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SCALING RESILIENCE

Module for building resilience to natural disasters

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PREFACE

The need for risk reduction at the community level in India is highlighted by the paradigm shift in the way disasters are managed. Its main goal is to equip the community with the knowledge and abilities needed to deal with natural disasters daily. Known as "Community Based Disaster Risk Management (CBDRM)," several programs have been implemented in recent years to lower the risks of disasters at the local level. Creating a disaster management plan for the village is an essential part of CBDRM.

Community involvement in preparedness and mitigation efforts stems from the premise that communities are the actual victims and first responders, having established their coping strategies and tactics to lessen the effects of disasters. To increase the ability of the populace to withstand the effects of disasters, it is essential to value these local resources and knowledge and to expand upon them. Furthermore, locals should not be denied the responsibility for disaster reduction, as they would be even more helpless if outside assistance is not provided.

Using a participatory approach to train a chain of community cadres and develop community leadership can help the community become more resilient and resourceful in the face of adversity. Communities' involvement and participation will guarantee a coordinated and group response in times of emergency.

As a result, local communities should be included as much as possible in disaster reduction initiatives through participatory approaches, viewing them as active participants rather than as passive recipients of assistance. Furthermore, lives and livelihoods are destroyed by more than just "big" disasters. Little floods, droughts, and landslides can cause cumulative losses greater than large-scale disasters, greatly raising local vulnerability. Communities are frequently left to deal with the devastation on their own after these disasters receive little media attention. This gives even more justification for funding community-based disaster risk reduction.

The module titled Scaling Resilience will provide theoretical and practical insights into the multi-dimensional aspects that have been undertaken, reflected, and emerged throughout the journey of the implementation of Global Program India. While traveling from the conventional Disaster Risk Reduction approaches to community-driven model creations, there were sets of best practices that evolved with disaster-resilient features. The module covers the conceptual indications of the program's interconnectedness with the overall resilience strategies, international frameworks, disaster risk reduction steps, and process ending with the establishment of community-driven sustainable risk reduction and mitigation practices. The module has the following objectives.

- Document the process, steps, and strategies undertaken for building resilience to natural disasters.
- Capacity building of the multistakeholder on the scalable approaches

The module also adopts the proven and widely accepted theories and practices introduced by the National Institute of Disaster Management, Government of India.

GLOBAL PROGRAM TEAM
CARITAS INDIA AND PARTNERS

MODULE 1
CARITAS INDIA'S APPROACH TO RESILIENCE BUILDING TO DISASTERS

1.1. Background

The concept of resilience building is emerging as a significant approach among developmental actors. As a sustainable framework and core development objective in the theory of change in multi-sectoral programs, resilience offers systems and process-oriented coping strategies with shocks which amplifies the vulnerabilities of the people especially the marginalized sections such as indigenous communities, dalits, fisherfolk, smallholder farmers, displaced, women and the person with disabilities. While resilience has ecological, social, political, and institutional dimensions, the concept has been conceived as a localization indicator and as an approach to defining and reflecting the level of impact and adaptive capacity of the people and their social survival.

The marginalized sections of society continue to be hit by a range of shocks such as climate change, natural disasters, food, and nutrition insecurity, and diseases due to various socio-politico-cultural and ecological factors. Such groups of people are excluded from social protection programs, asset ownership, governance, and other activities that contribute to building resilience. For this, the inbuilt capacities, local resources, and traditional wisdom must be brought to enhance the well-being of the marginalized communities. In this context, multi-sectoral engagement is the key, and development actors including policymakers, civil society organizations, and community-based organizations need to come up with appropriate strategies and approaches to build individual, household, and community resilience.

As a national organization dedicated to nation-building, Caritas India adopts comprehensive approaches to building resilience through its various cluster programs focused on humanitarian assistance, disaster risk reduction, nutrition and food security, children and development, and arresting migration.

The people-centered programs implemented for over 20 years by Caritas India have brought significant and consistent perspective changes among the community leads who are facilitating the social animation process at the last mile. Along with looking at the extent of access to the services and the socio-economic coexistence of the well-being parameters, the impacts of the animation process are also started measuring through an in-depth sustainability lens and through understanding the competency of the local community to be adaptive, responsive, and co-learned.

- The recently occurred flash floods in the Dhemaji district of Assam and the Supaul district of Bihar shared the pragmatic lessons that reflected on how the loss of life reached zero and the destruction or damages of assets reported minimal as compared to the previous years.

- Would it happen because of dedicated social animation actions initiated in Caritas India's Global Program? Were the strengthened localized early warning systems, and increased response capacity of the community there as contributory attributes, and or any other untold most significant change stories were there to be shared by the community?

- How did the community contingency plan really work out? Moreover, what made the community feel proud to say about their self-driven response mechanism?

- Is there any sustainable mechanism with community control bodies for auditing the services for better deliveries? How did the local food systems play a pivotal role?

- What went well and what are the key learnings for joint reflections on systemic transformations?

1.2. Building Resilience is the Key

Being an incremental change towards better responsive, adaptive, localized, and sustainable community-driven solutions, building resilience is at the heart of Caritas India's core interventions and the programs are designed with localized strategies and actions that overall contribute to building resilience. For Climate Resilience, Caritas India's commitment is evident through its impact on vulnerable communities. Over the past decade, it reached 500,000 individuals in climate-sensitive areas like the Sundarbans, Koshi, and Brahmaputra regions providing financial and technical support for initiatives like rainwater harvesting, community-based early warning, and climate-resilient agriculture. For six decades, Caritas India has consistently pursued its mission to empower marginalized communities facing disasters, climate change vulnerabilities, and conflicts. Caritas India's 55 years of humanitarian response and 22 years in Disaster Risk Reduction (DRR) have impacted over 100 million lives in India. The organization has developed 22 replicable disaster risk reduction models since its work began in 2001, expanding to states like Assam, Odisha, Bihar, Kerala, Tamil Nadu, and Andhra Pradesh, enhancing the resilience of over 1 million individuals.

Caritas India's Global Recognition and Partnerships include gaining "Special Consultative Status" from the UN ECOSOC in December 2022 and receiving awards such as the Asian Local Leaders for Disaster Resilience (ALL4DR) and WCDM-DRR Excellence Awards in 2022. The organization's innovative early warning systems and community-based disaster preparedness models have received global acclaim, recognized by the Ministry of Home Affairs, Government of India. Caritas India also won awards for its short film on community-based early warning during the G20 National Platform for Disaster Risk Reduction.

13. Resilience Building to Natural Disasters -Key Approaches

The Paris Agreement and Sendai Framework (2015) mandate a coherent approach to climate change adaptation (CCA) and disaster risk reduction (DRR). Caritas India's strategy aligns with these frameworks, focusing on:

- Governance and Institutional Capability: Recognizing governance's pivotal role, Caritas India establishes clear roles, responsibilities, and communication channels for effective coordination among stakeholders, fostering collaboration and innovation.

- Risk Assessment: Emphasizing comprehensive risk assessment, Caritas India conducts a holistic analysis of climate-related hazards, conflicts, and protection risks, addressing root causes to prioritize interventions effectively.

- Nature-Based Solutions: Advocating for nature-based solutions, Caritas India harnesses ecosystems for cost-effective disaster and climate risk reduction, integrating sustainable initiatives like reforestation and mangrove restoration.

- Climate and Conflict Finance: Embedding climate and conflict finance in comprehensive financial protection strategies, Caritas India focuses on diverse financing sources, including insurance and partnerships, ensuring resources for effective response and long-term adaptation.

- Upscaling Resilient infrastructures and local solutions: In partnership with academia, technical agencies, and local governments, Caritas India encourages the innovations and upscaling of proven models that impact resilience-building.

- Monitoring, Reporting, Evaluation, and Learning (MREL): Integral to resilience-building, MREL processes track activities, communicate outcomes transparently, and assess impact, fostering continuous learning for strategic adaptation based on feedback.

1.4. Social Inclusion and Resilience Building

The international agendas: Hyogo Framework for Action and the Sendai Framework for Disaster Risk Reduction 2015–2030 highly emphasized the importance of inclusion for building resilient communities. Since the disaster and food insecurity vulnerabilities mostly affected women, children, persons with disabilities, Dalits, and other economically backward sections of society, deliberate efforts to ensure informed decision-making and social participation is a mandate, and mainstreaming of such sections is crucial while building resilience. Caritas India identified social inclusion as a cross-cutting theme in all its resilient building interventions and mainstreaming as the key element. Through its various cluster programs, the social and political participation of the marginalized communities and their regular access to public welfare programs and schemes is closely followed up.

Inclusion approaches:

- Exchanges and cooperation: Caritas Inda facilitates the dialogues and joint initiatives between governmental organizations, commissions, and dialogue groups.
- Local policies and mainstreaming: Local civil society organizations are built with mainstreaming policies, organized interfaces, and consultations with expert organizations and local communities.
- Access to better education and economic well-being: Caritas India facilitates the linkage and networking building with education, health, disability, and emergency response service organizations.
- Participatory planning, monitoring, and evaluation: Caritas India adopts a people-led development approach for ensuring community ownership and local participation and promoting informed inclusive development plans at local government levels.

1.5. Civil Society Learning and Engagement

Caritas India believes that multi-stakeholder engagement is another important factor contributing to resilience building. Through its various programs, especially through Global Program, the interventions of various

stakeholders in the areas of disaster preparedness and food security, as well as social inclusion, have been improved through systematic and regular exchanges, workshops, studies, and further education from specialist and higher education institutions, and channels for knowledge transfer are institutionalized. Caritas India facilitates macro-level learning and interactive platforms in partnership with Governmental and civil Society Networks such as Inter-agency Groups and organizations through which the best practices, models, and knowledge management materials are made accessible to a wider audience at International national, state, and local levels which influences the policy discussions and recommendations.

1.6. We4Resilience Campaign- A Civil Society Engagement Approach

#We4Resilience Campaign brings harmonized actions for building resilience. The campaign which commenced in the year 2021 brought new learnings and practices on resilience building by acting as a tool to empower the community and strengthen networks. The campaign aims to foster a multidisciplinary dialogue among stakeholders to formulate effective strategies for disaster risk reduction and enhanced nutrition and food security and to explore innovative ways to integrate social protection measures and localize global concepts in disaster-affected communities. The campaign placed institutionalized platforms for collective dialogue, learning, and knowledge sharing to supplement the government programs and systems for food security and disaster resilience. Through its "3 days in a village" community consultations (Samvad), district and state-level consultations have not only brought the community aspirations, but also brought out the people's aspirations, community solutions, and people-led actions towards a resilient, nutrition-sensitive, and inclusive society.

#We4Resilience has emerged as an instrument to bring the local communities together and create a meaningful platform with multi-stakeholders including the Government to witness that their voices are heard, and they are included. The we4resilience campaign 2023 aimed at creating a favorable environment for the representatives of civil society and partner organizations to actively engage in policy dialogue on scalable models and practices.

We4Resilience Campaign highlights

- #We4Resilience master trainers at the district level
- Trained community volunteers in program villages
- 3 days in the village reached out to Over 3 Lakhs populations with resilience-building messages.
- Community consultations (Samvads)
- District Consultations
- state-level consultations
- National consultation
- Community voices and recommendations

1.7. Conclusion

The determinants of disaster risk reduction, food, and nutrition security, and social inclusion are interconnected and are recognized as key essential variables for resilience building through multi-layer intervention at micro, meso and macro levels. While reflecting on the approaches and strategies for building resilience, the role of Civil Societies to reach to last mile and to supplement the governmental interventions is essential. Through joint initiatives, long-term development activities need to work out to compact climate change impacts, disaster risk reduction and to ensure food and nutrition security.

MODULE 2
A LOCALISED APPROACH TO ACHIEVE SENDAI GOALS

2.1. Background

How can we address the needs of the community who have been traumatized by recurring natural calamities and their impacts? How can those needs be addressed in totality? What are the factors that a community feels proud of while facilitating disaster response, recovery, and rehabilitation actions and consolidating the learnings for upscaling and replications? Being a process-oriented exercise, Disaster Risk Reduction occupies a significant space in the development sphere. The paradigm shifts from charity to empowerment, relief to resilience building, need-based to right-based, and activity or inputs oriented to result-driven are considered pivotal milestones in the social animation process that emerged over a period. Caritas India, the organization looking at community learning and people-led impacts, has thought of how a compact and synergized approach can be integrated through the Global Programme and how civil society learning can be strengthened through a systematic people-led approach that brings learning flows from village to district, state, and national levels, and then it flows back to the village with validated ideas and policy recommendations.

2.2. Sendai Framework 2030

With its seven targets and four priorities, Sendai Framework interconnects policies and actions toward building the resilience of nations and communities to disasters. The Sendai Framework calls for the design and implementation of safety-net mechanisms to strengthen the resilience of the poor to the impact of disasters. The Sendai Framework recognizes that reducing the risk of disasters is a fundamental aspect of climate change adaptation and sustainable development. The Sendai Framework guides civil society organizations to come up with innovative strategies to reduce disaster mortality and damages through

community resilient building initiatives. In order to be in accord with the targets and priorities of the Framework Goals, humanitarian and DRR-focused civil society organizations are encouraged to promote inclusive baseline assessment to ensure the inclusion of marginalized groups and to streamline risk assessment and planning and promotion of participation of children and women. The Sendai Framework has also given priority to the initiatives to make local self-government more accountable and to strengthen the state and national forums composed of relevant stakeholders for the implementation of instruments and mechanisms relevant to disaster risk reduction. The framework also stimulates the developmental actors for enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.

2.3. Sendai Targets and Global Program

The increasing frequency of natural hazards and adverse impacts of climate change have become major challenges in achieving sustainable development. This Global Program India is a community-led partnership model of Caritas India being implemented in the states of Assam, Bihar, West Bengal, and Odisha with the support of the Federal Ministry for Economic Cooperation and Development (BMZ), Govt. of Germany, and Caritas Germany. The program aims at improving the lives of marginalized populations by focusing on resilience to nature, enhanced nutritional and food security, social inclusion, and strengthening civil society learning. Through a multi-sectoral approach, Global Programme facilitates the initiatives at micro, meso, and macro levels, interconnecting these developmental themes towards resilience building at community and institutional levels. The program is facilitating the emergence of community-driven models and modules on disaster risk reduction, and food and nutrition security which can be upscaled or replicated. These initiatives are contributing towards achieving SF 2030 targets and priorities and Sustainable Development Goals:2(End hunger), 10(reduced inequality) and 13(climate action). The Sendai Framework for Disaster Risk Reduction 2015-2030 outlines seven targets.

Sendai targets 1&2: - Substantially reduce global disaster mortality& substantially reduce the number of affected people globally.

The Global Program aimed at reducing the vulnerability of the population to disasters and the number of victims and extent of damage caused by disasters by improving the disaster management system at the national, state, and local levels. The program supports the State disaster management plans and facilitates its interconnection with local plans.

Sendai targets 3&4: - Reduce direct economic loss in relation to global GDP& Substantially reduce disaster damage to critical infrastructure and disruption of basic services.

The program includes support and technical assistance for particularly vulnerable households and settlements to demonstrate environmentally friendly, disaster-resistant, and climate-adaptive solutions to secure livelihoods and protect infrastructure integrated into official DRR plans. These community infrastructure models are intended to demonstrate how civil protection can be further developed with both traditionally proven and innovative procedures. This includes planning to ensure basic services in emergencies.

Sendai target 5: -Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.

Global Program provides technical support, tools, and training to relevant local and regional actors for the development and implementation of integrated risk management plans. The plans cover the entire disaster management cycle, from prevention to prevention, preparation, and improvement of response capabilities to future protection through improved post-disaster reconstruction strategies. The plans at the municipal level

are also related to the predetermined strategies at the district and state levels. Global Program supplements the state government initiatives to Develop District Disaster Plans and strengthen Civil Society Networks such as Inter-Agency Groups to make the DRR process more participatory and discussion oriented.
Sendai Targets 6: -Substantially enhance international cooperation with developing countries.

The program identified multi-stakeholders' engagement at the national and international levels in the areas of disaster preparedness and food security, as well as social inclusion. The cooperation will be improved through systematic and regular exchanges, workshops, studies, and further education from specialist and higher education institutions, and accordingly, the channels for knowledge transfer are institutionalized. The program aims to make the positive results of the program accessible to a wider audience on national and cross-border projects in neighboring regions. The program organizes exchange meetings and conferences to systematically exchange knowledge and experience with stakeholders from neighboring countries such as Nepal and Bangladesh facing similar challenges.

Sendai Target 7: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk reduction information.

Community-based early warning systems are institutionalized with the support of local community organizations in the selected villages. The Disaster Management Committees and the emergency response team are identified and trained to be capable enough to access the multi-hazard early warning and disseminate the disaster risk reduction information. For instance, in Sanpatha village of Baneniya Panchayat and Dholi village of Dholi Panchayat, district Supaul Bihar, the members of the Disaster Risk Reduction Committee built the community-based early warning system. The DRR committee set up measuring pillars at Sanpatha and Dholi, two points on the Koshi riverbank, to gauge the water level. Members of the community installed a measuring pillar, a 30-foot-tall bamboo, and deployed white, yellow, and red flags to alert the neighbourhood of the water level. It is a component of the contingency plan created by the neighbourhood under Caritas India's global program, which was started in June 2022 and will last through the flood season.

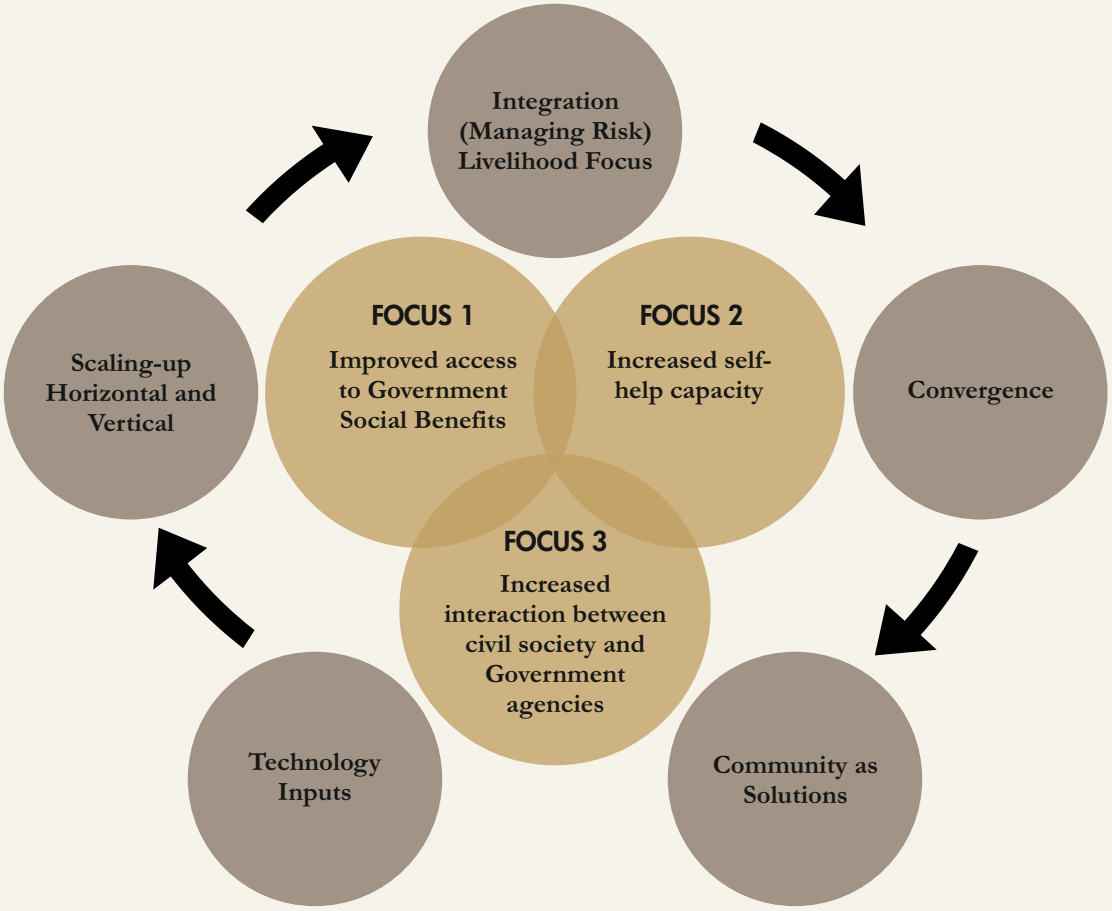
MODULE 3
DRR STRATEGY IN GLOBAL PROGRAM

3.1. Background

Disaster risk is rising rapidly. The poorest and most vulnerable people are hit hardest. Many hazards are becoming more frequent and less predictable because of climate change. At the same time, environmental degradation erodes nature's ability to regulate them and to provide food and water. The result is that more people are caught in a vicious circle of poverty, risk, and vulnerability, which drives mounting economic losses, and imposes ever-greater costs of relief and rehabilitation on governments and agencies.

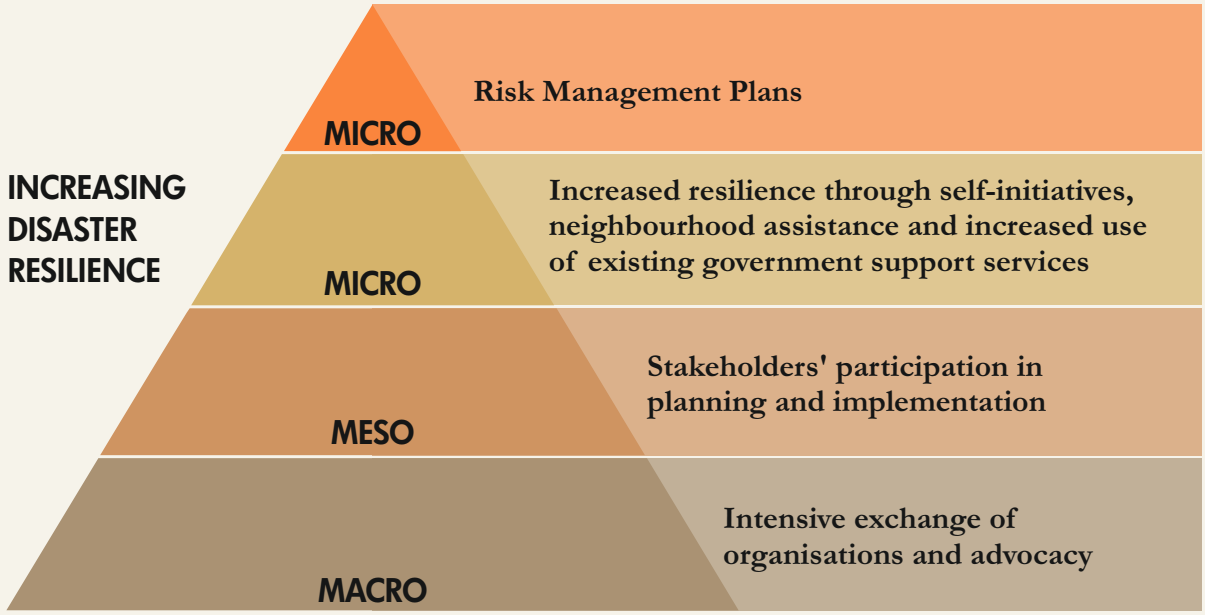
Strengthening resilience is increasingly recognized as the key to breaking this cycle. Current efforts to reduce risk or adapt to climate change are planned in separate sectors and add up to less than the sum of their parts. In addition, there is often a lack of engagement at the local level, where the disasters hit hardest and some of the most effective interventions to reduce risk could be made. Global Program India has recognized the need to change course, urgently. In the first-ever large-scale program of its kind, we bring together our expertise in a truly holistic manner including food and nutrition security and inclusion and civil society learning as cross-cutting agenda.

The Global Programme believes that the vision of resilience is the way forward for a wide range of investments in disaster risk reduction. It puts communities at the center by empowering them to strengthen disaster preparedness; it connects disciplines by using the combined strength of organizations and stakeholders working in partnership (Micro/ Meso / Macro); it expands their focus by encompassing wider ecosystems and considering wider timescales (Landscape); it connects humanitarian and development focuses to build community resilience.



Global Programme India is a collaborative programme of BMZ, Caritas Germany and Caritas India and 17 civil society partners in the states of Bihar, Odisha, Assam and West Bengal integrating disaster risk reduction (DRR), climate change adaptation (CCA) and ecosystem management and restoration (EMR). We help strengthen the resilience of more than 30.000 HHs. The global programme India work with poor communities, especially vulnerable groups that are affected by disasters and extreme weather events. We support and empower communities to address the increasing and changing risks they face, in the realization that poverty, risk, and vulnerability are all inextricably linked with the way decisions are made and resources and power are distributed within society. We also foster local and national networks (Meso and Macro) that implement and promote the integration. Seeing how inadequate development decisions often increase the vulnerability of both human society and the environment, Global Programme India also supports communities and civil society organizations to engage more effectively in policy dialogues with local, regional, and national governments (Micro/ Meso / Macro)

An integrated approach with different disciplines are the way forward for effective DRR



3.2. Operationalizing Resilience

To strengthen community resilience in Global Programme India combines disaster risk reduction with climate change adaptation. But what exactly is resilience? In Global Programme India , we use the UN definition: "Resilience is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate 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." In this document, we offer the Global Programme vision for translating resilience into practice as a strategy. We do this using four building blocks that are central to our vision of resilience. Communities supported by civil society organizations **anticipate** the risks they face by building on existing capacities; they **respond** when disaster strikes while maintaining basic structures and functions; they **adapt** to changing risks and to the changing local situation and its livelihoods options; and they **transform** themselves to address underlying factors and root causes of risk and be active partners for governments in implementing this program. In the 4 states that we are working in, we put this into action. The focus is local, where hazards affect the people most at risk. But the communities in which they live do not function in isolation. They relate to other communities, and with governments and agencies (landscape/ Micro/Meso/Macro) at three different levels, and they are embedded in an ecosystem that determines their vulnerability to hazards:

- **At the household level,** some options to increase resilience are livelihood diversification, micro-savings, family-scale disaster-preparedness plans, and small-scale mitigation.

- **At the community level,** natural resources and government schemes can be managed sustainably and effective mitigation can be facilitated by strong community organizations with clear responsibilities.

- **At the landscape level (Micro/Meso/Macro),** it's important that all stakeholders jointly assess hazards, vulnerabilities, capacities, and root causes of risk.

OPERATIONALISING RESILIENCE

MICRO

At the household level, some options to increase resilience are livelihoods diversification, micro-savings, family-scale disaster-preparedness plans, and small scale mitigation.

MESO

At community level, natural resources can be managed sustainably, and effective mitigation can be facilitated by strong community organisations with clear responsibilities.

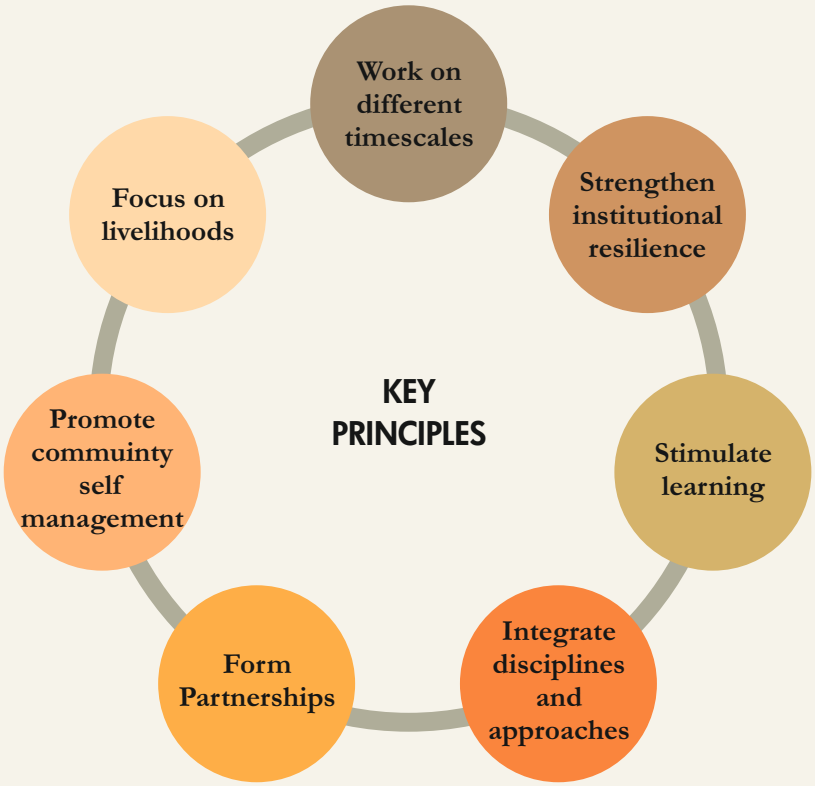
MACRO

At the landscape level, its important that all stakeholders jointly assess hazards, vulnerabilities, capacities and root causes of risk.

Actions are complemented by policy dialogue. Authorities at different levels contribute to an enabling environment through sound risk reduction policies, legislation, and institutions. Holistically approaching these communities, connecting the different levels (Micro/Meso/Macro), and offering integrated solutions represent a fundamentally different way of working.

3.3. Key Principles

An integrated approach including different disciplines is the way forward for making effective DRR investments. The integration of sectors and disciplines and the application of different interventions aid success but are not easy to achieve. Here we identify principles for understanding and operationalizing integrated climate- and ecosystem-smart risk reduction. In other words, how to move beyond business as usual.



3.3.1. Work on different timescales

Willingness to work across timescales enables adaptive planning for the community. For many climate-related hazards, especially at the most local levels, the frequency, intensity, and predictability change over time. However, through this program community will develop measures through PDRA exercises robust enough for the changes they anticipate and that can be adjusted over time. The community also makes better use of climate science on shorter timescales to manage rising uncertainties. Advances in science and technology offer a wide range of early warnings, The Global Programme India will invest in the "last mile" up to the end-user to turn early warning into early action. National meteorological offices (IMD), local field reports (KVK and Districts), and community observations will act to understand (early warning) and effect in a range of timescales and will act to better anticipate (early action) short-term, mid-term, and long-term threats.

3.3.2. Strengthen institutional resilience

Institutions (traditions, social norms, laws, policy, and power structures) regulate the behavior and power relations of individuals or groups but are themselves also influenced by these actors in the Global program project areas. They determine participation, exclusion, knowledge development, and who has power over whom. The program will support institutions to adapt to the changes in disaster risk, climate, and ecosystems, and decrease the vulnerability. Through policy dialogue, empowerment of communities, and access to knowledge, the arrangements/actions will be changed to the advantage of vulnerable groups. These arrangements/ actions themselves can over time be made resilient to hazards, and consequently contribute to stronger and lasting community resilience. As a result, programs are better integrated into the local context and focused on long-term sustainable results.

3.3.3. Integrate disciplines and approaches

Local communities face manifold vulnerabilities that have various underlying causes in the project areas. Addressing these effectively requires a combination of disciplines to analyse risks at all levels draw up plans and implement activities to reduce risks and strengthen resilience. This implies not only linking humanitarian and development perspectives and integration with climate adaptation planning but also integrating different disciplines like food security, health, disaster management, and environmental care, and considering the interaction of ecosystem services. Through integrated assessments (PDRA) and support from other stakeholders, communities will assess risk, vulnerability, and capacities, and address issues integrally. They will complement and even supplement preparations for disaster response with initiatives for sustainable development. Thus, the community fully understands how impacts and depends on nature, and how this evolves with and adapts to a changing environment on which, among other things, climate change has an impact.

3.3.4. Promote community self-management

The resilience of a community is determined by its resources and its knowledge, and whether it can organize itself to mobilize local resources equitably. In the program, empowerment and the creation of local ownership will be done for communities to be in the driving seat of the development process. Building on pre-existing capacities and promoting equity in organizing resources will be given importance. Gender issues will be given priority especially women are often the driving force in their families and communities while facing substantial challenges in dealing with risk.

3.3.5. Stimulate learning

Traditional knowledge plays an essential role in designing DRR interventions that fit their context. However, in the project areas, local knowledge is rarely enough to fully understand the changing risks. Traditional knowledge and experience will be combined with scientific assessments and other knowledge systems to

incorporate climate trends and data for the community. Building institutional memory is also important to avoid continuous reinvention of the wheel and to enable different actors to respond to changing environments. A strong learning culture will be imparted to enhance community resilience.

3.3.6. Focus on livelihoods

Disasters not only take lives, but they also impact livelihoods. And through unsustainable practices that harm the protective capacity of the environment livelihoods themselves may even contribute to slow-onset disasters. Therefore, in the project, all dimensions of resilience are considered through links with essential livelihood capital in its human, social, physical, financial, natural, and political dimensions – the "sustainable livelihoods framework". Diversification will be the key to strengthening resilience by enhancing livelihood capital by multiplying options. The project will promote human well-being and, through the sharing of benefits, incorporate equity issues. The natural dimension is one of the key aspects of the program, as environmental degradation reduces basic ecosystem functions inflicts new hazards and exacerbates vulnerability to existing ones by weakening people's ability to cope and recover. It is also envisaged to stress the knowledge and capacity for these functions, and investing in community organizations and networks, infrastructure, financial savings, and political competence.

3.3.7. Form partnerships

Individual agencies, not to say entire sectors, usually have single-issue mandates, and their strengths are confined within a subset of the four building blocks outlined here: anticipate, respond, adapt, and transform. To yield maximum impact and operate cost-effectively, partnerships will be fostered in both the private (community or household level) and public (the wider landscape) domains. Private actors can be fully engaged in program work, while universities and knowledge centers provide technical back-up from assessment and implementation through to monitoring and evaluation.

3.4. Conclusion

The Global Programme India strategy, rooted in practical experience at various levels, lays out a much-needed change in the way DRR investments are made. This way of approaching risk reduction is urgent because of rising and increasingly unpredictable disaster risks and mounting economic losses that communities face. It is unique because it brings together previously unconnected fields of expertise that need each other to be truly effective in the short and long term. Finally, it is relevant if we are to protect livelihoods and safeguard and enable further development. Joining forces, encompassing different timescales and wider ecosystems, putting communities at the center, and uniting humanitarian and development focuses are the best way forward for risk reduction.

MODULE 4
UNDERSTANDING DISASTER RISK REDUCTION

4.1. Background

Human interaction with nature, technology, and other living things has always resulted in disasters. The way we live our daily lives is constantly impacted by different types of disasters, which can be sudden, unpredictable, slow, or persistent. Because they are creative beings, humans have looked for novel approaches to lessen the terrible effects of disasters. But for a long time, people's response to disasters has been reactive. Communities would wait for a catastrophic event to occur before implementing plans and procedures, sometimes aware of the risks they face. Human social and economic development has also made people more vulnerable, which makes it harder for them to deal with disasters and their aftermath.

Disasters often follow natural hazards. A disaster's severity depends on how much impact a hazard has on society and the environment. The scale of the impact in turn depends on the choices we make for our lives and for our environment. These choices relate to how we grow our food, where and how we build our homes, what kind of government we have, how our financial system works and even what we teach in schools. Each decision and action make us more vulnerable to disasters - or more resilient to them.

4.2. Defining Disasters:

A disaster refers to a sudden, occurrence of event that causes significant disruption, damage, and distress, often overwhelming the affected community's ability to cope.

4.2.1. Natural Disasters:

- Earthquakes: Sudden shaking of the Earth's surface due to tectonic activity.

- Cyclones: Powerful tropical storms with strong winds and heavy rainfall.
- Floods: Overflow of water onto normally dry land.
- Wildfires: Uncontrolled fires in forests or grasslands.
- Droughts: Prolonged periods of below-average rainfall, leading to water scarcity.
- Lightning: Sudden and intense electrical discharge in the atmosphere, often accompanied by thunder, during thunderstorms.

4.2.2. Human-Induced Disasters:

- Industrial Accidents: Chemical spills, nuclear incidents, and other accidents with severe environmental consequences.
- Technological Hazards: Cyber-attacks, infrastructure failures, and disruptions caused by human activities.

4.2.3. Complex Emergencies:

- Armed Conflicts: Wars and civil conflicts that result in widespread suffering and displacement.
- Humanitarian Crises: Large-scale disruptions of normal life due to a combination of factors, including conflict, economic collapse, and political instability.

4.3. Causes of Disasters

4.3.1. Natural Causes:

- Tectonic Activity: Earthquakes and volcanic eruptions.
- Meteorological Phenomena: Hurricanes, tornadoes, and storms.
- Climate Change: Alterations in weather patterns leading to increased frequency and intensity of disasters.

4.3.2. Human Causes:

- Deforestation and Land Use: Altering natural landscapes, leading to increased vulnerability.
- Urbanization: Poorly planned urban development in hazard-prone areas.
- Environmental Degradation: Polluting water sources and ecosystems.

4.3.3. Social and Economic Factors:

- Poverty: Lack of resources and infrastructure to withstand and recover from disasters.
- Population Density: High population concentrations in vulnerable areas.
- Lack of Preparedness: Insufficient planning, early warning systems, and response mechanisms.

4.4. Impact on Communities

4.4.1. Human Toll:

- Loss of Lives: Direct impact on the well-being and survival of individuals.
- Injuries and Trauma: Physical harm and psychological distress.
- Displacement: Forced migration due to the destruction of homes and communities.

4.4.2. Economic Consequences:

- Infrastructure Damage: Destruction of buildings, roads, and utilities.

- Loss of Livelihoods: Impact on agriculture, industries, and businesses.
- Financial Strain: Costs of recovery and rebuilding.

4.4.3. Social Disruption:

- Community Breakdown: Disruption of social structures and support networks.
- Education Disruption: Closure of schools and impact on children's education.
- Health Issues: Outbreaks of diseases due to compromised sanitation and healthcare.

4.5. Disaster risk reduction is about choices.

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness and early warning for adverse events are all examples of disaster risk reduction. Disaster Risk Reduction (DRR) is a comprehensive and systematic approach to minimize the vulnerabilities of communities, ecosystems, and economies to the potential impacts of hazards, thereby lessening the likelihood and severity of disasters. DRR aims to enhance resilience by identifying, assessing, and mitigating risks, as well as improving preparedness, response capabilities, and recovery strategies.The scope of Disaster Risk Reduction extends across various dimensions, encompassing proactive measures and strategies to manage the entire disaster risk management cycle.

4.6. Terminologies Use in DRR

Disaster	The serious disruption of the functioning of society causing widespread human, material, or environmental losses, which exceed the ability of the affected communities to cope using their own resources. Disasters occur when the negative effects of the hazards are not well managed.
Hazard	A potential event that could cause loss of life, or damage to property or the environment.
Risk	The probability of meeting danger or suffering/harm.
Disaster Risk Reduction	A framework and tool that determines the degree of risk and describes measures to increase capacities and reduce hazard impact on the elements at risk so that disaster will be avoided
Duration	How long the hazard is felt – i.e. earthquake and aftershocks, days/weeks/months that area is flooded, length of military operations
Early Warning	The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.
Forewarning	Time between warning and impact
Frequency	Does the hazard occur seasonally? Once a year or every five year?

Mitigation	Covers measures that can be taken to minimize the destructive and disruptive effects of hazards and thus lessen the magnitude of a disaster. Mitigation measures can range from physical measures such as flood defenses or safe building design, to legislation and non-structural measures as training, organizing disaster volunteers, public awareness, food security programs and advocacy on development issues
Period of occurrence	The time of year a hazard normally occurs.
Prevention	The activities designed to impede the occurrence of a disaster event and/or prevent such an occurrence from having harmful effects on communities and facilities. Usual examples are safety standards for industries, flood control measures and land use regulations. Other non-structural measures are poverty alleviation and assets redistribution schemes such as land reform, provision of basic needs and services such as preventive health care, and education.
Readiness	Group/community organization functioning as a system which is prepared for any hazard that is going to happen.
Resilience/Resilient	The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system can organize itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.
Speed of onset	Rapidity of arrival and impact. We can distinguish between hazards that occur without almost any warning (earthquake) and a hazard that can be predicted three to four days in advance (typhoon) to a very slow-onset hazard like drought and famine.
Survivability	To manage to stay alive or continue to exist, especially in hazard event.
Vulnerability	The degree to which an area, people, physical structures or economic assets are exposed to loss, injury or damage caused by the impact of a hazard.
Vulnerability Assessment	Identifies what people do in time of crisis to reduce the damaging effects of the hazard, and to secure sustainability of their life.
Warning	Signs and signals, including scientific and indigenous indicators, that a hazard is likely to happen.
Capacities	Refers to individual and collective strength and resources that can be enhanced, mobilized, and accessed, to allow individuals and communities to shape their future by reducing disaster risk. This includes prevention, mitigation, survival of the individual and readiness of the community.
Community Capacity Assessment	Identifies the strengths and resources present in individuals, households, and the community to cope with, withstand, prevent, prepare for, mitigate, or quickly recover from a disaster. Coping means managing resources in adverse situations.

Community Hazard Assessment	Defines the threats and understands the nature and behavior of hazards. The assessment brings out information on the characteristics of hazards, specifically warning signs and signals, forewarning, speed of onset, frequency, period of occurrence and duration.
Community Risk Assessment	The process of gathering all relevant data about the community, such as physical characteristics (e.g., location, area, natural resources, climate, etc.), demographic features, economic and sociopolitical aspects of the community, environmental problems, etc. and able to determine the nature and extent of risk by analyzing the characteristics of hazards, the degree of vulnerability and the capacity of the community.
Community Vulnerability Assessment	Aims to understand the complex combination of interrelated, mutually reinforcing, and dynamic factors. Vulnerability analysis is the process of estimating the susceptibility of "elements at risk" in the community to various hazards.

4.7. Integration with Sustainable Development:

Aligning DRR efforts with broader sustainable development goals to create a holistic and integrated approach towards building resilient and sustainable societies.

4.8. Global Cooperation

Collaborating on an international scale to share knowledge, resources, and best practices, fostering a collective effort to reduce disaster risks globally.

The scope of DRR is dynamic and adaptable, recognizing the evolving nature of risks and the need for flexible and context-specific strategies. It involves the continuous improvement of policies, practices, and interventions to build resilience and reduce the impact of disasters on people's lives and livelihoods.

MODULE 5
COMMUNITY IS THE CENTRE

5.1. Background

Both the community and its members as individuals are impacted by disasters, and both are crucial to lessening their effects. Inclusive and community-led disaster management involves communities taking the lead in recognizing, evaluating, and working together to lower the risk of disaster. The best way to achieve sustainability in addressing the hazards of natural and man-made disasters is through community participation. At-risk communities are encouraged to participate in all phases of the strategy, which include mitigation, readiness, response, recovery, and prevention. To create communities that are resilient to disasters, it is first necessary to empower the locals to deal with the negative consequences of natural disasters.

5.2. Community -the first responders

The impacts of catastrophes are greatest felt at the community level, which is also the best place to evaluate and control the risks associated with the economy, society, and physical safety. Locals themselves have the best understanding of the potential and limitations in their community. In every community, the people living there will always respond to a disaster the first and quickest. Before assistance from outside sources arrives, more lives can be saved in the initial hours of a disaster by local response teams.

The process of involving communities to determine priorities, resources, needs, and solutions in order to support representative participation, responsible governance, accountability, and nonviolent change is known as community mobilization. Participation, for example, conjures up a potent image of local community empowerment in development initiatives, fosters capacity building, and makes it possible for the community to manage disasters more effectively and efficiently, thus contributing to disaster risk reduction.

The dissemination of information within a community, especially local knowledge, is facilitated more effectively by community engagement. It has been shown that learning occurs via participation, and behavior and practice change frequently depend on learning. The community will be able to withstand disasters because to this. Power in decision-making also heavily depends on community involvement.

5.3. Steps to Successful Community Engagement and Mobilization

1. Commence by sharing the outcomes of an open community selection process.
2. Use community evaluations to map priorities within the community and identify leaders.
3. Organize initial gatherings with local authorities and seek their assistance in galvanizing community involvement.

5.4. Criteria for selecting the program participants.

- The severely affected villages/ Communities are in the remotest areas, isolated with minimum to zero connectivity with the mainland, and come under BPL (Below Poverty Line).
- Hand-to-mouth community, mainly agriculture and labor households.
- The villages have low access to education and flagship schemes by national and state governments.
- Most "At-risk" villages/ Communities due to pre-existing vulnerabilities wherein negative impacts felt on the community due to the recurring floods and cyclones are amplified and villages/communities have limited resources to overcome these impacts.
- Villages have more malnutrition cases and absence /low services of Anganwadi Centre(AWC) and Public Distribution System(PDS).
- Villages/ Communities left out due to preferential treatment based on caste and political views though have eligibility criteria.
- The villages/ Communities dominated by Schedule caste, Tribes, persons with disabilities, single women (including widows), internally displaced communities, and elderly (above 70 years) who remain the most marginalized.
- Internally displaced villages/communities living on the banks of rivers due to land erosion because of salinity intrusion and second because of sea erosion.
- Villages having weak housing structures either dilapidated partially (without roof/wall) or mud/houses.

Selection criteria – 1: The villages should be affected by drought, cyclone, and flood within the target districts. At least 3 disasters in the last 10 years. The villages should be affected by drought, cyclone, and flood within the target districts. At least 3 disasters in the last 10 years.	**Selection criteria- 2:** The villages should be within 5 KM of the seashore, rivers, and wetlands for floods; for cyclones, near the seashore; and for drought, far from the riverbed and water body.	**Selection criteria – 3:** The villages that are socially excluded and dominated by the Schedule caste, Schedule tribe, and other backward castes.	**Selection criteria- 4:** The human casualty happened due to disasters in the last 10 years	**Selection criteria- 5:** The damage occurred to households due to disasters in the last 10 years	**Other Criteria:** Poor availability of other Govt. schemes (MGNREGA) Distance to Government Primary Schools Number of pregnant & lactating women (young mothers) Households have meager livelihood income (no livelihood option)

Cross-cutting Selection Criteria:

- The villages/ Communities dominated by Schedule caste, Tribes, persons with disabilities, single women (including widows), internally displaced communities, and elderly (above 70 years) who remain the most marginalized.
- Priority to be given to the villages adjacent to each other and having high vulnerabilities (Disaster, malnutrition) that the project intended to address.
- Give priorities to the select villages that fall under the same Gram Panchayat.
- Villages with minimal operational challenges

5.5. Objective setting with the community

Being the center of the program, the community-consulted decisions are essential for better ownership of the program. As a preparatory stage, the facilitating organizations have to follow the steps given below while setting the objectives.

5.5.1. Educating the public- Encouraging well-informed choices via forums, awareness campaigns, and IEC materials like pamphlets

5.5.2. Stakeholder identification and engagement- Through meetings, sharing the program's objectives, and sharing the success stories of comparable interventions in other geographies, potential stakeholders at the village, local municipality, block, and district levels will be identified, listed, and involved in the initial planning.

5.5.3. Participation in Goal-setting- Through interface meetings, targeted group discussions, and community consultations to establish the intervention's plan and objectives, people, community leaders, and other potential stakeholders are made aware of the purpose of the program.

5.5.4. Micro-meso and macro levels -flow of channels; Common clarity and understanding among the facilitating organizations and all actors on the multi-layer approaches. Micro levels indicate the animation actions and associated changes at individual, household, and local municipality levels. The concept of localization will take place at this level through direct interventions of the local communities and local government actors. Similarly, the meso level indicates the engagement of block and district-level policy actors to fast-track and influence the implementation of the models or best practices. However, the macro-level layers reflect state and national-level stakeholder engagement in model upscaling and policy implementation and influence. A Clearly defined multi-layer engagement plan will be ready at this stage.

5.5.5. Ready to DRR– The community and potential stakeholders have shown interest in the DRR and response.

5.6. Topics to be discussed

The facilitator/animator facilitates discussions or meetings with the community and stakeholders during the objective setting stage.

- Potential disaster to occur.
- Past disasters and their impacts
- Power structures and key potential actors to suggest.
- Success stories – coping mechanisms, traditional practices
- Local disaster risk reduction actors

5.7. Methodology:

- Community meetings, spot visits, evidence-based discussions, IEC tools, mapping of stakeholders, social-economic analysis, and power structure mapping, meeting the government office.
- Duration; 2 weeks
- Facilitator/actors: The Lead CSOS, PRI leader, volunteers, one DRR expert from the Government side- DDMA, emergency officer

MODULE 6
PARTICIPATORY DISASTER RISK ASSESSMENT (PDRA)

6.1. Background

To preserve communities' cultural diversity and identities, people must be involved in the risk and vulnerability assessment process during the implementation and evaluation phases. This involves assessing risks and vulnerabilities at the local level based on social and cultural criteria. When it comes to empowering the community and giving them control over the development process and models, the facilitating organizations are always drawn to participatory tools.

Participatory Disaster Risk Assessment is one such effective tool for community engagement in Disaster Risk Reduction Participatory Disaster Risk Assessment is the first step towards designing interventions for reducing the vulnerability and enhancing capacities of target communities. The assessment aims to create a basic understanding of the following aspects.

- **The community:** number of households, social and economic status, its organization
- **Livelihood systems:** key activities that people undertake for living and leisure.
- **Dependence on natural resources:** linkage of livelihoods with natural resources, access, and benefit sharing
- **Profile of hazards:** elements (natural, physical, social) that render livelihoods vulnerable, their trends, and implications of their intensification.
- **Current coping (short term) and adaptation (medium to long term) capacities:** capacities (human and physical) that the community must deal with various hazards, and limits after which the hazard becomes a disaster.
- **Factors limiting livelihood resilience:** an understanding of reasons why the community is vulnerable and not able to cope with disasters.

- **Intervention plans:** what needs to be done to enhance the capacities of communities to make them less vulnerable to increasing disaster risk, climate change, and ecosystem degradation?

6.2. PDRA Process

The PDRA process is therefore designed in three broad sections. The first section provides a context to the risk assessment through an understanding of the profile of the village, its inhabitants, and its resources. Tools included in this section are given below.

- **Village profile –** enabling description of the broad geographical location and the governance systems.
- **Community profile –** enabling description of demographic features, socio-economic status, and livelihood systems.
- **Ecosystem profile –** enables the description of the natural resource elements used by the villages within their livelihood systems and helps describe the availability, seasonality, and productivity of the natural resource asset base.

The second part of the tool pack focuses on the hazard and vulnerability assessment, and contains the following broad sections:

- **Hazard and vulnerability profile –** enabling description of livelihood elements at risk, trends, and seasonality of disasters and climate-induced risks.
- **Capacity profile –** enabling description of current coping and adaptation mechanisms including a focus on early warning systems and institutional arrangements that enhance the readiness of the communities to be resilient to disasters.

The final section leads to the development of the risk reduction plan and contains specific interventions needed for reducing vulnerability and hazard and enhancing capacities.

While participating in these exercises, people get a chance to explore, understand, and draw lessons on various aspects of underlying risk and the concerned issue. It enables people to do their own analysis and develop their points of view more informally to reduce the risk factors for sustainable living. The exercises are designed in such a way that different kinds of data/information that are required for making appropriate decisions or to prepare a plan of action for risk reduction and its measures, implementation, and monitoring, emerge through these discussions. As the entire process is participatory, people know why certain decisions are taken and take ownership of such decisions.

6.3. The steps and Processes for conducting PDRA are as follows:

6.3.1. Site Entry and Rapport Building

- Conduct meetings with the Panchayat President/local municipality and Ward Member/elected leaders to explain the objectives of our project and its intended outcome.
- Conduct transect walks across the ward to determine and observe the social, economic, environmental, and political situation in the selected ward. Your observations must be documented.
- While conducting transect walks, the facilitator/animators may also engage with the community to encourage the community members to attend meetings.

6.3.2. Disaster Risk Assessment Tools

6.3.2.1. SOCIAL/RESOURCE/INSTITUTIONAL/RISK MAP:

Kindly note all these components should be taken up individually with the community but can be plotted on the same map.

Social Mapping: The social map plots households/ settlements in the selected ward, and highlights settlements according to religion, caste, house structure, female-headed households (HHs) Persons with Disabilities (PWDSs), orphans, pregnant/lactating mothers, elderly above 70 years living alone. Preparing the social map will help to develop an understanding of:

- Demographics in the ward (Total population, Gender-segregated data, Caste – Religion data, etc.)
- Social infrastructures
- ·Settlement/Housing Patterns

While plotting this map, the extreme right side of the map should also entail the following details:

- Total Population
- No. Males
- No. Females
- Total number of children below 17 years
- No. school-going children

6.3.2.2. Institutional Mapping:

Plot churches/mosques/temples/convents/other religious institutions, health facilities, schools (government and private), Financial/Economic support institutions (micro-finance, banks, etc.), police station, post office, railway track, National Highway, Local Village roads. It is to be noted that plot only whichever institutions exist in the village.

6.3.2.3. Resource Mapping: Depicts the natural and human-made resources available in the ward.

Farms, Livestock areas, Fishing areas, Forested areas, hills, water bodies, wetlands, irrigation channels, storage tanks, cultivated land, and barren land. Also plot all resourceful people in the village (doctor, nurse, engineer, teacher, Anganwadi teacher, Anganwadi helper, ward member, government employees, police, etc.). Roads, drinking water facilities (public wells, handpumps, streams, ponds, sea, river, etc.), and drainage systems should also be plotted in the resource map. Land (low-lying, plains and high lands should be demarcated, if applicable), Cattle grazing grounds.

6.3.2.4. Capacity Mapping:

The objective of the capacity map is to identify safe points and capacities in the ward like temporary shelters, fire force, police, etc. during disasters. You may plot such capacities in the social-resource map itself by circling the area using the appropriate colour.

6.3.2.4. Risk Mapping:

Circle the areas at risk in the social-resource-institutional map using RED to indicate the same. Risk Mapping can be done in the social/resource map, however, only after the Hazard Ranking, Seasonal Calendar, and Disaster Timeline Tools are prepared.

6.3.2.5. Vulnerability Mapping:

This will be prepared after the risk mapping exercise. Animators can use the color ORANGE to circle vulnerabilities. Plot the political, economic, cultural, social, and environmentally vulnerable factors, people, and resources on the map in the event of any disaster. Use a different legend but the same color for the five components that are to be marked.

6.3.2.6. Seasonal Map/Calendar:

Seasonal Mapping/Calendar: The objective of preparing the Seasonal Calendar is to
Please use the format provided below –

Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec.
On Farm Activity												
Off Farm Activity in the ward												
Migration for Labour												
Daily Wage												
Food availability of basic grains												
Weather (every month – sunny, rains etc.)												
Drought												
Communicable Diseases												
Floods												
Sunstroke/Heat waves (if applicable)												
Water Scarcity												

Also, if the local community discusses other such livelihood/disaster patterns that are seasonal, kindly plot the same too.

6.3.2.7. Disaster History/Timeline:

Disaster Timeline: should contain the following columns – Event, When, Effect/Impact, and Actions done after the event. The timeline should be prepared in ascending order (i.e., begin the table with the first disaster the community can remember and end with the latest that have struck the region). Begin with a disaster about 50 years ago. Timelines are used to capture the chronology of events as recalled by the local people.

Event	**When**	**Effect/Impact**	**Actions done after the event**
E.g. Earthquake	1968	1200 individuals died Barangay Hall collapsed No electricity & water for 6 months	The national government helped; people were given a food ration

6.3.2.8. Hazard Ranking:

Ranking Formula: The indicators for ranking hazards and for identifying the same in the order of their priority, are magnitude, frequency, and capacity.

Magnitude of disaster/Consequence: 10 – Catastrophic, 8 – Major, 5 – Moderate, 3 – Minor

Probability of occurrence/Likelihood: 10 – Certainly, 8 – Likely occurrence, 5 – Possible, 3 – Rare
Coping Capacity: 10 – The community is well-prepared and has all facilities to withstand the disaster, 5 – Community is partially prepared to withstand the disaster, 3 – The community is least prepared to withstand the disaster.

The animator can then calculate the Risk the hazard poses by: **Magnitude x Probability / Coping Capacity**

The highest-ranked hazard will be the one that poses extreme risk to the population and so on.

Hazard	Consequence Ranking	Likelihood Ranking	Coping Capacity Ranking	Hazard Prioritization

6.3.2.9. Access And Control Map:

This exercise will provide insights into the social dynamics of access and control to the resources at the household and community level.

RESOURCE	**ACCESS TO RESOURCES**		**ACCESS TO RESOURCES**	
	Community Level	Control Male/Female)	Household Level	Control (Male/Female)
Land Ownership				
Income Generation				
Monthly Expenses				
Cooking				
Agriculture (Sowing, Reaping)				
Agriculture (Marketing)				
Gold/ Jewellery				

6.3.2.10. Venn Diagram:

The objective of the Venn Diagram is to plot and identify:

- Institutions that are most accessible/ closest proximity to the ward
- Families/Households that live closest to the institutions that are near the ward, thereby to analyze power relations and influential persons in the ward
- Institutions that are located far away from the ward but are a necessity for the day-to-day functioning of the ward communities.

Please find below the list of institutions to be plotted in the venn diagram:

- Police station, gram panchayat office, private/government banks, micro-finance institutions, post office, railway station, bus stand, private/govt. hospital, PHC, etc. Other institutions as mentioned by the community should be plotted.
- Please note Venn diagram should plot institutions as villagers view the importance of institutions in the community.
- Please plot the village in the center of the chart. Then using straight lines, kindly plot the institutions. The institution can be mentioned inside a circle. Kindly increase/decrease the size of the circle according to its prominence and importance to the community.
- Also, mention the distance in kilometres from the village to each institution alongside the straight line. Likewise, on the side of each of the circles (in which the institution is mentioned), please mention the HHs/groups of people who reside. This is to identify the institutional-power-influential relation from the Venn diagram.

6.3.2.11. Some Other Techniques To Conduct PDRA

- Mapping using tools may be done in smaller groups (i.e. gender-specific, children's groups, age-differentiated groups).
- Google Earth Images of the selected wards (20 years ago and now) can be documented.
- It is important to explain to participants the purpose of the mapping activity, e.g. to show hazards or risks and which ones pose a threat when.
- Standard map legend symbols are recommended for easy and common understanding.
- At the end of the exercise, we should also be able to identify the "NATURAL LEADERS" who can become part of the Village Disaster Management Committee.
- All the tools employed to conduct the PDRA should be undertaken by the locals, the project coordinator along with the volunteers should only facilitate the project.

MODULE 7
EMERGENCY RESPONSE TEAM

7.1. Background

PDRA process ending with DRR Committees formation. It is recommended that the community form a Community Disaster Management Committee and submit member nominations. These participants would also oversee practicing the plan and periodically updating it. These individuals would also approve the plan as an implementing plan and organize the task forces that would act during disasters. These individuals may be leaders, educators, social workers, teachers, principals of schools or colleges, or representatives of non-governmental organizations.

For each task force, three to seven individuals are ideal. These individuals are chosen by the community from among responsible, driven volunteers possessing the necessary skill sets to carry out and oversee the planned activities. Members could include but are not limited to, schoolteachers, health professionals, female community members, self-help groups, youth clubs, and literate youth in the community who are nominated by the local community. One of the plan's key components is ensuring that women participate adequately. By the requirements, the Standard Operating Procedure (SOP) is also modified.

5.2. This section provides clarity on:

- Explain the constitution of Disaster Management Committees (DMCs) and Disaster Management Teams (DMTs).
- Highlight the need for and importance of Disaster Management Committees (DMC) and Disaster Management Teams (DMTs),
- List out the Standard Operating Procedures for DMTs during and post-disaster phase,

There is a strong need for setting up DMCs in the village to carry out the following functions:

- To make village-level decisions
- To coordinate the activities of the Disaster Management Teams
- To account for and maintain the inventory of community-based Disaster preparedness materials
- To able to ensure a continuous monitoring of preparedness

A suggested membership of the DMC as per National Institute of Disaster Management, Government of India, is as follows:

Member/Department	No.of persons	Reason for being a member
BDO or his/her representative	01	To allow access to the govt. schemes and to act as an arbitrator if conflict arises amongst the members that cannot be settled by consensus.
Government Engineer	01	To give technical know-how back up to DMT's and to periodically verify the condition of the shelter and other structures
Member Panchayati Raj institution	01	To allow access to the DMC to the facilities available
Member from a facilitating inst.or NGO	01	To allow the community to communicate with the implementing agency and the required feedback
Gram Mukhya or Village head	01	Already enjoy a degree of respect and are usually a part of all decision making processes
Mahila mandal and women's representative	01	To specifically represent gender needs
Youth representatives like NYKS,NCC,NSS	01	To present the needs and requirements of the youth
To present the needs and requirements of the youth	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 responsibilities of the Disaster Management Committee are as follows:

- Effective coordination with Disaster Management Teams
- Details of rescue material and their periodic checking, maintenance, and replacement
- Register of usage of shelters, details of persons or groups using that infrastructure
- Register of Community Based Disaster Preparedness activities, training, and drills
- Account books of Village Contingency Fund

7.3. Emergency Response Team/Task Force Committees

A list of responsible and driven men, women, and youth volunteers who can oversee and carry out the disaster management plan's activities is compiled by the participants. Auxiliary Nurse Midwife (ANM) personnel, schoolteachers, literate youth in the village, female members of the self-help groups, ward personnel, and so forth. These people then organize into small action groups, with five to ten members each, based on what works best for the community. Specific responsibilities, such as warning distribution, rescue, relief, and so forth, are assigned to each group. There will be specific tasks for each group to complete both before and after the disaster.

The different Task Force Committees can be as follows:

1. Early Warning team
2. Evacuation and Response team
3. First aid team
4. Sanitation team
5. Shelter management team
6. Relief Management team
7. Psycho-social Counseling team
8. Damage Assessment team
9. Reconstruction and Rehabilitation Team

The roles and responsibilities of the task force committees are detailed below.

7.3.1. Early Warning Team

Village youth will receive training on how to interpret radio meteorological alerts and take quick action to efficiently disseminate the word throughout the community.

During Disaster

- Verifying with the closest control room the alerts that were received over the radio.
- Sending out alerts to every household in the village, particularly the ones that red flags have identified as being the most vulnerable.
- Making contact with various safe houses and shelters before a disaster, such as a flood or cyclone, is predicted to occur

Post Disaster

- Restock supplies of food, clothes, and fuel wood from the village's "Gramin Bank," the government stores, or any other source.
- As new evacuees arrive at the shelter, record their names and give them identification slips. In order to prevent unscrupulous individuals from stealing or hoarding supplies, shelters can serve as distribution hubs for aid. Supplies can be distributed in exchange for identity slips.
- The shelter's surroundings ought to be maintained tidy and sanitized both before guests arrive and after they depart.
- Team members should assist other teams in treating injuries and wounds of camp inmates, spraying bleaching powder, and chlorinating wells.
- Make sure that no one cooks on their own and that everyone eats at the communal kitchen and helps with food distribution.

7.3.2. Evacuation and Response Team

Men and women between the ages of 18 and 35 who are physically fit should be included on this team. This team should include local security people available in the community. If civil defence personnel were present in the village, their inclusion would be beneficial. The government can work with the rescue and evacuation team to arrange for a variety of services.

During Disaster

- Rescuing the susceptible population from the riverbanks and the ocean in the event of a cyclone or flood.
- Pointing the shelters out to the community of rescue.
- Putting together rescue kits and boats.
- Cattle and other livestock evacuation. Post Disaster
- Inspecting the village and pulling injured and stranded people out.
- Keeping a "missing persons" register, updating it following every rescue mission, and helping the authorities count the damaged property.
- Delivering medical personnel, volunteers, and other supplies for relief

7.3.3. First Aid Team

Both male and female community members ought to be on the team. This team should consist of members with some nursing knowledge as well as other village government employees such as Auxiliary Nurse Midwife (ANM) and Accredited Social Health Activist (ASHA).

During Disaster

- Transferring first aid supplies and medication supplies to safe havens or shelters.
- addressing the evacuees' medical needs
- When a disaster like a cyclone or flood occurs, the team must be inside and make sure that no one leaves the shelter under any circumstances.

Post Disaster

- Taking care of the rescued individuals' wounds.
- Notifying the relief organization of the low supply of medical supplies.
- Aiding medical professionals and paramedics in transporting the ill and injured to hospitals.
- Keeping infectious disease cases isolated and stopping their spread after providing appropriate primary care.
- Dispensing preventive medicine in cases where an epidemic outbreak of cholera, dysentery, malaria, etc. is possible.

7.3.4. Sanitation Team

In addition to outside the shelters, both men and women may handle sanitation duties.

During Disaster

- Ensuring that evacuees in the shelters follow proper hygiene practices.
- Pregnant, nursing, and menstruating women in particular have their sanitation needs met at the shelter.

Post Disaster

- Use disinfectants such as bleaching powder to stop the spread of infectious diseases throughout the village.
- Making sure restrooms and trenches are sanitized.
- Ensuring appropriate use of sanitation facilities by the evacuees.
- Using the water testing kit to check the water quality.
- Teaching the impacted population how to filter water before drinking it in order to avoid stomach infections.
- Use chlorine to complete the process of purifying water.
- Complete the task of clearing out water clogging and congestion.

7.3.5. Relief Team

The team consists of both male and female members. They gather supplies of food, utensils, clothing, kerosene, diesel, and other necessities for relief and organize all other teams' needs. Asking the female members about the particular needs of the impacted women is a good idea. Only women should distribute certain gender-sensitive clothing and materials to other women. To ensure that people do not miss out on their entitlements, the members should also maintain a record of all government initiatives pertaining to free relief efforts to stop starvation, deterioration, migration, and health and sanitation measures for both humans and livestock.

During Disaster

- Transferring supplies for relief to the appropriate shelters.
- Keep an eye on the supplies and compile a list of items that need to be restocked.
- Coordinate the government's relief efforts with those of the non-governmental organizations.
- Make a needs analysis and request assistance from the non-governmental sector to meet the needs of the impacted community. Following a Disaster
- obtaining and distributing supplies of aid.
- replenishing the low-stock inventory.

7.3.6. Psychosocial Counseling Team

After a disaster, emotional issues are frequently disregarded. This occurs because, in comparison to the harm done to life, physical health, and property, they are comparatively invisible Village Disaster Management Plan 35. It is crucial to keep in mind how frequently emotional issues arise. Severe distress breeds apathy, helplessness, and isolation. A disaster affects everyone who witnesses or experiences it. Therefore, prompt detection of this issue and subsequent intervention aid in the victim's healing. The responsibilities of this team are as follows:

- Let people grieve as they need to.
- When someone shares their thoughts and feelings, other people should listen to them patiently and attempt to understand what they are going through by putting themselves in the survivor's shoes.
- Being able to listen well is crucial to helping the survivor feel supported emotionally. Assist the survivors in getting in touch with their family members so they can receive social support.
- Relaxation and breathing exercises aid in the healing process.
- The emphasis is on getting the disaster survivors involved in activities that they enjoy making them feel like they are making a difference. Urge the survivors to perform these exercises regularly, at least twice a day.
- Encouraging the survivors of disasters to perform their religious rituals and beliefs is imperative. Following one's religious convictions aids in the healing process.

7.3.7. Damage and Loss Assessment Team

This team's members must be literate, ideally matriculated. Each member of this team must be literate, ideally at the matriculation level or higher. This team's duties include the following:

- Aid in evaluating the damage to transportation infrastructure, including markets, distribution networks, water and electricity systems, and roads.
- Accelerating the government's enumeration procedure to determine the extent of loss and damage sustained by the impacted community.
- Assisting families with the documentation needed to pursue compensation claims, particularly with regard to death certificates, insurance, etc.
- Ensuring that the evaluation and relevant documentation get to the government agency in charge of compensation in a timely manner.

7.3.8. Reconstruction and Rehabilitation Team

Following a disaster, this team would oversee efforts to restore and rehabilitate the property and people. Potential team members include community members with prior planning experience. The team's primary goal is to secure government funding to continue rehabilitation and reconstruction. This team's duties include the following:

- To arrange for the government to pay ex-gratia for compensation for lives lost as well as for completely and partially damaged homes.
- To guarantee the community's access to reconstruction materials.
- Obtaining government assistance for the reconstruction of damaged public infrastructure and monitoring the process through to completion.
- To assist families in rebuilding their homes.
- Offering loans and other financial services to assist families in starting their own businesses.
- Seeking the assistance of government and NGO's in restoration of support facilities.

7.3.9. The following are some standard tasks that all DMTs ought to perform in the event of a disaster:

- Coordinating with the impacted community, the government, and non-governmental organizations
- educating the impacted community about the actions being carried out by the government apparatus to address the disaster

MODULE 8
VILLAGE DISASTER MANAGEMENT PLAN

8.1. Background

The Development Plan should be seen as a continuation of the PDRA exercises done at the village or municipality level. The most crucial component of putting community-based Disaster Risk Management into practice in any area is the creation of a village disaster management plan. In the event of a disaster, it refers to a set of procedures that a village decides to adhere to minimize the loss of lives, property, and livelihoods. It also specifies ahead of time the steps that members of the community must take to ensure that everyone is aware of what to do in the event of a disaster or when a warning is issued.

8.2. Importance of Disaster Management at the Local Level

- Local communities are most affected by disasters.
- Global Initiatives Needed with Local Effects
- Being grassroots organizations, PRIs are more cognizant of the conditions on the ground.
- PRIs are more knowledgeable about the region, capable of handling disasters, and aware of the resources that are available locally.
- The village community typically responds to disasters first and is the first to learn about local risks, hazards, and vulnerabilities. They must be prepared to act as the first resource available in an emergency.
- PRIs must be equipped and reinforced to handle any crisis until they receive specialized outside help. This can lessen the harm and save a great deal of precious lives.
- People's institutionalized participation is reflected in panchayats.
- To supplement contemporary methods in disaster mitigation efforts, the PRIs can serve as catalysts for the social mobilization process and draw on the traditional knowledge of the surrounding communities.

8.3. What is VDMP?

The village disaster management plan, or VDMP, is a document that describes the village's historical hazard profile and current vulnerability status. It is this information that helps us plan for the future. In essence, the plan serves as a preparedness tool that the community and administration can use in an emergency to know where to find personnel and supplies.The goal of creating a disaster management plan at the village level is to increase the community's resilience and capacity by giving them the tools they need to manage different hazards on a daily basis. The following characteristics serve as the foundation for the VDMP framework.

- o Ownership and local conditions are reflected in the Village Disaster Management Plan, which was developed by the local participants.
- o A participatory approach based on external resource persons' facilitation is required to prepare the plan.
- o The formation of Disaster Management Committees and Teams at the village level is necessary to enable the implementation of Community Based Disaster Preparedness. Teams may be formed to complete significant tasks, and disaster management committees may plan the village's disaster management procedure. such as warning announcements, response and evacuation plans, first aid, damage evaluation, water and sanitation, disposal of corpses, management of shelters, psychological counseling, relief operations, and rehabilitation
- o Mock drills test the community's reaction in a fictitious setting. They must be carried out on a regular basis in accordance with the community's prepared plan.
- o It describes the procedure that the village should use to handle emergencies.
- o In the wake of a calamity, it can be utilized to access material and human resources.
- o It provides a contact list of key administrative officials so that correspondence with them can be expedited.
- o It outlines the obligations of the relevant authorities, parties involved, and different groups (the community) after a calamity.
- o It can be extremely helpful in preventing errors or spotting untapped possibilities.

8.4. Why VDMPs are needed?

- Actions based on the Past hazard profile.
- Actions on present vulnerabilities
- Prepare for future.

8.5. The VDMP must have the following features:

- Have a goal, or goals, that are well-defined.
- Clearly and logically reflect a methodical flow of tasks.
- Assign precise duties and obligations.
- Provide a standard by which real performance can be evaluated and compared.
- Integrate its duties, responsibilities, and activities to make it possible to accomplish the main goal or set of goals.

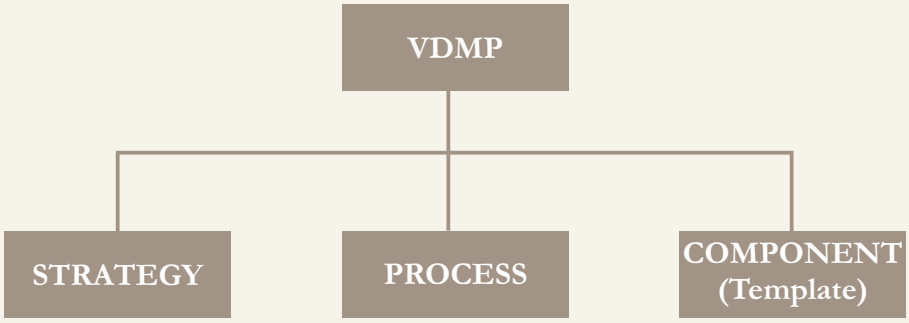
8.6. Advantages of VDMP

- Community: be conscious of the dangers and take appropriate action.
- Adopt safe practices.
- Capable of handling minor catastrophes;
- DRR is integrated into GP-level plans;
- Risk analysis, risk communication, readiness, and risk mitigation measures
- Fast access to emergency services and early warning data

- Sustaining essential services
- Accessible life-saving supplies and necessities;
- Participatory and inclusive approach that takes into account individual needs and abilities

8.7. Development of VDMPs will be done in a three-step process:

8.7.1. Strategy for Development of VDMPs



Framework for VDMP:

- By the local participants - participatory approach
- Disaster Management Committees and Teams
- Mock Drills check the response of the community in a mock environment - also test the applicability of the village disaster management plan
- Awareness has to be generated amongst the community through various media

8.7.2. Process for Development of VDMPs

- Past History of Hazards and Disasters
- Transect Walk (Preliminary survey of village) by the Core Team
- First meeting with all villagers
- Sharing of objectives of VDMP and modalities of development
- Village level institutions, functionaries and their roles and responsibilities for DRR
- Social Mapping (involving villagers)
- Hazard, Risk and Vulnerability Mapping
- Identification of village level mitigation needs/projects
- Resource/Equipment and Capacity Mapping
- Planning for Awareness Generation, Training & Capacity Building and Mock Drills
- Preparedness and Response Planning
- Identification of sources of finances / funds
- Drafting of Village Disaster Management Plan
- Other useful information to be annexed.
- Plan Management

8.7.3. VDMP Format

A plan devised by the community to manage disasters at the local level based on the existing hazard, vulnerability, risks, capacity and resources. It contains the village profile along with the map, emergency response and disaster risk reduction plan. It also includes the roles and responsibilities of DRR committee, Task Force and other CBOs such as Farmers' Group, SHGs etc before, during and after the disaster.

Section 1. Village Profile

Name of the village:
Name of the Gram Panchayat:
Revenue Circle:
District:
Name of village head:
(Attach village map)
(A brief paragraph on the boundaries of the village, major rivers flowing, distance from the river/sea, other important landmark. Ethnic composition)

1.1 Accessibility

Connectivity from the village to important landmarks:

To	Distance (from the village to the point)	Type of Road	Condition of the road		Remarks
			Normal Times	During disaster	
Panchayat Office					
Block Office					
District HQ					
Nearest Hospital					
Cyclone/Flood Shelter					

1.2 Demographic Profile of the Village

Total HH	SC HH	ST HH	OBC HH	General HH	APL HH	BPL HH

1.3 Livelihood Patterns (Customize as per region)

Type of Occupation	No. of HH engaged
Cultivation	
Agriculture Labour	
Non-Agriculture Labour	
Fishing	
Petty Business	
Service	
Others	

Section 2: Disaster History of the village (Five Years)

Type of Hazard	Year of occurrence	No. of human lives lost	No. of livestock lost	No. of houses damaged	Infrastr ucture Damage	Area fully affected (mention landmarks)	Approx. time taken for people to return (if displaced)	Remarks (you can mention the highest flooding point etc)

2.1 Seasonality of Hazards (Add further if needed)

Hazard Type	Month of Occurrence											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flood												
Cyclone												
Drought												
Hailstorm												
Lightning												
Pest Attack												

Section 3: Vulnerability Analysis
(Mark the vulnerable HH & areas in the map)

Details	No. of HH	No. of Person
HH in low lying area		
HH with poorly constructed houses		
People above 60 years		
Pregnant & Lactating women		
HH by women with no support		
Children between 0-6 years		
Persons with Disability		
Destitute		
Landless HH		
HH located close to the river and sea		
Sick & Ailing		

3.1 Vulnerable Infrastructure & Assets (Add rows as per need)

Type of Assets/Infrastructure	No.	Remarks
Low handpumps		
Thatched Huts		
Bamboo Bridges		
Transformer		
Embankment Breach points		
Livestock (Big)		
Livestock (Small)		
Cattle		

Section 4: Capacity Mapping(Add rows as per need) To be marked in the map

Type of Assets/Infrastructure	No.	Remarks
High Raised handpumps		
Raised Platforms		
Raised Toilets		
Boats		
Safe Shelter		

4.1 Alternative Safe Routes (To be marked in the map)

Name of the main route	Alternative Route	Remarks

4.2 Identified Safe Shelter (To be marked in the map)

Type of Safe Shelter	No. of storeys	Capacity	Contact Details	Remarks

4.3 Community Based Organization:

Type of Organization	No. of Members	Specialization	Contact Details

Section 5: Formation & Strengthening of DRR Committees

5.1 Village Disaster Management Committee List (Add more rows)

Name	Sex	Designation	Contact Details

5.2 Task Force Member List (Add more rows)

Early Warning Team:

Type of Task Force (refer to proposal)	Name	Gender	Mobile No.

Roles and Responsibility:

Normal time	After getting Early warning	During	Post disaster	Equipment required

Search and Rescue Team:

Sl.No.	Name	Gender	Mobile No.

Roles and Responsibility:

Normal time	After getting Early warning	During	Post disaster	Equipment required

First Aid Team:

Sl.No.	Name	Gender	Mobile No.

Roles and Responsibility:

Normal time	After getting Early warning	During	Post disaster	Equipment required

Shelter Management:

Sl.No.	Name	Gender	Mobile No.

Roles and Responsibility:

Normal time	After getting Early warning	During	Post disaster	Equipment required

Water and Sanitation

Sl.No.	Name	Gender	Mobile No.

Roles and Responsibility:

Normal time	After getting Early warning	During	Post disaster	Equipment required

5.3 Yearly Roles & Responsibility Calendar for VDMC

Months	Activities	Remarks
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

Mock Drill Plan:

5.4 Mention the important schemes on disaster preparedness and mitigation at the local level

Section 6: Community Preparedness and Mitigation Plan / Programme (Prepare Hazard Specific Mitigation Measures i.e separated plans for flood, cyclone, drought as per the local context)
6.1: Short Term Preparedness Plans:

Issues	Required Intervention	Suggested Action	Agency/Depa rtment Responsible	Responsible Person in the village	Approximate Fund	Timeline

6.2: Medium Term Preparedness Plan:

Issues	Required Intervention	Suggested Action	Agency/Department Responsible	Responsible Person in the village	Approximate Fund	Timeline

6.3: Long Term Mitigation Plans

Issues	Required Intervention	Suggested Action	Agency/Department Responsible	Responsible Person in the village	Approximate Fund	Timeline

Section 7: AGRICULTURE CONTINGENCY PLAN
Details of the Location

Village		GP		Block	
District		Average Rainfall		Soil Type	
Major Climatic Variability		Total Cultivated Area		Type of Land (Medium/Low/Up Land	

7.1 CONTINGENCY CROP PLAN

KHARIF

S. No	Time Period	Suggested Contingency Crops
1	July (2nd Fortnight)	
2	August (1st Fortnight)	
3	August (2nd Fortnight)	

RABI

S. No	Time Period	Suggested Contingency Crops
1	January (2nd Fortnight)	
2	February (1st Fortnight)	
3	February (2nd Fortnight)	

7.2 STRATEGIES TO MANAGE THE MAJOR CROP FAILURE AFTER FLOODS/UNUSUAL RAIN/WATER LOGGING/SUBMERGENCE

Strategies would include the process (in bullets) taken up for growing major crops to trigger adaptations to the change that happened due to the emergency. Write the bullet in detail beginning from the sowing of seeds, germination, flowering/fruiting and finally harvest.

S. No	Crop	Steps taken in Nursery	Steps taken after germination	Steps taken after flowering/fruiting	Steps taken during harvest	Others if any

7.3 TYPES OF DISASTERS HAPPENING IN THE AREA & DAMAGES

Type of Disaster	Regular (Yes or No)	Not Regular (Yes or No)	Rare (Yes or No)	Crops Damaged	Extent of damage (Low/medium/high)	Crop Area Damaged (hectares)
Droughts						
Floods						
Pests & diseases						
Hail storms						
Extreme heat						
Extreme cold						
Cyclone						
Saline water intrusion						

7.4 Farmers Champion List

Village/Hamlet	Farmer Champion Name	Sex	Contact Details

7.5 Yearly Roles & Responsibility Calendar for Farmer Champion

Months	Activities	Remarks
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

7.6 Mitigation Plan

Problem Analysis				Action Plan					
Hazard	Problems/issues associated with Hazard	Agricultural Land area affected	Total Farmers affected	Suggested action	Timeline	Responsibility	Support required	Budget	Result

Following documents will be given as annexure to the plan;

- village level vulnerability and capacity map. One map will be sufficient.
- Attach Crop Calendar of the village/cluster levels.

A model plan developed by the community in Sanpatha village in Muzzafrpur district is given as annexure.

MODULE 9
RISK TRANSFER AND RESILIENCE

9.1. Background:

Global Disaster risk is increasing worldwide, threatening development gains, owing largely to mix of unplanned development, vulnerable livelihoods, and ecosystem degradation. It is now widely realized that many disasters are avoidable, as they are consequences of unmanaged risk. Development without adequate incorporation of Disaster Risk Reduction (DRR) could worsen existing risks and has the likelihood of introducing new risks, increasing the negative impact of potential disasters. However, for the last 15 years a paradigm shift has taken place from the relief centric approach to a holistic approach with emphasis on risk reduction, prevention, mitigation, and preparedness. Government of India has established improved institutional arrangements and Disaster Risk Reduction mechanisms to deal with any threatening disaster situation or disaster with the enactment of The Disaster Management Act, 2005 and by setting up an apex authority National Disaster Management and similar authorities are at state and District levels. Disaster Management Plan is prepared in consultation with all the stakeholders started at all levels and some of the states also identified the lowest unit for disaster management such as in Odisha Gram Panchayats are the identified lowest units. The present institutional framework and implement a holistic disaster management plan, with adequate financial provisioning. These efforts are aimed to conserve developmental gains and minimize losses to lives, livelihood and property. Integrating disaster risk reduction into investment decisions is the most cost-effective way to reduce these risks; investing in disaster risk reduction is therefore a precondition for developing sustainably in a changing climate. Thus, it is desirable that the development initiatives and DRR are dealt with concurrently in a seamless manner into all the relevant policies, planning and implementation. Climate change impacts act as risk multipliers in respect of the hydro-meteorological hazards. All development initiatives should factor in the likelihood of greater risks and increase in climate change-induced vulnerabilities. Losses from disasters have risen over the past decade affecting millions of the people in the area, bringing adverse consequences to the people and their livelihoods. However, efforts have

been made in the field of risk transfer insurance for the disasters, but the progress is slow due to lack of understanding the meaning or the benefits of insurance in the context of disasters. In Odisha, it has been proven that people are having positive experiences in micro insurance and continuing purchase of insurance. Now a days, people are given access to micro insurance facilities is relevant to the poor vulnerable and the humanitarian sector.

So, disaster insurance deals with risk and climate change, modifying the global risk landscape in many areas. Thus, logically it is called insurance as one of the many adaptation tools that can be used at the local level. Insurance may not prevent climate change effects from unfolding however it can play an useful role in broader efforts to mitigate the adverse effects of climate change especially on low-income populations. Insurance against floods, droughts and storms are, if combined with preventive measures, a promising tool to manage the impact of climate change.

9.2. Limited Prevention Options:

Lack of preventive measures and there is no significant interest of Government for preparedness and risk management and investments in preventive measures. The international donor and few NGOs to focus on post-disaster relief, rather than taking pre-disaster measures. Lack of risk management planning and economic efforts to be more prepared when disasters occur makes Governments rely on a diversion of resources from other projects and international donors by spreading risk. When a person or household purchases insurance it joins a risk pool that will decrease their potential economic loss to a controllable level. The lack of access to insurance and social protection mechanisms and the general difficulty of mobilizing assets to buffer losses means that damage to housing, local infrastructure, livestock, and crops feeds back into a range of disaster impacts and poverty outcomes. This becomes particularly important as continuous, repetitive disasters erode personal savings and limit the ability of communities to recover from 13 multiple disasters. Though microinsurance is an effective tool for risk reduction and risk mitigation, but has some important limitations:

1. Firstly, microinsurance cannot provide complete protection against disaster risks resulting in a loss greater than what a household can save or repay. A majority of microinsurance programmes do not combine risk transfer or risk mitigation strategies along with another microfinance.
2. Secondly, microinsurance service cannot immediately translate into a standalone enterprise for successful disaster recovery. Thus, providing a range of other services for accessing basic amenities, relief compensation and business development services, including marketing after a disaster, are crucial for the swift recovery of the poor.
3. Thirdly, microinsurance programmes have emerged in response to the needs of the poor affected by emergency. However, when it comes to financing disaster losses of the poor, commercial banks and microfinance institutions are unwilling to finance such losses. Thus, the poor remain marginalised. It is a common myth that disaster victims are unable to save and that they are unreliable borrowers. However, random, and unreasonable flows of relief discourage savings and repayments.
4. Fourthly, the economic losses of disasters are relatively higher for the poor. Loss estimations mostly bypass their loss of income and livelihoods. They usually suffer the longest and the most compared to other social groups. However, a vast majority of disaster victims in India have limited access to microinsurance and other microfinance services, especially after a disaster or during recovery. In addition, they do not have any word in deciding the rate of interest or other terms of financial agreements. Market penetration in the lower income strata of India is low and even lower in disaster-prone areas. The spread of SHGs and vulnerable areas donot overlap.

9.3. Steps to be followed:

Consequently, the following steps should be kept in mind when initiating an insurance in disaster prone areas.

1. Utilise the client community to increase awareness on insurance and its benefits.
2. Micro Insurance is not a panacea for disasters but need to promote long term disaster risk reduction.
3. Promote more women participation in disaster micro insurance programmes.
4. Promote review of the organisations' claims process to ensure that the money is getting to clients in the most effective and efficient way.
5. The proof of impact of disaster micro insurance must be survey done by the people, who have dropped out the programmes, are rejected claims and who will not renew memberships in future
6. The use of impact assessments for future product development.

9.3. Products:

Based on the above criteria government of India initiated few insurances, which need to be promoted among the poor and vulnerable community through banks and women SHG are the facilitators. These are the current insurances are promoted in India:

- Atal Pension Yojana
- Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)
- Pradhan Mantri Suraksha Bima Yojana(PMSBY)
- Pradhan Matri Srama Yogi Man Dhan
- Pradhan Mantri Fasal Bima Yojana
- Property and small business insurance
- Accidental insurance

All banks are promoting the above insurance, who has the saving accounts. Similarly, government should also recognise the micro insurances for DRR, and poor and vulnerable people can meet their needs after disasters. Micro insurances in connection with DRR should be promoted for long term and encourage private and international financial institutions to increase the access of the poor and vulnerable to risk transfer measures – the insurance industry. Government should also support disasters micro insurance organisations to reach an increased number of communities that require such products. Women participation in disaster micro insurance need to be promoted and micro insurance organisations should also work to create innovations to enhance community participation and satisfaction for disaster micro insurance. Ensure the poor people should be served and poorer than poor are not to be excluded, and all information should be in accessible to all.

9.4. Outcome:

- Vulnerable communities have developed their own coping mechanisms to respond and recover from the impacts of disasters.
- Reduction in migration and selling of land, assets, and livestock.
- Reduction of government money in recovery process and rebuilding process donot wait for government support.
- Reduce long term economic and human damages of disasters by providing timely capital flow during extreme events.

Micro insurance must be combining the development and recovery needs of the poor. Careful coordination and planning in implementation of insurance with disaster risk reduction should be take place at all levels and govt should initiate it. Massive awareness is required among the vulnerable communities about the micro insurance and its procedures and sharing information about the success in local and regional basis.

9.5. Conclusion:

Insurance related instruments have the additional advantages of setting the “price” to risk and creating scope

for the behavioural changes among the vulnerable communities to further reduce disaster exposures and vulnerability. Financial instruments can provide safety nets, remove risks from balance sheets, enable poor households and farmers to take higher risk and higher-return activities, promote development, and offer to the most vulnerable ways of escaping from disaster-related poverty traps. Insurance is a tool for investing in DRR for Resilience. Micro insurance can help the poor in moving out of poverty and the vulnerable in moving out of risk. Similarly, the promotion of micro insurance as a risk reduction investment can significantly reduce the total cost of financing post disaster relief and reconstruction; and it can work as an adaptation to climate change. Micro insurance and other micro finance services have helped affected population of disasters by accelerating their recovery and diversifying their livelihoods with more productive sources of income, it also provides them safety and secured life.

MODULE 10
LIGHTNING RESILIENCE FRAMEWORK

10.1. Introduction

Lightning is the process of occurrence of a natural electrical discharge of very short duration and high voltage between a cloud and the ground or within a cloud, accompanied by a bright flash and sound, generally accompanied with thunderstorms. When the lightning remains in cloud or among clouds, it's called Inter/Intra Cloud (IC) lightning. Lightning is visible to natural eye as a sharp flash in the sky or while striking down towards the earth in zig-zag fashion. Lightning in the cloud is called as Inter cloud or intra-cloud (IC) lightning are visible and are harmless. It is cloud-to-ground lightning also called as CG are harmful/fatal. CG lightning contains high electric voltage and electric current which leads to electrocution of the victims. The science of lightning is called fulminology and the fear of lightning is called astraphobia. Lightning is lethal and it occurs in flash of seconds. In fact, the victim does not even come to know when he is struck by lightning.

As per Discovery report, CG lightning are a common phenomenon—about 100 strike Earth's surface every single second—yet their power is extraordinary. Each bolt can contain up to one billion volts of electricity. A typical cloud-to-ground lightning bolt begins when a step-like series of negative charges, called a stepped leader, races downward from the bottom of a storm cloud toward the Earth along a channel at about 200,000 mph (300,000 kph). Each of these segments is about 150 feet (46 meters) long. When the lowermost step comes within 150 feet (46 meters) of a positively charged object, it is met by a climbing surge of positive electricity, called a streamer, which can rise up through a building, a tree, or even a person. When the two connect, electrical current flows as negative charges fly down the channel towards earth and a visible flash of lightning streaks upward at some 200,000,000 mph (300,000,000 kph), transferring electricity as lightning in the process.

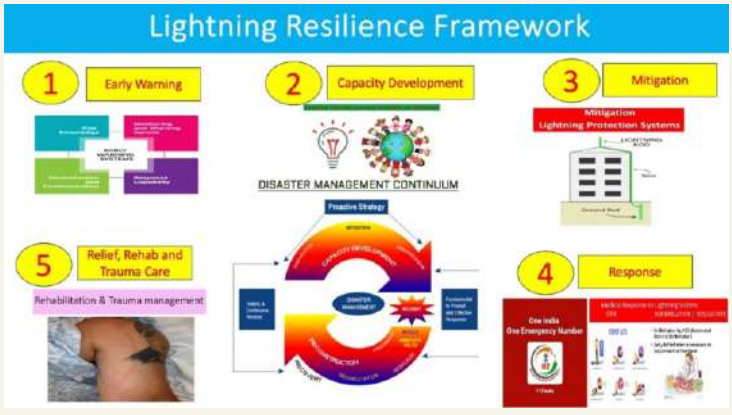
Some types of lightning, including the most common types, never leave the clouds but travel between differently charged areas within or between clouds. Other rare forms can be sparked by extreme forest fires, volcanic eruptions, and snowstorms. Ball lightning, a small, charged sphere that floats, glows, and bounces along oblivious to the laws of gravity or physics, still puzzles scientists.

About one to 20 cloud-to-ground lightning bolts is "positive lightning," a type that originates in the positively charged tops of storm clouds. These strikes reverse the charge flow of typical lightning bolts and are far stronger and more destructive. Positive lightning can stretch across the sky and strike "out of the blue" more than 10 miles from the storm cloud where it was born.

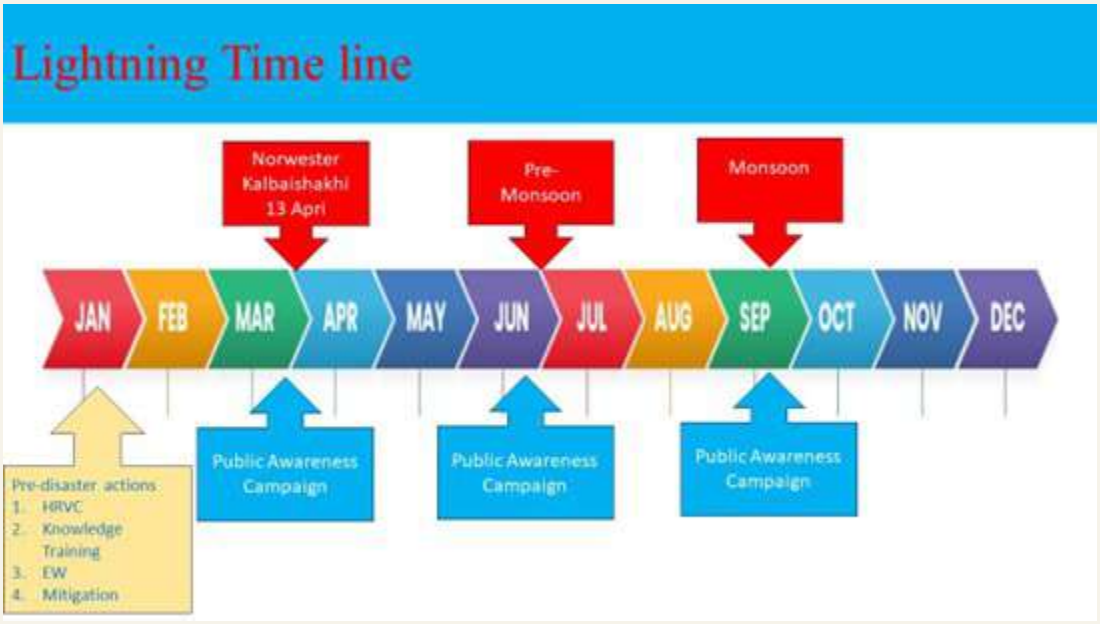
Lightning being a short-term phenomenon with a quick and short-lived occurrence time but extremely hazardous in nature, makes it integral for the need to develop national and local level lightning action plans. These plans should be developed in a manner that the early warning about lightning which of a very short duration, i.e., 30 minutes to two hours should be capitalized, along with ensuring that such efforts reach to the local vulnerable and exposed people, especially the ones who work in vast open fields to save lives and reduce fatalities.

There has to be a national, state, district, village, panchayat and even the individual level lightning action plan, which all need to be coordinated or streamlined with each other. This requires for a detailed Standard Operation Procedure (SOP) which has to be written along with a protocol which needs to be developed. NDMA has issued various protocols for the timely dissemination for Early Warning on lightning and thunderstorm- a document which should be customized at the district, local and below levels so that the early warning, the lightning risk knowledge, lightning prevention and lightning mitigation and all the other public awareness programmes are able to have the maximum possible reach to the last level or the last mile. There is a need to have a streamlined action which should become second nature to everyone so that the moment Early-Warning is issued, a general understanding of the kind of action which needs to be taken, the appropriate measures to ensure safety and ways to protect themselves are immediately comparted and understood by the people.

The National Lightning Action plan is the first and the foremost requirement for implementing the lightning risk reduction programme in the worst or most affected areas at the national level, whereas, the same are required for all the other concerned levels in the country to ensure that lightning safety measures are incorporated into the most rural, remote locations within the country, especially the lightning vulnerable zones. This has to be done by a proper vulnerability analysis based on the lightning occurrence data, data on mortality rate, and data on the prevailing socio-economic vulnerability in the region. These three aspects will prioritize the identification of the most affected areas or hotspot areas. Along with these three aspects, establishment of the hazard risk vulnerability of lightning in the affected areas has to be developed, which will factor in aspects like seasonality, climate extreme events, geography of the region, location etc. along with the mortality rates and socio-economic vulnerability for realizing a complete Vulnerability profile of the region.



10.2. Timing and Months



In the State of Assam, the occurrence of lightning predominantly transpires during the evening hours, distinguishing it from the patterns observed in Bihar, Jharkhand, Odisha, and West Bengal where lightning incidents are primarily documented in the afternoon. This temporal variation in lightning occurrences necessitates a nuanced understanding and strategic approach to lightning safety measures tailored to the specific climatic and geographic conditions of each region.

10.3. Variability in Timing of Lightning

The annual lightning activity in the studied states is characterized by three distinct seasons: Kalbaishaki, Pre-monsoon, and Monsoon. During the Kalbaishaki and Premonsoon seasons, the temporal occurrence of lightning predominantly manifests in the second half of the day. This distinctive temporal pattern underscores the importance of temporal awareness and preparedness during these seasons, especially in the late afternoon and evening periods.

Contrastingly, the Monsoon season introduces a dynamic dimension to lightning occurrences, wherein the timing is less predictable. Lightning incidents during the Monsoon season are not confined to specific time slots but can transpire whenever low-level cumulonimbus clouds are present in the sky. This unpredictability necessitates heightened vigilance and a continuous state of preparedness throughout the Monsoon season, given the variable nature of the atmospheric conditions conducive to lightning events.

Formulating an effective lightning safety strategy demands a meticulous consideration of these temporal and seasonal nuances. Specific emphasis should be placed on implementing awareness campaigns, educational programs, and safety measures geared towards the times and seasons identified for heightened lightning activity. Additionally, fostering a culture of continuous preparedness, irrespective of the time or season, is imperative, particularly during the Monsoon when the temporal occurrence lacks a fixed pattern.

The impact area of the proposed study extends its reach across diverse environments, each presenting unique challenges and opportunities for enhancing lightning resilience. In open areas, the study aims to introduce effective strategies that mitigate the risks associated with lightning strikes, safeguarding individuals and property within expansive landscapes. Addressing the vulnerability of simple tall trees is crucial for preserving

natural ecosystems and preventing potential hazards during thunderstorms. By examining the impact on water bodies, the study seeks to enhance safety measures for individuals near lakes, rivers, and other aquatic environments, proposing tailored resilience solutions. The focus on kutcha houses is essential, as these structures are often more susceptible to lightning-related damage, and the study endeavours to fortify their resilience through practical and sustainable interventions. Towers, being prominent structures in urban and rural landscapes, will benefit from strategies identified in the study to minimize lightning-induced risks. The impact area also encompasses the coastal regions, recognizing the distinct challenges posed by beach and river banks. By addressing these specific contexts, the study aims to contribute to a comprehensive framework that promotes lightning resilience across a diverse array of environments, ensuring the safety of communities in varied settings.

10.4. Resource Inventory

S. No	Time in advance	Model	Detection	Web Link
1	48 hours look out lead time Dynamic Prediction of Lightning Flash Count	High resolution Global Model Thunderstorm 12.5 km spatial resolution	Lightning flash, Lightning probability, Heavy rain, gusty wind	Srf.tropmet.res.in/srf/ts-prediction_system/index.php
2	GEFS Based Prediction	GEFS		https://srf.tropmet.res.in/srf/ts_prediction_system/gefs_based.php#
3	SCOPE- Nowcasting Coordinated Processing of Environmental satellite data for nowcasting	Observations from WMO, NASA, NOAA, IPEE	Nowcasting of thunderstorms and lightning -60, 120 and 180 minutes lead time	http://sigma.cptec.inpe.br/scope/
4	24 hours lead time Prediction of Lightning Potential and other TS indices based on IMD-WRF	High resolution Global Model	Lightning flash, Lightning probability, Heavy rain, gusty wind	Srf.tropmet.res.in/srf/ts-prediction_system/index.php
5	NCMRWF Regional 4 KM Model 3 hourly lightning flash forecast based on IC			
6	2-3 Hours Nowcast	Multiple models	Lightning, thunderstorm, squall, cloudburst	www.mausam.gov.in Nowcast by local IMD Damini Mobile App
7	DAMINI Mobile app is available		Lightning alerts, GIS Based inputs	https://play.google.com/store/apps/details?id=com.lightening.live.damini&hl=en_IN&gl=US
8	SACHET Mobile APP		Lightning alerts, GIS Based inputs	https://play.google.com/store/apps/details?id=com.cdotindia.capsachet&hl=en&gl=US

Commercial link for thunderstorm and Lightning:

https://www.youtube.com/playlist?list=PLOuQBh7LWB0iyGcvNbCgf6-aQWUsUv_Qq

Along with this NDMA has also launched pocket books, in both Hindi and English, which can be accessed through the following links;

English: https://ndma.gov.in/sites/default/files/PDF/pocketbook-do-dont.pdf

Hindi: https://ndma.gov.in/sites/default/files/PDF/pocketbook-do-dont-hindi.pdf

Do's and Don'ts

10.5. Comments on Lightning Conductor used by Caritas India in the state of Bihar

The Lightning Conductor used by Caritas India in Bihar is fine in terms of local arrangements but technically needs further improvements. However, the system has been found useful and so far, successful in mitigating the deaths in the coverage area.

The following diagram shows the Los cost Lightning Protection System (LPS) which can be installed in rural area for large rural masses, farmers, construction workers and open field related occupations mainly.

10.6. Conventional Air Terminal (Franklin Rod, Simple rod or with triggering system)

This is based on basic fundamentals of lightning protection. It has three main components that is air terminal, down conductor and Earthing. Its lightning Protection Zone (ZP) is 45 degrees on both the sides as given below: -

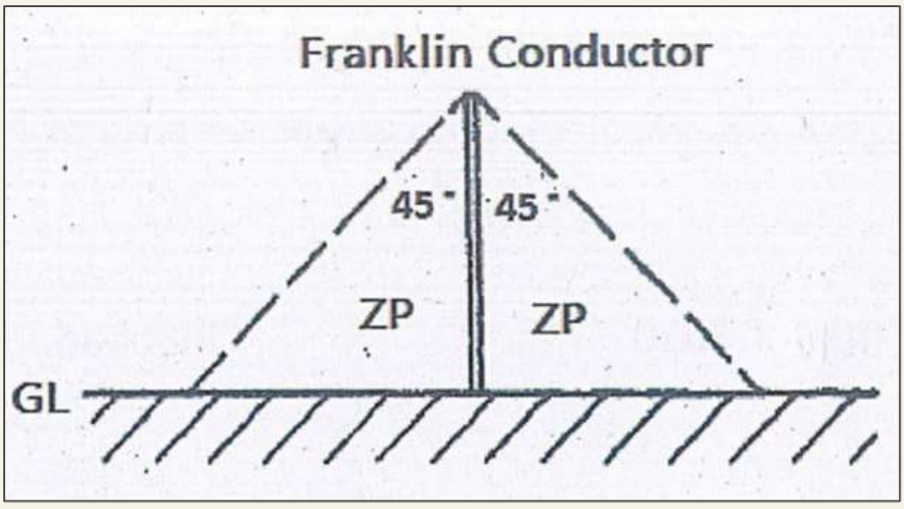


Figure: Franklin Conductor

It can be used for low-cost lightning protection devices in large number for rural areas.

The same version of lightning protection for a pucca building should be done in manner described here. The lightning rod is a metallic capture tip placed at the top of the building. It is earthed by one or more conductors (often copper strips).

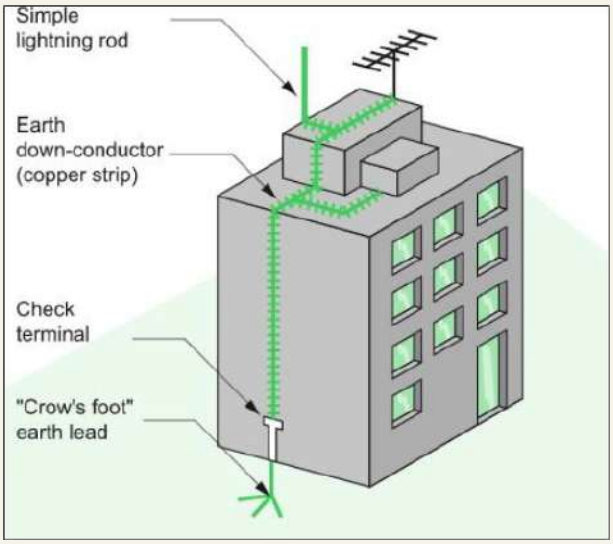


Figure : LPS- Lightning Rod

10.7. The lightning rod with taut wires

These wires are stretched above the structure to be protected. They are used to protect special structures: rocket launching areas, military applications and protection of high-voltage overhead lines.

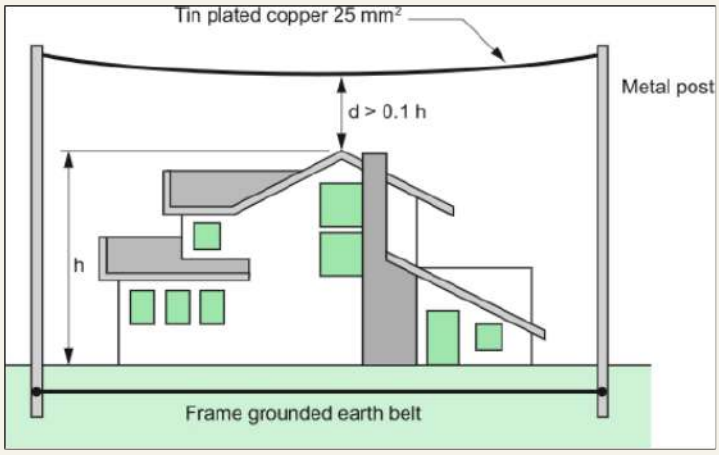


Figure : LPS- Lightning rod with taut wires

Apart from the Low Cost LPS, Faraday's Cage method can be also adopted for low-cost solution This protection involves placing numerous down conductors/tapes symmetrically all around the building. This type of lightning protection system is used for highly exposed buildings housing very sensitive installations such as computer rooms.

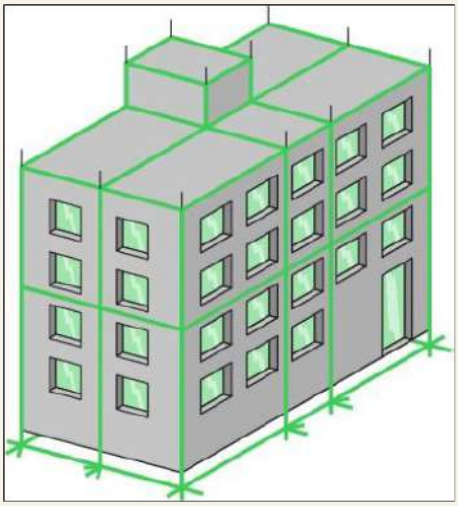


Figure : LPS- Faraday's Cage

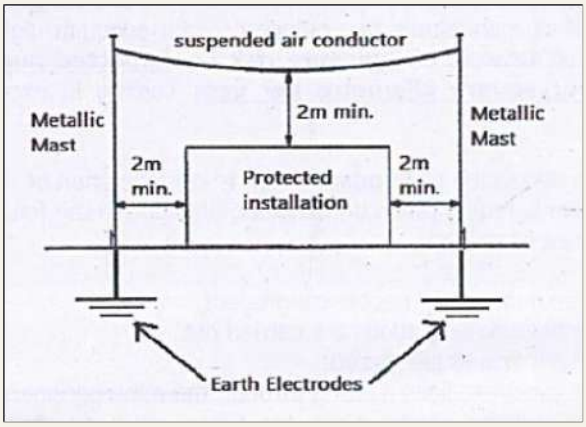


Figure: Mechanism of Faraday's Cage

MODULE 11
SCALABLE PRACTICES

11.1. FLOOD TOLERANT RICE IN ASSAM

With recurring flood-induced crop damages hurting the farmers in Lakhimpur District of Assam, the State's agriculture, Assam Agriculture University (AAU) and the agriculture department have joined hands for the promotion of submergence-flood resistant rice varieties known as Ranjit Sub-1and Bahadur Sub-1 varieties.

These varieties are planted in the Kharif season and can resist submergence for up to two weeks without losing their potential yield.

The success story of submergence tolerant rice varieties in flood prone Lakhimpur district observed in 2022 where KVK and with the support from Global Program team of TSSS had planted flood tolerant rice in Dhekiajuli revenue village in Karunabari Block of Lakhimpur district Assam, one of the Global Program villages. The village is situated almost 33 KM away from district headquarter North Lakhimpur with a population of 2176 peoples. Every year during Kharif season, Bidhan face frustration and repeated failure of crops. Sometimes he feels like giving up.

Mr. Bidhan Tiru used to cultivate Ranjit crops in 16 bighas of land using traditional method. Of 16 bigas of land 10 bighas belongs to him and 6 bighas in lease. He cultivated 84kgs of Ranjit in 16 bigha of land and the output was 120 mounds only (48 Quintal). He said that due to flood his crops were submerged in water for 3-5 times causing heavy loss, forcing him to sow twice in a year resulted him high labour cost and time consuming. This made him so frustrated and discouraged in farming.

In the year 2022, through Global Program Team from Tezpur Social Service Society helped him to connect with KVK and got trained on flood tolerant rice, bed nursery and to use machine for sowing and reaping. Since then, they were trying to implement whatever they had learnt from the training. Seeing the interest,

TSSS recommended Mr. Bidhan Tiru, Mr. Mathias, and Mr. Markus to KVK for setting up the demonstration plot. Technical training on flood tolerant rice cultivation was given to the farmers on 19th May 2022. On 13th June 2022, the nursery bed preparation was completed for 40kgs Ranjit Sub-1 and accordingly the transplantation was done on 5th July 2022.

On 14th July 2022, the Ranjit Sub-1 seedlings were seen to be stabilising erectly in soil. But unfortunately, heavy rains came in the fourth week of July 2016 and all the paddy fields including those under demonstration plot were flooded. Mr. Bidhan and his team were disappointed as they had invested so much time and money.

After the floods receded, the plants slowly regain its strength, took its shape and were seen to be growing healthy and faster than other fields. Despite of the flood waters submerged the paddy the production of flood tolerant rice was far better in 2023. Before the intervention of Global Program Mr. Bidhan could harvest only 120 mounds from 84kgs of Ranjit Rice but after the intervention of Global Program Mr. Bidhan Tiru and his team could harvest 80 mounds from 40 kgs of Ranjit Sub-1 which means much more than before the intervention of Global Program. As a result, many farmers are replicating the model on Flood Tolerant Rice cultivation with the support from KVK.

Significance *of Ranjit Sub-1and Bahadur Sub-1 varieties*

- Resist Submergence: The new rice varieties can resist submergence for up to two weeks, and significantly do not get damaged by the heavy flood.
- However, comparison with the traditional varieties is difficult as they get damaged in the flood.
- Greater Yield: Enriched with the 'submergence' (sub in short) gene, the varieties can yield up to five tonnes per hectare on an average.
- Reduction in Crop Loss: Some 1,500 farmers cultivate on about 950 hectares in crop-yielding areas which have been impacted by the regular flood. Therefore, rice varieties can reduce flood-caused crop loss substantially.
- Regeneration: These varieties can get regenerated again in case damaged by the flood, hence ensure maximum productivity

Model upscaling: 115 farmers are adopting Flood Tolerance paddy cultivation.

2021-2022

- **In 2022 there was only one group initiating flood tolerant rice cultivation**
- **4 farmers received 40 kgs of flood tolerance seed and planted in 7½ bigha of land.**
- **48 individual farmers received 5kgs each.**

Before 1 hector=59 mound
Now 1 hector = 80 mound
Increased = 21 mound
Note: 44 famers

2021-2022

- **In 2023 there were 4 groups who had initiated flood tolerant rice cultivation**
- **88 individual farmers received 5 kgs each.**

Group 1: 7 members -14 bighas with 72kgs
Group 2: 1 member 7½ b with 40 kgs of seed
Group 3: 4 members -3b with 16kgs of seeds
Group 4: 3 members 7½ b with 40 kgs
Group 5: 1 member -3b with 16kgs of seed

11.2.CHILD FRIENDLY SPACE

Floods are the most devastating among climate-related disasters in India. Dhemaji District, which is Assam's most flood affected district, is home to 6,86,133 people, approximately 2.2 per cent of Assam's population, including 2,09,916 children aged 0 to 15 years, estimated at 30.6 per cent of the district's total population. Every year from June to July, 60-75 per cent of Dhemaji District reel under flood water. Women, children, and people with disabilities are the most affected during floods. Flood led to displacement and loss of livelihood for many families, disruption in critical service delivery such a routine immunisation and Anganwadi services, as well as disruption in the education of children as many of the educational institutions are used for flood shelter.

In this situation there is a need to provide children with a protected environment in which they can participate in organised activities to play, socialize, learn, and express themselves as they rebuild their lives. This protected environment is known as "Child Friendly Space" one of the good practices replicated from Save the Children's key programmatic interventions by Rural Volunteer Centre (RVC) one of the partners' of Caritas India under Global Program.

Promotion of CFS: It was way back in 2016 RVC had undertaken an initiative of "Promoting child inclusive disaster risk management and social protection in Upper Brahmaputra Basin" in 6 nos of Panchayats. Child Friendly Space in Bodolpur village soon became the model for continuity of children's education. Local people came forward in supporting the construction and even volunteered to be part of the Child Friendly Space. Child friendly Space activities are designed to build on children's natural and evolving coping capacities, and proactively involve children in the selection of activities to ensure that the activities are relevant to children.

In many cases, they can help minimize the disruption to the learning and development opportunities that schooling provides. Child Friendly Spaces reaffirm the concept that children are capable of positive self-direction and do not place inappropriate responsibilities on children. Child Friendly Space also provide an

opportunity for parents and caregivers to be actively involved, share information, provide input and guidance, and increase their own self-confidence to protect and care for children. Above all the two most common objectives of Child Friendly Spaces are: 1. To offer children opportunities to develop, learn, play, and build/strengthen resiliency after an emergency or crisis, or during a protracted emergency. 2. To identify and find ways to respond to threats to all children and/or specific groups of children, such a those with vulnerabilities, after the crisis or during a protracted crisis.

Towards Sustainability: Then from the year 2021 the Global Programme India continued to support in promoting CFS through capacity building of the vulnerable communities and task force members. Thereafter the trained task force members and the community monitor and manged the CFS. These TF members are trained on life saving skills with experts from NDRF and SDRF under the GPI. The concept of CFS has been incorporated in Gram Panchayat Development Plan in 3 Panchayats (Gali Sikari GP, Laimekuri GP and Ramdhan Dikhari GP) which is under Global Program. CFS project by Panchayat is covered 6 Global Program villages at present. Task force members are actively involved in promoting the concept on CFS in other villages through their volunteer work. Now the Global Program is in the plan to upscale the concept in other villages.

11.3. RAISED RING WELL

"Source of water is an important agent in leading towards a healthy environment. This is because the consumption or use of dirty water can make a person unhealthy and unhygienic too", opined Janu Praja, taskforce member from 13/10 Grant Village.

The village of 13/10 Grant is an area where almost 140 household dwells. 13/10 village is perennially hit by severe floods since years, as it is surrounded by the river Ranganadi on all sides. The data of the last 10 years (collected from village headmen, leaders, baseline survey) of the hazard show immense loss of life and property distressing the community. The area faces early monsoon (May-September) and receives heavy rainfall during this period. As a result of this, the surrounding water bodies are filled with water and overflows in minimum 3 phases as flash floods. Further, the water released from NEEPCO Ranganadi dam mostly during monsoon in the Ranganadi river creates flood, risking the community living along the Ranganadi River.

The village is divided into 3 hamlets where one hamlet named 13/10 Grant Village is completely deprived of clean water. Janu Praja mentioned that they do not have a proper water source in the village and carrying water from the river or neighbour is very difficult. Everyday water needs to be brought to home for household activities and cleaning purpose which is much time consuming for all. "It is hard to collect water from the river or nearby village and go to work every day", expressed Janu.

Adding to the tribulations, the NEEPCO river dam, a vital water resource, released torrents during the monsoon season, further risking the vulnerable community. The residents of 13/10 Grant Village were caught in a perpetual dance with the elements, a struggle that unfolded year after year, leaving scars etched into the fabric of their daily lives. The recurrent inundation not only posed a threat to life and property but also exacerbated the critical issue of accessing clean water—an essential lifeline now under siege.

Global programme India in 2022 renovated a ring well in the village by raising the boundary and attaching 5 rings to the well for easy access of safe water during monsoon. The renovation is thus appreciated by the community and owned by them. The ring well is a Flood resilient infrastructure now renovated by Tezpur Social Service Society in convergence with community contribution in terms of labours and earth filling. After the construction of ring well in the village, all the community were in high spirits, as the maximum time which was regulated in carrying water is reduced due to the renovation of ring well. Now all the households carry water from the ring well and use it for their daily household activities.

The taskforce and Anganwadi worker look after and maintains the raised ring well.

11.4. COMMON SERVICE CENTRE (CSC)

The concept of Common Service Centres (CSCs) was introduced by the Ministry of Electronics & IT, Government of India, as a part of its initiative to bridge the digital divide and ensure that essential government services reach every corner of the country, especially in rural areas. The program began with the understanding that technology could be a transformative tool in enhancing accessibility, efficiency, and transparency in delivering public services.

The primary purpose of CSCs is to act as the first contact point between communities, particularly in underserved rural areas, and a wide range of government services. These centres are designed to provide integrated services, consolidating various government offerings under one roof. The vision is to empower citizens by making government services more accessible, convenient, and affordable.

Positive impact on communities in East Champaran district, Bihar:

The opening of the CSC centre in Nawada Panchayat, East Champaran, marked a significant milestone in the community's journey towards improved access to government services. Historically affected by floods and other disasters, the villagers faced challenges in reaching the Paharpur Block, situated 10 km away, to access essential services. The CSC addressed these challenges by bringing government services directly to the Panchayat, eliminating travel costs and time constraints for the rural poor. This not only made services more accessible but also contributed to the overall well-being and development of the community. The CSC in Nawada Panchayat stands as a testament to the transformative potential of such initiatives in building resilient and empowered communities.

Setting Up the CSC
A. Selection of Location

1. Identifying areas with limited access to Government schemes:

Focusing on providing services to rural populations, where access to government services might be limited due to geographical constraints, lack of infrastructure, or other challenges. Reducing the need for villagers to travel long distances to urban centres, saving both time and money.

2. Consideration of community needs and demographics:

Offering a diverse range of government services such as Birth/Death Certificates, Forms Download and Submission, Property Tax and Registration, Pension Services, Electoral Services, Aadhar printing and Enrolment, Licenses, Permits, Subsidies, etc. Consolidating multiple services at one location, reducing the need for community members to visit different offices for various requirements.

Eliminating or minimizing service charges, making it cost-effective for vulnerable and economically disadvantaged families to access essential services. Alleviating the financial burden associated with traveling to distant locations to avail government schemes and services.

B. Inauguration and Stakeholder Involvement

1. Inauguration ceremony by local leaders, Disaster Risk Assessment Committee members:

The Participatory Disaster Risk Assessment (PDRA) findings conducted under the Global Program India highlighted the mobility pattern of the community during and after disaster for getting government services. The program has trained the DRR members and sensitized the community to access the benefits of the CSC. Disaster Risk Assessment Committee (DRAC) Member cum President Md. Aftab Ansari inaugurated the centre on 10th March 2022 at Nawada village in East Champaran district of Bihar. He also shared that he would provide free services through CSC to 1,800 Families of Nawada without paying any charges.

2. Involvement of community members in the process:

Focusing on providing services to rural populations, where access to government services might be limited due to geographical constraints, lack of infrastructure, or other challenges. Reducing the need for villagers to travel long distances to urban centres, saving both time and money. Eliminating or minimizing service

charges, making it cost-effective for vulnerable and economically disadvantaged families to access essential services. Alleviating the financial burden associated with traveling to distant locations to avail government schemes and services.

III. Operational Structure
A. Disaster Risk Assessment Committee (DRR)

1. Inclusion of DRR members in the CSC operations:

Acting as a catalyst for community development by providing easy access to government schemes that directly impact the well-being of individuals and families. Reducing the dependency on intermediaries and streamlining the process of availing government benefits. Promoting digital literacy and inclusion by leveraging technology for service delivery. Ensuring that even those without direct access to government offices can benefit from digital services and information.

11.5. COMMUNITY BASED FLOOD EARLY WARNING SYSTEM

I. Introduction
A. Overview

1. Background of Community based early warning system

The objectives of the community-based early warning system in Supaul, Bihar, include implementing measures to proactively reduce the risks associated with potential flooding from the Koshi River.
The primary goal is to provide timely and accurate warnings to the community about increasing water levels in the Koshi River, allowing for effective preparedness and evacuation procedures. Community engagement is a key objective, aiming to involve community members actively in the early warning system to foster a sense of ownership, responsibility, and collective action. Utilizing both local water level readings and data from the Chatar hydrological station in Nepal is a crucial objective to analyse and assess the flood situation accurately

and make informed decisions. Effective communication and collaboration among various stakeholders, including Panchyat raj members, DRR committee, task force members, government officials, and project staff, re vital components of the early warning system's success.

2. Positive impact on communities in Supaul district, Bihar:

The implementation of the community-based early warning has yielded numerous positive impacts on the local communities. This proactive approach has notably reduced the loss of lives and livelihoods by providing timely warnings, allowing residents to evacuate and safeguard their belongings.

The heightened level of preparedness instilled by the system has empowered community members to take necessary precautions and adapt swiftly to potential flooding events. Through the establishment of effective communication channels, including a WhatsApp group, collaboration among diverse stakeholders such as government officials, project staff, and community members has significantly improved, fostering a sense of unity in addressing disaster risks.

The engagement of the community in decision-making processes and reliance on local data collection have not only empowered residents but also contributed to the overall resilience of the community. As a result, there has been minimal property damage during flood events, as community members are well-prepared and can generate early warning to protect their lives.

The early warning system has facilitated the efficient allocation of resources, as emergency response efforts can be targeted based on accurate information about the severity of the flood risk. Furthermore, the success of the system has likely influenced neighbouring communities to adopt similar practices, creating a positive ripple effect in the region.

Trust in local authorities has increased due to the consistent and effective functioning of the early warning system, fostering a sense of security and reliability among community members. The ongoing activation of the system has established a culture of continuous community engagement in disaster risk reduction, ensuring sustainability and long-term benefits for the residents of Supaul district, Bihar.

11.6. LIGHTNING ARRESTER

I. Introduction
A. Overview

1. Background of establishing low-cost lightning arrester

In response to the alarming statistics, the Bihar government, as part of the Global Programme India, has initiated preventive measures to mitigate the impact of lightning at the local level. A crucial component of this initiative involves the installation of low-cost lightning arresters in vulnerable areas, including 40 villages in Nawada district, Supaul, and East Champaran. These arresters serve as a local made equipment to capture and redirect lightning safely into the ground, protecting structures such as houses and farms.

Furthermore, a targeted awareness campaign named #WeForResilience has been implemented at the micro-level, covering 80 villages in 22 Panchayats. The program aims to educate communities about the dangers of lightning and the importance of taking preventive measures.

Additionally, the promotion of the Indra Vajra Application, developed by the Bihar State Disaster Management Authority, plays a crucial role in providing direct alert information through alarms, offering a 40-minute lead time for lightning occurrences within a 20 km radius.

2. Positive impact on communities, Bihar:

The introduction of low-cost lightning arresters in Bihar has significantly reduced the loss of lives in communities, particularly in rural areas vulnerable to lightning strikes. This preventive measure captures and redirects lightning safely, providing a tangible and life-saving impact. Communities have experienced heightened resilience due to the implementation of an awareness campaign, #WeForResilience. This initiative has educated residents about the risks of lightning and the importance of taking preventive measures, empowering them to respond effectively to natural disasters.

The promotion of the Indra Vajra Application has introduced a technological intervention, offering direct alert information and a 40-minute lead time for lightning occurrences within a 20 km radius. This has enabled communities to take timely precautions, significantly reducing the risk of lightning-related incidents. The emphasis on low-cost solutions ensures accessibility for communities with limited resources. By adopting cost-effective measures such as lightning arresters, the program reaches a broader segment of the population, especially in rural areas engaged in agriculture and animal rearing.

The Training of Trainers (ToT) initiative has not only equipped local volunteers with the skills to install lightning arresters but has also fostered community empowerment. This approach establishes a sustainable mechanism for disaster preparedness and response at the grassroots level.

The program's comprehensive strategy, addressing both technological and community-based aspects, reflects a holistic approach to disaster risk reduction. By combining the installation of lightning arresters with awareness campaigns and training sessions, the program ensures a well-rounded and impactful response to the challenges posed by lightning-related disasters.

II. Setting Up the lightning arrester.

A. Selection of Location

Setting up a lightning arrester involves careful consideration of the location to ensure its effectiveness in protecting structures and lives. In the context of the above story in Bihar, where. the installation of low-cost lightning arresters is a key component of the disaster risk reduction program, the selection of appropriate locations is crucial. The process involves the following considerations:

B. Vulnerability Assessment:

Conduct a thorough vulnerability assessment to identify areas with a higher incidence of lightning strikes. Analyse historical data, especially focusing on regions with a significant number of casualties, as highlighted in the village data arrived from Participatory Disaster risk reduction.

C. Identification of High-Risk Areas:

Based on the vulnerability assessment, identify specific high-risk areas within the targeted districts, such as Bhagalpur, Patna, Nawada, and East Champaran. Prioritize locations where lightning-related deaths have been consistently recorded over the years.

D. Community Engagement:

Involve local communities in the decision-making process. Consult with residents, community leaders, and relevant stakeholders to gather insights into local knowledge and experiences related to lightning strikes. This participatory approach ensures that the installation aligns with the community's needs and concerns.

E. Proximity to Structures:

Choose locations in close proximity to structures that need protection, such as houses, schools, and farm buildings. The goal is to install lightning arresters where they can effectively safeguard both residential and agricultural spaces.

F. Accessibility & Geographical Features:

Ensure that selected locations are easily accessible for installation and maintenance purposes. Consider logistical factors, such as transportation of materials and ease of reaching remote rural areas, to guarantee the practical implementation of the lightning arrester setup. Consider the geographical features of the area, such as elevation and terrain. High points, open fields, and locations with minimal obstructions may be favourable for installing lightning arresters as they provide a clear path for lightning to be safely redirected into the ground.

G. Involvement of community members in the process:

Conduct training sessions for local volunteers, as mentioned in the story's Training of Trainers (ToT) initiative, to ensure they have the necessary skills to identify suitable locations and install lightning arresters effectively. By carefully considering these factors and involving the community in the decision-making process, the installation of lightning arresters can be strategically carried out to provide optimal protection against lightning-related disasters in vulnerable areas of Bihar.

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