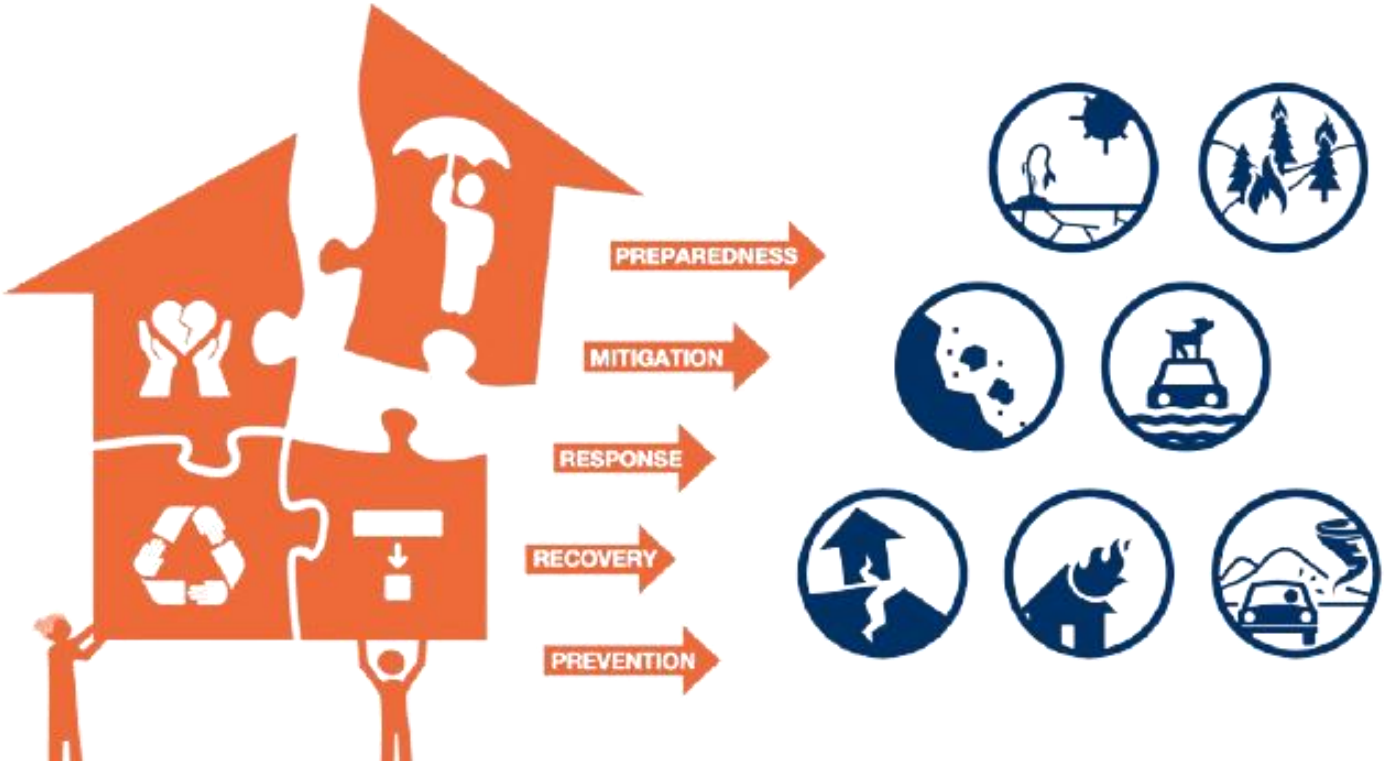
Participants Handbook

on

Basics of Disaster Risk Management for Govt. Officials



GUJARAT INSTITUTE OF DISASTER MANAGEMENT

BUILDING RESILIENCE

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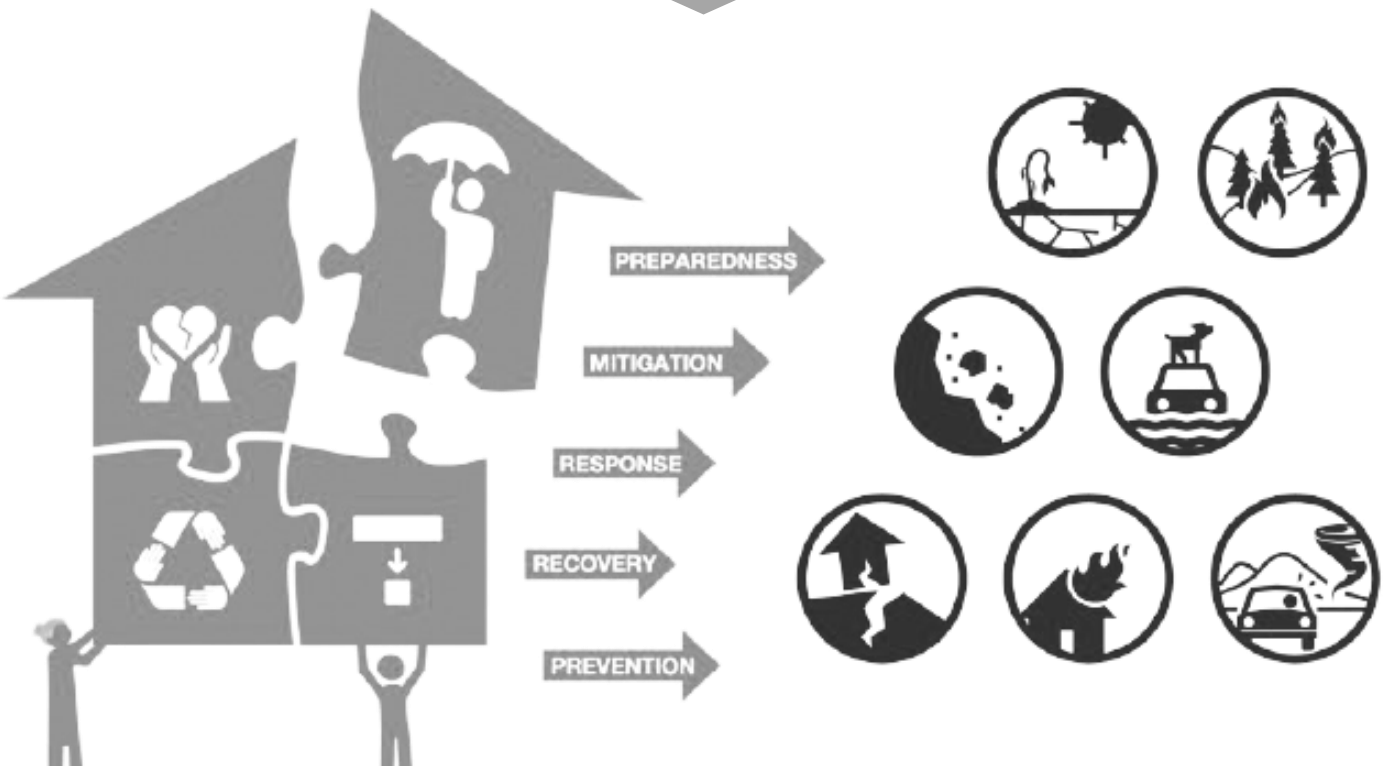

Gujarat Institute of Disaster Management

GUJARAT INSTITUTE OF DISASTER MANAGEMENT
BUILDING RESILIENCE

CONTENTS

About the Module

Since the starting of 21st century, modern man has so much engulfed in the process of development that they are on the verge of exhausting entire natural available with us and depleting environment, which in turn increases the frequency and intensity of most of the hazards which includes flash floods, cloud burst events, cyclone, lightening, etc.

Introduction of this Handbook

The objective of this handbook is to orient participants towards the concept of Disaster Risk Management instead of Disaster Management as emphasized in SFDRR. This handbook aims to imbibe a culture of DRM to probationer's govt. officials and other officials from Govt. of Gujarat to change their outlook from Disaster Management to Disaster Risk Management. Thus, in a way, the module aims to inculcate a culture of resilience.

Doing what is being taught is perhaps the best way to ensure that knowledge is retained and this forms the guiding principle of this participants handbook. The module has been developed by the Gujarat Institute of Disaster Management (GIDM) with inputs from professionals working in this sector and by referring to several research articles.

Need of this Handbook

This handbook is designed to give the targeted audience a flavor of current as well as past scenario of Disaster Risk Management in India. It also deals with international commitments, frameworks and conventions for effective implementation and achievement of targets and goals set by them. This handbook also gives an overview of existing intuitional mechanism for DRM and important sections of Disaster Management Act, 2005.

Scope of this Handbook

This handbook has been prepared keeping in mind that this will act as a knowledge product for both trainees and trainer as a baseline document for understanding the concept of Disaster Risk Management

Mode of Training, Anticipate Audience, Duration

This handbook is targeted towards the newly recruited probationer/ government officials. This module is designed with a view that the target audience will reap maximum benefits in minimum amount of time and will understand the basics of DRM in a comprehensive manner. The style of delivery, however, may differ depending upon the levels of officials (L1, L2 or L3). A group size of 25 - 30 people would be ideal.

This handbook is designed in such a way that the entire content can be covered in a single working day, if done exhaustively, both via online mode or offline mode.

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Learning Unit 1
Basic Understanding to Disaster Risk Management

Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

Figure 1: Basics of Disaster Risk Management

Learning Unit 1.1

What is Disaster Risk?

The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

Disaster Risk is directly proportional to Hazard, Vulnerability & Exposure whereas Disaster Risk is inversely proportional to Coping Capacity.

$$\text{DISASTER RISK} \propto \frac{\text{HAZARD} * \text{VULNERABILITY} * \text{EXPOSURE}}{\text{COPING CAPACITY}}$$

The definition of disaster risk reflects the concept of hazardous events as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socioeconomic development, disaster risks can be assessed and mapped, in broad terms at least.

In simple words, Disaster Risk is directly proportional to Hazard, Exposure and Vulnerability. It means that on increasing the severity of hazard, Vulnerability & Exposure, Disaster Risk Increases.

Annotation: The definition of disaster risk reflects the concept of hazardous events and disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socioeconomic development, disaster risks can be assessed and mapped, in broad terms at least.

It is important to consider the social and economic contexts in which disaster risks occur and that people do not necessarily share the same perceptions of risk and their underlying risk factors.

Acceptable risk, or tolerable risk, is therefore an important subterm; the extent to which a disaster risk is deemed acceptable or tolerable depends on existing social, economic, political, cultural, technical and environmental conditions. In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or "accepted practice" which are based on known probabilities of hazards and other factors.

Residual risk is the disaster risk that remains even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery, together with socioeconomic policies such as safety nets and risk transfer mechanisms, as part of a holistic approach.

Figure 2: Components of Disaster Risks

Learning Unit 1.2

Hazard, Vulnerability, Exposure and Coping Capacity

Hazards:

A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

Annotations: Hazards may be natural, anthropogenic or socio natural in origin. Natural hazards are predominantly associated with natural processes and phenomena. Anthropogenic hazards, or human-induced hazards, are induced entirely or predominantly by human activities and choices. This term does not include the occurrence or risk of armed conflicts and other situations of social instability or tension which are subject to international humanitarian law and national legislation. Several hazards are socio natural, in that they are associated with a combination of natural and anthropogenic factors, including environmental degradation and climate change.

Hazards may be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity or magnitude, frequency and probability. Biological hazards are also defined by their infectiousness or toxicity, or other characteristics of the pathogen such as dose-response, incubation period, case fatality rate and estimation of the pathogen for transmission.

Multi-hazard means (1) the selection of multiple major hazards that the country faces, and (2) the specific contexts where hazardous events may occur simultaneously, cascading or cumulatively over time, and taking into account the potential interrelated effects.

Hazards include (as mentioned in the Sendai Framework for Disaster Risk Reduction 2015-2030, and listed in alphabetical order) biological, environmental, geological, hydrometeorological and technological processes and phenomena.

Biological hazards are of organic origin or conveyed by biological vectors, including pathogenic microorganisms, toxins and bioactive substances. Examples are bacteria, viruses or parasites, as well as venomous wildlife and insects, poisonous plants and mosquitoes carrying disease-causing agents.

Environmental hazards may include chemical, natural and biological hazards. They can be created by environmental degradation or physical or chemical pollution in the air, water and soil. However, many of the processes and phenomena that fall into this category may be termed drivers of hazard and risk rather than hazards in themselves, such as soil degradation, deforestation, loss of biodiversity, salinization and sea-level rise.

Geological or geophysical hazards originate from internal earth processes. Examples are earthquakes, volcanic activity and emissions, and related geophysical processes such as mass

movements, landslides, rockslides, surface collapses and debris or mud flows. Hydro-meteorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize although undersea earthquakes and other geological events trigger them, they essentially become an oceanic process that is manifested as a coastal water-related hazard.

Hydro meteorological hazards are of atmospheric, hydrological or oceanographic origin. Examples are tropical cyclones (also known as typhoons and hurricanes); floods, including flash floods; drought; heatwaves and cold spells; and coastal storm surges. Hydro meteorological conditions may also be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics and in the transport and dispersal of toxic substances and volcanic eruption material.

Technological hazards originate from technological or industrial conditions, dangerous procedures, infrastructure failures or specific human activities. Examples include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.

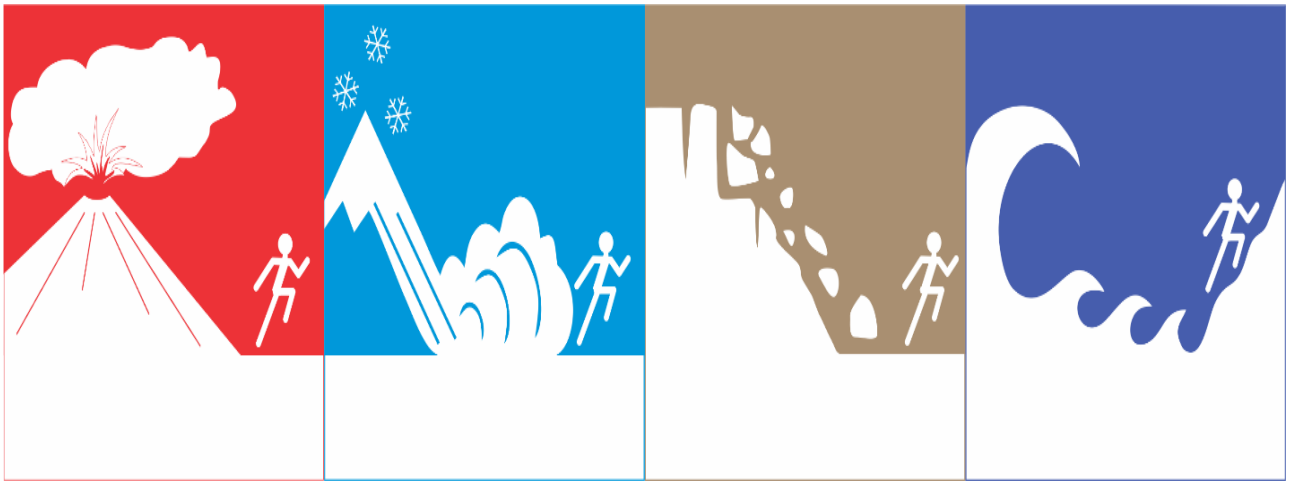

Figure 3: Types of Hazards

Vulnerability:

The **conditions** determined by **physical, social, economic and environmental factors** or **processes** which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

Annotation: For positive factors which increase the ability of people to cope with hazards, see also the definitions of "Capacity" and "Coping capacity".

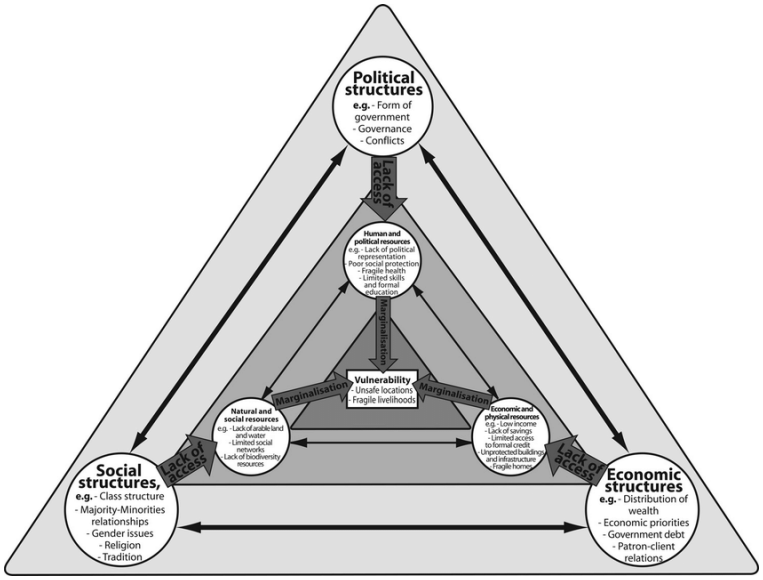

Figure 4: shows vulnerability Triangle

In the above figure, vulnerability is located at the center of the triangle, ultimately reflects people's position within the society or a community as a consequence of their ability or inability to secure access to a large, resistant and sustainable set of resources. The above figure shows that root causes of vulnerability are interacting and so are the resources that enable people to make a daily living and protect themselves in facing natural hazards.

Vulnerability may be explained in terms of COVID-19 as well. In India, during COVID-19 first wave old aged people or people having co morbidities are more susceptible to contracting the virus in comparison to mid-aged group or people having no morbidities.

Exposure:

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

Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability and capacity of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

Figure 5: Exposure

Capacity:

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.

Annotation: Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management.

Coping capacity is the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. The capacity to cope requires

continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

Capacity assessment is the process by which the capacity of a group, organization or society is reviewed against desired goals, where existing capacities are identified for maintenance or strengthening and capacity gaps are identified for further action.

Capacity development is the process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals. It is a concept that extends the term of capacity-building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems and the wider enabling environment.

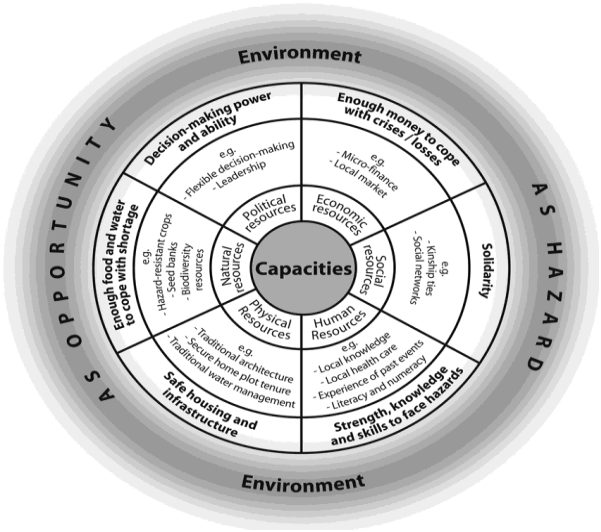

Figure 6: Circle of capacities

Learning Unit 1.3

Disaster Vs Hazard

As evident from the formula of Disaster Risk, Disaster Risk is directly proportional to Hazard, hence on increasing hazard (in terms of its intensity, frequency and duration), Disaster Risk increases. A hazard becomes a disaster, when it interacts with the human environment adversely

affecting the social, economic and environmental conditions and the consequences are beyond the coping capacity.

Hazards do not necessarily cause any destruction. If an earthquake was to hit a barren mountain with no human community, it would simply be a natural phenomenon; or a natural hazard. Hazards can be geological (the most common), biological (epidemics) or chemical (nuclear power plant leaks, chemical industry leaks, etc).

Today, most hazards are turning into disasters simply because of the sheer extent of human communities in the world. We exist in almost every terrain, every environment on Earth. Consequently, even small-scale hazards turn into major disasters affecting a significant number of humans and their property.

Therefore, a hazard can lead to a disaster that will completely disrupt the life conditions of the victims. However, both hazard and disaster bear potential threat to humans since both can result in loss and damage to life and property. A disaster is more critical in nature than a hazard, which might turn into a disaster in extreme circumstances.

Disaster Vs Disaster Risk

Disaster occurs when a hazard interacts with a particular community resulting in disruption of normal functioning of the community and is beyond the coping capacity of the community whereas the Disaster Risk signifies the potential loss of life if a particular hazard effects a community. The term Disaster is quantitative in nature whereas the term Disaster Risk is Qualitative in nature.

Exploring Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform 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 through risk management.

Figure 7: Resilience and steps to achieve Resilience

Learning Unit 1.4

Prevention are the measures the objective of which is to avoid the occurrence of a disaster.

Mitigation are the measures aimed at reducing the impact of disaster.

Preparedness is the state of readiness which enables stakeholders to mobilize, organize and provide relief to deal with an impending and actual disaster or the effects of a disaster.

Disaster Risk Management Cycle

Figure 8: DRM Cycle

Response are the measures taken just before during and just after the catastrophic event with the only objective of reducing social and economic losses.

Recovery The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster-affected community or society, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk. It consists of two parts: **Rehabilitation & Reconstruction**

Rehabilitation: The restoration of basic services and facilities for the functioning of a community or a society affected by a disaster.

Reconstruction: The medium-and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk.

Learning Unit 2 Paradigm Shift: Journey from Disaster Management to Disaster Risk Management

The different phases of the cycle logically follow each other and the science can be found only within this phases and not between them. The participants must also be given a flavor of how they can manage disasters at their own level, preferably at the family level or community level. Once the participants feel empowered, they must be enlightened to know about the paradigm shift that is occurring; from disaster management to disaster risk management that circumscribes disaster risk reduction.

Disaster Risk Reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of Sustainable Development.

Learning Unit 2.1

Evolution of Disaster Management to Disaster Risk Management

After the inception of Sendai Framework for Disaster Risk Reduction, the concept of Disaster Risk Management (DRM) has been focused through its 4 priority actions and 7 global targets. However, the concept of DRM has been introduced by Hyogo Framework for Action but failed to focus upon its underlying principles.

- It started with the United Nations observing the 1990s as the International Decade for Natural Disaster Reduction (IDNDR). With an aim was to decrease the loss of life, property destruction and social and economic disruption caused by Natural Disasters. (Designation of the International Day for Natural Disaster Reduction, promotion of DRR measures)
- **1st World Conference on Natural Disaster, (May 1994, Yokohama, Japan)**
  - Adopted the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action.
  - It was the main outcome of the mid-term review of the International Decade of Natural Disaster Reduction (IDNDR) and established 10 principles for its strategy, a plan of action and a follow-up.
  - In Dec. 1999 United Nations International Strategy for Disaster Reduction (UNISDR) was created - successor to the secretariat of the IDNDR
- **2nd World Conference on Disaster Reduction (January 2005, Kobe)**
- The Hyogo Framework for Action (HFA) (2005 – 2015): Building the Resilience of Nations and Communities to Disasters
- **Priorities for Action**
  - Ensure that Disaster Risk Reduction is a National and a Local priority with a strong institutional basis for implementation.
  - Identify, Assess and Monitor Disaster Risks and enhance Early Warning.

- Use knowledge, Innovation and Education to build a culture of Safety and Resilience at all levels.
- Reduce the Underlying Risk Factors.
- Strengthen Disaster Preparedness for effective Response at all levels.

- 3rd WCDRR may be added here.

Learning Unit 2.2

Development vs. Disaster

Disasters and Development are two faces of the same coin.

- Development, uncontrolled and sporadic, exposes us to new hazards, rendering us vulnerable, leading to disasters. On the other hand, disasters give us an opportunity to learn from our mistakes and develop in a much better way!

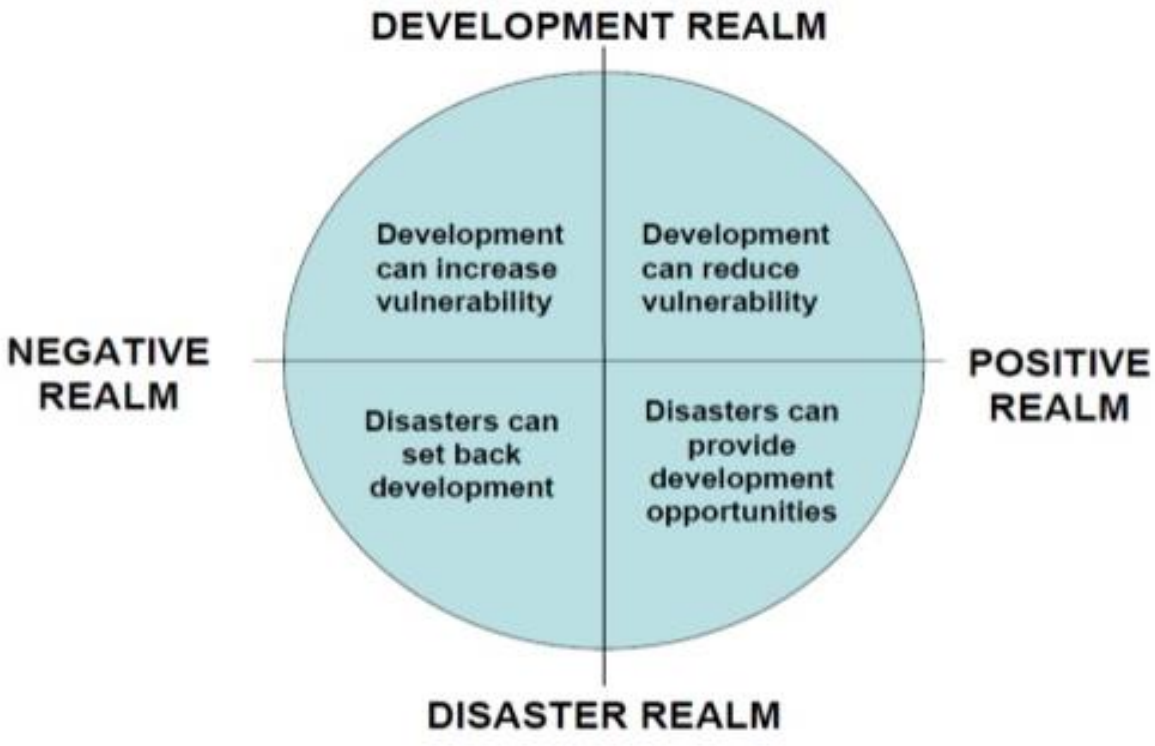

Figure 9: Disaster Vs Development

Learning Unit 2.3

How to manage Disaster Risk?

Managing risks may be a matter of dealing with the political, social, economic and environmental dimensions of people and hazards. As mentioned earlier in the previous chapter, only residual risk can be managed and that too in a very restricted manner.

Risk management is a proactive process that forms the basis for disaster management planning and helps those who hold disaster management responsibilities to provide effective, relevant and informed services to communities.

To ensure effective disaster risk management, groups at all levels are encouraged to:

- undertake risk assessment and management using an approved, recognized methodology that considers all reasonably foreseeable hazards, both natural and human-made
- support risk assessment and management with scientific data, the use of geospatial information systems, and analysis of historical and/or projected impacts to identify area specific exposures and vulnerabilities
- identify residual risk (the risk that remains in unmanaged form, even if controls are in place) from their risk management process and reach agreement between the levels of Queensland's disaster management arrangements to either accept, mitigate or transfer that risk
- clearly document and make publicly available hazard identification and risk assessments to stakeholders and community members, and review them regularly

  use risk assessments to inform mitigation, preparedness, continuity, response and recovery planning processes and documentation.

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Learning Unit 3

International frameworks and Agreements in relation to DRR

From Yokohama Strategies to Sendai Framework for Disaster Risk Reduction, from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs), from Kyoto protocol to Paris Agreement world has witnessed several disasters which has crippled the entire globe to the sand. But these agreements provide us to create institutional mechanism across national and local levels. DM Act 2005, reflects the image of these international frameworks and agreements during its implementation.

Learning Unit 3.1

Evolution of the Global DRR Policy Agenda

The adoption of the Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework)1 at the third United Nations World Conference on Disaster Reduction (WCDR) – and its subsequent endorsement by the General Assembly of the United Nations (Resolution A/RES/69/283) in June 2015 – marked the culmination of a process formally begun in the 1970s.

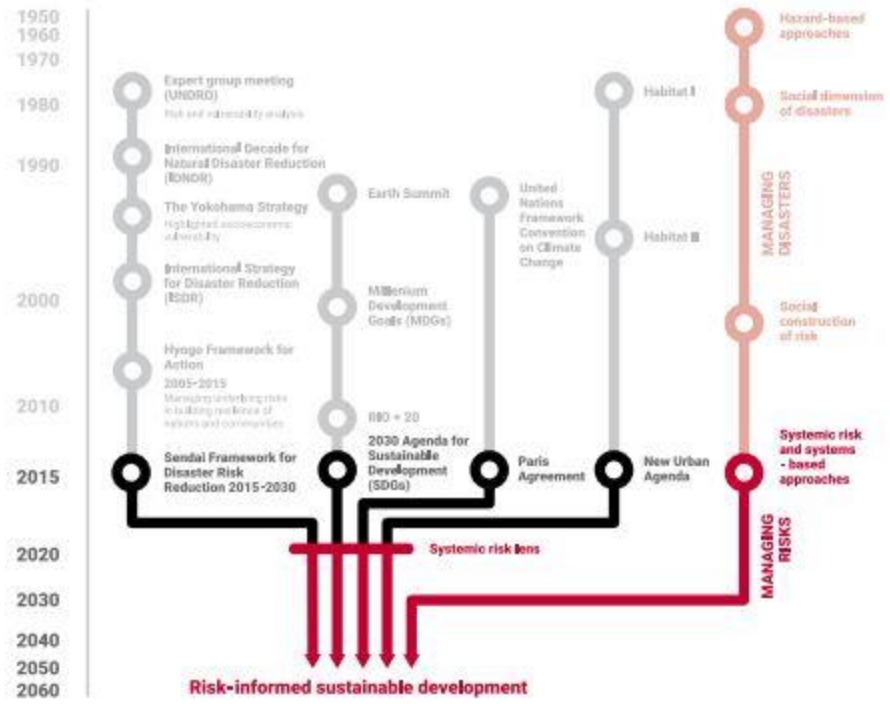

Figure 10: Timeline of DRR Initiatives at global scale

Learning Unit 3.2

Sendai Framework for Disaster Risk Reduction (SFDRR)

The Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework) emphasizes that risk is everyone's business – explicitly identifying the need for all-of-society and all-of-State institutions' engagement. Past Global Assessment Reports (GARs) presented the now-accepted wisdom that managing risk does not equate to firefighters, first responders and civil protection authorities managing the consequences of This puts the onus on all of us to understand the nature of risk – that death, loss or damage (impacts that define a disaster – that are the disaster) are a function of the context of hazard, realized risk. Risk must be understood in much broader terms –

contextually and temporally. Previous GARs also emphasized that risk is a function of more than simply hazard, that disasters are not natural, but a product of the interaction of often naturally occurring events and human agency. We define these events as disasters when people suffer and things we care about are damaged or lost.

The four priories for action under the Sendai Framework are:

1. Understanding disaster risk

2. Strengthening disaster risk governance to manage disaster risk

3. Investing in disaster risk reduction for resilience

4. Enhancing disaster preparedness for effective response and to "Build Back Beer" in recovery, rehabilitation and reconstruction

India is a signatory to the Sendai Framework for a 15-year, voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk, but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. India will make its contribution in achieving the seven global targets set by the Sendai Framework (Fig 2).

Figure 11: Sendai Framework for Disaster Risk Reduction - 7 Global Targets

1) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rates in the decade 2020–2030 compared to the period 2005– 2015;

2) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;

3) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030;

4) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030;

5) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;

6) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;

7) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

Learning Unit 3.3

Sustainable Development Goals 2015-30 (SDGs)

The Sustainable Development Goals (SDGs), adopted by the UN General Assembly on 25 September 2015, consisting of 17 Global Goals (Fig. 3) and 169 targets, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The 17 Goals build on the successes of the Millennium Development Goals (MDGs), while including new areas such as climate change, economic inequality, innovation, sustainable consumption,

peace and justice, among other priories. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

Sustainable development (SD) and disaster risk reduction (DRR) are closely interlinked. A single major disaster or "shock" incident (i.e. a rapid onset disaster like an earthquake, storm, tsunami or landslide) can undo hard-won development progress and set back development by years. A "stress" incident (i.e. a slow onset disaster like drought, sea level rise, and salinity intrusion into groundwater stocks) can also cause long-term socio-economic harm. Climate change aggravates impacts from both natural hazards and human-induced vulnerabilities by acting as a threat multiplier.

Figure 12: Seventeen Sustainable Development Goals

Learning Unit 3.4

Paris Climate Agreement 2015

The **Paris Agreement** was adopted on 12 December 2015 at the Twenty-first session of the Conference of the Pares (COP21) to the United Nations Framework Convention on Climate Change (UNFCC) held in Paris from 30 November to 13 December 2015. The agreement builds upon the UNFCCC and brings together all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so (Fig. 4).

The agreement aims at "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre - industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". Article-7 of this agreement dwells on establishing "the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change".

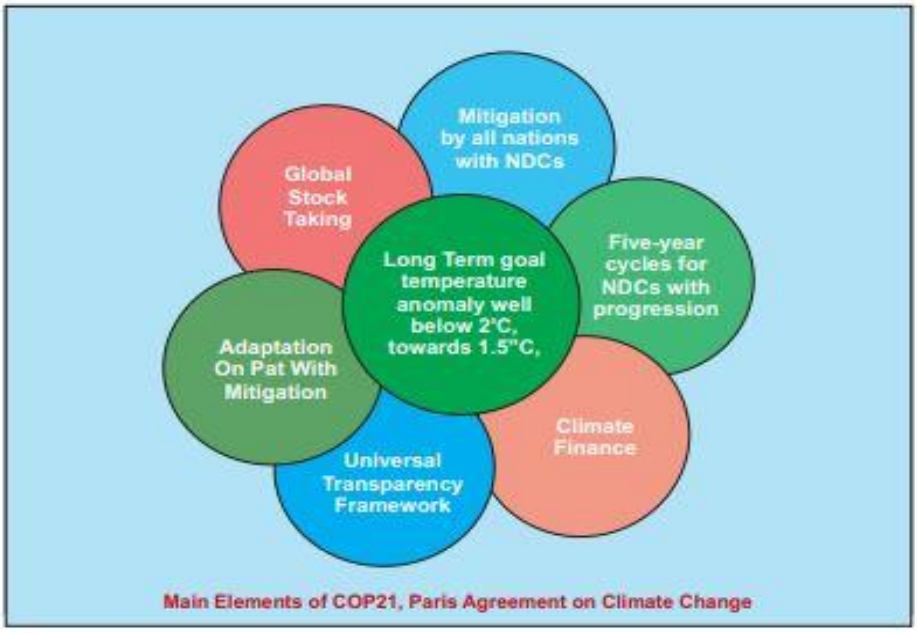

Figure 13: Main elements of the COP21, Paris Agreement on Climate Change

The major goals adopted in the Paris agreement are as follows:

i) A consensus on adopting the long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels

ii) Aim to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change

iii) Accepting the need for global emissions to peak as soon as possible, recognizing that this will take longer for developing countries and

iv) To undertake rapid reductions of emissions in accordance with the best available science

Kigali Amendment

A historic global climate deal was reached in Kigali, Rwanda at the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (MOP28). The so called **Kigali Amendment** which amends the 1987 **Montreal Protocol** aims to phase out Hydro fluorocarbons (HFCs), a family of potent greenhouse gases by the late 2040s. Growth of HFCs has mainly been driven by a growing demand for cooling, particularly in developing countries with a fast-expanding middle class and hot climates.

Around 197 countries, including India, China and the USA, agreed at Kigali to reduce the use of HFCs by roughly 85% of their baselines by 2045. It amends the 1987 Montreal Protocol. It is proposed to reduce Hydro fluorocarbons (HFCs). The agreement has got three separate pathways for different economies around the world.

- Richer countries like the European Union, the USA and others will start to limit their use of HFCs within few years and make a cut-off of at least 10% from 2019.
- Overall, these countries will reduce them to about 15% of 2010-12 baseline levels by 2036.
- China, Brazil and some other developing countries will freeze Hydro fluorocarbons use by 2024, cutting it to 20% of 2020-22 baseline levels by 2045.

- India is a part of the third group along with Iran, Pakistan, and Saudi Arabia etc. That will be freezing HFCs only by 2028 and reducing them to about 15% of 2024-26 baseline levels by 2047.

Learning Unit 3.5

Coherence between SFDRR, SDGs and COP 21 Paris Agreement

The possibilities of attaining SDGs are jeopardized because disasters undermine economic growth and social progress. No country or sector is immune to the impacts of natural hazards, many of which – the hydro-meteorological – are increasing in frequency and intensity due to the impacts of climate change. While necessary and crucial, preparing for disasters is not enough, to realize the transformative potential of the agenda for SDGs, all stakeholders recognize that DRR needs to be its integral core. Progress in implementing the Sendai Framework contributes to the progress of attaining SDGs. In turn, the progress on the SDGs helps to substantially build resilience to disasters. There are several targets across the 17 SDGs that are related to DRR. Conversely, all seven global DRR targets of the Sendai Framework are critical for the achievement of the SDGs.

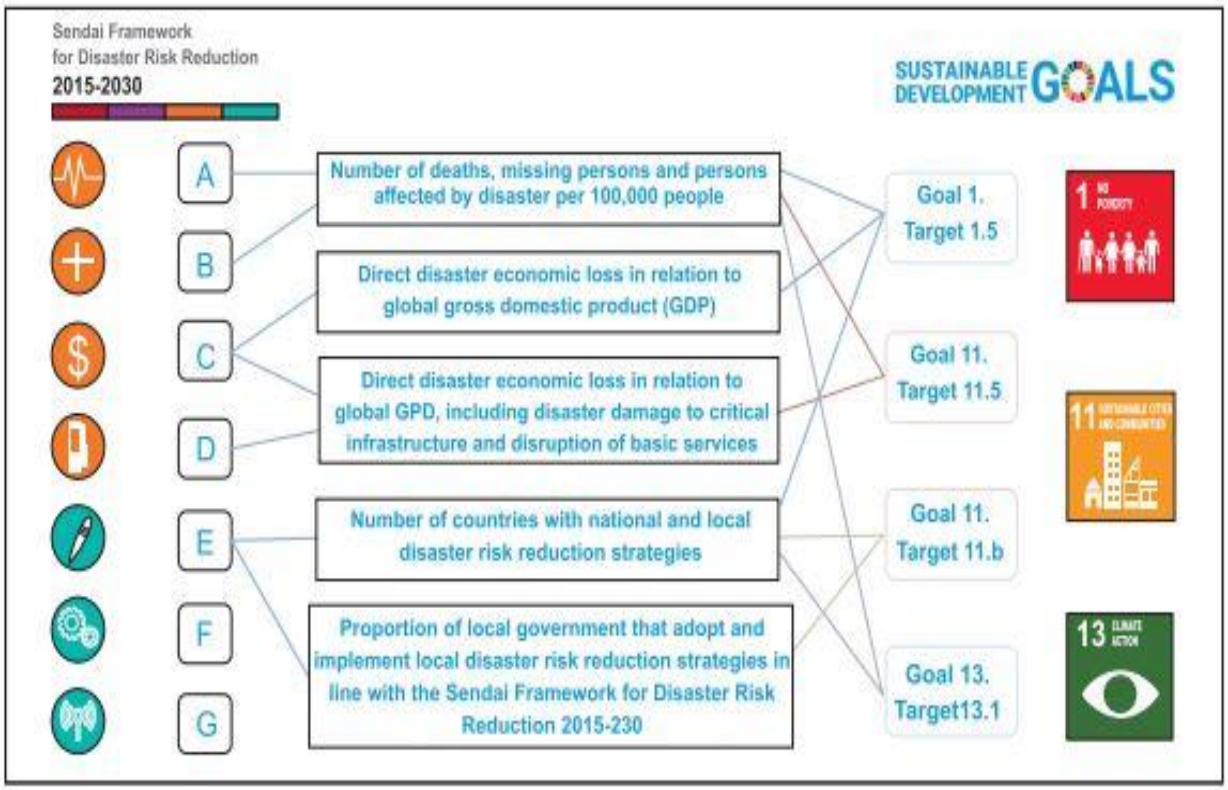

Figure 14: Coherence between SFDRR and SDGs There is significant convergence between the problems that disaster risk reduction and climate change adaptation seek to address (Fig. 6). The regions already exposed to climate-related hazards and effects will be at greater risk due to a projected increase in the frequency and/or intensity of those hazards and effects because of global climate change.

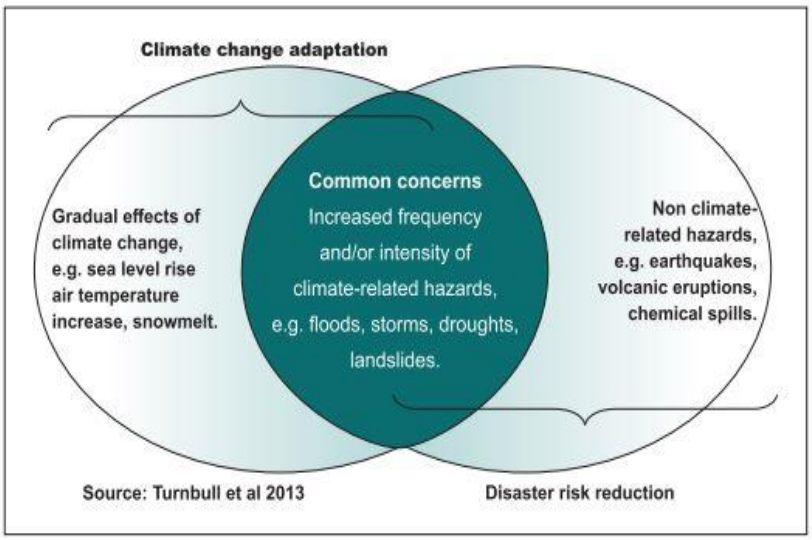

Figure 15: Coherence between SFDRR and Paris Agreement for Climate Change

Learning Unit 4
Institution Framework for DRM in India

The DM Act does not have any provisions for notifying any disaster as a 'national calamity' or a 'national disaster'. In most cases, state governments will be carrying out disaster management with the central government playing a supporting role. Generally, the central agencies will participate on the request from the state government. Within each state, there is a separate institutional framework for disaster management at the state-level. The DM Act of 2005 provides for the setting up of Disaster Management Authorities (DMA) at national (NDMA), the state (SDMA) and the district (DDMA) levels.

Learning Unit 4.1

At National Level (Structure & Key Decision Making Bodies and their responsibilities)

The overall co-ordination of Disaster management vests with the Ministry of Home Affairs (MHA). The Cabinet Committee on Security (CCS) and the National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making regarding disaster management. The NDMA is the agency responsible for the approval of the NDMP and

facilitating its implementation. Figure 2 below provides a schematic view of the basic institutional structure for DM at national level.

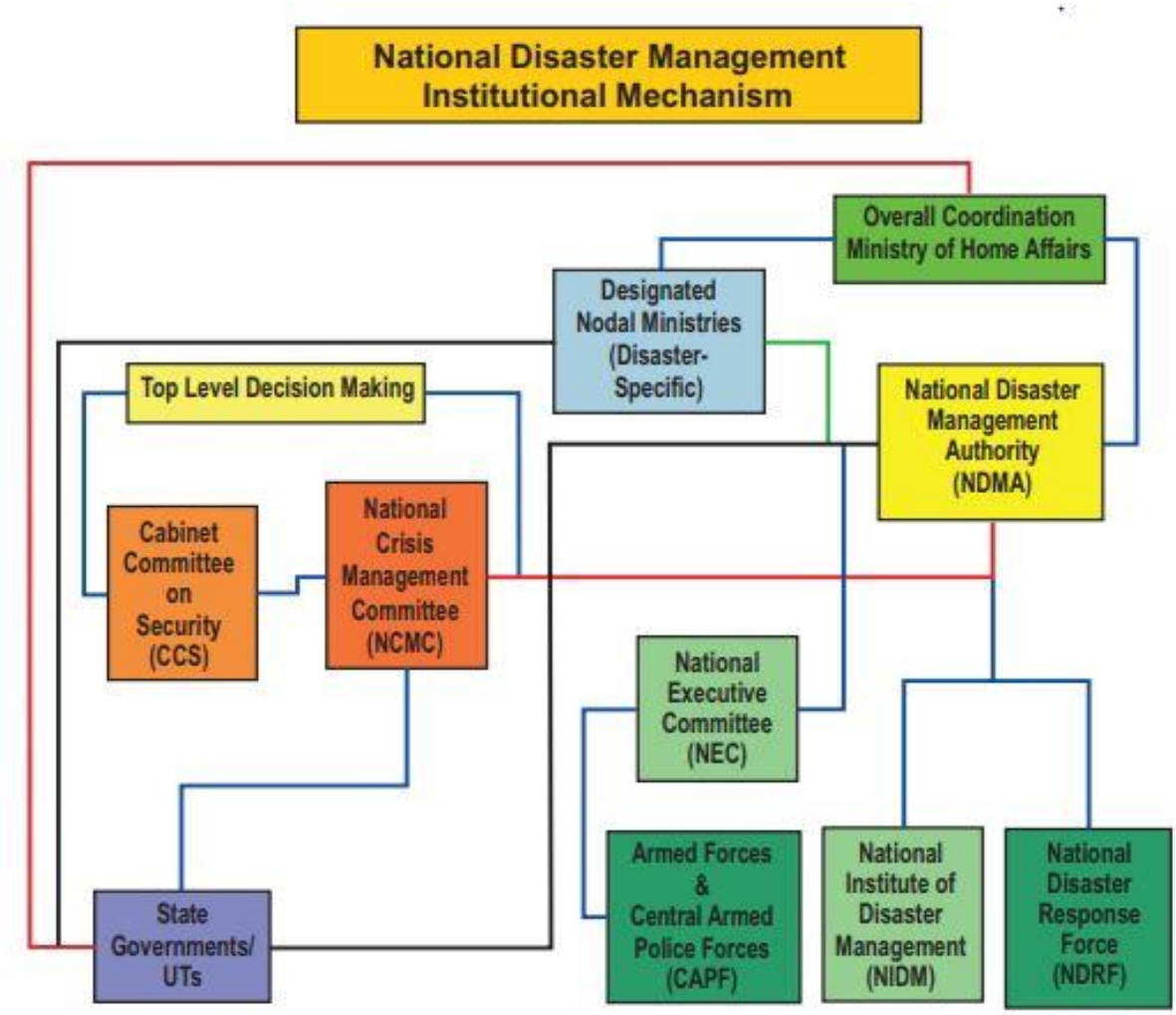

Figure 16: National-level disaster management - basic institutional framework

Note: This figure merely represents the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command.

Learning Unit 4.2

Nodal Ministries for Management/ Mitigation of Different Hazards

From time to time, the central government notifies hazard-specific nodal ministries to function as the lead agency in managing specific disasters (see Table 2 for current list of disaster-specific nodal ministries notified by GOI).

Table 2: - Nodal Ministry for Management/ Mitigation of Different Disasters

Sr. No.	Disaster	Nodal Ministry/ Department
1.	Accidents- Air	Ministry of Civil Aviation
2.	Accidents- Rail	Ministry of Railways
3.	Accidents- Road	Ministry of Road Transport and Highways
4.	Avalanche	Ministry of Defence- Border Roads Organization (BRO)
5.	Biological Emergencies	Ministry of Health and Family Welfare
6.	Cold wave	Ministry of Agriculture and Farmers Welfare
7.	Cyclone/ Tornado	Ministry of Earth Sciences
8.	Drought	Ministry of Agriculture and Farmers Welfare
9.	Earthquake	Ministry of Earth Sciences
10.	Floods	Ministry of Jal Shakti
11.	Floods- Urban	Ministry of Housing and Urban Affairs
12.	Forest Fire	Ministry of Environment, Forests, and Climate Change
13.	Frost	Ministry of Agriculture and Farmers Welfare
14.	Hail Storm	Ministry of Agriculture and Farmers Welfare
15.	Industrial and chemical	Ministry of Environment, Forests, and Climate Change
16.	Landslides	Ministry of Mines
17.	Nuclear and Radiological	Department of Atomic Energy
18.	Oil spills	Ministry of Defence- Indian Coast Guard
19.	Pest Attack	Ministry of Agriculture and Farmers Welfare
20.	Tsunami	Ministry of Earth Sciences

(Source: National Disaster Management Plan 2019)

Learning Unit 4.3

At State Level (Structure & Key Decision Making Bodies and their responsibilities)

As per the DM Act of 2005, each state in India/ Union Territory (UT) shall have its own institutional framework for disaster management. Each State/UT will have one nodal department for coordination of disaster management, referred hereafter as DM department (DMD), although the name and department is not the same in each State/UT. Among other things, the DM Act, mandates that each State/UT shall take necessary steps for the preparation of State/UT DM plans, integration of measures for prevention of disasters or mitigation into State/UT development plans, allocation of funds, and establish EWS. Depending on specific situations and needs, the State/UT shall also assist the Central Government and central agencies in various aspects of DM. Each state shall prepare its own State Disaster Management Plan.

The DM Act mandates the setting of a State Disaster Management Authority (SDMA) and a similar system in each Union Territory. At the district level, District Disaster Management Authority (DDMA), the District Collector or District Magistrate or the Deputy Commissioner, as applicable, will be responsible for overall coordination of the disaster management efforts and planning.

Figure below provides schematic view of the typical state-level institutional framework. The figure represents merely the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command.

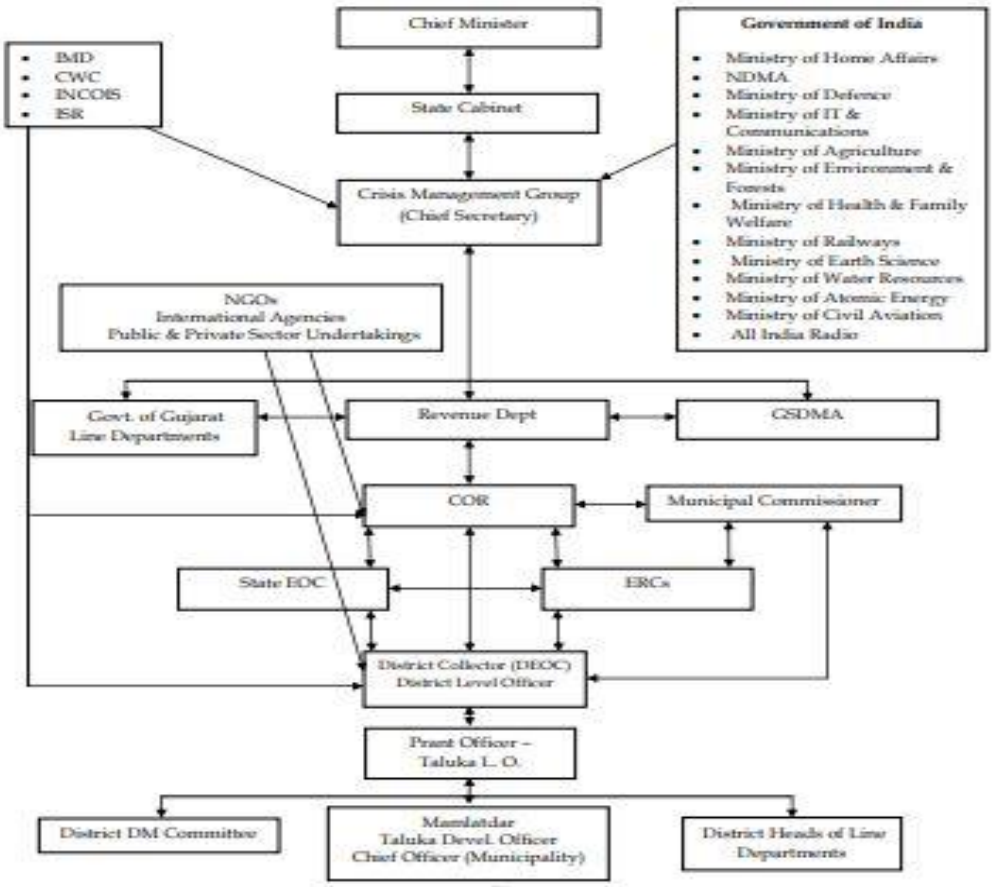

Figure 17: State-level disaster management - basic institutional framework

Note: This figure merely represents the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command.

Learning Unit 4.4

Important Statutory Provisions of DM Act, 2005

The Disaster Management Act, 2005, (23 December 2005) No. 53 of 2005, was passed by the Rajya Sabha, the upper house of the Parliament of India on 28 November, and the Lok Sabha, the lower house of the Parliament, on 12 December 2005. It received the assent of The President of India on 23 December 2005. The Disaster Management Act, 2005 has 11 chapters and 79

sections. The Act extends to the whole of India. The Act provides for "the effective management of disasters and for matters connected there with or incidental thereto." The main focus of this act is to provide the people who are affected with disasters, their life back and helping them.

From defining disaster, DM act 2005 provides holistic mechanism for effective implementation of Disaster Risk Management across the length and breadth of the country. Some of the important sections of this act are as follows: -

Table 3: Sections of Disaster Management Act, 2005

Sr. No.	Sections	Functions of the section
1.	Section 1	Short title, extent and commencement
2.	Section 2	Definitions
3.	Section 3	Establishment of National Disaster Management Authority
4.	Section 4	Meetings of National Authority
5.	Section 5	Appointment of officers and other employees of the National Authority
6.	Section 6	Powers and functions of National Authority
7.	Section 7	Constitution of advisory committee by National Authority
8.	Section 8	Constitution of National Executive Committee
9.	Section 9	Constitution of sub-committees
10.	Section 10	Powers and functions of National Executive Committee
11.	Section 11	National plan
12.	Section 12	Guidelines for minimum standards of relief
13.	Section 13	Relief in loan repayment, etc.
14.	Section 14	Establishment of State Disaster Management Authority
15.	Section 15	Meetings of the State Authority
16.	Section 16	Appointment of officers and other employees of State Authority
17.	Section 17	Constitution of advisory committee by the State Authority
18.	Section 18	Powers and functions of State Authority
19.	Section 19	Guidelines for minimum standard of relief by State Authority
20.	Section 20	Constitution of State Executive Committee
21.	Section 21	Constitution of sub-committees by State Executive Committee
22.	Section 22	Functions of the State Executive Committee
23.	Section 23	State Plan
24.	Section 24	Powers and functions of State Executive Committee
25.	Section 25	Constitution of District Disaster Management Authority

26.	Section 26	Powers of Chairperson of District Authority
27.	Section 27	Meetings of DDMA
28.	Section 28	Constitution of advisory committees and other committees
29.	Section 29	Appointment of officers and other employees of District Authority
30.	Section 30	Powers and functions of District Authority
31.	Section 31	District Plan
32.	Section 32	Plans by different authorities at district level and their implementation.
33.	Section 33	Requisition by the District Authority
34.	Section 34	Powers and functions of District Authority
35.	Section 35	Central Government to take measures
36.	Section 36	Responsibilities of Ministries or Departments of Government of India.
37.	Section 37	Disaster management plans of Ministries or Departments of Government of India
38.	Section 38	State Government to take measures
39.	Section 39	Responsibilities of departments of the State Government
40.	Section 40	Disaster management plan of departments of State.
41.	Section 41	Functions of the local authority
42.	Section 42	National Institute of Disaster Management
43.	Section 43	Officers and other employees of the National Institute.
44.	Section 44	National Disaster Response Force
45.	Section 45	Control, direction, etc.
46.	Section 46	National Disaster Response Fund
47.	Section 47	National Disaster Mitigation Fund
48.	Section 48	Establishment of funds by State Government
49.	Section 49	Allocation of funds by Ministries and Departments
50.	Section 50	Emergency procurement and accounting.
51.	Section 51	Punishment for obstruction, etc.
52.	Section 52	Punishment for false claim
53.	Section 53	Punishment for misappropriation of money or materials, etc.
54.	Section 54	Punishment for false warning
55.	Section 55	Offences by Departments of the Government
56.	Section 56	Failure of officer in duty or his connivance at the contravention of the provisions of this Act
57.	Section 57	Penalty for contravention of any order regarding requisitioning
58.	Section 58	Offence by companies
59.	Section 59	Previous sanction for prosecution
60.	Section 60	Cognizance of offences.
61.	Section 61	Prohibition against discrimination
62.	Section 62	Power to issue direction by Central Government
63.	Section 63	Powers to be made available for rescue operations
64.	Section 64	Making or amending rules, etc., in certain circumstances

65.	Section 65	Power of requisition of resources, provisions, vehicles, etc., for rescue operations, etc.
66.	Section 66	Payment of compensation
67.	Section 67	Direction to media for communication of warnings, etc.
68.	Section 68	Authentication of orders of decisions
69.	Section 69	Delegation of powers
70.	Section 70	Annual report
71.	Section 71	Bar of jurisdiction of court
72.	Section 72	Act to have overriding effect
73.	Section 73	Action taken in good faith
74.	Section 74	Immunity from legal process
75.	Section 75	Power of Central Government to make rules
76.	Section 76	Power to make regulations
77.	Section 77	Rules and regulations to be laid before Parliament
78.	Section 78	Power of State Government to make rules
79.	Section 79	Power to remove difficulties.

(Source: DM Act, 2005)

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Learning Unit 5
Financial Arrangements

The DM Act, 2005 recommended central government and state government to have a Disaster mitigation and response funds. The 15th Finance Commission recommended setting up National and State Disaster Risk Management Funds (NDRMF and SDRMF) for the promotion of local-level mitigation activities. The Commission has recommended retaining the existing cost-sharing patterns between the centre and states to fund the SDRMF and the SDRF (existing). The cost-sharing pattern between centre and Gujarat is 75:25.

The DM Act, 2005 has clearly mandated upon the Government to ensure that the funds are provided by the Ministries and Departments within their budgetary allocations for the purpose of disaster management. The Act has stressed upon the need for mainstreaming of the Disaster Risk Management by way of making definite budgetary arrangements for the purpose by the respective Ministries and Departments within their overall agenda.

The Disaster Management Act, 2005, which is acknowledged as a major development in the area of disaster management, provides for the effective management of disasters and for matters connected therewith or incidental thereto. The Act provided for the establishment of a legal, institutional and financial framework in the country. The Disaster Management Act provided for the establishment of a financial mechanism such as creation of funds for response and mitigation at the national and state level. Chapter IX (Finance, Accounts and Audit) of the Act states that the Central Government may constitute, a) Fund to be called the 'National Disaster Response Fund'

for meeting any threatening disaster situation or disaster and b) Fund to be called the 'National Disaster Mitigation Fund' for projects exclusively for the purpose of mitigation.

Chapter IX section 48 (1) states that the State Government shall, immediately after notifications of constituting the State Authority and the District Authorities, establish for the purposes of this Act the following funds, namely: —

(a) the fund to be called the National Disaster Response Fund

(b) the fund to be called the State Disaster Response Fund

(c) the fund to be called the National Disaster Mitigation Fund

(d) the fund to be called the State Disaster Mitigation Fund

5.1 Funds at National Level

5.1.1 National Disaster Risk Mitigation Funds (NDRMF)

National Disaster Risk Management Funds (NDRMF) has been set up as per the recommendation of 15th Finance Commission (FC). NDRMF comprises of the National Disaster Mitigation Funds (NDMF) and National Disaster Response Funds (NDMF).Out of the total NDRMF, the share of NDRF shall be 80 per cent and the share of NDMF 20 per cent. Within the NDRF allocation of 80 per cent, there would be three sub-allocations. They are Response and Relief (40 per cent), Recovery and Reconstruction (30 per cent) and Preparedness and Capacity-building (10 per cent). While the funding windows of NDRF and NDMF are not inter-changeable, there could be flexibility for re-allocation within the three sub-windows of the respective Funds and such re-allocation shall not exceed 10 percent of the allotted amount of that sub-window.

5.1.2 Prime Minister's National Relief Fund (PMNRF)

Prime Minister's National Relief Fund (PMNRF) was established entirely with public contributions and does not get any budgetary support. PMNRF accepts voluntary contributions from Individuals, Organizations, Trusts, Companies and Institutions etc. All contributions towards PMNRF are exempt from Income Tax under section 80(G) of the Income Tax Act, 1961. The resources of the PMNRF are utilized to render immediate relief to families of those killed in calamities like floods, cyclones and earthquakes, etc. Assists partially to defray the expenses for medical treatment like heart surgery, kidney transplantation, cancer treatment of needy people and acid attack etc. The corpus of the fund is invested in various forms with scheduled commercial banks and other agencies. Disbursements are made with the approval of the Prime Minister.

5.1.3 Prime Minister's Citizen Assistance & Relief in Emergency Situation Fund (PM CARES)

The primary objective of dealing with any kind of emergency or distress situation, like posed by the COVID-19 pandemic, and to provide relief to the affected, a public charitable trust under the name of 'Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund' (PM CARES Fund)' has been set up.

- To undertake and support relief or assistance of any kind relating to a public health emergency or any other kind of emergency, calamity or distress, either man-made or natural, including the creation or upgradation of healthcare or pharmaceutical facilities, other necessary infrastructure, funding relevant research or any other type of support.
- To render financial assistance, provide grants of payments of money or take such other steps as may be deemed necessary by the Board of Trustees to the affected population.
- To undertake any other activity, which is not inconsistent with the above Objects.
- Prime Minister is the ex-officio Chairman of the PM CARES Fund and Minister of Defence, Minister of Home Affairs and Minister of Finance, Government of India are ex-officio Trustees of the Fund.

- The Chairperson of the Board of Trustees (Prime Minister) shall have the power to nominate three trustees to the Board of Trustees who shall be eminent persons in the field of research, health, science, social work, law, public administration and philanthropy.
- The fund consists entirely of voluntary contributions from individuals/organizations and does not get any budgetary support. The fund will be utilised in meeting the objectives as stated above.
- Donations to PM CARES Fund would qualify for 80G benefits for 100% exemption under the Income Tax Act, 1961. Donations to PM CARES Fund will also qualify to be counted as Corporate Social Responsibility (CSR) expenditure under the Companies Act, 2013

5.2 Funds at State Level

5.2.1 State Disaster Risk Mitigation Fund (SDRMF)

State Disaster Risk Management Funds (SDRMF) has been set up as per the recommendation of 15th Finance Commission (FC). SDRMF comprises of the State Disaster Mitigation Funds (SDMF) and State Disaster Response Funds (SDMF). Out of the total SDRMF, the share of SDRF shall be 80 per cent and the share of SDMF 20 per cent. Within the SDRF allocation of 80 per cent, there would be three sub-allocations. They are Response and Relief (40 per cent), Recovery and Reconstruction (30 per cent) and Preparedness and Capacity-building (10 per cent). While the funding windows of SDRF and SDMF are not inter-changeable, there could be flexibility for re-allocation within the three sub-windows of the respective Funds and such re-allocation shall not exceed 10 percent of the allotted amount of that sub-window.

SDMF shall be used for those local level and community-based interventions, which reduce the risks and promote environment-friendly settlements and livelihood practices. However, large-scale mitigation interventions such as construction of coastal walls, flood embankments, support for drought resilience etc. should be pursued through regular development schemes and not from the mitigation fund. The detailed guidelines for the constitution and utilization of these funds shall be issued by the Ministry of Home Affairs,

5.2.2 Chief Minister's Relief Fund

This provides immediate support to the distressed people affected by the disasters, or road, air or railway accidents, Communal riots, Crop failure, Floods etc. The funds can be used for those people who have been affected by cancer, Heart surgery and other ailments, too.

5.3 Mobilization of additional resources

a) **Public Private Partnership:** There are projects/schemes in which funding can be done by a public sector authority and a private party in partnership. In this State Govt. along with Private organizations and with Central Government, share their part.

b) **Grant in Aid:** State Government may receive a grant in aid from Central Govt, or a local authority, bilateral or multilateral funding agencies, etc. to carry out specific projects/schemes related to disaster risk reduction and management.

c) **Corporate Social Responsibility (CSR) Funds:** Corporate social responsibility is a broad concept that can take many forms depending on the company and industry. Through CSR programs, philanthropy, and volunteer efforts, businesses can benefit society while boosting their brands. Section 135 of the Act, Schedule VII and Companies (CSR) Policy Rules, 2014, provide a robust framework for companies to partner in contributing to the country's development challenges through its managerial skills, technology and innovation. Besides providing an overall guidance framework for the corporates to carry out their CSR initiatives, it also provides them with ample autonomy and flexibility to design and implement programmes.The monitoring is based on disclosures made by the company in the prescribed form and annual report. The company has to disclose its details on CSR implementation, including allocation of funds, destination state and development sector where the CSR expenditure is done, etc. annually to this Ministry through filing of annual report on CSR. The mandatory CSR reporting has its advantages as it allows the corporates to demonstrate their commitment towards CSR and communicate with different stakeholders, including shareholders, regulators, customers and society at large.

d) **Loan:** GSDMA may borrow money from the open market with the previous approval of State government to carry out disaster management functions as described in DM Act,2003.

e) **Disaster Bonds:** State government can also raise funds for major disasters by exploring the options of long term disaster bonds.

f) **Donations:** As per the provisions of clause 33 of The Gujarat State Disaster Management Act, 2003 the Authority may accept grants, subventions, donations and gifts from the Central or State Government or a local authority or any individual or body, whether incorporated or not.

g) **Recovery Measures:** Introduction of Special Tax The GoG shall finalise and implement select recovery measures such as imposing tax surcharge levies (central), imposing local taxes, facilitation of funding responsibility sharing by beneficiaries etc.

Learning Unit 6
Conclusion and Way Forward

This handbook not only provides the opportunity to streamline the existing state machinery to adopt the paradigm shift from Disaster Management approach to Disaster Risk Management approach but also to make the target audience to understand the importance of Sustainable Development Goals 2030 and Sendai Framework for Disaster Risk Reduction-2015. The target audience for this type of training will be able to visualize and foresee the upcoming new risks that may be created unintentionally in the process of development, mitigate existing risks and manage the residual risks. This training module is not only limited to trainees from govt. departments/ ministries but also to private sector/ MNCs/ NGOs, etc.

In coming times, the module will be regularly updated incorporating the latest international frameworks/ multi-lateral agreements/ researches/ data in the field of DRM on the lines of National/ State Policies, guidelines and plans. In addition to this, various local initiatives for DRR implemented by Govt. of India is the highlight of this training module.

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GUJARAT INSTITUTE OF DISASTER MANAGEMENT

BUILDING RESILIENCE

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