



# Mainstreaming Disaster Risk Reduction in Corporate Social Responsibility

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## Abbreviations

CSR	Corporate Social Responsibility
DDMA	District Disaster Management Authority
DM	Disaster Management
DRR	Disaster Risk Reduction
e-NAM	National Agriculture Market
EWS	Early Warning Systems
GDP	Gross Domestic Product
HRVA	Hazard Risk Vulnerability Assessment
IEC	Information Education and Communication
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NDMA	National Disaster Management Authority
NDMP	National Disaster Management Plan
NDRF	National Disaster Relief Fund
NFSA	National Food Security Act
NHM	National Health Mission
NRLM	National Rural Livelihood Mission
NSAP	National Social Assistance Programme
OBC	Other Backward Classes
PKVY	Paramparagat Krishi Vikas Yojana
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMGAY	Pradhan Mantri Gramin Awaas Yojana
PMGKY	Pradhan Mantri Garib Kalyan Yojana
PMJDY	Pradhan Mantri Jan Dhan Yojana
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMSBY	Pradhan Mantri Suraksha Bima Yojana
PPP	Public Private Partnership
PRA	Participatory Rural Appraisal
SC/ST	Scheduled Castes/Scheduled Tribes
SDG	Sustainable Development Goals
SDMA	State Disaster Management Authority
SDRF	State Disaster Relief Fund
SFDRR	Sendai Framework for Disaster Risk Reduction
SHGs	Self Help Groups
UNDRR	United Nations Office for Disaster Risk Reduction
WMO	World Meteorological Organization



# Foreword

Communities across the globe are facing grave impacts of disasters. It is worrisome to note that frequency of disaster events has increased up to five times in the last four decades. Extreme weather, climate and water-related events have caused 573 disasters in India between 1970 and 2021 and claimed 1,38,377<sup>1</sup> lives. Besides, thousands of lives were lost due to geological disaster events like earthquakes, tsunamis, and landslides across India.

There is a growing acknowledgement of the need to address 'disaster risk' through systematic planning and undertaking comprehensive risk reduction measures, to save lives. Understanding disaster risk in terms of hazards, vulnerability, exposure, and capacity framework has helped in building the understanding that disasters are not natural, and that human decisions and activities play a significant role in converting hazards into a disaster.

Tata group companies have significant CSR programmes that aim at improving quality of life of communities. With an increase in frequency and intensity of disaster risk it has become an imperative to integrate the disaster risk agenda in CSR project design and operationalization, so that the developmental gains are well protected.

The guidance document aims to provide CSR colleagues with theoretical and practical inputs for mainstreaming DRR into the companies' CSR activities. It also facilitates to achieve the objective to address disaster risks, develop systems to devise and undertake risk reduction measures to contribute in building capacities of the communities. By adopting the recommendations outlined in this guidance note, CSR colleagues can enhance development projects to effectively contribute to the achievement of the Sendai Framework for Disaster Risk Reduction (SFDRR) and the Sustainable Development Goals (SDGs).

The document has been developed with the technical support of the Gujarat Institute of Disaster Management (GIDM).

**Group Disaster Response Office**  
**Tata Sustainability Group**

# Introduction



Over the past few decades, there has been a global increase in the frequency and severity of disaster events. In 2022, 387 disasters were recorded worldwide, affecting 185 million people, and resulting in the loss of 30,704 lives. The economic losses amounted to around US\$ 223.8 billion.<sup>2</sup> These events, caused by natural or human-induced hazards, have disrupted the functioning of societies, resulted in loss of lives, properties, and environmental degradation.

With global warming and climate change, the number of disasters is also expected to increase in the coming years. Furthermore, the world is projected to surpass the Paris Agreement's target of a 1.5°C global average maximum temperature by the early 2030s<sup>3</sup>, emphasizing the genuine threat that climate change poses to the planet and humankind. Climate change intensifies the risk of disasters by magnifying the occurrence of severe extreme weather events, including cyclones, floods, and droughts.

**A disaster can be seen as an event or series of events that give rise to casualties and/or damage to or loss of properties, infrastructure, environment, essential services and means of livelihood on a scale that is beyond the capacity of the community to cope with<sup>4</sup>.**

**It is understood as a serious disruption of the functioning of a community or a society at any scale, caused by hazardous events interacting with conditions of exposure (i.e. area prone to hazard), vulnerability and coping capacity. These disruptions can lead to human, material, economic and environmental losses, and damages<sup>5</sup>.**



To address the increasing frequency of disasters, United Nations declared 1990-1999 as the International Decade for Natural Disaster Reduction, followed by Hyogo Framework for Action 2000–2015.<sup>6</sup> The Government of India also took cognizance of thousands of lives lost in the Odisha Super Cyclone in 1999, the Gujarat Earthquake in 2001 and the Indian Ocean Tsunami in 2004 and enacted the Disaster Management Act-2005 for systematic management of disaster risks. These frameworks have strengthened disaster response mechanisms and early warning systems, which have been instrumental in saving thousands of precious lives from cyclones and floods in the last decade.

The Sendai Framework for Disaster Risk Reduction (SFDRR) was adopted by the United Nations Office for Disaster Risk Reduction (UNDRR) that coincides with the Sustainable Development Goal (SDG) 2015-2030 framework.<sup>7</sup> The SFDRR advocates for the need to understand the 'risk' of disaster events and reduce that risk by strengthening disaster governance mechanisms, investing in disaster risk reduction measures such as prevention and mitigation, and continuously upgrading preparedness for disaster response.

2 [https://reliefweb.int/attachments/75c40f33-ca45-4027-b721-99bdc42ab9f/2022\\_EMDAT\\_report.pdf](https://reliefweb.int/attachments/75c40f33-ca45-4027-b721-99bdc42ab9f/2022_EMDAT_report.pdf)

3 World now likely to hit watershed 1.5°C rise in next five years, warns UN weather agency | UN News

4 Tata Disaster Response Framework

5 <https://www.undrr.org/terminology/disaster>

6 DRR and UNDRR's history | UNDRR

7 Sendai Framework for Disaster Risk Reduction 2015-2030 | UNDRR



Implementation of SFDRR is critical for achievement of SDGs as development and disasters are interlinked and often considered two sides of the same coin. If development activities are not planned considering the context-specific risks, hard-earned developmental gains of public as well as private entities can be lost due to disaster events. Annexure 1 highlights how disasters can delay the progress in achieving the Sustainable Development Goals (SDGs).

The challenge is to move from managing disasters to managing risk. Poverty, rapid urbanization, weak governance, decline of ecosystems and climate change are driving disaster risk around the world. Disasters lay bare the pre-existing vulnerabilities, inequalities, and flawed development practices. The impacts of disasters are often disproportionately felt by vulnerable groups such as women, children, migrants, and people with disabilities. Girls affected by disasters are at higher risk of facing sexual and gender-based violence, and they encounter difficulties in accessing essential services like protection, healthcare, and education. Economic activities

are disrupted by disasters, resulting in impacts on livelihoods that include income loss, food insecurity, displacement, and migration. People with disability and marginalized communities are devoid of information, resources, and services, which can further push them towards vicious cycle of poverty.

The Sendai Framework for Disaster Risk Reduction with its seven targets for the prevention of disasters and reducing disaster losses is essential to achieving the Sustainable Development Goals.

Substantially Reduce	Substantially Increase
A - Global disaster mortality	E - Number of countries with national and local DRR strategy
B - Number of affected people	F - International cooperation to developing countries
C - Economic loss in relation to GDP	G - Availability and Access to early warning systems and DRR information
D - Damage to critical infrastructure and service disruption	



## 1.1 Why incorporate disaster risks in development planning in India

India is highly susceptible to natural hazards, attributed to its geographical location, climatic conditions, and high population density. 59 percent of the landmass is exposed to earthquakes of moderate to very high intensity, 12 percent of the area is floods and river erosion prone. Cyclones and tsunamis threaten close to 5,700 km out of the country's 7,500 km long coastline. Nearly 68 percent of the cultivable area is prone to droughts and large tracts in hilly regions are susceptible to landslides and snow avalanches<sup>8</sup>.

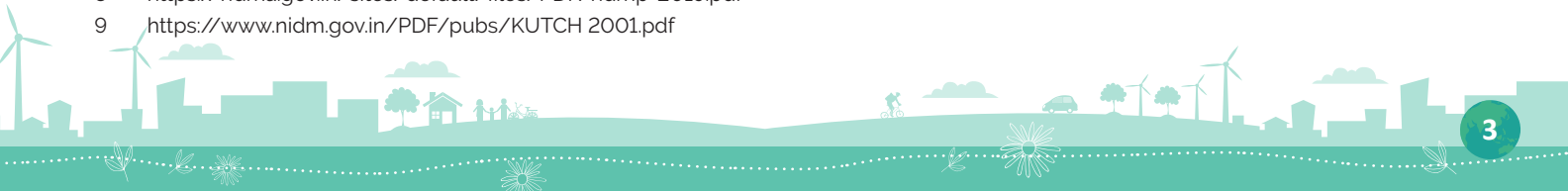
Any development in these hazard-prone region exposes communities to grave hazard impacts, and without adequate capacities in place, the

likelihood of losses i.e., 'risk' increases. With this, an increase in the frequency of urban floods, storms, land subsidence, urban fires, and landslides is experienced across the globe.

In 2001 Gujarat was struck by a devastating earthquake<sup>9</sup>, which lasted 110 seconds, destroyed development gains by severely damaging infrastructure such as buildings, roads, bridges, power, and communication networks as well as community assets and social networks.

The extent of damage to such disaster events raises serious questions about our developmental activities and approach.

8 <https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf>  
9 <https://www.nidm.gov.in/PDF/pubs/KUTCH 2001.pdf>



The devastating toll that disasters impose in terms of loss of lives, livelihoods and developmental gains brings to light the urgency to understand

the multi-dimensional aspects of disaster risk and the importance to adopt a risk-informed approach towards development plans and policies at various levels.

### Gujarat Earthquake-2001

- 13,805 deaths & about 1.67 lakhs injured.
- Over 2.15 lakhs residential houses destroyed and over 9.28 lakhs partially damaged.
- 8,890 public buildings & 2,456 buildings destroyed.
- 1,884 school buildings collapsed; 5,950 classrooms destroyed. In all, 9,593 primary school buildings were damaged or destroyed.
- Two district hospitals, 21 Community Health Centers (CHCs), 48 Primary Health Centers, 227 sub-centers (SCs), 800 anganwadis, and thousands of buildings suffered major and minor damages.
- Loss of assets in private sector, agriculture and livestock estimated at ₹509 crore.
- 10,000 small and medium industrial units went out of production, affecting income and employment.
- Thousands of artisans lost their livelihood.
- Several cultural sites damaged and destroyed in a 450-year-old city of Bhuj.
- With total estimated loss:  
₹28,423 crore
  - 1) Primary - ₹15,308 crore
  - 2) Secondary - ₹3,048 crore
  - 3) Tertiary - ₹10,067 crore



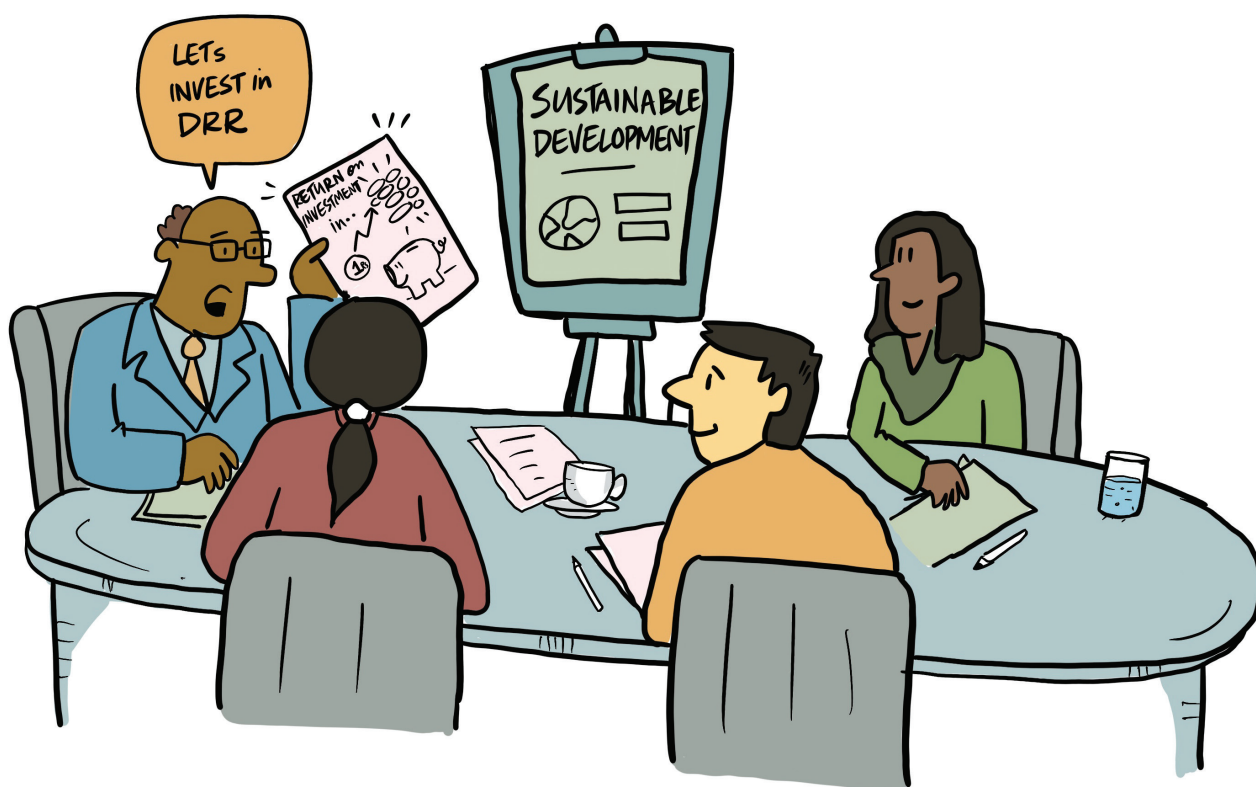
**? Question: Are we unknowingly contributing towards increasing disaster risk?**



## 1.2 Reducing risks: Rationale for mainstreaming disaster risk reduction in corporate social responsibility

Development and disaster risk reduction are interdependent and complementary. However, disasters pose a significant risk of depriving communities from reaping the benefits of these CSR initiatives. Academic studies show that every ₹1 invested in disaster risk reduction and prevention can result in savings of ₹3 to ₹15 of disaster losses.<sup>10</sup>

In India, more than eighteen thousand companies undertake diverse projects as a part of CSR.<sup>11</sup> Most significant CSR investments are in education, health care, and rural development sectors. Tata group of companies have consistently adhered to the values and core principles to implement effective programmes under CSR. The group's



CSR programmes aim to be context specific and strive to serve the most disadvantaged communities.

If all these projects have risk reduction components integrated into them, it would act as a force multiplier and contribute to disaster risk reduction across the country. Investments in these

sectors will not only promote the knowledge, skills, and resources necessary for communities' development but also provide capacities to cope and recover from sudden shocks caused by disasters.

The 'disaster risk lens' will widen the scope of CSR projects to address the disaster risks and reaping its benefits to the communities.

10 Our impact | UNDRR

11 Home (csr.gov.in)

# Conceptual Framework of Mainstreaming DRR into CSR Projects

**Objective :** To understand and address disaster risk, in order to reduce the disaster impacts, and enhance the benefits of CSR interventions for the communities

**Opportunity :** During curation, budgeting, implementation, and assessments of the projects

**Enablers :** Global and national level: UNDRR-SFDRR, National Disaster Management Authority (NDMA) guidelines and frameworks, PM 10 points agenda

Local DM authorities and departments: State, District disaster management authorities, guidelines, scientific data, BMTPC maps and guidelines, technical institutions, local DRR plans at various levels

Regulatory Frameworks: CSR Act, DM Act 2005 and State and District DM plans

Priorities of action under CSR projects	Understanding Disaster Risk	Strengthen Disaster Risk Governance	Investing in Disaster Risk Reduction	Enhance Preparedness, Early Warning System (EWS)
Key Interventions	Risk assessment using detailed hazard, vulnerability, exposure, capacities assessment for projects areas and impact of project intervention in given context	DRR committee comprising of relevance stakeholders and SMEs	Devising risk reduction measures that can be incorporated in the project, planning and implementation with allocation of necessary funds	Plans and SOPs trainings, procurement of response equipment, mock drills
Key Stakeholders	Representatives of DDMA, technical institutions, local dept, NGO	Community, CSR team, Implementation partner team	CSR heads, Project Managers	Local response institutions like Fire dept, DEOC, TEOC other control rooms
Cross Cutting Aspects	Ensuring participation of all regardless of diversity of age, gender, caste, ethnicity, religion, race, physical ability, sexual orientation, etc.			





## What is Disaster Risk Reduction (DRR)?

Before we introduce DRR concept let us understand 'disaster risk'!

### 2.1 Disaster risk, hazards, vulnerabilities, and exposure

Disaster risk is potential loss of life, injury, or damage to assets that a community could experience within a specific period. This potential is determined by various factors, including the probability of a hazard occurring, the level of exposure to the hazard, the degree of vulnerability of the community, and its capacity to cope.



**A hazard is defined as a process, phenomenon, or human activity that has a potential to cause loss of life, injury, health impacts, damage to property, social and economic disruption, or environmental degradation<sup>12</sup>.** In the above illustrative example, tsunami is a natural hazard that hits areas "A" and "B".

It is pertinent to note that tsunami is a hazard and not a disaster. While it can be a significant contributor to a disaster, whether or not it becomes one depends on factors such as vulnerability, capacity, and exposure.

In the given picture "A" is a low-lying area, whereas area "B" is situated on a hill and farther from the coast. Given the nature of the impact that a tsunami can have, it is clear that all people, assets, houses, hotels, boats, livestock, and food storage etc., in the area "A" are at a higher risk of damage. As a result, area "A" is more exposed to tsunami damage than area "B".

**Exposure refers to the situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.**

The extent of damage to assets in the exposed area is determined by their condition. Weak huts, and poorly built houses in both areas are more likely to get destroyed as compared to sturdy RCC buildings. Therefore, huts and poorly built infrastructure are more vulnerable to damage. People living in poor and low socio-economic conditions are pushed to live in such hazard-prone areas. They lack the resources and knowledge necessary to address disaster risks and are therefore most severely impacted.

**? Question:** If a project proposes to excavate some parts of area B to build underground parking for hotels, which would support tourism in the region and generate livelihood opportunities, would it increase or decrease the risk of disasters?

12 [https://www.preventionweb.net/files/50683\\_oiewgreportenglish.pdf](https://www.preventionweb.net/files/50683_oiewgreportenglish.pdf)



**Vulnerability refers to the conditions determined by physical, social, economic, and environmental factors or processes that increase the susceptibility of individuals, communities, assets, or systems to the impacts of hazards<sup>13</sup>.**

The elevated road in between areas acts as a barrier and obstructs the tsunami waves, providing protection to area "B". While the multi-storey concrete buildings in area "A" are exposed, they have a higher capacity to withstand the waves compared to huts. The ability to manage, withstand hazards, and absorb their impacts is referred to as coping capacity.

**Coping capacity represents the combination of all the strengths, attributes, and resources available within an organization, community, or society to manage and reduce disaster risks and strengthen resilience<sup>14</sup>.**

We have seen disaster risk is a function of hazard interacting with the conditions of vulnerabilities

and coping capacity in the exposed area. The concept can be mathematically understood as:

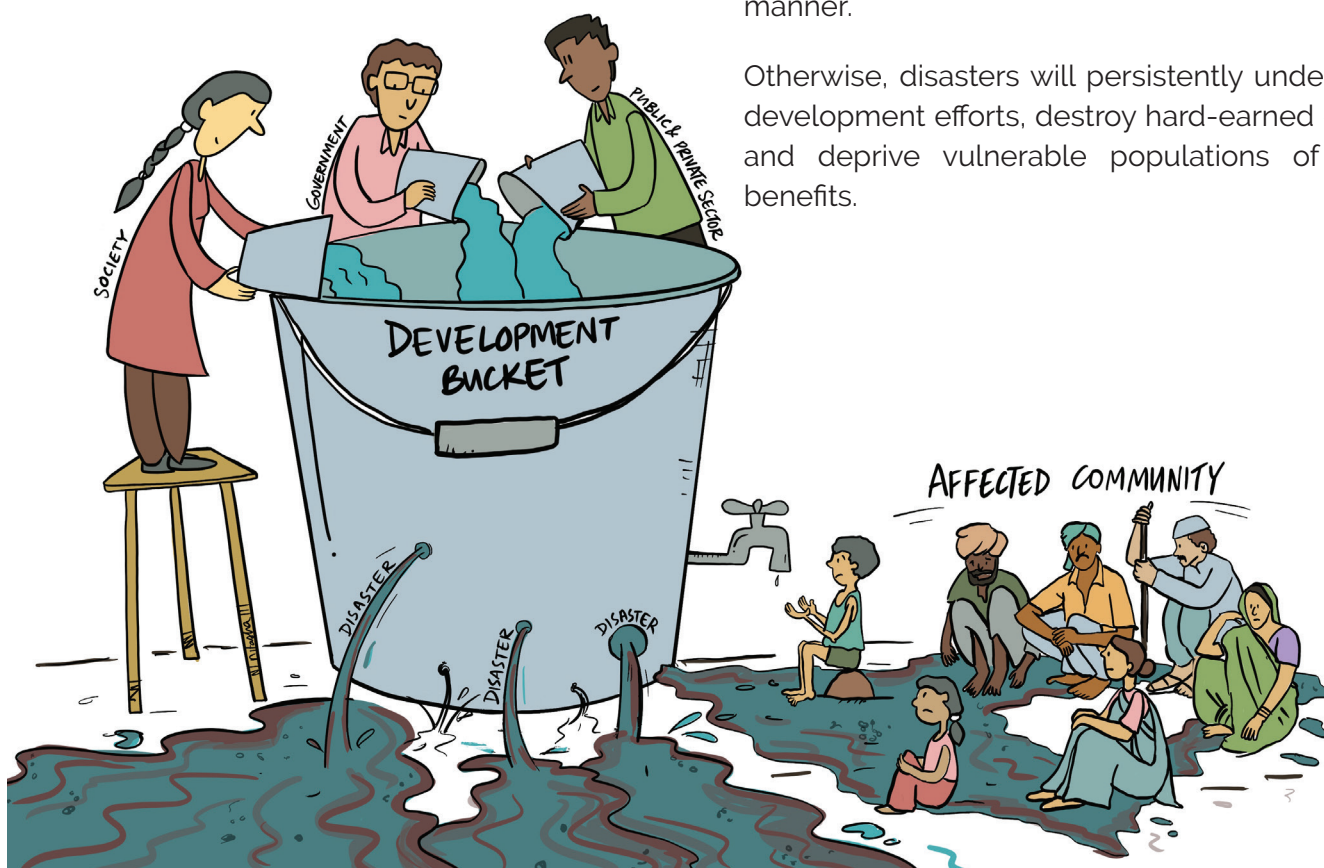
$$\text{Disaster Risk} = \frac{(\text{Hazard} \times \text{Exposure} \times \text{Vulnerability})}{\text{Coping Capacity}}$$

So, how can we reduce risks and vulnerabilities? Disasters are not inevitable, they can be prevented, and their impacts can be minimized by taking risk reduction measures. Although hazards cannot be eliminated, their impacts can be mitigated through effective DRR measures. When hazards interact with vulnerabilities that overwhelm the ability to cope, a disaster can occur.

On the other hand, if disaster risk reduction strategies are designed and incorporated to ensure that development activities can withstand the impacts of hazards, the development may be considered risk informed.

All developmental activities should be conducted in an environmentally sustainable, socially equitable, and economically viable manner.

Otherwise, disasters will persistently undermine development efforts, destroy hard-earned gains, and deprive vulnerable populations of their benefits.



13 [https://www.preventionweb.net/files/50683\\_oiewgreportenglish.pdf](https://www.preventionweb.net/files/50683_oiewgreportenglish.pdf)

14 [https://www.preventionweb.net/files/50683\\_oiewgreportenglish.pdf](https://www.preventionweb.net/files/50683_oiewgreportenglish.pdf)



## 2.2 What is Disaster Risk Reduction (DRR)?

In Malathangi village Dharmapuri district, Tamil Nadu around 7,500 hens perished in the blaze that engulfed the whole poultry farm on 25 March, 2023. The whole chicken farm was hit by lightning in the middle of the night during heavy rains.

Those who arrived quickly heard the birds squawking. Even though the fire brigade was called, by the time they arrived, the blaze had already claimed the lives of hens. Almost 250 bales of feed were also lost. Tirupati, the owner of a chicken farm in town, incurred a loss of around ₹15 lakh.

Hazard	Exposure	Vulnerability	Disaster Risk
Lightening	Malathangi Village: Poultry Farm: 7,500 hens	Absence of lightening arrester	750 hens ₹15 lakh loss

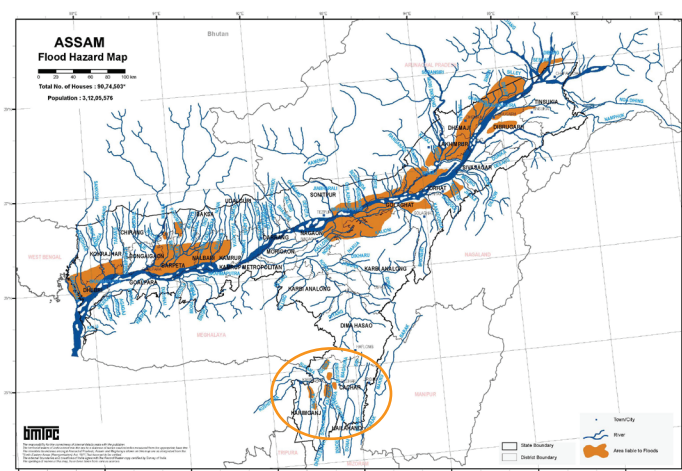
Was this event preventable? Yes, a lightening arrester with an investment of ₹15,000/- could have prevented the event. Question is why Tirupati could not reduce lightening risk? Was he aware of it?

DRR aim is to prevent new risk, reduce existing risk and manage the residual risk, all of which contribute to strengthening resilience of the intervention. Let us understand the key concepts and components of DRR:

### 2.2.1 Risk Assessment

The damage suffered by Tirupati poultry farms is likely for several projects across the country. Each geographic unit has its own disaster risk, with varying probabilities and hazards. For instance, earthquakes and landslides are more probable in the Himalayan region, while cyclones and tsunamis are more likely to occur in coastal areas. Additionally, various human-induced hazards such as fires, chemical accidents also pose risks locally. Any new development in such hazard-prone areas presents an opportunity to reduce risks, but only if we can accurately assess them.

The process of risk assessment involves a qualitative and quantitative approach to determine the nature and extent of disaster risk by analyzing potential hazards and evaluating existing conditions of exposure and vulnerability. While implementing any new project, it is



important to take into account the geography of the area and possible hazards in that particular area. Further, it is necessary to identify the people and their assets, environment and systems that are exposed to various hazards. Finally, assess the vulnerabilities, with the existing capacities to

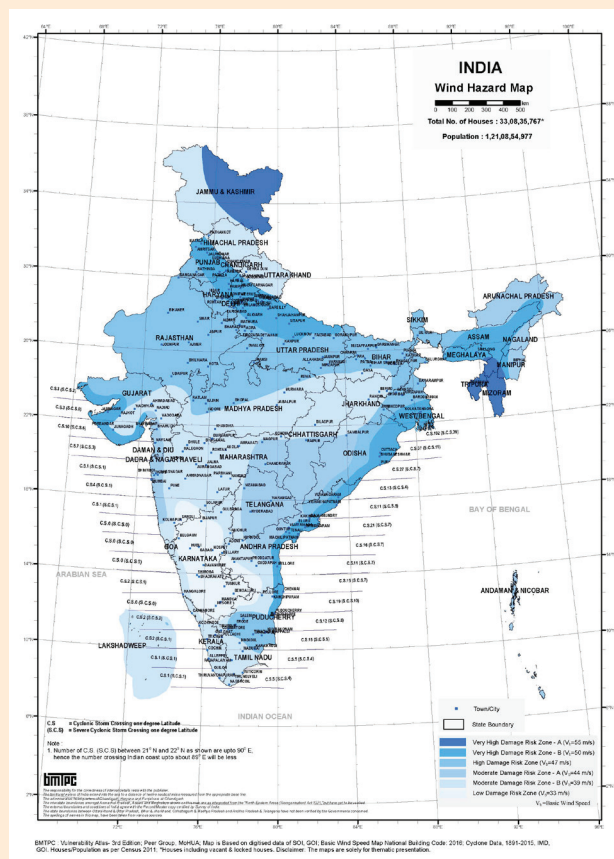
deal with the identified hazards. The hazard map of Assam indicate the flood-prone zones, and there are a few patches in the Cachar district that are shown in 2022. Cachar was hit by a very

severe flood causing heavy damage after two decades. If all public and private infrastructure had considered this risk and implemented necessary measures, the impact of floods would have certainly reduced.<sup>15</sup>

## 2.2.2 Hazards

The NDMA has classified hazards into the following categories. While reviewing project proposals, assess the geographical area of intervention and list all probable hazards:

- **Hydro-Meteorological hazards:** Floods, Cyclones, Droughts, Heat Waves, Cold Waves, Landslides, Lightning, and Storm Surge
- **Biological hazards:** Epidemics, Pandemics and Animal Attacks, Insect Infestations
- **Geological hazards:** Earthquakes, Landslides, Tsunami, Volcanic Eruptions, and Avalanches
- **Chemical hazards:** Industrial Accidents, and Chemical Spills
- **Nuclear and Radiological hazards:** Nuclear Accidents, and Radiological Emergencies
- **Fire hazards:** Forest Fires and Urban Fires
- **Human-induced hazards:** Terrorist Attacks, Riots, and Conflicts
- **Accidents:** Industrial, Road, Rail, Air, Building Collapse, Oil Spills



**Assessment of probable hazards in a given area helps in understanding 'what' are all possible hazards in the area.**

## 2.2.3 Exposure

To assess exposure, calculate the probability of impacts for each significant hazard on individuals, communities, infrastructure, housing, food storage units, production units, and other human assets located in hazard-prone areas. It is important to note that hazard exposure can vary significantly at the local level depending on the specific conditions in the area.

15 [https://cachar.gov.in/sites/default/files/swf\\_utility\\_folder/departments/cachar\\_epr\\_amtron\\_in\\_oid\\_2/menu/departments/cumulative\\_report\\_2022.pdf](https://cachar.gov.in/sites/default/files/swf_utility_folder/departments/cachar_epr_amtron_in_oid_2/menu/departments/cumulative_report_2022.pdf)

Below are some examples of natural hazards and their potential exposure.

- **Floods:** People and assets situated in low-lying areas or having livelihood/economic activities near rivers, coastal regions, flood-prone areas are highly exposed to flood-related damage.
- **Earthquakes:** People, assets and infrastructure, and livelihood activities situated in areas with high seismic activity, such as seismic Zone III, IV, and V, are highly exposed to earthquake-induced damage.
- **Cyclones:** People, assets and infrastructure, livelihood activities located in coastal regions are highly exposed to winds, heavy rains and storm surges.
- **Landslides:** People, assets and infrastructure, livelihood activities in mountainous regions are highly exposed to landslides.
- **Wildfires:** People, assets and infrastructure, livelihood activities in regions with high wildfire risk.

**Once all probable hazards are listed and the exposed areas are marked, assess the condition and situation of people, assets, infrastructure, and livelihood activities.**

It may be noted that secondary data has its limitations and therefore local level primary assessment is crucial for accurate evaluation.

## 2.2.4 Vulnerability

Vulnerability is the human dimension of disasters and is the result of the range of economic, social, cultural, institutional, political, and psychological factors that shape people's lives and the environment that they live in. Vulnerability relates to several factors listed below:

Physical Vulnerability	Social Vulnerability	Economic Vulnerability	Environmental Vulnerability
<ul style="list-style-type: none"> <li>• People living in poorly designed, weakly constructed, and compromised quality of buildings that may not be able to withstand the forces of the hazards.</li> <li>• People living in unregulated land-use planning areas.</li> <li>• People with poor health and living in unhygienic conditions, extreme temperatures, poor air quality.</li> <li>• People living in regions with poor connectivity, lack of early warning systems or evacuation routes.</li> <li>• People living in area without roads or public transportation may not have access goods and services.</li> </ul>	<ul style="list-style-type: none"> <li>• Marginalized communities, communities facing social exclusion with low education levels may not have access to resources or knowledge to protect themselves or their property.</li> <li>• Migrant people may not be registered with social support institutions and may lack local support.</li> <li>• The household with differently abled persons, and elderly populations may have limited ability to evacuate or protect themselves during an emergency.</li> <li>• Children, adolescent girls, and pregnant women require safe and secure places as they have an additional risk of trafficking.</li> </ul>	<ul style="list-style-type: none"> <li>• Small informal businesses may not have the resources to recover from losses.</li> <li>• BPL families may not have resources to relocate or rebuild or take measures to protect themselves.</li> <li>• People dependent on a single livelihood in rural areas and having limited access to government assistance may not have the means to recover from losses, pay for repairs, or receive compensation.</li> <li>• People with limited access to credit or financial resources.</li> <li>• Marginal farmers may not have access to loans and knowledge.</li> <li>• People living in poverty, lacking resources or means to cope with the sudden shocks.</li> </ul>	<ul style="list-style-type: none"> <li>• People living in areas with high levels of pollution, degraded drinking water, soil, air condition.</li> <li>• People living in areas with unplanned and improper land use change, urbanization, or deforestation, are vulnerable as the loss of natural features like the green cover, wetlands, or coastal ecosystems can exacerbate the impact of the hazard.</li> <li>• Areas with fragile ecosystems, such as deserts or mountains, are vulnerable as the disturbance to these ecosystems can have significant and long-lasting impacts.</li> <li>• Areas where the population depends on the environment for their livelihoods, such as fishing or agricultural, are vulnerable due to wildfire, deforestation, and pests' attacks.</li> </ul>

**Once the vulnerability assessment is done, a clear idea of what hazard, in which area will affect who all and to what extent can be understood.**

Now, let us understand the coping capacity, which is crucial for reducing risk.

## 2.2.5 Coping Capacity

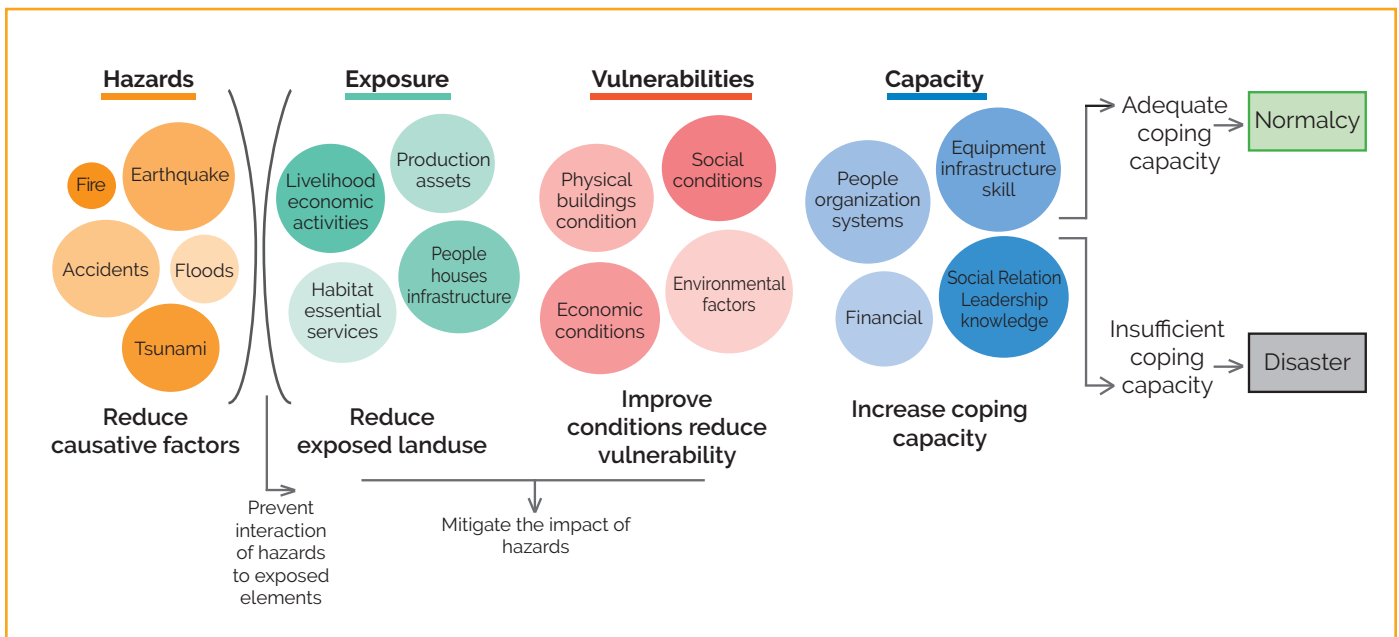
For assessing the coping capacity, we need to understand the ability of individuals, communities, and societies to anticipate, withstand, and recover from the impacts of natural or human-induced hazards. Thus, it encompasses a range of physical, economic, social, environment and psychological factors that affect a community's resilience. Some examples of disaster risk reduction coping capacity are:

Physical Coping Capacity	Social Coping Capacity	Economic Coping Capacity	Environmental Coping Capacity
<ul style="list-style-type: none"> <li>Infrastructure: Multi-hazard resilient bridges, dams, shelters, seawalls, lake walls.</li> <li>Buildings adhering to codes with proper land planning and regulations use.</li> <li>Adequate response resources, emergency and relief equipment, supplies, and personnel.</li> <li>Access to safe drinking water and sanitation facilities, livelihood opportunities.</li> <li>Road connectivity, access to information through the internet, communications networks, resilient houses and bridges and logistic networks.</li> <li>Trained NGOs/CBOs/Local support agencies to safe construction practices.</li> </ul>	<ul style="list-style-type: none"> <li>United and inclusive communities prepare, plan, and respond better.</li> <li>Access to community-based early warning systems, awareness and active role in monitoring local potential hazards and development activities.</li> <li>Community-based disaster response and recovery plans with steps to respond, recover from disasters, emergency services and stock to support to affected populations.</li> <li>Evacuation planning and drills: plan for the evacuation of vulnerable populations in the event of a disaster and conduct regular drills to ensure that everyone knows what to do.</li> <li>People having extended families and support systems with strong community networks and effective collaboration.</li> <li>Trained NGOs/CBOs towards social inclusion and consensus building.</li> </ul>	<ul style="list-style-type: none"> <li>Resilient and diversified economic activities, with the resources to respond and recover from disasters.</li> <li>Access to banking services, financial resources, insurance schemes and loans.</li> <li>A well-functioning market with contingency plans and systems to provide goods and services before, during, and after disasters.</li> <li>Access to livelihood support, skill development schemes and programmes for individuals and businesses.</li> <li>Access to social protection schemes, such as a pension, ex-gratia, disability allowances, etc., that can help individuals and communities recover from the economic impact of disasters.</li> <li>Trained NGOs/CBOs towards alternate livelihoods generations.</li> </ul>	<ul style="list-style-type: none"> <li>Communities living in functioning ecosystems that can provide a range of services and resources to communities.</li> <li>Effective land use planning and management that reduces the risk of disasters and protects critical habitats and biodiversity.</li> <li>Adequate waste management and pollution control systems can reduce the impact of disasters on the environment.</li> <li>Adequate mangrove coverage, sufficient water resources, and conditions that support the flourishing of fauna and flora.</li> <li>Trained NGOs/CBOs/Local support agencies and adequate community sensitivity and resources for environment conservation.</li> </ul>

**Reducing hazards, exposure and vulnerabilities and increasing coping capacities of communities promotes disaster risk reduction.**

Once hazards, exposure, vulnerabilities, and coping capacities in the areas of intervention and for stakeholders associated with the project are assessed, disaster risk can be categorized as high, medium, or low. Thus, by addressing the hazards posing highest risk first, followed by medium and low risk hazards following actions can be taken to prevent, mitigate and prepare communities under project intervention.





- If the interaction of hazard with exposure and vulnerability is avoided, the occurrence of a disaster can be prevented. **Prevention refers to activities and measures to avoid existing and new disaster risks.** Examples: land-use regulations that do not permit any settlement in high-risk zones, seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake and immunization against vaccine-preventable diseases.
- If exposure is reduced, the impacts of hazards can be reduced, and the risk of disasters can be mitigated. The adverse impacts of hazards,

in particular natural hazards, often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. **Mitigation refers to lessening or minimizing of the adverse impacts of a hazardous event.** It includes engineering techniques and hazard-resistant construction as well as improved environmental and social policies and public awareness.

- If the capacities are increased to such a level, that they can resist, absorb, accommodate, adapt to, transform, and recover from the effects of a hazard in a timely and efficient manner, **resilient** communities are developed.

Example: Assume that there is radioactive substance placed in your office. The substance emits harmful radiation up to five meters around it and fifty persons work in the office. In this scenario, **all fifty persons are at risk of harmful radiation.**

- **REDUCE HAZARD:** If the radioactive substance is removed and deposited, the hazard is removed and risk for radiation impact is reduced.
- **REDUCE EXPOSURE:** If the owner of the office decides to purchase alternate office in safe location.
- **REDUCE VULNERABILITY:** Through awareness campaigns, advisories of dos and don'ts, workers adopt safe practices, ensure staying five meters away from the substance.
- **INCREASE CAPACITY:** Constructing barriers, wearing HAZMAT suits while working, regular trainings and following safety procedures, knowledge of dos and don'ts can further reduce the risk.



## Regulatory landscape of CSR projects and DRR integration

### 3.1 Mandate for CSR and DRR

With the enactment of the Companies Act, 2013 by the Ministry of Corporate Affairs, the Government of India introduced CSR as a mandatory provision by imposing a statutory obligation on companies to take up CSR projects towards social welfare activities.

The Disaster Management Act, 2005<sup>16</sup> has laid down institutional systems of Disaster Management Authorities at National (NDMA) State (SDMA) and District (DDMA) levels giving immense powers and control to implement risk reduction activities at various levels. During the COVID-19 pandemic, a nationwide lockdown was imposed using the powers enshrined in the DM Act, 2005. The DM Act recognizes the role of the private sector, including companies towards contributing to disaster management.

The Ministry of Corporate Affairs notified Section 135 of the Companies Act, 2013 along with

Companies (Corporate Social Responsibility Policy) Rules, 2014 and specifically included "Disaster Management (DM), including relief, rehabilitation and reconstruction activities".

The National Policy on Disaster Management 2009, under its chapter "Disaster prevention, mitigation and preparedness" highlights corporate support in relief and rehabilitation and acknowledges limited involvement of corporates in DRR activities. It is mentioned that 'Corporate entities should redefine their business continuity plan to factor in hazards, risks, and vulnerabilities. They should also create value in innovative social investments in the community. Public Private Partnership (PPP) between the government and private sector would also be encouraged to leverage the strengths of the latter in disaster management.'

### 3.2 National DRR Policy and Plan

The enacted DM Act 2005 allocated responsibilities for addressing disaster risks to concerned ministries. The National Disaster Management Authority has released over 33 **guidelines and policies** and guidelines for ensuring the safety of critical infrastructure such as hospitals and schools. Additionally, a **compendium** of all the acts related to disaster management has been prepared to empower the practitioners working in disaster risk reduction.

**National Disaster Management Plan (NDMP)** 2019 emphasizes that DRR must be integral part of every development plan and the disaster management plans at various levels. **National Policy of Disaster Management (NPDM -2009)** advocates prevention, mitigation, and preparedness-driven approach to conserve developmental gains and to minimize loss of life, livelihood, and property.





**Prime Minister's 10-point Agenda** on Disaster Risk Reduction provides the necessary impetus that 'all development sectors must imbibe the principles of disaster risk management'. It also mentions that risk coverage must include all, increase women's leadership and involvement, undertake risk mapping, leverage technology, the network of universities, better use of social media, build in local capacity, learn from every disaster and enhance cohesion in international response.

Dedicated funds like National Disaster Risk Management Fund (NDRMF) at the national level and State Disaster Risk Management Fund (SDRMF) at the state level provides resources to support India and states to undertake disaster risk reduction and management activities.<sup>17</sup>

### 3.3 International DRR Frameworks

SFDRR guides the world through a non-binding framework for effective risk reduction. It focuses on four priorities for action:

- 1) Understanding disaster risk
- 2) Strengthening disaster risk governance to manage disaster risk
- 3) Investing in disaster risk reduction for resilience, and
- 4) Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.



It also gives seven critical targets to channelize activities upon that needs whole-of-the-society approach to achieve. The SFDRR promotes to encourage and incentivizes both public and private sectors to act and address disaster risk under its priority two and mentions that "Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the

economic, social, health and cultural resilience of persons, communities, countries, and their assets, as well as the environment. These can be drivers of innovation, growth, and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses and ensure effective recovery and rehabilitation" in priority three articulation.



## Mainstreaming DRR framework across sectors

Following sector specific interventions may be undertaken for mainstreaming DRR in development projects.

### 4.1 Health

The health sector is crucial for DRR, as healthcare systems need to be functional even during disasters. Buildings, staff, and equipment need to withstand the impacts of hazards and address increased health care needs during disasters. Buildings with base isolation construction techniques, that make buildings earthquake resistant are being extensively constructed in Japan.<sup>18</sup> The COVID-19 pandemic highlighted the pressure that disasters exert on healthcare systems. Therefore, a structured response mechanism for emergencies can be developed and put in place in advance. Healthcare infrastructure needs to be strengthened to reach out to the worst-affected communities during emergencies. Strengthening the capacities of the health sector can be



accomplished through CSR interventions, with the Hospital Safety Guidelines 2016<sup>19</sup> issued by NDMA providing comprehensive guidance for hospital DRR interventions.

Following (illustrative & non-exhaustive) measures can be undertaken for mainstreaming DRR in health sector:

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
<b>Systems Strengthening (Policy, Plans, Schemes, Infrastructure)</b>	
Healthcare Policies, Plans, Schemes	<ul style="list-style-type: none"> <li>• Develop evidence-based risks informed health sector plan</li> <li>• Support the most vulnerable and marginalized communities to access and avail benefits of Government Health Insurance schemes</li> <li>• Enable the community to use government e-sanjeevani services for primary health care</li> </ul>

18 Buildings Can Be Designed to Withstand Earthquakes. Why Doesn't the U.S. Build More of Them? - The New York Times (nytimes.com)  
 19 Guidelines-Hospital-Safety.pdf (ndma.gov.in)

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested measures
Health Infrastructure Development including equipment	<ul style="list-style-type: none"> <li>• Conduct risk assessment for all probable hazards including human-induced hazards</li> <li>• Upgrade health infrastructure buildings to multi-hazard resistance, undertake structural and nonstructural mitigation measures (Earthquake, Fire, Flood, Cyclone, etc.) with adherence to building codes</li> <li>• Ensure the health and wellness facilities have all-weather unhindered access all the time</li> <li>• Undertake safety audits of structural and nonstructural components like diagnostic equipment, furniture, essential gases supply systems and fixtures</li> <li>• Check for high flood levels while placement of equipment on floors</li> <li>• Increase patient treatment capacities and health facilities, this includes alternative functionality of the services during and after disasters</li> <li>• Ensure proper disposal of the bio medical waste management according to the government protocols</li> <li>• Support to conduct non-structural safety audits and non-structural mitigation measures of the infrastructure including placements of equipment and furniture, and fixtures</li> <li>• Provide support for the development of decontamination facilities for chemical accidents</li> </ul>
Early Warning Systems (EWS):	<ul style="list-style-type: none"> <li>• Support developing early warning systems that can detect and respond to disease outbreaks, fires alarms in health care facilities</li> <li>• Increase coverage of health care systems under multi-hazard EWS</li> <li>• Support to provide EW and strengthen information dissemination system and reaching to most vulnerable in easy and understandable language</li> </ul>
<b>Capability Building (Community, Organizations)</b>	
Community Engagement and Capability Enhancement	<ul style="list-style-type: none"> <li>• Enhance first aid capacities of community structures, such as village health and sanitation committee, self-help groups, Apada Mitras, Youth and adolescents' groups, and other associations, etc., in for probable hazards like snake bites, electric shocks, burns</li> <li>• Support for the development of a database of people with disability and terminal diseases who will need assistance for safe evacuations</li> </ul>
Organizations	<ul style="list-style-type: none"> <li>• Training of health facilities staff, front line workers for preparedness for escalated disasters response</li> </ul>
<b>Risk communication and public education; Programme Specific, Event Specific, Media Coverage, General Health Awareness</b>	
Sanitation and Hygiene Promotion: for improving hygiene, sanitation	<ul style="list-style-type: none"> <li>• Devise solutions for biological waste, greywater management</li> <li>• Ground and surface water contamination management</li> <li>• Integrate disaster management messages, IEC in all the major programme</li> <li>• Develop decontamination facilities for biological or radiological hazards</li> </ul>
Health camps and check-ups: to provide free check-ups, vaccinations, etc.	<ul style="list-style-type: none"> <li>• Plan for contagious disease prevention, crowd and conflict management</li> <li>• Create awareness to ensure diseases appropriate behaviours are followed by the communities to control and spread of diseases</li> <li>• Integrate disaster management messages in all the major health programme</li> <li>• Facilitate availability of PPEs and biological waste management facilities</li> </ul>



Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested measures
Disease Control Programmes: to control the spread of communicable diseases	<ul style="list-style-type: none"> <li>Create awareness and encourage the community to clear the breeding sites for the vector-borne diseases</li> <li>Create awareness to ensure diseases appropriate behaviours followed by the communities to control and spread of the diseases</li> <li>Undertake awareness generation activities for community members on non-communicable preventable diseases</li> <li>Educate community members to adopt a healthy lifestyle</li> <li>Encourage community members to adopt early detection and care cycle</li> </ul>
Mental Health Awareness Programmes	<ul style="list-style-type: none"> <li>Create awareness of the mental health issues and stigma around mental health to seek professional medical support</li> <li>Provide or train psychosocial counsellors to support the community</li> </ul>
Disaster Relief and Healthcare: support during natural disasters providing medical aid	<ul style="list-style-type: none"> <li>Support to provide crowd and conflict management at the relief site</li> <li>Prepare for risk-informed medical supply chain management</li> <li>Provide psychosocial support</li> </ul>
Malnutrition, Anemia Eradication: for children and pregnant women to combat malnutrition in underprivileged communities	<ul style="list-style-type: none"> <li>Support nutritional supplement as prescribed by local anganwadi/dept</li> <li>Support to provide drinking water systems/installation of water purification systems</li> <li>Promote proper hygiene and sanitation facilities and practices</li> <li>Sensitize adolescents and women to take a balanced regular diet and medications as prescribed by department</li> </ul>
<b>Social and Behavioural Change</b>	
Behaviour change interventions for the communities	<ul style="list-style-type: none"> <li>Create culturally acceptable products for the community to adopt new positive behaviour towards hazards and health</li> <li>Confidence-building measures within the community</li> </ul>
<b>Knowledge Management (Research, Experiments, Evaluation, Programme Briefs)</b>	
Knowledge Management	<ul style="list-style-type: none"> <li>Document the experiences of the interventions (process and outcomes)</li> </ul>

Important resources:

- 1) Hospital Safety Guidelines
- 2) ADPC Hospital Risk Management
- 3) Guidelines
- 4) Government Schemes

## 4.2 Education

Children are one of the most vulnerable groups to the grave impacts of disaster. Disasters not only pose a threat to life but also affect education opportunities adversely. The Dabwali Fire Tragedy (1995), Kumbakonam Fire Tragedy (2004), and Surat Fire Incident (2019) highlight the need for intervention towards the safety of educational institutions. Following, Kumbakonam fire incident, the Supreme Court of

India mandated that all schools have fire safety installations. Strengthening school infrastructure, equipping students, teachers, and staff members to respond to emergencies, and ensuring the continuity of education with adequate equipment are important interventions. The NDMA's National School Safety Policy-2016 provides comprehensive guidance, and interventions can be considered based on the directions of the School Disaster Management Committee.



Following (illustrative & non-exhaustive) measures can be undertaken for mainstreaming DRR in education sector:

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
<b>Systems Strengthening (Policy, Plans, Schemes, Infrastructure)</b>	
School Infrastructure Development: support the construction of schools, classrooms, and other facilities for underprivileged communities.	<ul style="list-style-type: none"> <li>• Support risk assessment for schools/education facilities</li> <li>• Support the construction of multi-hazard resistant buildings</li> <li>• Support the development of a School/Facility Disaster Management Plan</li> <li>• Support non-structural safety audits and mitigation measures for infrastructure, including equipment and furniture placement</li> <li>• Promote and support road safety plans for students, teachers, and children</li> <li>• Support the availability of clean drinking water in schools</li> <li>• Ensure cleanliness, hygiene practices, and separate toilet facilities for boys and girls</li> <li>• Facilitate the installation of fire extinguishing systems in mid-day meal/kitchen areas</li> <li>• Support the installation and regular checking of adequate fire systems as per norms</li> <li>• Include crowd and stampede management plans in the school disaster management plan</li> </ul>
School Disaster Management Plan	<ul style="list-style-type: none"> <li>• Support for the development and implementation of the School Disaster Management Plan</li> <li>• Support to conduct Structural and non-structural safety audits of the infrastructure including placements of equipment and furniture and fixtures</li> </ul>
<b>Capability Building (Community, Organizations)</b>	
Teacher Training and Development	<ul style="list-style-type: none"> <li>• Ensure all teachers are trained in disaster risk management, first aid, search and rescue, firefighting and dos and don'ts for all hazards</li> </ul>
Strengthening School Management Committee.	<ul style="list-style-type: none"> <li>• Ensure the School Management Committee members are trained in disaster risk management</li> </ul>

[Read more...](#)



Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
Risk communication and public education; Programme Specific, Event Specific, Media Coverage, General Health Awareness	
Awareness Campaigns	<ul style="list-style-type: none"><li>Integrate dos and don'ts for major hazards in all campaigns. <a href="#">Read more...</a></li><li>Development of IEC collaterals and media campaigns has DRR messages integrated</li><li>Enhance understanding of risk assessment at a local level, in schools, hostels, travel, etc.</li><li>Ensure the individual preparedness, family preparedness, and community preparedness for disasters are integrated into the course</li></ul>
Education for Girls: aimed at educating and empowering girls	
Non-formal Education: vocational training and life skills development	
Digital education programmes	
Library Development: development and maintenance of libraries	
Social and Behavioural Change	
Behaviour changes interventions for the communities	<ul style="list-style-type: none"><li>Create culturally acceptable products for the community to adopt new positive behaviours towards disaster risks reduction</li><li>Confidence-building measures within the community</li><li>Ensure IEC collaterals and media campaigns have DRR messages integrated into it</li></ul>
Knowledge Management (Research, Experiments, Evaluation, Programme Briefs)	
Knowledge Management	<ul style="list-style-type: none"><li>Document the experiences of the interventions (process and outcomes)</li></ul>

Important resources:

- 1) National School Safety Policy
- 2) Read more...

## 4.3 Livelihood (On farm and Off farm)

Livelihood can be made resilient by adopting strategies towards diversifying, protecting, strengthening livelihood assets, and developing capacities. Livelihood diversification allows households to engage in multiple activities to support their means of living. For instance, a household whose primary means of living is agriculture may also engage in fishing, retail trade, cattle rearing, etc, and other non-farm activities such as handicraft and micro-small businesses. Building the technical capacities of households in relevant themes such as alternate livelihoods, financial management, organization development, and interlinking with government schemes needs to be promoted. Various



initiatives under CSR may be implemented to support livelihood sustenance and restoration.



Following measures can be undertaken for mainstreaming DRR in livelihood sector-off farm (illustrative & non-exhaustive list):

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
Systems Strengthening (Policy, Plans, Schemes, Infrastructures)	
Risk assessment of supply chain and construction of new Market Place, Local Hats, etc.,	<ul style="list-style-type: none"><li>Assess disaster risk and its impacts on associated sectors, markets, and supply chains</li><li>Support to the marketplace, local hats, and other physical infrastructures to remain multi-hazard resistance, including crowd and conflict management</li><li>Support in the development and implementation of a disaster management plan with roles and responsibilities assigned</li><li>Ensure all stakeholders know about the disaster management plan</li><li>Support businesses to be insured as appropriate covering all issues, lives, and livelihood</li><li>Support to conduct non-structural safety audits and non-structural mitigation measures of the infrastructure including placements of equipment and furniture and fixtures</li></ul>
Capability Building (Community, Organizations)	
Skill development and vocational training in various trades	<ul style="list-style-type: none"><li>Ensure DRR training is included preparedness, response, prevention, and mitigation of identified hazards</li><li>Increase coverage under social protection schemes like National and State Rural Livelihood Mission programme for alternate livelihood options</li></ul>
Risk communication and public education; Programme Specific, Event Specific, Media Coverage, General Health Awareness	
Micro-enterprise development: promote micro-enterprises and self-employment opportunities	<ul style="list-style-type: none"><li>Support physical structures are multi-hazard resistance</li><li>Promote insurances</li><li>Address issues causing disruptions to supply-chains</li><li>Support to conduct non-structural safety audits and non-structural mitigation measures of the infrastructure including placements of equipment and furniture and fixtures</li><li>Ensure all stakeholders are trained in disaster management</li><li>Develop DRR related IEC</li><li>Provide financial and digital literacy to project participants</li></ul>
Livelihood support for women, self-help groups, differently able, tribal communities	
Livelihood support during natural disasters for rehabilitation and rebuilding of livelihoods	
Social and Behavioural Change	
Behaviour change interventions for the communities	<ul style="list-style-type: none"><li>Create culturally acceptable products for the community to adopt new positive behaviours towards Disaster Risks Reduction</li><li>Confidence-building measures within the community</li><li>Develop DRR related IEC</li></ul>
Knowledge Management (Research, Experiments, Evaluation, Programme Briefs)	
Knowledge Management	<ul style="list-style-type: none"><li>Document the experiences of the interventions (process and outcomes)</li></ul>

Important resources:

- 1) Read more...
- 2) Concept note on livelihood post disaster recovery
- 3) ADPC livelihood restoration
- 4) Related Government schemes



In India, agriculture and allied sector engage and provide livelihood to more than 54% of the population. Mainstreaming DRR in the agriculture sector helps in increasing the resilience of farmers and their crops to disasters, ensuring food security, and promoting sustainable agriculture practices and livelihood continuity to people engaged in allied Agriculture based industries. To ensure the protection of infrastructure, assets, property, and resources **National Agriculture Disaster Management Plan (NADMP)** has been prepared to ensure that the activities/ programmes and schemes under the ministry/ sector increase resilience against the risk of disasters and extreme events.



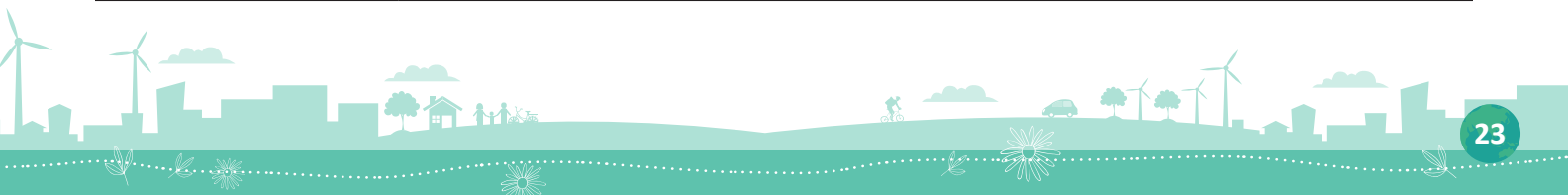
In the aftermath of Cyclone Thane (2011) that struck the coasts of Cuddalore in Tamil Nadu, many farmers looked for a crop that could withstand climatic fluctuations. Vetiver (*Chrysopogon zizanioides*), a hardy grass, was found to be a suitable alternative to cashew and casuarina, which were often getting toppled by cyclones.

Farmers found this not just climate-resilient, but also profitable from an income perspective. Growing a variety of crops, as opposed to the practice of monocropping, can help reduce the impacts. Based on the understanding of risk, risk-informed livelihood strategies must be developed as protective measures.

Following (illustrative & non-exhaustive) measures can be undertaken for mainstreaming DRR in Agriculture and Animal Husbandry:

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
<b>Systems Strengthening (Policy, Plans, Schemes, Infrastructures)</b>	
Construction of Warehouses, and storage places (Cold Chains and other warehouses)	<ul style="list-style-type: none"> <li>Assess disaster risk and probable impacts on associated activities</li> <li>Support in strengthening physical structures making it multi-hazard resistance</li> <li>Facilitate insurance for businesses, crops, and livestock as appropriate</li> <li>Assess risk to supply-chain and take measures to avoid disruptions</li> <li>Support fire safety installations, and lightning arresters in and around crop storage/livestock sheds warehouses</li> <li>Support to conduct non-structural safety audits and non-structural mitigation measures of the infrastructure including placements of equipment and furniture and fixtures</li> <li>Support in the development of a manual on the low-cost design of climate-resilient livestock shed/shelter</li> <li><b>Read more...</b></li> </ul>
Early Warning Systems (EWS)	<ul style="list-style-type: none"> <li>Support interlinkage with EWS and build capacity to respond to floods, droughts, cyclones, pests attacks, livestock diseases surveillance, etc.</li> <li>Promote technology to connect farmers with EWS</li> <li>Promote community based EWS as per the requirement</li> <li>Facilitate providing information and reaching out to the most vulnerable in easy and understandable language</li> </ul>

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
Crop Protection	<ul style="list-style-type: none"> <li>Support in the development of climate-smart appropriate technologies involving farmers in risk assessment and adaptation technique</li> <li>Support for the promotion of climate-resilient varieties of crops based on contextual requirements</li> <li>Promote location-specific climate resilient/smart technologies for wider adoption among the farming communities</li> <li>Promote and utilize district agricultural contingency plans and sensitized farming communities for preparedness</li> <li>Support to develop raised bed planter-cum-herbicide applicator, maize harvester, zero till planter, etc.) for small farm mechanization suiting to dryland ecologies</li> </ul>
<b>Capability Building (Community, Organizations)</b>	
Farmer Support and Training: support and train farmers on modern agricultural practices, including sustainable agriculture and crop diversification	<ul style="list-style-type: none"> <li>Ensure the disaster risks reduction sessions are integrated into the training</li> <li>Facilitate covering participants under social safety schemes and programmes</li> <li>Facilitate farmers receive benefits of government schemes such as the Soil Health Card Scheme, Neem Coated Urea, Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), National Agriculture Market (e-NAM), Pradhan Mantri Fasal Bima Yojana (PMFBY), PM-Kisan Samman Nidhi and Interest Subvention Scheme. <b>Read more...</b></li> </ul>
<b>Risk communication and public education;</b> Programme Specific, Event Specific, Media Coverage, General Health Awareness	
Irrigation development including digging wells, installing pumps, and building reservoirs	<ul style="list-style-type: none"> <li>Facilitate making the physical infrastructure multi-hazard resilient</li> <li>Assess structural risk and devise retrofitting measures based on the requirement</li> <li>Support for the development of IEC material and promotion</li> </ul>
Livestock development including providing veterinary services and training on animal husbandry practices	<ul style="list-style-type: none"> <li>Support to enhance multi-hazard resilience to infrastructure</li> <li>Facilitate risk transfer and coverage of insurance and credit facilities</li> <li>Ensure the livestock diseases surveillance is functional and provide information in easy-to-understand language</li> <li>For epidemics – align with the EWS system and prepare community-based quick response teams</li> <li>Support for the development of IEC material and promotion</li> <li>Ensure programme participants receive all eligible schemes</li> <li>Dairy Develop schemes. <b>Read more...</b></li> </ul>
Agri-market Linkages: link farmers to markets, including facilitating the sale of crops and providing access to credit	<ul style="list-style-type: none"> <li>Assess disaster risk to supply chains and develop multi-hazard resistance features at weak linkages</li> <li>Leverage modern technology to promote resilient packaging, storage, and technology to create alternate markets</li> <li>Support for the promotion of insurance and credit facilities</li> <li>Promote DRR-sensitive IEC and SBC collaterals</li> </ul> <b>Read more...</b>
Climate-resilient Agriculture: including conservation of soil and water resources	
Agricultural Value-addition: including processing and packaging of agricultural products	

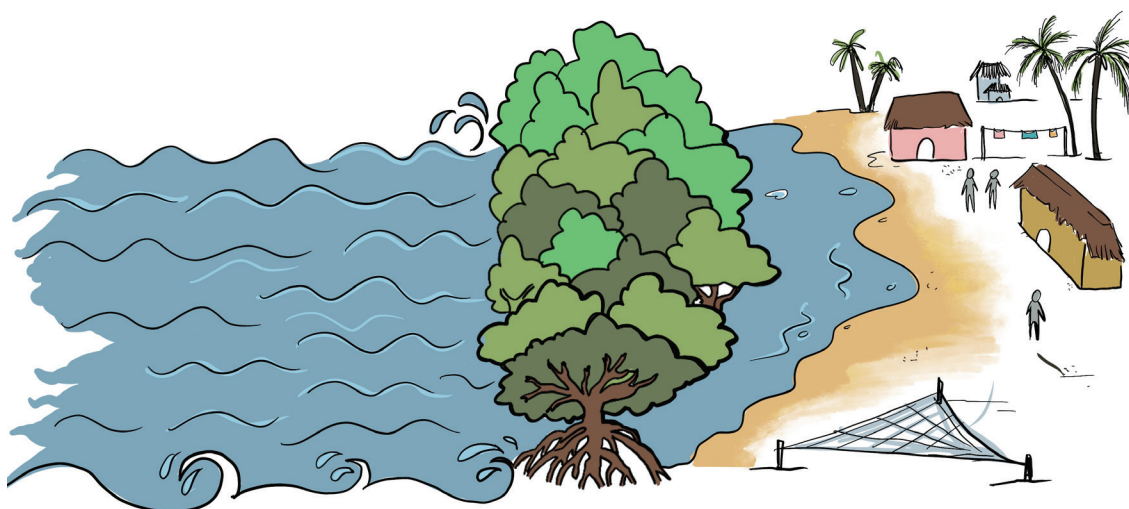


Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
<b>Social and Behavioural Change</b>	
Behaviour change interventions for the communities	<ul style="list-style-type: none"> <li>Create culturally acceptable products for the community to adopt new positive behaviours towards disasters</li> <li>Confidence-building measures within the community</li> </ul>
<b>Knowledge Management (Research, Experiments, Evaluation, Programme Briefs)</b>	
Knowledge Management	<ul style="list-style-type: none"> <li>Document the experiences of the interventions (process and outcomes)</li> </ul>

Important resources:

- 1) Read more...
- 2) Government schemes.
- 3) NIDM roadmap on resilient agriculture.
- 4) NIDM module on Climate and Disaster resilient agriculture.
- 5) ADPC Guidebook on climate smart agriculture.

## 4.4 Environmental Conservation



DRR and environmental conservation are closely linked, as environmental degradation is one of the root causes of disasters. To address the increasing frequency of disasters i.e., amplified by climate change, activities like forest conservation, soil conservation, waste management, reducing pollution, water and land resources, protection of biodiversity, and restoring ecological balance play an important role.

Wetlands are vulnerable to natural hazards such as cyclones and sea level rise. The DRR measures like early warning systems, mangrove plantations, construction of cyclone shelters, building capacity of communities to withstand frequent

hazards by preparing to have emergency supply kits, constructing flood barriers, and introducing renewable sources of energy can be undertaken.

Further, the people living around these sites have livelihood interests and economic opportunities associated to the natural ecosystem. Building capabilities of the people with eco-friendly tourism, enhancing alternate economic opportunities of local communities, and building flood embankments, are some of the DRR measures that may be introduced. **Read more...**

Following (illustrative & non-exhaustive) measures can be undertaken for mainstreaming DRR in environmental conservation sector:

Types of Interventions (Examples)	Mainstreaming Disaster Risks Reduction-Suggested Measures
<b>Systems Strengthening (Policy, Plans, Schemes, Infrastructures)</b>	
Risk assessment of environmental conservation projects	<ul style="list-style-type: none"> <li>• Support comprehensive disaster risk assessment to identify the hazards and patterns that are affecting the environment, water resources, soil resources, air other natural resources</li> <li>• Adopt a community-based approach for drought management preparedness and mitigation</li> <li>• Promote linkages with technical institutions for support and planning of locally suited interventions and device interventions</li> </ul>
Convergence with schemes	<ul style="list-style-type: none"> <li>• Promote/integrate/converge with the government schemes like Nagar Van Yojana (NVY), National Afforestation Programme, and National Action Programme (NAP) to combat desertification in the programmes</li> <li>• Develop incentive mechanisms for Villages/Communities for protection against forest fire, mangroves conservation</li> </ul>
Protection of afforestation projects, Mangroves conservation projects	<ul style="list-style-type: none"> <li>• Create "Forest Fire Line" which can be used for preventing fire breaking into the forest from one compartment to another</li> <li>• Create/maintain infrastructure (communication system, development of management Information System, watch towers, water storage structures, control rooms at strategic locations</li> <li>• Support firefighting equipment, and field vehicles for transportation of resources</li> <li>• Support Soil &amp; Moisture Conservation (SMC) work in High-risk areas</li> </ul>
	<ul style="list-style-type: none"> <li>• Assess the risk of Water pollution, fertilizer run off, Industrial waste, urbanization, deforestation, etc.</li> <li>• Promote afforestation, promote sustainable fishing/blue economy, etc.</li> <li>• Promote ecotourism, honey production, organic products, etc.</li> <li>• Promote nursery, planting and agroforestry</li> </ul>
<b>Capability Building (Community, Organizations)</b>	
Training and system upgradation	<ul style="list-style-type: none"> <li>• Linkages with the early warning mechanism</li> <li>• Develop a strategy in line with local Disaster management plans</li> <li>• Develop a network of scientific and traditional subject matter experts</li> </ul>
<b>Risk Communication and Public Education; Programme Specific, Event Specific, Media Coverage, General Health Awareness</b>	
Knowledge Management	<ul style="list-style-type: none"> <li>• Promote sustainable practices, replenish local trees, local species, and local seed bank, generate a habitat for wildlife, facilitate natural soil regeneration through composting, etc.</li> <li>• Promote wetland conservation and restoration and catchment area treatment/afforestation</li> <li>• Promote water conservation, harvesting, efficient irrigation, afforestation</li> <li>• Establish environment learning centers</li> </ul>
<b>Social and Behavioural Change</b>	
Behaviour change interventions for the communities	<ul style="list-style-type: none"> <li>• Organize awareness campaigns towards afforestation, environmental conservation</li> <li>• Ensure the use of PPEs during waste management, oil spill, cleanliness projects</li> <li>• Organize capacity building through workshops for coordination among line departments, elected bodies and NGOs</li> </ul>
<b>Knowledge Management (Research, Experiments, Evaluation, Programme Briefs)</b>	
Training	<ul style="list-style-type: none"> <li>• Organize training and capacity building for frontline staff, students, youths and village communities</li> </ul>





## Key Considerations in Mainstreaming DRR

### 5.1 Fostering transdisciplinary collaboration and stakeholder's platform

Disaster risk reduction is a transdisciplinary subject. For practical integration of risk reduction, sound technical expertise in varied fields of risk assessment, engineering, biotechnology, agricultural technology, social science, environmental sciences, and other context specific expertise is required for devising risk reduction measures. It requires capacity for community mobilization, and coordination with government departments, authorities, and stakeholders so that DRR measures can be articulated and implemented into the projects.

Risk-informed sustainable development is a collaborative and inclusive process and requires interdisciplinary and transdisciplinary collaborations.

**Stakeholder platform**, a competent network of technical institutions comprising of local implementation partners, government authorities and project management teams need to work together. The platform needs to meet and interact in regular intervals. Following steps may be undertaken for development of such platforms:

- Create a platform for the stakeholders including social media influencers and activist
- Provide disaster management training to stakeholders
- Create emergency management groups for the stakeholders, which include the social media platforms, internet messaging groups, etc.
- Gender empowerment, gender, and social equity may be promoted through the platforms

Good practices, lessons learnt from each project site, and reasons for failure or success also need to be documented and shared to ensure successful integration. Every organization undertaking mainstreaming DRR needs to upgrade its respective capacities and networks.

### 5.2 Community Participation

Community participation in DRR programming is critical to ensure that the needs and perspectives of targeted communities are considered so that DRR activities are effective, sustainable, and owned by the community. The steps for community engagement in DRR programming are as follows:





### **1. Assessment of community needs and capacities:**

- Identify the disasters faced historically, and list probable hazards for the community
- List existing capacities and resources to address hazard impacts through participatory rural appraisal (PRA).
- Map community structures, influencers, and their capacities to collaborate and engage them in the DRR processes.
- Every intervention needs to be considered unique in terms of the social, cultural, economic, and political contexts of the community and assessment needs to be done accordingly.

**2. Formation of disaster risk reduction committee at community level:** Establish a participatory, open, and transparent communication channel with the community, involve them in the decision-making process and ensure their active participation in DRR activities. It needs to involve stakeholders from all diverse groups, academia, govt., technical support, etc.

**3. Joint risks assessment and prioritization:** Community members, technical experts and relevant stakeholders work together to identify the hazard risks and prioritize them for DRR measures. Solutions may be devised considering specific context to a micro-level unit like a school, anganwadi, PHC, or any other area of intervention.

**4. Implementation of DRR activities:** Post the needs assessment of communities they need to be involved in the joint design and implementation of DRR activities with the enhancement and utilization of capacities of the community. It should also have strong reasoning of practical and technical aspects of DRR. The cultural values of the communities and acceptable practices also need to be considered.

**5. Monitoring and evaluation:** This step involve ongoing monitoring and evaluation of the DRR activities, with a focus on continuous improvement and adjustments based on feedback from the community and other stakeholders.

**6. Knowledge sharing and capacity building:** This step involves sharing best practices and knowledge with the community, as well as building the capacities of community members to manage disaster risks and respond to disasters more effectively and efficiently.

## **5.3 Social and Behaviour Change for DRR**

Social behavior change is a crucial aspect of disaster risk reduction, as it empowers individuals and communities to prepare for, cope with, and recover from disasters more effectively. By adopting proactive measures and changing their behavior, people can significantly reduce the impact of disasters, save lives, and protect their property and livelihoods.

For instance, by promoting disaster preparedness, such as creating emergency kits and evacuation plans, practicing safe behaviors, avoiding

construction in high-risk areas, or using fire-resistant materials, individuals can reduce their exposure and vulnerability to disasters. Moreover, social behavior change can foster a culture of resilience and community empowerment, leading to stronger and more cohesive communities that are better equipped to respond to emergencies. Project intervention should aim towards a social behavior change as it is an essential tool for building disaster resilience.





## Disaster Risk Reduction Measurement Framework

The DRR measurement framework is a systematic approach to assess and monitor the effectiveness of disaster risk management initiatives. It helps to identify the level of risk, evaluate the effectiveness of current risk reduction strategies, and guide the development of risk management plans. The goal of the DRR Measurement Framework is to support the integration of DRR into development policies and programmes, ensuring that communities are better prepared and more resilient to disasters.

The DRR Measurement Framework uses a set of indicators to measure the effectiveness of disaster risk management initiatives. Indicators are specific, quantifiable measures that provide information about the progress and outcomes of DRR activities. The choice of indicators depend on specific context, risks, and needs of the community or organization. Common indicators used in the DRR Measurement Framework include:

DRR Themes	Description	Indicative/Examples of Indicators	Means of Verification
1. Reduction in Disaster Losses	This indicator measures the reduction in the number of lives lost injuries and damage to property and infrastructure as a result of DRR initiatives.	1.1 # of lives saved, estimate (disaggregated by sex, age, castes, etc.) 1.2 # of people saved from injuries, estimate disaggregated by sex, age, castes, etc. 1.3 # of private properties saved from damage/destructions, estimate 1.4 # of public properties saved from damage/destruction 1.5 # of land (framing/non-farming) saved from flood/fire and other types of hazards	<ul style="list-style-type: none"> <li>Demographic and Socio-Economic Data</li> <li>Infrastructure data, land records</li> <li>Hazard Data</li> </ul>
2. Improved Awareness and Understanding of Disaster Risks	This indicator measures the level of awareness and understanding of disaster risks in the intervention communities and region including key stakeholders.	2.1 # of community members able to identify potential hazards impacting their lives and livelihoods in the intervention, programme areas 2.2 # of community members able to recall/explain mitigation measures for each of the identified hazards 2.3 # locally developed signages, songs for local risk, IEC material/PRA outcomes shared with communities 2.4 # of stakeholders able to recall/explain mitigation measures for each of the identified hazards	<ul style="list-style-type: none"> <li>Knowledge, Attitude and Practices (KAP) Survey</li> </ul>



DRR Themes	Description	Indicative/Examples of Indicators	Means of Verification
3. Strengthened DRR capacities	This indicator measures the capacity of communities and organizations involved in the programme and projects to respond to and recover from disasters including the availability of resources equipment and trained personnel.	<p>3.1 # of community members and stakeholders trained in concerned DM related subjects</p> <p>3.2 # of community members have access to knowledge for mitigation measures, technical support for rehabilitation and recovery</p> <p>3.3 # of the project implementation team in programme area trained in DRR on the respective subject</p> <p>3.4 # of community members are skilled to adapt as per alternative methodologies</p> <p>3.5 # of community members have all basic documentation to access the essential services, credits, government social protection schemes</p>	<ul style="list-style-type: none"> <li>• Training report</li> <li>• Assets Register</li> </ul>
4. Increased Preparedness	This indicator measures the level of preparedness of communities and organizations involved in the programme and projects for disasters including the development of local early warning systems evacuation plans and risk-informed decision-making.	<p>4.1 Community disaster risk management plan is prepared</p> <p>4.2 Adequate shelters identified and functional all the time</p> <p>4.3 # of community members who have access to response equipment, and resources and are trained to use them</p> <p>4.4 Early warning mechanism in place</p> <p>4.5 # of volunteers registered as Apada Mitra/Response teams</p>	<ul style="list-style-type: none"> <li>• Community Disaster Management Plan</li> <li>• Assets Register</li> </ul>
5. Improved Infrastructure and Land-use Planning	This indicator measures the effectiveness of DRR-informed land-use and infrastructure planning including the construction of disaster-resistant buildings and infrastructure.	<p>5.1 # of infrastructure complied with the multi-hazard resistance codes</p> <p>5.2 # Land use planning with respect to Multi-Hazard Vulnerability prepared</p> <p>5.3 # of infrastructures for which Disaster Risks Audit including placements of equipment and furniture and fixtures completed</p>	<ul style="list-style-type: none"> <li>• Hazard Mapping</li> <li>• Land-use Mapping</li> </ul>
6. Effective Response and Recovery	This indicator measures the effectiveness of disaster response and recovery efforts including the timely and coordinated delivery of relief and recovery services.	<p>6.1 # of hrs./days within which basic services such as schools, health care institutions, water, and power supply are restored</p> <p>6.2 # of people received food and non-food items within 24 hours of a disaster</p> <p>6.3 # of people whose livelihood restored in 15 days</p> <p>6.4 # of people received credit and other business incentives</p>	<ul style="list-style-type: none"> <li>• Reports</li> </ul>

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## Annexure 1. SDGs & Disasters:

	No Poverty: Disasters can cause widespread damage to infrastructure and property, disrupt livelihoods, and increase poverty.
	Zero Hunger: Disasters can lead to food shortages, loss of crops and cattle, and increase food insecurity.
	Good Health and Well-Being: Disasters like epidemics can overwhelm health care capacities and devoid health care. Disasters can cause injury, spread of diseases, and damage to healthcare facilities disrupting critical health services, leading to increased morbidity and mortality rates.
	Quality Education: Disasters can disrupt education systems, leading to school closures, loss of educational infrastructure and materials, and hindered access to education leading to loss of learning.
	Gender Equality: Disasters can exacerbate gender inequalities, with women and girls getting disproportionately affected by the loss of livelihoods, limited access to resources and services, and increased vulnerability to violence and exploitation.
	Clean Water and Sanitation: Disasters can disrupt access to clean water and sanitation systems, leading to an increased risk of waterborne diseases.
	Affordable and Clean Energy: Disasters can cause power outages and damage to energy infrastructure, hindering access to energy and increasing dependence on fossil fuels.
	Decent Work and Economic Growth: Disasters can lead to job loss, business closures and economic losses, reducing economic growth and opportunities for decent work.
	Industry, Innovation, and Infrastructure: Disasters can cause damage to physical infrastructure and disrupt industrial and technological systems, hindering innovation, markets, and economic growth.
	Reduced Inequalities: Disasters can exacerbate existing inequalities, with marginalized and vulnerable communities being disproportionately affected.
	Sustainable Cities and Communities: Disasters can cause damage to urban areas, displacement of populations, and disruption of social and community networks.
	Responsible Consumption and Production: Disasters can increase waste generation, and consumption of non-renewable resources, and lead to environmentally harmful practices in the recovery process.
	Climate Action: Disasters disrupt the implementation of climate actions and pose challenges to addressing climate risks
	Life Below Water: Disasters can cause oil spills, damage to coral reefs, and harm to marine and coastal ecosystems, affecting the health and productivity of the oceans and the communities that depend on them.
	Life on Land: Disasters can cause soil erosion, deforestation, and harm to biodiversity, affecting the health and productivity of ecosystems and the communities that depend on them.
	Peace, Justice, and Strong Institutions: Disasters can exacerbate conflicts and increase the risk of violence, particularly in areas where resources are scarce and competition for resources is high.
	Partnerships for the Goals: Management of disaster risks often requires collaboration and cooperation among multiple actors, including governments, international organizations, the private sector, and civil society, to effectively respond and recover. The effectiveness of these partnerships in responding to disasters can affect progress towards all the SDGs.

## Annexure 2. Checklist to Incorporate DRR in CSR Projects

By conducting proposal reviews through DRR lenses, the management team can ensure that DRR measures are integrated into development projects and programmes, reducing the risks and impacts of disasters on communities and improving the resilience of vulnerable populations. A suggestive (illustrative & non-exhaustive) checklist that can be used to ensure the assess disaster risk and integration of DRR measures into programmes and projects:

Review Questions	Description	Reviewers'/Team Comments
1. Does the proposal have a component of risk assessment that may impact the outcome of the project?	Conduct a thorough hazard, exposure and vulnerability assessment to identify potential disaster risks, and the coping capacity of community and assets in the project area. Ensure the programme does not create new risks.	1. What are probable hazards, their frequency and severity? 2. What areas are exposed (more prone) to the identified hazards? 3. What assets, buildings, agricultural fields are in the hazard-prone area? 4. Who will be worst affected if the hazard strikes? What capacities/vulnerabilities do they have? 5. Can your project intervention reduce existing hazards? 6. Can your project reduce the impact of hazards? a. By making structures strong? b. By making systems strong? c. By the installation of systems like early-warning, smoke detection, etc.
2. Does the proposal have a section on the impact of the hazards on vulnerable groups?	Marginalized and vulnerable groups such as children, women, the elderly, and differently abled, migrants have a disproportionate impact of disasters. The risk assessment should highlight communities as risk sections on these important members of the society.	7. Are we planning new development in hazard-prone areas and increasing our exposure? a. Is the construction design suitable as per building codes to withstand the hazard impacts? 8. Is the intervention reducing/increasing the vulnerabilities or building capacities for that specific hazard? 9. Have communities identified their capacity building needs? Does it match the intervention?
3. Does the proposal have a section addressing disaster risk/integration of risk reduction measures and improving coping capacities of concerned stakeholders based on the risk measures?	Integrate specific risk reduction measures into project activities, such as the construction of disaster-resistant buildings and infrastructure, the development of early warning systems, and response equipment support, training of local communities in disaster preparedness.	10. Based on the risk assessments, does the crop type/intervention/mitigation measure reduce the existing risks? 11. Is a Disaster Risk Management Committee formulated? 12. Is the DRM committee trained? 13. Is the intervention in line with the local DRR plan of DDMA/SDMA? 14. Is the implementation partner trained to understand disaster risk? 15. Does the committee have technically sound persons from your local agricultural universities/companies/technical institutions?
4. Does the proposal have a methodology to ensure technical agencies as well as community participation to devise DRR?	Engage local communities and other key stakeholders in the DRR process, including the hazard and vulnerability assessment, risk reduction planning, implementation, monitoring and building their capacities in the process.	16. Is there an allocated budget? a. Participatory risk assessment? b. Hazard-specific design, safety installations, signages, IECs? c. Capacity building of partners, stakeholders, communities? d. To undertake prevention and mitigation activities recommended by DRM Committee? e. DDMA has the responsibility to conduct trainings, implement schemes and disseminate warnings for DRR – does this support utilized?
5. Does the proposal have DRR-specific measurement indicators to Monitor and evaluate DRR activities?	Regularly monitor and evaluate the effectiveness of DRR activities and make adjustments as needed to ensure that the risk reduction goals are met.	17. Are communities prepared to response immediately in case of emergency? a. Do they have resources to respond? Are they trained to use those resources? b. Do they have a community early warning mechanism in place? Are all caste/ethnic groups connected with early warning mechanism? How does the warning reach them? c. During emergencies do all communities evacuate in harmony or do they have inequality that keeps few sections away? d. Is the intervention benefitting women, children, PwDs, elderly as well? e. Is the intervention sustainable or it is increasing dependence in locally unavailable resources?
6. For the ongoing project, step 1 to 4 may be conducted as a separate exercise and revise the programme, and project strategy based on the risk assessment.	Incorporate DRR into ongoing project management and monitoring activities, including the development of risk reduction plans, the regular monitoring and evaluation of risk reduction measures, and the continuous improvement of the DRR process.	18. Is DRM committee monitoring the disaster risk reduction activities? 19. Based on review of the interventions, is the strategy updated? 20. Was the existing risk reduced post intervention? to what extent?





Leadership with Trust

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