

# Disaster Risk and Disaster Management Policies: A Comprehensive Analysis in Context of The Disaster Management Act, 2005

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## Abstract

India is the 7th largest country as per area, 1st populous country and most populous democracy in the world. India's climate is predominantly categorized as tropical monsoon. As per the World Risk Index (WRI) – 2023, India was at the third rank. The Eleventh Finance Commission of India suggested, and Twelfth Finance Commission of India emphasized hazard mapping, transparent relief distribution, and then allocated calamity relief funds. This paper discusses thoroughly the Disaster Management Act, 2005. The Disaster Management Act 2005 of India is structured into eleven chapters and addresses different aspects of disaster management. The Act also mandates the formulation of comprehensive disaster management plans tailored to regional risks and vulnerabilities, enhancing the country's readiness to tackle various types of disasters. It is recommended in the paper to focus more on creating citizen awareness and education rather than catering solely to officials. It is recommended in the paper that the "One Nation, One Act" policy should be considered to unify the National Disaster Management Act with state-level Acts for better coordination and streamlined implementation.

## INTRODUCTION

India with a total area of 3,287,263 square kilometres is the 7th largest country as per area in the world (Nations Online, 2024), the 1<sup>st</sup> most populous country by population and the most populous democracy in the world (World Population Prospects (2022) (Revision), 2024). The country can be divided into six zones mainly north, south, east, west, central and northeast zone. It has 28 states and eight union territories. It stretches from the snow-capped Himalayas in the north to sun-drenched coastal villages of the south and the humid tropical forests on the southwest coast, from the fertile Brahmaputra valley on its east to the Thar desert in the west (Ministry of Information and Broadcasting, 2020). The Country has a coastline of 8118 km, covering nine maritime States and four maritime Union Territories (Press Information Bureau, 2022). India's climate is predominantly categorized as tropical monsoon. Despite a significant portion

of the northern region lying beyond the tropical belt, the entire nation experiences a tropical climate characterized by relatively elevated temperatures and arid winters. The climate exhibits four distinct seasons; Winter (December-February), Summer (March-June), South-west monsoon season (June-September) and Post-monsoon season (October-November).

## India's Disaster Risk Profile

With a deep diversity of hills, plains and terrains coupled with varying agro-climatic and hydro-meteorological biosphere, India is naturally vulnerable to a large variety of Disasters. Also due to its unique geo-climatic and socio-economic conditions, the commonly experienced natural hazards include floods, cyclones, droughts, earthquakes, cloud bursts, heat waves, landslides, mudslides and avalanches, forest fires, coastline erosion and inundation, tsunamis, lightning, etc. India is also vulnerable to new and emerging Disasters such as Chemical, Biological, Radiological and Nuclear emergencies like any other country in the globe. Terrorism, communal riots and stampede also add new dimensions which are man-made Disasters (NCERT, 2015).

Out of 36 States and Union Territories (UTs) in the country, 27 are disaster-prone. 58.6% landmass is prone to earthquakes of moderate to very high intensity; 12% of the land is prone to flood and river erosion; Out of the total coastline, 5,700 km is prone to cyclones and tsunamis; 68% of the cultivable land is vulnerable to drought, hilly areas are at risk from landslides and avalanches, and 15% of landmass is prone to landslides. A total of 5,161 Urban Local Bodies (ULBs)<sup>1</sup> are prone to urban flooding. Fire incidents, industrial accidents and other manmade disasters involving chemical, biological and radioactive materials are additional hazards increasing risk around the nation (NDMA, Annual Report 2022-23, 2023). Disasters, both natural and

<sup>1</sup> Urban Local Bodies (ULBs) are small local bodies that administer or govern a city or a town of a specified population. There are several types of Urban Local bodies in India such as Municipal Corporation, Municipality, Notified Area Committee, Town Area Committee, Special Purpose Agency, Township, Port Trust, Cantonment Board, etc. (Government of Assam, 2024)

man-made, profoundly impact societies globally, causing immense human suffering and economic losses.

## Overview of Past Disasters in India

According to the World Risk Index (WRI) – 2023, India stood at the third rank in having the highest risk of disasters in the world, followed by the second rank in 2022 (Alliance Development Helps, 2023). The following table categorises various major natural disasters in India from 2001 to 2023.

## Disaster Management Policies and Plans

The Eleventh Finance Commission of India (2000) highlighted the importance of proactive, pre-disaster preparedness planning over mere relief funding. This approach was continued by the Twelfth Finance Commission (2005-2010), which stressed integrating disaster preparedness and mitigation into state plans. This commission also emphasized hazard mapping, transparent relief distribution, and allocated Rs 21,333.33 crore for calamity relief and Rs 500 crore for the National Calamity Contingency Fund (Commission Reports, 2010).

Today, disaster management in India is governed by a more structured and systematic approach, spearheaded by both state and central governments. The Disaster Management Act of 2005 marked a pivotal moment in formalizing disaster management policies and practices in the country. On 23<sup>rd</sup> December 2005, this act led to the establishment of the National Disaster Management Authority (NDMA), headed by the Prime Minister, and State Disaster Management Authorities (SDMAs) headed by the respective Chief Ministers, District Disaster Management Authorities (DDMAs) headed by the Collector or District Magistrate or Deputy Commissioner as the case may be (National Disaster Management Authority, n.d.). This multi-tiered framework ensures coordinated and effective disaster management efforts across all levels of government.

Disaster management practices of India significantly evolved to align with international standards and national priorities. India's disaster key frameworks include the National Policy on

**Source:** Envistats-India-2024, Ministry of Statistics and Programme Implementation Retrieved from <https://www.mospi.gov.in/publication/envistats-india-2024-environment-statistics>

**Table 1:** Major Natural Disasters in India (2001 – 2023)

Sr. No.	Year	Type	Affected Population Location/Area
1	2001	Earthquake	Rapar, Bhuj, Bhachau, Anjar, Ahmedabad and Surat in Gujarat State
2	2004	Tsunami	Coastline of Tamil Nadu, Kerala, Andhra Pradesh, Puducherry and Andaman and Nicobar Islands of India
3	2005	Earthquake	Mostly Pakistan, Partially Kashmir
4	2005	Floods	Maharashtra State
5	2008	Cyclone Nisha	Tamil Nadu
6	2008	Kosi Floods	North Bihar
7	2009	Floods	Andhra Pradesh, Karnataka
8	2009	Drought	252 Districts in 10 States
9	2010	Cloudburst	Leh, Ladakh in Jammu & Kashmir
10	2011	Earthquake	North Eastern India with epicenter near Nepal Border and Sikkim
11	2011	Floods	19 Districts of Odisha
12	2011	Earthquake	Sikkim, West Bengal, Bihar
13	2011	Cyclone Thane	Tamil Nadu, Puducherry
14	2012	Floods	Assam
15	2012	Floods	Uttarkashi, Rudraprayag and Bageshwar Districts of Uttarakhand
16	2012	Cyclone Nilam	Tamil Nadu
17	2013	Cyclone Mahasen	Tamil Nadu
18	2013	Floods/ Landslides	Uttarakhand and Himachal Pradesh
19	2013	Cyclone Phailin	Odisha and Andhra Pradesh
20	2013	Floods	Andhra Pradesh
21	2013	Floods	Odisha
22	2014	Cyclone Hudhud	Andhra Pradesh & Odisha
23	2014	Floods	Jammu & Kashmir
24	2015	Cyclonic Storms	West Bengal
25	2015	Floods and Heavy Rains	Tamil Nadu
26	2015	Floods and Heavy Rains	Rajasthan
27	2015	Floods and Heavy Rains	Andhra Pradesh
28	2015	Floods and Heavy Rains	Gujarat
29	2016	Cyclonic Storms	Tamil Nadu
30	2017	Lightning	Odisha & Maharashtra
31	2018	Floods and Heavy Rains	Kerala & Uttar Pradesh
32	2019	Floods and Heavy Rains	Bihar , Maharashtra & Kerala
33	2020	Lightning &/Or Thunderstorm	Bihar , Uttar Pradesh & Jharkhand
34	2020	Cold Wave	Bihar & Uttar Pradesh

Sr. No.	Year	Type	Affected Population Location/Area
35	2021	Floods and Heavy Rains	Maharashtra & Uttarakhand
36	2021	Lightning & Thunderstorm	Odisha, Madhya Pradesh, Bihar, Maharashtra, West Bengal & Jharkhand
37	2021	Cyclonic Storms	11 States Viz. Gujarat, Maharashtra, Kerala, Karnataka, Andhra Pradesh, Odisha, Goa, Telangana, Jharkhand, West Bengal & Bihar
38	2022	Lightning & Thunderstorm	Bihar, Odisha, Madhya Pradesh, Jharkhand, Uttar Pradesh, Rajasthan, Chhattisgarh, Maharashtra
39	2022	Floods and Heavy Rains	Assam, Maharashtra & Uttar Pradesh
40	2022	Landslide	Manipur
41	2022	Dust Storms	Uttar Pradesh
42	2023	Lightning & Thunderstorm	Bihar, Odisha, Madhya Pradesh, Maharashtra, Jharkhand, Uttar Pradesh, Chhattisgarh, Rajasthan
43	2023	Floods and Heavy Rains	Madhya Pradesh, Himachal Pradesh, Sikkim, Uttar Pradesh, Uttarakhand, Maharashtra, Rajasthan
44	2023	Heat Wave	Uttar Pradesh, Odisha, Jharkhand, Maharashtra, Andhra Pradesh
45	2023	Extremely Severe Cyclonic Storm 'BIPARJOY'	Gujarat, Rajasthan
46	2023	Severe Cyclonic Storm MICHAUNG	Tamil Nadu, Andhra Pradesh, Telangana, Odisha

Disaster Management (NPDM) – 2009, which lays the foundation for comprehensive disaster risk management (NDMA, National Policy on Disaster Management, 2009). The Sendai Framework for Disaster Risk Reduction, 2015-2030 (incorporated in continuation of The Hyogo Framework for Action, 2005-2015) is central to these efforts, providing a strategic approach to risk minimisation and resilience enhancement. It operationalises this framework through structured methods for evaluating and managing disaster risks (Margareta, 2015). The Sustainable Development Goals (SDGs) further reinforce the need for resilient practices (United Nations, 2015). India's National Disaster Management Plan (NDMP) – 2019 ensures a coordinated response to emergencies, promoting effective implementation at all levels (NDMA, National Disaster Management Plan, 2019). The COP21 Paris Agreement also underscores the importance of addressing climate change within disaster management (United Nations Framework Convention on Climate Change, 2015). The Prime Minister's 10-point agenda integrates disaster risk reduction into developmental planning and

governance (Modi, n.d.) (NDMA, National Disaster Management Plan, 2019).

## METHODOLOGY

The methodology entails a detailed and critical examination of the provisions outlined in the various chapters of the National Disaster Management (NDM) Act, 2005 of India.

## The Disaster Management Act, 2005

Following extensive deliberations and guided by the counsel of the High Power Committee on Disaster Management, the parliament passed the Disaster Management Act in 2005, establishing a cornerstone in the nation's legislative framework. This legislation not only outlines the roles and powers of national agencies and officials but also provides a comprehensive structure for the formation of state, district, and local bodies, along with the appointment of personnel tasked with managing disasters.

## Overview

The Disaster Management Act is a piece of legislation that outlines the framework for managing disasters

effectively. It defines the roles, responsibilities, and procedures for various stakeholders, including government agencies, non-governmental organizations, and the public, to mitigate, respond to, and recover from disasters.

### **Main Features of The Act**

The Disaster Management Act 2005 of India is structured into eleven chapters followed by sections, each addressing different aspects of disaster management. Here's a breakdown of the act along with a brief explanation of each chapter (NDMA, DM ACT, 2005):

## **Chapter I – Preliminary**

This chapter, including sections 1 & 2, sets the stage by providing definitions for key terms used throughout the act. For instance, it defines Disaster as “a catastrophe, mishap, calamity, or grave occurrence that causes serious harm, destruction, or disruption of the functioning of a community.” It also defines disaster management as “a continuous and integrated process of planning, organizing, coordinating, and implementing measures to prevent, mitigate, prepare for, respond to, and recover from disasters.” Additionally, this chapter defines other crucial terms such as Mitigation, Preparedness, Reconstruction, etc (NDMA, DM ACT, 2005).

## **Chapter II – The National Disaster Management Authority (NDMA)**

From sections 3 to 13, this chapter establishes the key disaster management authorities at different levels of governance: the National Disaster Management Authority (NDMA) at the national level, the State Disaster Management Authority (SDMA) at the state level, and the District Disaster Management Authority (DDMA) at the district level. It elaborates on the constitution, powers, and functions of the NDMA, which is the apex body responsible for laying down policies, plans, and guidelines for disaster management at the national level. It specifies the composition of the NDMA, including the chairperson (who is the Prime Minister of India) and other members from relevant ministries, departments, and experts in disaster management (NDMA, DM ACT, 2005).

## **Chapter III – State Disaster Management Authorities (SDMA)**

Similar to Chapter II, this chapter in sections 14 to 24, provides details about the constitution, powers, and functions of the SDMA, which is responsible for implementing policies and plans laid down by the NDMA at the state level. It outlines the composition of the SDMA, including the chairperson (usually the Chief Minister of the state) and other members from relevant departments, agencies, and experts (NDMA, DM ACT, 2005).

## **Chapter IV – District Disaster Management Authority (DDMA)**

In different sections from 25 to 34, the chapter outlines the composition, powers, and functions of the DDMA, which is responsible for implementing disaster management plans at the district level. It specifies the role of the district magistrate or collector as the chairperson of the DDMA and includes other members representing various departments, local authorities, and experts (NDMA, DM ACT, 2005).

## **Chapter V – Measures by the Government for Disaster Management**

Chapter sections 35 to 40 empower the government to take various measures for disaster management, including preparedness, mitigation, response, and recovery actions. It provides the legal framework for government authorities to issue directions, requisition resources, and undertake necessary actions to prevent and mitigate disasters, as well as coordinate response and recovery efforts during emergencies (NDMA, DM ACT, 2005).

## **Chapter VI - Local Authorities**

In section 41, this chapter highlights the role of local authorities, such as municipalities and panchayats, in disaster management. It outlines their responsibilities in implementing disaster management plans, coordinating response efforts, and ensuring community preparedness and resilience at the grassroots level. Local authorities play a crucial role in disaster risk reduction and

response due to their proximity to affected communities (NDMA, DM ACT, 2005).

## **Chapter VII - National Institute of Disaster Management (NIDM)**

This chapter, which had sections 42 & 43, establishes the National Institute of Disaster Management (NIDM) and outlines its functions, powers, and organizational structure. The NIDM is mandated to conduct training, research, and capacity-building programs in disaster management. It serves as a hub for knowledge dissemination and technical assistance to government agencies, non-governmental organizations, and other stakeholders involved in disaster risk reduction and management (NDMA, DM ACT, 2005).

## **Chapter VIII - National Disaster Response Force (NDRF)**

Chapter having sections 44 & 45 focus on the establishment, composition, functions, and powers of the National Disaster Response Force (NDRF). The NDRF is a specialized force trained and equipped to respond to disasters and provide relief and rescue operations in affected areas. It plays a critical role in ensuring a timely and effective response to disasters, particularly in high-risk situations and complex emergencies (NDMA, DM ACT, 2005).

## **Chapter IX - Finance, Accounts and Audit**

Sections 46 to 50 in this chapter respectively address the financial provisions related to disaster management, including the establishment of funds, budgetary allocations, accounting procedures, and audit mechanisms. It ensures transparency and accountability in the utilization of funds allocated for disaster preparedness, response, and recovery efforts (NDMA, DM ACT, 2005).

## **Chapter X - Offences and Penalties**

It specifies offences related to disaster management in sections 51 to 60, such as failure to comply with orders issued by authorities, obstructing relief operations, and providing false information. It outlines penalties for such offences to deter

misconduct and ensure compliance with disaster management regulations (NDMA, DM ACT, 2005).

## **Chapter XI - Miscellaneous**

This chapter in sections 61 to 79 contains miscellaneous provisions, including legal protections, transitional arrangements, and provisions for resolving disputes or grievances related to the implementation of the act. It addresses various administrative and procedural matters to facilitate the effective implementation of the Disaster Management Act 2005 (NDMA, DM ACT, 2005).

These eleven chapters followed by 79 sections collectively provide a robust legal framework for disaster management in India, addressing various aspects such as institutional arrangements, responsibilities of different authorities, financial provisions, and legal measures to ensure effective preparedness, response, and recovery from disasters.

## **Discussion**

India's National Disaster Management Act, 2005 embodies several strengths crucial for effective disaster management. It establishes a robust institutional framework with a clear delimitation of roles and responsibilities among national, state, and district-level authorities, ensuring coordinated efforts in disaster preparedness, response, recovery, and mitigation. The Act mandates the formulation of comprehensive disaster management plans tailored to regional risks and vulnerabilities, enhancing the country's readiness to tackle various types of disasters. The establishment of the National Disaster Response Force (NDRF) enhances India's capacity for swift and specialized disaster response, equipped with trained personnel and dedicated resources. By providing a legal framework for disaster management, the Act enables the enforcement of measures for disaster preparedness, response, and mitigation. It also facilitates coordination among different stakeholders for cooperation. The Act includes provisions for the allocation of funds for disaster management activities through the National Disaster Response Fund (NDRF) and the State Disaster Response Fund (SDRF). This financial support helps in implementing mitigation and



response measures. These collectively strengthen India's resilience to disasters, facilitating a coordinated and effective approach to managing and mitigating their impact.

Although a robust legal framework exists, the practical implementation of disaster management strategies often encounters significant obstacles. These include insufficient funding, limited capacity, and a lack of coordination among various authorities. While the legislation places considerable emphasis on disaster preparedness and response, it tends to prioritise these areas over disaster prevention and mitigation. By focusing more on risk reduction strategies, it may be possible to lessen the long-term effects of disasters. Additionally, the Act predominantly relies on government agencies for disaster management, leaving limited room for active participation by non-governmental organisations (NGOs), societies, and corporate sectors. Incorporating a wider range of stakeholders could significantly enhance the overall effectiveness of disaster management initiatives. However, the complex institutional framework and bureaucratic procedures outlined in the Act often impede rapid decision-making during emergencies. Simplifying these processes and fostering greater flexibility could lead to better outcomes in managing disasters. Furthermore, while the Act comprehensively addresses natural disasters, it appears less equipped to manage emerging risks such as pandemics, technological disasters, and climate change impacts. To ensure its continued relevance, updating the legislation to reflect these evolving threats is crucial.

## Recommendations

The following recommendations are proposed to strengthen and enhance the National Disaster Management Act, 2005 of India, ensuring its relevance to contemporary challenges and improving its effectiveness in disaster preparedness, mitigation, and response. These suggestions aim to address gaps in the current framework, incorporate advanced technologies, and promote a more inclusive, citizen-focused approach to disaster management.

- The government should include precise definitions of hazard, vulnerability, risk, etc. in Chapter 1 of the Act, along with a clear scale for declaring disasters based on their severity and impact. The Government can also provide a comprehensive glossary of terminologies related to disasters and their management.
- It is recommended to explicitly address the direct impact of disasters in the Act and establish clear guidelines for assistance allocation to affected individuals.
- The Act should be amended to incorporate advanced technologies like AI, remote sensing, and GPS to enhance forecasting, monitoring, and response capabilities.
- Disaster preparedness should be promoted through awareness programmes in schools, colleges, and at the community level to build resilience from the grassroots.
- The National Institute of Disaster Management (NIDM) should focus more on creating citizen awareness and education rather than catering solely to officials.
- The government should establish standardised methodologies and statistical tools for precise damage and loss assessment to guide effective recovery and rehabilitation measures.
- The government should mandate disaster management as a key component of Corporate Social Responsibility (CSR) for organisations and corporations, encouraging them to invest in disaster preparedness, mitigation, and community resilience initiatives.
- The "One Nation, One Act" policy should be considered to unify the National Disaster Management Act with state-level Acts for better coordination and streamlined implementation.

## Study Limitations

This study has reviewed the content of various sections and their respective chapters of the National Disaster Management Act, 2005 of India. However, future research should focus on analysing the practical implementation of these sections and assessing the effectiveness of the Act's key framework in disaster management practices.

## CONCLUSION

The enactment of the National Disaster Management Act, 2005 of India, represents a pivotal step in institutionalising disaster management within India's governance framework. This legislation has facilitated a paradigm shift from a reactive to a proactive approach, establishing a multi-tiered structure to address disaster-related challenges effectively. While its accomplishments, such as improved coordination and strategic planning, are commendable, critical analysis reveals persistent challenges, including insufficient decentralisation, resource imbalances, and gaps in technological integration. The recommendations, such as bolstering local governance capacity, enhancing community participation, and leveraging advanced disaster management technologies, aim to bridge these gaps. Implementing these measures will enable the Act to achieve its objectives of fostering resilience and reducing disaster vulnerability across the nation.

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