire, dial 101 (or the special number for FIRE SERVICE in your area/town).
- If trapped lay down/sit near the floor; curtail entry of smoke into the room; look for exit; breathe through wet cloth; learn at least two escape routes and ensure they are free from obstacles.
- Remain calm, unplug all electrical appliances. Meet at safe place after exit.
- Keep buckets of water and blankets ready. Keep fire extinguishers and regularly re-fill them.
- If clothes catch fire, STOP DROP and ROLL. Conduct regular drills.
- In case of uncontrolled fire, wrap the victim in a blanket, till the fire ceases.

### Don'ts

- Don't burn crackers in crowded, congested places, narrow lanes or inside the house.
- Don't cover crackers with tin containers or glass bottles for extra sound effect.
- Avoid long loose clothes, as they are fast in catching fire.
- Don't dispose lighted cigarette end carelessly.
- Don't remove burnt clothing (unless it comes off easily).
- Don't apply adhesive dressing on the burnt area.

## TSUNAMI

### Before & During

- Find out if your home is in a danger area.
- Know the height of your street/house above sea level and the distance from the coast.
- Coastal areas within 1 mile (1.6 km) of the sea and less than 25 ft. (7.5 m) above sea level are most at risk; make an early assessment of the best route to higher ground.
- People living along the coast should consider an earthquake or a strong ground rumbling as a warning signal.
- If a “tsunami watch” turns into a “tsunami warning,” prepare to evacuate your home.
- As the tsunami nears the coast, the waves slow down and increase in height.
- Before the first wave reaches the shore, the sea may be dramatically “moved back” away from the shoreline.
- Remember, successive waves appear at intervals of 5 to 90 minutes and the first wave is usually not the largest; the following ones cause the most damage.
- Try and climb a raised platform or climb the highest floor of any house or building which you might see.
- Make evacuation plans and a safe route for evacuation. Stay away from the beach.
- Never go down to the beach to watch an approaching storm surge.
- Listen to a radio or television to get the latest information and be ready to evacuate if asked to do so.
- Familiarize yourself with warning signs, such as a sudden change in the level of coastal waters.
- If you hear an official warning, evacuate at once. Return home only after authorities advise it is safe to do so.
- Stay away from any structures that may have been weakened by the earthquake.

## Annexure

- Tsunamis often cause severe floods; make sure that you are prepared to cope.
- Keep your car filled with fuel so that you can drive to safety quickly.
- Help those who need assistance to move to safety.

### After

- Stay tuned to battery-operated radio for the latest emergency information.
- Help injured and trapped persons. Provide for first aid.
- Stay away from flooded and damaged areas until officials say it is safe to return.
- Enter your home with caution.
- Use flashlight when entering damaged houses. Check for electrical short circuit and live wires.
- Check food supplies and test drinking water.

## CYCLONE

### Before & During

- Listen to radio or TV weather reports and alert everyone through a loud speaker or by going home to home.
- Identify safe shelter in your area. These should be cyclone resistant and also find the closest route to reach them. Move domestic animals to safety as well.
- Keep your emergency kit and basic food supply, medicines, torch and batteries etc.
- Doors, windows, roof and walls should be strengthened before the cyclone season through retrofitting and repairing. Store adequate food grains and water in safe places. Check that doors to garden sheds and garages are also secure.
- Keep flashlights, candles, and matches in case of power outages.
- Do not venture into the sea. Stay Indoors and stand below the strongest part of the house if you have not moved to the cyclone shelter.
- Remain indoors until advised that the cyclone has passed away.
- Do not take shelter close to trees because branches may break off or trees may even be uprooted, and fall on top of you or heavy constructions such as bridges etc.
- During the eye of the storm, move to the other side of your shelter, since the wind will now come from the opposite direction.
- Write each child's name, address, and contact number on a piece of paper and place it in the child's pocket.
- If you are outside, be aware of the dangers of flying objects, falling trees, buildings that may collapse, and damaged power lines.
- If you are in a car, do not try to out drive a cyclone or heavy winds: if it changes course you will be in danger of being picked up in your vehicle. Remain in the car preferable halting at a safe place.
- Conduct Mock Drills for yourself and the community for evacuation.

**After**

- After the winds die down, wait for at least 11/2 hours before leaving your shelter.
- Do not go out till officially advised that it is safe. If evacuated, wait till advised to go back.
- Do not use power points until they have been checked.
- Use the recommended route to return to your home. Do not rush.
- Be careful of fallen powers lines, damaged roads and houses, fallen trees.

Design & Print : kam@kamstudio.net



**National Institute of Disaster Management (NIDM)**  
(Ministry of Home Affairs, Government of India)

A-wing, 4th Floor, NDCC-II Building, Jai Singh Road, New Delhi - 110001  
Website : [www.nidm.gov.in](http://www.nidm.gov.in)

978-93-82571-36-0

