Disaster Planning and Governance in India

Disaster Planning and Governance in India:

Experts' Experiences and Insights

Edited by

Sunita Reddy and Anil Kumar Sinha

Sunita's dedication:

Dedicated to all the professionals who contributed in small or big ways to disaster risk reduction and to our readers, especially youngsters who will champion the mission of making India disaster resilient.

Anil's dedication:

As this happens to be my first major book on disaster management, I would like to dedicate it to my family who have put up with demanding schedules during the last few decades and supported me in pursuing my passion and interests in this field even at the cost of my quitting the IAS. My sincere gratitude to my pillar of strength, Amita and ever-supporting wonderful children Abhishek–Mekhla, Aali–Peeyush, and Abhinav–Aarti and grandchildren Sheelvrat, Savita, Tarun and Jayant.

My heartiest thanks and gratitude to my colleague and co-author Sunita for her warm friendship and sharp and rich insights while maintaining the rigour of research and providing continuous support in our exciting joint venture of writing this book, which was peppered with memorable times spent together discussing the details and nuances in accomplishing this onerous task.

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PRAISE FOR THE BOOK

"A reflective and insightful story of articulation of disaster management policy, laws, institutional structures, technology for early warning, manuals for advance preparedness, communication, mitigation and relief measures in India. A genuine account coming from lived experiences of expert functionaries in an equally disastrous milieu of Covid-19."

—*Dr Sukhadeo Thorat, Professor Emeritus, former Chairman, University Grants Commission and Indian Council of Social Science Research*

"The level of DRR [disaster risk reduction] policies is the function of economic development. The higher the level of development, the more attention to DRR policies the people pay. India has been experiencing the fastest speed of economic development. It has also been facing new DRR challenges one after another and overcoming them. The book is an excellent reference for DRR policymakers and practitioners on how they should overcome their challenges."

—*Koji Suzuki, Project Director, Asian Disaster Reduction Center (ADRC), Co-Chair, Sentinel Asia Steering Committee (SASC), Member of National Committee for Space Strategy (QZSS), Visiting Professor, Research Center for Urban Safety and Security (RCUSS), Kobe University, Supporting Researcher, Chiba University and Senior Advisor, Oriental Consultants Global*

"The strides made by India in disaster management reflect a fascinating success story. With their rich personal experience, the authors have narrated this journey as seen through the eyes of policymakers and practitioners. Lay readers, experts and administrators would benefit immensely from this lucid and comprehensive account of the evolution of disaster management policy and structures."

—*Skand R. Tayal, former Ambassador of India*

"Indeed, a unique venture as the book unravels several undocumented and unheard aspects relating to the history of disaster management and its evolution in India in recent decades. The innovative approach adopted by the authors is highly commendable. The book will undoubtedly prove to be of immense significance to the students and professionals in disaster management."

—*Dr Muzaffar Ahmad, former Member, National Disaster Management Authority, India*

"This excellent book fills a void by documenting the history and development of disaster management policies, planning and institutions to combat disasters in India. The credentials of the editors and the contributors are impeccable. Their methodology lends credibility, and the topics covered would prove extremely useful for policymakers, academics and practitioners."
—*Ajit Seth, IAS (retd.), former Cabinet Secretary, Government of India*

FOREWORD

When I first heard that Anil K. Sinha and Sunita Reddy had edited *Disaster Planning and Governance in India: Experts Experiences and Insights*, I realized that here, at last, was the text that many have been wanting, as well as needing, for several years. The contributors have succeeded in capturing a missing, undocumented part of the history of disaster management in India over recent decades. The book goes behind the scenes to discuss the complex backgrounds, key players, important decisions, innovations, setbacks, successes and so on in the emergence of governance at varied administrative levels in this vital subject. The list of contributors includes leaders who struggled, often against considerable obstacles, to establish a coherent disaster management system in the country with the world's second largest population, where disasters of all forms occur on an almost daily basis.

My first experience with the way authorities managed disasters in India came in 1977, following a devastating cyclone in Andhra Pradesh. The contrast between the rudimentary manner in which disaster recovery was handled at the state and local levels at that time with the radically improved situation I experienced two decades later, following the 1993 Latur earthquake in Maharashtra, was particularly noticeable. After that event, some highly effective reconstruction projects and radically improved administrative structures were established, which have been developing and expanding up to the present.

This progress was confirmed following a field study in Gujarat in 2017, where I was able to see the dramatic effects of new management structures, better coordination between the centre and state-level capacities, strong international links, senior management training, risk reduction and adaptation to climate change projects. We also noted highly effective national interventions by non-governmental organizations (NGOs) and an active research community. Some of these crucial changes are explored within the chapters of this book.

The contributors have been able to show where the roots of effective structures have been strong. However, they also reflect on uneven progress across this vast country. There remain some yawning gaps that still need to be closed. The various authors note the global benchmarks that have been

set following the experiences gained in response to cyclones Phailin, Hudhud, Fani and many more in Odisha. There has been zero tolerance for the loss of human lives with remarkable developments in highly effective life-saving early warning systems.

This book provides essential contextual information for current issues and challenges faced by a wide range of readers. These include researchers, academicians, disaster and development professionals and the general public that has an interest in humanitarian response, specifically young professionals working in disaster risk and recovery management and adaptation to climate change.

The text includes excellent material for readers as they discover some fascinating stories, including accounts from many pioneers of disaster management in India, recounting how they overcame obstacles to establish effective management systems dating back to pre-independent India. Further, the book contains the history of how India moved beyond disaster response to becoming proactive with risk reduction policies, descriptions of the way disasters are currently managed at varied levels, a review of ongoing challenges to face new patterns of vulnerability relating to the Covid-19 pandemic and official responses to this tragedy, and, finally, ways of tackling the accelerating impact of climate change.

So, with the greatest pleasure, I commend this book to all readers and congratulate the authors and publisher on a major achievement. You have provided a critical book that will underpin future developments in the creation of a safety culture throughout your wonderful country. You have provided vital evidence of the clear determination to manage complex demands, effectively saving precious lives while protecting property and a fragile environment.

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PREFACE

The past three decades have witnessed a paradigm change in disaster management in our country. Drafting of policy, enacting the Disaster Management Act, 2005, building institutional structures, using technology for early warning systems, creating manuals for advance preparedness, and communication led to a much better understanding of the subject, provided clarity of roles and responsibilities and aided mitigation and relief measures. However, it must be acknowledged that we are still evolving, and many gaps remain that call for improving the planning processes and management practices in this domain. In shaping the history and evolution of disaster management in India, many actors—some noted political leaders, bureaucrats, experts, national and international NGOs and humanitarian organizations—played critical and defining roles. Nevertheless, many stories and crucial facts remain largely unheard, undocumented and so, out of the public domain. There have been a few very positive—and some intriguing—behind the scenes power plays, resistant and reluctant hierarchies, roles, responsibilities, passion and commitment that have gone into building the institutions and governing practices. Yet, it needs to be confessed that the more we do, the more we realize that there is yet more to be done. The nature, frequency and severity of disasters continue to change. Accordingly, the systems have to be dynamic and adaptive. The current coronavirus pandemic is an important live pointer.

We find mention of disaster management in Kautilya's *Arthashastra*; however, the history of disaster management has not been a subject of formal study till recent times. Even during the British colonial administration, disaster management was only response centric. Recognizing that India is an agricultural economy, which was the sector that happened to be the most affected by disasters, the subject was rightly lodged earlier in the Ministry of Agriculture.

Interestingly, the arrangement continued till the advent of the new millennia. Noting the progressive increase in population, expansion of habitat, mass industrialization and enormous infrastructure that bore the brunt of ever-increasing incidence of disasters, a landmark decision was taken during 1998–99 to constitute a High Powered Committee (HPC). It was set up to review the whole gamut of the subject to comprehensively reorganize the

country's response to and management systems of disasters. Recommendations of the HPC constitute an important watershed in the evolution of disaster management at all levels in the nation. Yet, not many know what went into it and the historical role played by leaders of various disciplines, including politicians, bureaucrats, experts, technocrats, and non-governmental and philanthropic organizations, in conceiving and implementing a new system. A bold and innovative approach was adopted in the conceptualization and setting up of the HPC. First, it was mandated to conduct a thorough democratic inquiry involving all the stakeholders, including the general public and community-based organizations (CBOs). Likewise, the stories behind the setting up and formation of the National Disaster Management Authority (NDMA) at the national level and state levels, especially the Odisha State Disaster Management Authority (SDMA), Gujarat SDMA, Bihar SDMA, etc., are relatively unknown. Political leadership, vision and inspiration coming from Atal Bihari Vajpayee, Sharad Pawar, Sompal Shastri, Nitish Kumar, and a few others have played a vital historical role that paved the way for setting up a well-structured and planned mechanism to handle disasters. Several events since then stand as testimony to prove the validity of the decision. Yet, practically nothing in the public domain provides information about the key players and their dynamic roles. However, we must admit that this book is not an attempt to provide an exhaustive list of key players, as there would be many others who have contributed immensely to this incredible story who could not find a mention here due to obvious limitations of size and scope of the book.

Though there is no shortage of classical literature, research or publications on different concepts and themes of disaster management, there has been no attempt to document and pen down the history and the process of development of disaster planning and institution building in India. *Disaster Planning and Governance in India: Experts Experiences and Insights* is an attempt to bridge this void. It seeks to capture the stories and roles of pivotal actors behind the intricate and protracted processes of disaster management development in India through the lived experiences of the experts and functionaries who went through all sorts of trials and tribulations and yet persisted with their efforts to achieve their objectives. Thus, the book will throw light on the development of policies, laws and institutional structures—and cover the governance challenges to be confronted in a federal democratic polity through technologies, logistics, advance preparedness drills and relief measures—from the perspectives of the experts.

This book addresses questions such as: How has the National Centre for Disaster Management (NCDM) transformed into the National Institute of

Disaster Management (NIDM)? What is the story behind this transition? How difficult was it to break the sense of déjà vu? How was the battle to get it out of a powerful institution like the Indian Institute of Public Administration (IIPA) and make it an independent entity? Who were the central figures behind this historical development? How did the three-tiered structured authorities of NDMA-SDMAs-DDMAs come into existence? Why and how was the National Disaster Response Force (NDRF) set up and how did it become a force to reckon with and the visible face of disaster response in a short time? How were various scientific and technological institutions set up and reinforced, which helped mitigate disasters? All these are interesting stories covered in this volume.

The idea of this book was conceived in 2017; it was on the back-burner for over two years. We were looking for a small grant to work on the book by interviewing the experts physically, but, by then, Covid-19 happened to lock all of us inside, ironically connecting us virtually across the world at the same time. As always, disasters also bring opportunities; with no funds in hand, we connected over Zoom with each disaster expert within the comforts of our homes, taking extended interviews and sharing lived experiences, which was very exciting and enriching. The interviews were transcribed, edited, re-edited and finalized in the form of chapters.

Even though our partnership has been unlikely, it has also been remarkable, driven by a mutually shared conviction which kept us motivated despite several challenges during the lockdown combined with the highs and lows of persisting and accomplishing the task at hand. This journey of over two years provided us with a rare window of opportunity to learn and innovate, and stay positive, inspired and determined with the enthusiasm and dedication of a student ever eager to learn at every moment.

This volume, apart from being informative and progressive in suggesting pathways for the future, is also meant to serve as inspiration to young disaster management professionals, as they can read through the personal and professional journeys of experts who started their careers in humble positions and rose to the top levels, contributing immensely to disaster preparedness and risk reduction in the process. This was possible only because of their passion, perseverance and commitment to their professions, which saw them taking up additional roles and responsibilities that came their way. The lives of these experts are testimonies to dreaming big and then working towards fulfilling them.

All the chapters and stories here, we believe, are unique and inspirational as every professional and practitioner will find these applicable wherever they will be in their life and career. Each one of the authors has contributed to the larger social context and narrative, and, hence, there is so much for youngsters to learn from their journeys. Hopefully, each one of them will discover the path that is right for them and walk it with courage, conviction and fortitude.

The making of this book during Covid has been a beacon of hope which kept us going during the dark phase, even in the face of some frustrating moments. As we have seen the effects of this long pandemic, where everybody was touched and suffered in small or big ways, this book is a testimony to the resilience of the people, the lessons learned from various disasters, and the continuous search for a beautiful and resilient world for not just the human species but also for the whole ecosystem, as we, humans, are just a speck in the entire universe.

Sunita Reddy and Anil Kumar Sinha

ACKNOWLEDGEMENTS

provided at various points of creating the draft. To Rosemary Sebastian Tharakan, thanks a ton for your detailed and meticulous editing work on the entire draft of the manuscript. We want to thank Swati Sinha for the vibrant artwork on the book's cover page.

Both of us are grateful to our respective family members and children, who have been very encouraging and supportive during the entire period, for bearing with us and giving us enough space and support to complete our manuscript. A special word of gratitude to Amita Sinha, who encouraged and supported us throughout this journey despite tremendous personal challenges.

It is highly gratifying to see our book *Disaster Planning and Governance in India: Experts' Experiences and Insights* being published with the esteemed publisher, Cambridge Scholars Publishing Limited. Lastly, there are no words to appreciate the promptness of Helen Edwards, the commissioning editor, to respond and guide us patiently through the submission of the manuscript. Finally, we thank all our friends who have been our well-wishers.

Sunita Reddy and Anil Kumar Sinha

CHAPTER 1

INTRODUCTION:
CHANGING CONTOURS OF DISASTER
MANAGEMENT IN INDIA

SUNITA REDDY AND ANIL KUMAR SINHA

Although the human race has been experiencing disasters since time immemorial, the policies, laws and institutional structures to deal with them are recent developments. Institutional memory is short. We often tend to forget how institutional structures have evolved over periods in history. One thing, however, is certain: with every successive experience of a disaster, we have progressed by developing policies, plans, legal frameworks, institutions, governance models, innovations, technological developments, infrastructures, materials and logistics.

India, the second most populated country in the world, is multi-hazard prone, with diverse eco-geological and socio-economic conditions. It has been facing disasters—"natural" and man-made—almost every day. It is crucial to preserve the remnants of disasters for society to remember and learn lessons for the future. Usually, while some facts and information are always in the public domain, a lot remains hidden, undocumented and unheard. This book makes an effort to document the history of disaster management in India by having a 360-degree view for a complete understanding, appreciation and an objective assessment. It is also imperative to have a longitudinal view of the events unfolding over a period of time to understand the long-term perspective, which will help preserve a valuable link with the past.

The concept and practices relating to what we know today as disaster risk management (DRM) have evolved and changed throughout history. We find mention of disaster management in Kautilya's *Arthashastra*—"*vyasana-appati*" and "*vippati*". Disasters are also classified into two types—"*daivam*

vyasana" (natural disasters) and "*manusham vyasana*" (man-made disasters). Kautilya also believed that prevention is always better than cure, and hence he gave various methods and rules to prevent disasters as the primary responsibility of the state, along with prescriptions for members of the society as well. Providing relief, a primary responsibility by any government for disaster management, to moving to a paradigm of DRM has been a long journey. During the colonial period, disaster management was mostly relief centric and there were no separate departments and formal institutions of disaster management. This continued after Independence.

Until a few decades back, the concept of disaster management was interpreted to be limited to response. Historically and before Independence, disaster management was primarily based on a contingency management approach. Codes, practices and guidelines existed before Independence, especially for relief; however, with an increase in understanding of risk, the paradigm shift led to the prevention-mitigation model, especially through mainstreaming disaster risk reduction and climate change adaptation into development as a key agenda in governance (Gupta, 2017). Further, the national to local level approach from the disaster risk reduction (DRR) perspective was formulated within the country's policy framework (Bhatt, 2018).

Reflecting on a few studies, Srivastava (2009) examines how knowledge inputs from space technology strengthened the national resolve to combat natural disasters. It has been a combination of "top-down" and "bottom-up" approaches. A drastic drop in deaths from thousands in the supercyclone in 1999 in Odisha to double-digit numbers with Phailin in 2013 was an achievement. The accurate prediction of the landfall combined with the local administration's efforts to move the communities to cyclone shelters in safer areas were the key factors behind this.

Though there is no dearth of classical literature, research, and publications on different concepts and themes of disaster management (refer to Chapter 5 in this volume), there has hardly been any attempt so far to document the history and development of disaster planning, governance and institution building spanning the last three decades in India. There have been few books that deal with the history of a particular disaster, and even fewer on specific disasters per se, including famines (Das, 1983), floods (Sharma and Priya, 2001) droughts (Mishra and Singh, 2010), landslides (Sharma, 2020), the Kutch earthquake (Sharma, 2001; Mishra, 2004), and disaster management for natural disasters (Sharma, 1997). Some books have looked at humanitarian aid post-tsunami (Reddy, 2018) and disaster law (Singh, 2018).

There has never been a book by the entire gamut of experts heading the institutions which contributed to disaster management institution building in the country. This book is an attempt to bridge the void. It covers the gap in existing literature relating to disasters, looks at the history of disaster management in India and institutional growth, and explores issues of governance from the perspective of the lived experiences of experts who have served for more than three decades in various key positions.

This book seeks to draw the evolution of disaster planning from the eyes and hands-on experiences of disaster professionals. It seeks to capture the stories and roles of pivotal actors behind the intricate and protracted processes of development of disaster management in India through the autobiographical journey of the experts and functionaries, who went through all sorts of trials and tribulations, and yet persisted with their efforts to achieve the coveted objectives. Thus, the book throws light on the development of policies, laws, institutional structures and governance challenges to be confronted in a federal democratic polity through technologies, logistics and advance preparedness drills for mitigating losses and relief measures from the perspectives of the experts.

The content and pedagogy in this book address questions like: What is the expert's personal and professional journey in disasters and their management in the country? What have been India's historical developments in disaster management in the past three decades? How have successive major disasters influenced the overall approach to thinking about disasters and developing new perspectives in India? How have global campaigns, world conferences, global initiatives and frameworks on disasters influenced disaster management policies in India? How have international humanitarian agencies influenced disaster response and mitigation in the country? What triggered the change from a relief-centric approach to a prepared, planned and preventive paradigm in the management of disasters? What has been the system's related institutional and infrastructural development? How have the Indian political leadership and bureaucracy disaster management organizations shaped and reshaped disaster policy and narratives around DRR and building resilience in our country?

The Writing Process

This book attempts to trace and capture candid, critical, and autobiographical journeys of disaster management experts to bring out unheard and undocumented accounts of the evolution and management of disaster management institutions and governance in India in the past three decades.

Though there are many experts and disaster management professionals across the country who have immensely contributed to the development of disaster institutions and governance, this book is limited in terms of length. Thus, we could include only a couple of lived experiences of the experts.

This book is based on write-ups and online interviews using Computer-Mediated Communication (CMC), conducted by the authors with selected professionals, from within the country and abroad, who have dealt with disasters in the past three decades. The experts include senior-most officials, policymakers, practitioners, and the High Powered Committee (HPC) members, who have contributed immensely to establishing India's disaster management institutions. Their honest opinions on the day-to-day dealings with disasters at the national and state levels are explored in the local context and in the corresponding political backdrop. The interviews were transcribed and analysed thematically. Candid conversations, sensitive information and critical views were shared and documented. However, the names of some of the actors in their professional journey have been kept confidential, wherever we felt it was required. These expert interviews, which were transcribed, reviewed and edited, have been published as chapters authored by the interviewees in this edited volume.

This volume will be valuable for all current and forthcoming generations of disaster management professionals to know how the disaster management institutions were made and the challenges the experts faced in setting up systems. It is important to pen down and document the institutional development and challenges in governance to keep the institutional memory alive. The book can be used as scholarly or professional reference material. It can also be used for policy analysis and contains suggestions for national, state and district level professionals. Further, this can be a course material for students of disaster management, geography, development studies, climate change and environmental studies.

Global Frameworks for Disaster Risk Reduction

Countries across the globe, including the Asia Pacific region, were greatly influenced by the concept of the International Decade for Natural Disaster Reduction (IDNDR), endorsed by the United Nations (UN) General Assembly in 1990, as a global initiative for 1990–99, which heralded the concept of disaster reduction through appropriate use and application of science and technology. In a mid-term review of the international decade in 1994 at the First World Conference on Disaster Reduction (WCDR) held in the city of Yokohama, Japan, the outcome was the adoption of the

Yokohama Strategy and Plan of Action for a Safer World. IDNDR was the first concept that resulted in a truly global unanimity of approaches among governments, academicians and researchers for addressing disasters resulting from natural hazards. This was followed by the Second WCDR in Kobe in Japan in 2005, which resulted in the adoption of the Hyogo Framework for Action (HFA). The Third WCDR, again in Japan in the city of Sendai, led to the adoption of a global framework, known as the Sendai Framework for Disaster Risk Reduction (SFDRR) in 2015 for a period of 15 years till 2030, coinciding with the time frames for Sustainable Development Goals (SDGs) and the Paris Agreement.

Policy Frameworks and Institutional Development in India

With its federal system of governance, India has specific roles for the central and state governments, as enshrined in the Constitution. The subject of disaster management is not specifically found in any of the three lists in the Seventh Schedule of the Indian Constitution, where subjects under the central and state governments come in the Central and State Lists respectively. It also includes subjects that come under both, specified in the Concurrent List. Earlier, there was no law or legal framework either by the central or any state government to comprehensively deal with the management of disasters of various types with a long-term perspective.

Providing safety and security to citizens is considered the primary function of a government. Even though not explicitly addressed in Five Year Plan documents after Independence, the Government of India and the states had a long history of using the plan funds to mitigate natural disasters. Funds under specific schemes were provided for some disasters like floods, droughts, etc.

The central sector scheme, Natural Disaster Management Programme, was initiated by the Ministry of Agriculture in the Government of India, and was implemented in 1993–94 to focus on disaster preparedness with an emphasis on response and mitigation for the enhanced capability to reduce the adverse impact of disasters. The predominance of floods, almost on an annual basis in different parts of the country, along with drought relief actions, where the central government was called upon to assist, was the main reason why the Ministry of Agriculture was given the lead role in disaster management in India prior to 2003. Thereafter, the subject was shifted to the Ministry of Home Affairs (MHA).

That disaster management is a development issue was understood by the policymakers of the country even though it was only in the Tenth Five Year Plan (2002–07) (Planning Commission, GoI, 2002) that a chapter entitled "Disaster Management: The Development Perspective" was included. This states that the Five Year Plan documents have, historically, not included issues relating to the management and mitigation of natural disasters. The traditional perception has been limited to the idea of "calamity relief", which is essentially seen as a non-plan item of expenditure. However, providing immediate relief alone cannot mitigate the impact of major disasters. The Eleventh Five Year Plan (Planning Commission, GoI, 2008), however, included disaster management as part of a chapter on the environment and climate change. In the Twelfth Five Year Plan the focus was on mainstreaming DRR in all sectors, so the subject was spread across all the chapters and disaster management can be found in all social sectors covered in the plan.

Disaster Management Policy, Act and Plans

The HPC was set up in August 1999 with the approval of the then Prime Minister, Atal Bihari Vajpayee, to take a comprehensive and holistic look at the range of disasters affecting the country from time to time. Even while nationwide deliberations were being held across the country, India faced several major disasters like the Odisha supercyclone (October 1999) and the Bhuj earthquake in Gujarat (January 2001), followed by the Asian tsunami (December 2004). During this time, the world also witnessed the worst kind of human tragedy that struck the twin towers of the World Trade Center in the USA. In the HPC Report, the Chairman, J.C. Pant, comments on the incident: "This human tragedy is a stark reminder of the fact that in today's world, we not only have to prepare ourselves for the prevention of hazards that we already know of but also of those that we may have to imagine as possibilities."

It is noteworthy that the scope of the HPC was enlarged in April 2000 to include "man-made" disasters like chemical, industrial and nuclear disasters. The HPC was the first-ever such exercise in India, where an attempt was made to look at all kinds of possible disasters in a holistic manner. The HPC championed, nurtured, and built four cultures of: preparedness, response, strategic thinking and prevention.

The HPC held nationwide intensive consultations in a highly participative and inclusive manner involving states, districts, municipalities, domestic and international NGOs, scientific and technical organizations, UN agencies

and the civil society. Its report was highly comprehensive as it envisaged, amongst other things, the structure of the National Disaster Management Authority (NDMA) as an institutional mechanism (Annexure 4), the National Calamity Management Act (Annexure 5), a state-of-the-art emergency operation centre layout (Annexure 6), a detailed vision for the National Institute of Disaster Management (NIDM) (Annexure 7), the Model State Disaster Management Act (Annexure 8), and guiding principles for the preparation of State Disaster Management Plans (Annexure 9), District Disaster Management Plans (Annexure 10), and the National Disaster Response Plan (Annexure 11). The annexures referred to here are as found in the HPC Report.

The national policy on disaster management was adopted on 22 October 2009 for achieving a safe and disaster-resilient India by developing a holistic, proactive, multi-disaster oriented and technology-driven strategy. It adopted a culture of prevention, mitigation, preparedness and response. The policy covers all aspects, including institutional and legal arrangements, the techno-legal regime, financial arrangements, response, relief, rehabilitation, reconstruction and recovery, including capacity building, knowledge management and research and development. The policy addresses the concerns of the vulnerable sections of society, including women, children, the differently abled and other disadvantaged groups. It also addresses critical aspects of equity and inclusiveness. It strives to build transparency and accountability in disaster management through the involvement of the community, community-based organizations, Panchayati Raj Institutions (PRIs), Urban Local Bodies (ULBs), and civil society organizations (CSOs).

The Disaster Management Act passed by the Parliament in 2005 (DM Act) provides a legal framework for the effective management of disasters by providing three-tier institutional mechanisms and listing their powers, roles and responsibilities. Further, the act lays down measures to be taken by various wings of the government for prevention and mitigation, including holistic, coordinated and prompt responses to any disaster situation. It also provides for the setting up of the NIDM, the constitution of the National Disaster Response Force (NDRF), allocation of funds for disaster response and disaster mitigation at the national, state and district levels. It also provides specific roles for local bodies in disaster management, including PRIs and ULBs. The act has created a new paradigm from post-disaster reactive response to proactive pre-disaster planning and preparedness.

As envisaged in the act, disaster management plans have been prepared at the national, state and district levels in consultation with multiple players, stakeholders and civil society. The National Disaster Management Plan primarily explains the processes and mechanisms triggered and brought into action after the declaration of serious disasters with wide ramifications on response, capacity building and mitigation. The mitigation plans are prepared by the concerned nodal ministries, which have been identified and designated for various disasters. Likewise, similar exercises are held respectively at the state and district levels.

In June 2008, India adopted its first National Action Plan on Climate Change (NAPCC), outlining existing and future policies and programmes concerning climate change, mitigation and adaptation. The plan identified eight core national missions: the National Solar Mission, the National Mission on Sustainable Habitat, the National Mission for Enhanced Energy Efficiency, the National Mission for Sustaining the Himalayan Ecosystem, the National Water Mission, the National Mission for a Green India, the National Mission for Sustainable Agriculture and the National Mission for Strategic Knowledge on Climate Change. Most states have also developed their respective State Action Plan on Climate Change (SAPCC).

It is worth mentioning that many of the premier technical institutions like the Central Water Commission, the Geological Survey of India, the Wadia Institute of Himalayan Geology, the Indian Institute of Remote Sensing, the Indian Space Research Organisation, the Bhabha Atomic Research Centre, the Building Materials Technology Promotion Council, and the Council of Scientific and Industrial Research through their dynamic network of 38 national research laboratories have been making immense contributions in terms of innovations and new technologies.

Prime Minister Narendra Modi enunciated a ten-point agenda for efforts towards DRR in an address he delivered at the Asian Ministerial Conference on Disaster Risk Reduction held in Delhi in 2016. The agenda mainly focuses on all development sectors to incorporate the principles of disaster management. Further, importance is given to risk coverage for all people, irrespective of their economic status and their enterprises. It also emphasizes the involvement and leadership of women and the use of technology, including involving higher learning institutions, social media and mobile technology. The agenda also highlights the importance of local capacities and initiatives, learning from disasters and bringing about greater cohesion in the international response to disasters.