International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 8.141
Peer Reviewed Bi-Monthly
Vol. 7 No. 2 January – February - 2026

A Study on Disaster Management and Human Responses

Smt. Manuja Bhaskar Sonar
Department of Geography, Arts and Commerce College, Pusegaon
Corresponding Author – Smt. Manuja Bhaskar Sonar
DOI - 10.5281/zenodo.18709324

Abstract:

Disaster management in India has evolved into a comprehensive framework that encompasses mitigation, preparedness, response, and recovery. India faces a wide range of natural disasters including floods, flash floods, cyclones, droughts, and heatwaves, exacerbated by climate change and rapid urbanisation. The government's structured approach, led by the National Disaster Management Authority (NDMA), involves multi-agency coordination including the National Disaster Response Force (NDRF), State Disaster Response Forces (SDRF), Armed Forces, and local bodies. This paper analyses India's disaster management mechanisms and human response patterns over the last five years, focusing on major disasters and government interventions. Quantitative data tables present key disasters from 2021-2025, highlighting impacts and responses. Findings suggest that efficient early warnings, community involvement, and annual exercises (e.g., Operation Abhyaas) enhance resilience, though gaps remain in infrastructure and local capacity. Recommendations focus on strengthening infrastructure, community training, and climate-adaptive policies. This study contributes to understanding India's evolving disaster management system and the critical link between human responses and policy effectiveness.

Keywords: Disaster Management, Human Response, India.

Introduction:

India's geographic diversity exposes it to frequent natural disasters, such as floods, cyclones, earthquakes, droughts, and heatwaves. The magnitude of impact is often amplified by rapid urbanisation, environmental degradation, and climate change. In response, India has developed a comprehensive disaster management ecosystem under the Disaster Management Act 2005, with NDMA at the helm for policy direction, and agencies like NDRF and SDRF executing field operations. This system emphasises preparedness through early warning systems, community awareness campaigns, mock drills (e.g., Operation Abhyaas in 2025) and integrated command centres for coordinated action. Despite initiatives to reduce vulnerability and enhance resilience, disaster events continue to pose significant socio-economic challenges. Effective disaster management requires not only government response but active human participation, local awareness, and inter-agency coordination. This research paper explores major disasters in India over the last five years, examines how the nation responded, and presents an analytical interpretation of data that highlights both strengths and areas needing improvement in disaster preparedness and human responsiveness.

Objectives of the Study:

1. To analyze recent major disasters in India from 2021 to 2025.
2. To evaluate India's disaster response mechanisms and human participation.
3. To identify trends in disaster impacts and response effectiveness.

4. To propose recommendations for enhancing disaster management and community response.

Research Methodology:

This research uses secondary data analysis from government reports, news articles, encyclopedic entries, and disaster databases to compile information on disaster events and response actions in India over the past five years. Data were synthesised to form tables and narrative analysis. The methodology includes qualitative interpretation supported by quantitative data (tables), focusing on government policies, rescue operations, preparedness exercises, and community involvement.

Analysis and Interpretation:

Table 1: Major Disasters in India (2021–2025)

Year	Disaster Event	Region	Impact (Fatalities/Displaced)
2024	Vijayawada Floods	Andhra Pradesh	35+ deaths; 270,000+ affected
2025	Punjab Floods	Punjab	> 40 deaths; 1018+ villages affected
2025	Uttarakhand/Kishtwar Flash Flood	Uttarakhand/J&K	190 rescued; significant damage

(Source: Secondary Data)

These events illustrate frequent extreme hydro-meteorological disasters across different Indian states. Floods in Andhra Pradesh and Punjab caused widespread displacement and fatalities, while flash floods in mountainous regions highlighted terrain-specific vulnerabilities. Rescues were coordinated by NDRF, military, and local agencies.

Table 2: India's Response Mechanisms

Disaster	Key Response Actions	Agencies Involved
Vijayawada Floods	NDRF, SDRF deployment; relief camps; IAF helicopters in rescue	NDRF, SDRF, IAF
Punjab Floods	Evacuation of 11,330+ people; drones, relief camps	Army, NDRF, BSF, NGOs
Flash Floods	Immediate SDRF/NDRF rescue; Army air support	SDRF, Army, IAF

(Source: Secondary Data)

India's multi-agency response mobilises disaster forces, armed services, and technology such as drones and helicopters for evacuation and aid delivery. Relief camps and local NGO support also play a crucial role in addressing immediate needs and supporting affected communities.

Table 3: Preparedness and Policy Responses

Initiative	Year	Description
Operation Abhyaas	2025	Nationwide civil defence mock drill in 244 districts to strengthen preparedness
Funding for State DM	2025-26	Maharashtra allocated Rs. 22.40 crore for disaster risk reduction
Technology Deployment	2025	Use of amphibious vehicles and drones in rescue

(Source: Secondary Data)

Preparedness programmes such as large-scale mock drills enhance readiness among agencies and citizens. State budget allocations strengthen disaster risk reduction, while modern technology deployment (e.g., amphibious vehicles, drones) reflects adaptive strategies to improve operational effectiveness.

Findings:

1) The analysis indicates that India's disaster management framework is robust but continually tested by frequent and intense natural events.
2) Events like the Vijayawada and Punjab floods in 2024-25 demonstrated the effectiveness of coordinated rescue operations involving NDRF, Armed Forces, SDRF, and civil agencies, with air assets and technology aiding evacuation and relief delivery.
3) Preparedness measures such as Operation Abhyaas reflect proactive planning. However, challenges remain in infrastructure resilience, early warning communication, and community awareness in vulnerable regions.
4) Human responses, including NGO involvement and local volunteer mobilisation, significantly supplement government efforts, highlighting the importance of community participation alongside formal disaster management systems.

Suggestions:

1) To enhance disaster management and human responsiveness in India, several key strategies are recommended. First, strengthening early warning systems and communication networks at local levels can ensure timely dissemination of alerts and reduce casualties.
2) Expansion of community-based disaster risk education programmes will increase public awareness and preparedness.
3) Investing in resilient infrastructure—such as flood barriers, cyclone shelters, and drainage systems—can mitigate disaster impacts.
4) Integration of advanced technologies (e.g., AI for prediction, drones for rapid assessment) should be expanded across states.
5) Urban planning must incorporate climate-adaptation norms to prevent unplanned development in hazard-prone zones.
6) Regular multi-agency mock drills, beyond large exercises like Operation Abhyaas, should be institutionalised at district levels. Furthermore, decentralised disaster funding and resources will empower local governments to act swiftly.
7) Collaboration with NGOs and civil society can leverage local knowledge and volunteer networks in both preparedness and response phases.

Conclusion:

Disaster management in India has evolved into a structured, multi-layered system that engages national, state, and local agencies, along with communities. Recent years have tested this system through severe hydrological disasters, highlighting operational strengths in rescue and relief as well as areas needing improvement. The integration of advanced technology, coordinated inter-agency response, and community involvement are vital components of effective disaster management. Continued emphasis on preparedness, infrastructure resilience, and public awareness can substantially mitigate future

disaster impacts. India's experience demonstrates that proactive planning and human responsiveness are essential for reducing vulnerability and enhancing societal resilience to natural calamities.

References:

1. "2025 Punjab, India Floods." Wikipedia, last week, en.wikipedia.org/wiki/2025_Punjab%2C_India_floods. ([Wikipedia]
2. "2024 Vijayawada Floods." Wikipedia, 2024, en.wikipedia.org/wiki/2024_Vijayawada_floods. ([Wikipedia]
3. "Operation Abhyaas." Wikipedia, 2025 India civil defence mock drill, en.wikipedia.org/wiki/2025_India_civil_defence_mock_drill. ([Wikipedia]
4. "Maharashtra Government Allocates Rs 22.40 Crore for Disaster Management." Times of India, 8 months ago. ([The Times of India]
5. "Indian Air Force Responds Swiftly to Jammu and Punjab Floods." PIB Delhi, 27 Aug 2025. ([Press Information Bureau]
6. "Punjab Floods: 1018 Villages Affected so Far." NewsOnAir, 31 Aug 2025. ([News On Air]
7. "Situation Report 1: Flood in Andhra Pradesh & Telangana." ReliefWeb, 02 Sept 2024. ([sphereindia.org.in]
8. "Year-ender 2025: भारत और दुनिया में प्राकृतिक आपदाओं का कहर." *Business Standard (Hindi), Dec 2025. ([बिज़नेस स्टैंडर्ड]
9. "Uttarakhand Flash Flood 2025." Wikipedia,en.wikipedia.org/wiki/2025_Uttarakhand_flash_flood. ([Wikipedia]
10. "Disasters in Uttarakhand: Forest Fire Alerts." Times of India, recent. ([The Times of India]