

# The effectiveness of existing Indian disaster risk reduction (DRR) policies and frameworks at the Local, State and National Level

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## ABSTRACT

Disaster risk reduction (DRR) policies and frameworks are essential tools for mitigating the devastating impacts of natural and human-induced hazards. This research aims to critically analyze the effectiveness of existing DRR policies and frameworks at local and national levels. By employing a mixed-methods approach, the study will examine the strengths, weaknesses, opportunities, and threats (SWOT analysis) associated with current DRR approaches. It will combine qualitative analysis of policy documents and data on disaster impacts with quantitative analysis of trends in disaster frequency and severity. Furthermore, identifying the key stakeholders for interviews will provide insights into the implementation challenges and successes of DRR policies on the ground. This research will contribute to a better understanding of the factors that enhance or hinder the effectiveness of DRR policies, ultimately informing the development of more robust and resilient disaster preparedness strategies.

**Keywords:** *Mitigation, Prevention, Preparedness, Recovery, Resilience*

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## INTRODUCTION

Disaster risk reduction (DRR) policies are frameworks and guidelines implemented at various levels (local, national, and international) to proactively reduce the impact of natural hazards like earthquakes, floods, and hurricanes. These disasters are not confined to the physical and political borders of these countries, but have an impact that is visible beyond those boundaries [3]. The transition from a response-based paradigm to an anticipative, prevention-based approach remains a stubborn challenge in Disaster Risk Reduction (DRR) [1]. Therefore, these policies aim to prevent new risk which involves measures like land-use planning that avoids building settlements in high-risk areas and promoting sustainable development practices that minimize environmental degradation. Also focus on reduce existing risk which includes infrastructure improvements like earthquake-resistant buildings, flood control systems, and early warning systems. Additionally, it involves community-based initiatives like preparedness training and evacuation plans. Strengthen resilience by building a society's ability to withstand and recover from disasters involves promoting public awareness and education, ensuring access to essential resources and services, and strengthening social safety nets to support vulnerable populations.

The effectiveness of Indian disaster risk reduction (DRR) policies and frameworks varies across different levels of governance. At the national level, the Disaster Management Act 2005 and various national institutions have significantly improved preparedness and response to disasters [11]. However, the implementation of the Sendai Framework for Disaster Risk Reduction at the local level, particularly in the Indian Railways, remains a challenge [4]. This gap between policy and action is further highlighted in the case of landslide risk management, where the national government's efforts have not led to a significant shift in DRR approach at the regional and local levels [10]. In Delhi, the key challenges in disaster management include awareness and perception, financial and technical resources, and institutional arrangements [6]. These findings suggest a need for greater coordination and capacity-building at the local and regional levels to enhance the effectiveness of DRR policies and frameworks in India.

## KEY CHARACTERISTICS OF DRR POLICIES

- **Multi-sectoral:** They involve collaboration between various government agencies, non-governmental organizations (NGOs), private sector, and communities.

- **Risk-based:** Policies are based on scientific assessments of hazards and vulnerabilities specific to a region.
- **Proactive:** They emphasize preventative measures rather than solely focusing on reactive responses after disasters occur.
- **Sustainable:** They consider long-term effects of policies on both development and disaster risk reduction.

### **BENEFITS OF EFFECTIVE DRR POLICIES**

Effective disaster risk reduction (DRR) policies offer significant benefits within the Indian context. Primarily, these policies help to save lives and reduce the devastating impact of disasters on communities. India faces a variety of natural hazards like floods, cyclones, earthquakes, and droughts, which can lead to widespread loss of life and displacement. By focusing on prevention, mitigation, and preparedness measures, DRR policies help to reduce the vulnerability of communities and their exposure to risk. This translates into fewer deaths and injuries during disasters. Furthermore, effective DRR policies minimize economic losses by safeguarding infrastructure, businesses, and livelihoods. They promote the construction of disaster-resilient buildings, flood control systems, and sustainable land-use practices, all of which make communities less susceptible to economic devastation when hazards strike. Moreover, with a robust DRR framework, India can better achieve sustainable development goals. By integrating DRR considerations into development planning, policies can ensure that progress isn't constantly thwarted by disasters, thus enabling long-term economic growth and social progress. In essence, effective DRR policies enhance the overall well-being of Indian society by building resilient communities and safeguarding the nation's development trajectory.

- Save lives and property
- Reduce economic losses
- Promote sustainable development
- Build more resilient communities

### **KEY POLICIES AND FRAMEWORKS**

- i. **National Disaster Management Policy (NDMP 2009):** This provides the overarching policy framework for DRR in India. It promotes a paradigm shift from disaster response to a holistic approach emphasizing prevention, mitigation, preparedness, and recovery.
- ii. **Disaster Management Act (2005):** This act provides the legal and institutional framework for disaster management. It establishes:
  - a. **National Disaster Management Authority (NDMA)** chaired by the Prime Minister for policymaking and coordination.
  - b. **State Disaster Management Authorities (SDMAs)** chaired by the Chief Ministers of each state.
  - c. **District Disaster Management Authorities (DDMAs)** at the local level.
- iii. **National Disaster Response Force (NDRF):** A specialized force established under the Disaster Management Act for rapid response to disasters.
- iv. **National Institute of Disaster Management (NIDM):** An institution focused on capacity building, training, and research in DRR

#### **Examples of International DRR Frameworks**

1. Sendai Framework for Disaster Risk Reduction 2015-2030: A global framework adopted by UN member states to guide national and local DRR strategies.
2. Hyogo Framework for Action 2005-2015: The predecessor to the Sendai Framework, focused on building a culture of safety and resilience.

**Table-1: Specific Strategies and Initiatives**

S.No.	Strategies	Initiatives
1	<b>Vulnerability Mapping</b>	India has undertaken significant hazard and risk assessment projects, creating vulnerability maps for various hazards like floods, cyclones, earthquakes, etc.
2	<b>Early Warning Systems</b>	Various programs facilitate timely warnings based on meteorological and seismic data for events like cyclones and tsunamis.
3	<b>Building Codes and Retrofitting</b>	The emphasis is on improving building standards for higher resilience to earthquakes and cyclones and retrofitting existing vulnerable structures.
4	<b>Community-Based Disaster Preparedness</b>	Focus on awareness-raising, training communities for evacuation, first aid, and resource mobilization.
5	<b>Ecosystem-based DRR</b>	Emphasis on conserving mangroves, forests, and wetlands, which act as natural buffers against hazards like floods and cyclones.

## CHALLENGES AND AREAS FOR IMPROVEMENT

- **Implementation Gaps:** While India has robust policies, sometimes there are challenges in their effective implementation on the ground.
- **Limited Resource Allocation:** DRR initiatives sometimes face budget constraints, limiting their scope and impact.
- **Vulnerability of Marginalized Communities:** More needs to be done to reduce the specific vulnerabilities of marginalized groups like women, children, the elderly, and those living in poverty.

## SWOT ANALYSIS

SWOT analysis of the "National Disaster Management Policy 2009" (NDMP) and the "Disaster Management Act 2005" (DM Act).

### A. Strengths

- **Focus on a holistic approach:** Both the NDMP and the DM Act emphasize a proactive approach to disaster management, focusing on prevention, mitigation, preparedness, and recovery, as opposed to just a response-focused model.
- **Clear institutional structure:** The DM Act establishes a multi-layered institutional structure with well-defined roles and responsibilities for national, state, and district-level disaster management authorities.
- **Emphasis on community involvement:** The policies recognize the importance of community participation in disaster risk reduction and promote capacity-building measures at the local level.
- **Integration with development planning:** These policies emphasize incorporating disaster risk reduction considerations into various development planning sectors [23].

### B. Weaknesses

- **Implementation challenges:** There are instances of gaps between policy intentions and their effective implementation at the state and local levels.
- **Funding limitations:** Disaster risk reduction efforts are sometimes constrained by inadequate financial resources.
- **Limited engagement with some stakeholders:** The policies could do more to ensure the active participation of the private sector, media, and marginalized communities in disaster management initiatives.
- **Gaps in addressing emerging risks:** While the focus remains on traditional hazards, the policies need to be updated more regularly to account for new risks like those posed by climate change, technological disasters, and pandemics [22].

### C. Opportunities

- **Technological advancements:** The incorporation of new technologies (AI, drones, advanced early warning systems) can increase the effectiveness of disaster preparedness and response efforts.
- **Global and regional cooperation:** India can strengthen collaborations with other countries and regional bodies for knowledge sharing and support in disaster risk reduction.
- **Harnessing indigenous knowledge:** There is scope to integrate traditional and indigenous coping mechanisms into modern disaster management strategies.
- **Capacity building:** Continuous investment in training and capacity building at all levels of governance is crucial for enhancing the implementation of disaster management policies.

### D. Threats

- **Increasing vulnerability due to urbanization:** Rapid and unplanned urbanization exacerbates disaster risks, especially in densely populated cities.
- **Climate change impacts:** The increasing frequency and intensity of extreme weather events due to climate change pose a major challenge to India's disaster preparedness efforts.
- **Cascading and complex risks:** The potential for complex, interconnected disasters involving multiple hazards requires a more robust framework for managing interdependencies.[21]

## IDENTIFYING KEY STAKEHOLDERS

### 1. Government Agencies:

**National disaster management authority:** Develops and implements national DRR policies and strategies.

**State and local disaster management authorities:** Translate national strategies into local action plans and coordinate disaster preparedness and response efforts within their jurisdictions.

**Sectoral ministries:** Integrate DRR considerations into their respective sectors (e.g., agriculture, infrastructure, health, education).

### 2. Non-Governmental Organizations (NGOs):

**International organizations:** Provide technical expertise, financial resources, and support capacity building initiatives.

**National and local NGOs:** Work directly with communities on DRR awareness campaigns, preparedness training, and vulnerability reduction projects.

**Community-based organizations (CBOs):** Represent and mobilize local communities, ensuring their needs and voices are heard in DRR planning and implementation.

### 3. Private Sector:

**Businesses:** Can contribute by investing in disaster-resilient infrastructure, adopting risk reduction practices in their operations, and supporting community-based DRR initiatives.

**Insurance companies:** Play a key role in risk assessment, risk transfer, and promoting investments in DRR measures through risk-based pricing.

### 4. Scientific and Academic Community:

**Researchers:** Generate knowledge and data about hazards, vulnerabilities, and effective DRR strategies.

**Universities and research institutions:** Conduct research and provide training programs in DRR, fostering a culture of safety and preparedness.

### 5. Media and Communication:

**Media outlets:** Play a crucial role in disseminating information on DRR, early warnings, and evacuation instructions during disasters.

**Social media:** Can be a powerful tool for raising awareness, facilitating communication, and mobilizing resources during disasters.

### 6. Communities and Individuals:

**Community members:** Are actively involved in identifying local risks, participating in DRR planning and activities, and taking responsibility for individual preparedness.

**Marginalized groups:** Women, children, elderly, and people with disabilities require specific attention to ensure their needs and vulnerabilities are addressed in DRR initiatives.

## CONCLUSION

India's disaster risk reduction framework, encompassing the National Disaster Management Policy 2009 and the Disaster Management Act 2005, represents a significant step towards building resilience against natural hazards. The policies prioritize a proactive approach, focusing on prevention, mitigation, preparedness, and recovery. The establishment of a multi-layered institutional structure and emphasis on community involvement are noteworthy strengths.

However, challenges persist. Implementing policies effectively at all levels, securing adequate funding, and ensuring inclusive participation remain crucial areas for improvement. Additionally, the framework needs to be adaptable to address emerging risks like climate change and complex disaster scenarios.

Despite these challenges, opportunities exist. Technological advancements, strengthened global collaborations, and integrating traditional knowledge hold immense potential. Continuous capacity building and a forward-thinking approach are essential for India to effectively manage disaster risks and build a safer future for its citizens.

### Key takeaways:

- India has a comprehensive DRR framework with strengths like a holistic approach and community involvement.
- Effective implementation, resource allocation, and addressing emerging risks are crucial areas for improvement.
- Technological advancements, global cooperation, and learning from indigenous knowledge offer exciting opportunities.
- Building resilient communities and adapting to a changing environment will be key to addressing future disaster challenges.

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