

DISASTER MANAGEMENT IN INDIA

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India has only two percent of the world's landmass but is home to one-sixth of the world's population. With its massive land mass, ever-burgeoning population, and the status of still being a developing country, India is quite vulnerable to natural (floods, earthquakes, landslides etc.) as well as man-made disasters (such as chemical and industrial disasters). 85 percent of our land is susceptible to one or more disasters, such as:

- 57 percent of our land is susceptible to Earthquakes, out of which 12 percent land faces the possibilities of facing Severe Earthquakes,
- 68 percent land is likely to face Drought,
- 12 percent land is quite vulnerable to Floods, and
- 3 percent of our landmass is susceptible to Cyclones too.

Disaster management is crucial for sustainable development of our country, and to achieve environmental justice. Efforts to mitigate the impact of disasters aim to keep down the loss of life and property to the minimum when the eventuality strikes. Mitigating disasters is about being prepared for the disasters beforehand, and prevent them if possible. Rather than spending money on relief management, mitigation of disasters is about taking action now - to analyse risks, reduce them, and perhaps have some insurance for the financial loss as well as the loss of human life that during such an eventuality.

To effectively mitigate natural disasters as well as man-made disasters, one should understand the local risks well, address the hard choices residents of the area face, and invest in long-term well-being of the community.

How Vulnerable is India to Disasters?

The World Risk Report 2016, published

- d. Information System
- e. Resource Base
- f. Warning Systems
- g. Response Mechanisms
- h. Public Education and Training
- i. Rehearsals

Role of Government departments

The National Disaster Management Authority (NDMA) co-ordinates the disaster management efforts at the national level, while the State Disaster Management Authorities (SDMAs) coordinate the activities at the state level.

The NDMA drafts policies and guidelines for various ministries for the purpose, and has published a set of guidelines for each specific disaster - which includes everything about regulatory and non-regulatory frameworks, policies and programs that can help in Disaster

floods.

The Ministry of Agriculture educates communities about water management and conservation and rainwater harvesting to counter drought conditions. The state governments are responsible for providing food, employment, and support for livestock in drought-affected areas.

NDMA also conducts emergency drills in schools in areas prone to various types of disasters. In flood-prone areas like Bihar and Uttar Pradesh, villagers raise their houses above flood level to reduce the risk. In Pune, the state government widened streams, expanded bridges, and applied natural soil infiltration supplement in accordance with a drainage map that was designed to mitigate the flood risk. The municipal government in Pune also offers tax incentives to households who harvest rainwater, and recycle waste-



Management.

In the institutional framework, some of the nodal agencies for Disaster Management are:

- Ministry of Water Resources for

- For the purpose of Disaster Risk Mitigation, responsibilities have been mapped out for 11 common eventualities: Cyclone and Wind, Floods, Urban Flooding, Seismic, Tsunami, Landslides and Snow Avalanches, Drought, Cold Wave and Frost, Chemical (Industrial) Disasters, Nuclear and Radiological Emergencies, Fires

In case disasters happen, it is essential that the first responders and relief reach the affected areas in the shortest possible time. To make sure that the disaster management takes place in an effective, efficient and comprehensive manner, the NDMP has defined the Central Ministries that will be responsible for coordinating response at the national level.

The state and district administration will be responsible for setting up Incident Command Post, relief camp, base, staging area, camp, and helipad to provide various services during the response, and to publicise information about them.

Holistic and Integrated Approach to Disaster Prevention, Mitigation and Preparedness

The Communication and IT Sub Division of the NDMA has taken up a pilot project called National Disaster Management Services (NDMS), which maintains social media accounts such as Facebook, Twitter, and You Tube. It is also formulating the Decision Support System for Handling Offsite Nuclear Emergencies (DSSNOE) and handling activities like:

- Establishment and management of LAN and WAN at NDMA,
- Interaction with Nodal Ministries, Forecasting and Early Warning Agencies,
- Interaction with Central and State Govts. and related Departments on IT and Communication matters,
- Advise National Disaster Response Force (NDRF)

water.

In drought-prone areas, the government of India has been promoting the use of watersheds. The Watershed Organization Trust (WOTR) also runs a Participatory Watershed Development

should understand the local risks well, address the hard choices residents of the area face, and invest in long-term well-being of the community.

How Vulnerable is India to Disasters?

The World Risk Report 2016, published by the UNU Institute for Environment and Human Security (UNU-EHS) and Bundesentwicklung Hilft and calculated by the University of Stuttgart, ranks India at #77 (out of 171 countries) on the World Risk Index. Pakistan ranks at #72, Sri Lanka at #63, Bangladesh at #5, China at #85, and Nepal at #105 in the Index. Besides the chances of facing natural hazards, the report also considers the infrastructure and the logistic chains of the country that may make all the difference to reduce or increase the risk in case of extreme natural events.

According to the estimates of the India Disaster Knowledge Network, 5 crore people are affected by droughts while 3 crore are affected by floods every year in the country. Northern regions in India are more susceptible to flash floods and landslides, while coastal India is susceptible to storms and floods. Unique geo-climatic conditions of our country make certain regions susceptible to frequent and regular natural disasters. In such regions, society has largely adapted to them. Yet, the economic and social costs continue to mount year after year.

During disasters, one of the biggest challenges is to organise transportation to the affected area, and ensure fair distribution of food, water and shelter despite the shortage. The transport routes crumble, electricity grids become unreliable, and it becomes extremely difficult to provide crucial aid to victims on a timely basis.

Disasters also disrupt industries, such as communications and technology sector, and can hurt our economy. In the long term, disasters lead to additional problems like climate change, environmental degradation, urban migration, and informal settlements.

9 Components of Disaster Preparedness are:

- Vulnerability Assessment
- Planning
- Institutional Framework

Management.

In the institutional framework, some of the nodal agencies for Disaster Management are:

- Ministry of Water Resources for Floods,
- Indian Meteorological Department for Cyclones and Earthquakes,
- Ministry of Health and Family Welfare for Epidemics,
- Minister of Environment and Forests for Chemical Disasters,
- Ministry of Labour for Industrial Disasters,
- Departments of Atomic Energy for Nuclear Disasters, and
- Department of Mines for Mine Disasters.

NDMA is headed by the Prime Minister, SDMA's are headed by the Chief Ministers, and district-level disaster management authorities are headed by Collectors or Zilla Parishad Chairmen.

In 2003, the National Institute of Disaster Management (NIDM) to undertake research and raise awareness about the issue, and also develop training modules for it. The government has been focused on emergency response, relief management, and rehabilitation of victims. Preparation for disasters is also important. Disaster Management Act, 2005 does talk about risk reduction though and to reduce the vulnerability to disasters through development plans and projects. Under the provisions of this Act, NDMA was endowed with the responsibility of using the National Disaster Mitigation Fund on risk reduction projects.

Since then, a number of national mitigation projects have also been launched to strengthen our disasters readiness in hazard-prone areas. These include land-use management, building codes for earthquakes, collaborations, and public awareness campaigns. Between 2007 and 2012, the government invested about 1.81 billion dollars in the Flood Management Programme which was spent in improving river management and drainage systems, and in controlling

water.

In drought-prone areas, the government of India has been promoting the use of watersheds. The Watershed Organization Trust (WOTR) also runs a Participatory Watershed Development (PWD) program in which the rainwater harvesting structures are built, trees are planted to prevent soil erosion, and activities are undertaken to educate and empower communities and build the capacity to mitigate disaster risks. WOTR is also spearheading the climate change adaptation project in three states where it is working on environmental conservation, crop diversification, weather report installations, and water management.

New National Disaster Management Plan (NDMP)

In May 2016, the NDMA presented the National Disaster Management Plan to make India disaster resilient. It is aligned with the United Nation's Sendai Framework for Disaster Risk Reduction 2015-2030 to which India is a signatory. Some of the highlights of the NDMP are:

● For each hazard, the National Plan suggests five Thematic Areas for Actions:

Understanding Risk, Inter-Agency Coordination, Investing in DRR – Structural Measures, Investing in DRR – Non-Structural Measures, Capacity Development

● 18 activities that are broadly a part of the response to a Disaster have been identified as:

Early Warning, Maps, Satellite inputs, Information Dissemination, Evacuation of People and Animals, Search and Rescue of People and Animals, Medical Care, Drinking Water/ Dewatering Pumps/ Sanitation Facilities/ Public Health, Food & Essential Supplies, Communication, Housing and Temporary Shelters, Power, Fuel, Transportation, Relief Logistics and Supply Chain Management, Disposal of Animal Carcasses, Fodder for livestock in scarcity-hit areas, Rehabilitation and Ensuring Safety of Livestock and other Animals, Veterinary Care, Data Collection and Management, Relief Employment, Media Relations

Forecasting and Early Warning Agencies,

- Interaction with Central and State Govts. and related Departments on IT and Communication matters,
- Advise National Disaster Response Force (NDRF) on IT and Communication matters, and
- Interaction with service providers.

Under the NDMS pilot project, the attempt is being made to provide reliable telecommunication infrastructure to the disaster managers at 120 locations which will use VSAT communication and will be backed up by terrestrial network and HF Radios. This project is being implemented by Bharat Sanchar Nigam Ltd. (BSNL).

A National Earthquake Risk Mitigation Project is also in the preparatory phase which will focus on adoption of model building bye-laws and earthquake resistant construction and planning standards.

There is a proposal to set up a Common Alerting Protocol (CAP) which will allow access to reliable, accurate and timely information to the public before, during or after a disaster.

Some of the other initiatives that are being taken are:

- Deployment of Mobile Radiation Detection Systems (MRDS) to detect unclaimed radioactive materials in all metros, capital cities and big cities.
- Landslide Risk Mitigation Scheme (LRMS) to provide financial support to site-specific Landslide Mitigation Projects meant to develop early warning systems and for capacity building.
- Flood Risk Mitigation Scheme (FRMS) to develop model Multi-Purpose Flood Shelters and River Basin specific early warning systems and digital elevation maps in flood-prone states.
- Constitutions of a Core Group for Preparation of Guidelines to avert Boat Tragedies in India.

Disaster management needs holistic and planned approach. The calamities cannot be altogether stopped but timely action surely mitigates the human suffering and provides the much needed relief.

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