Disaster Management in India

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Statement of the problem

Disaster is defined as “Catastrophic situation in which the normal pattern of life or ecosystem has been disrupted and extra-ordinary emergency interventions are required to save and preserve lives and or the environment” (Ministry of Home Affairs, 2011). The Disaster Management Act has included man-made disasters also and defines disaster as ‘a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes or by accident or negligence which result in substantial loss of life or human sufferings or damage to, and destruction of, property or damage to, or degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of an affected area’.

Types of Disasters

Due to the increasing frequency of natural and man-made disasters, Government of India constituted a High Powered Committee (HPC) on Disaster Management in August 1999 to prepare comprehensive plans at National, State and District levels. HPC identified thirty one disasters in the country categorized into following five sub-groups depending on generic considerations and various departments/ ministries dealing with various aspects:

<table>
<thead>
<tr>
<th>Water and Climate Disaster</th>
<th>Geological Disaster</th>
<th>Biological Disaster</th>
<th>Nuclear and Industrial Disaster</th>
<th>Accidental Disaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood, cyclones, hailstorms, cloudburst, heat and cold</td>
<td>landslides and mud flows, earthquakes, mine fires, dam failures and</td>
<td>Epidemics, pest attacks, cattle epidemic and food poisoning</td>
<td>Chemical and industrial disasters and nuclear accidents</td>
<td>Urban and forest fires, oil spill, mine flooding incidents</td>
</tr>
<tr>
<td>waves, snow avalanches, droughts, sea erosion, thunder and lightning.</td>
<td>general fires.</td>
<td>collapse of huge building structures, bomb blasts, air, road and rail mishaps, boat capsizing.</td>
<td></td>
<td></td>
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</tbody>
</table>

Natural disasters occur without any intention while man-made disasters are events which, either intentionally or by accident cause severe threats to public health and well-being.

**Natural disasters**

*Earthquakes*

Of the earthquake-prone areas, 12% is prone to very severe, 18% to severe and 25% to damageable earthquakes. The Himalayan regions are particularly prone to earthquakes. The last two major earthquakes shook Gujarat in January 2001 and Jammu and Kashmir in October 2005. Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya, Andaman & Nicobar Islands and parts of 6 other states in the North/North-West (Jammu and Kashmir, Uttaranchal, and Bihar) and West (Gujarat) are in Seismic Zone V.

*Floods*

About 30 million people are affected annually due to Floods. These are an annual feature in Indo-Gangetic-Brahmaputra plains during monsoon season. On an average, a few hundred lives are lost, millions are homeless and several hectares of crops are damaged every year. Floods are a perennial phenomenon in at least 5 states – Assam, Bihar, Orissa, Uttar Pradesh and West Bengal.

*Cyclones*

About 8% of the land is vulnerable to cyclones of which coastal areas experience two or three tropical cyclones of varying intensity each year. The Indian continent is considered to be the worst cyclone-affected part of the world, as a result of low-depth ocean bed topography and coastal configuration. The principal threats from a cyclone are in the form of gales and strong winds and high tidal waves/storm surges. Cyclones typically strike the states of West Bengal, Orissa, Andhra Pradesh and Tamil Nadu, but also parts of Maharashtra and Gujarat at the Arabian Sea West Coast.
Landslides
Landslides occur in the hilly regions (Himalayas, North-East India, the Nilgiris, and Eastern and Western Ghats). Landslide-prone areas largely correspond to earthquake-prone areas, i.e. North-west and North-East, where the incidence of landslides is highest.

Droughts
We have a largely monsoon dependent irrigation network. An erratic pattern, both low (less than 750 mm) and medium (750 - 1125 mm) makes 68% of the total sown area vulnerable to periodic droughts. Severe and rare droughts occur in arid and semi-arid zones once in almost every 8-9 years. 16% of the country’s total area is drought prone and approximately 50 million people are annually affected by droughts.

Cold Waves
Cold waves are recurrent phenomenon in North India. Thousands of people die of cold and related diseases every year, most of them from poor urban areas in northern parts of the country. According to India’s Tenth Five Year Plan, natural disasters have affected nearly 6% of the population and 24% of deaths in Asia caused by disasters have occurred in India.

Avalanches
Avalanches constitute a major hazard in the higher elevations of Himalayas. Parts of the Himalayas receive snowfall round the year and adventure sports are in abundance in such locations. Severe snow avalanches occur in States like Jammu & Kashmir, Himachal Pradesh and Uttrakhand.

Tsunamis
Tsunamis are giant waves, initiated by a sudden change, usually in relative position of underwater tectonic plates. The sudden jerk is enough to propagate the wave, however, its power can be enhanced and fed by lunar positioning and boundaries that focus its energy.

Man-made Disasters
The fast pace of growth and expansion in the name of development without comprehensive understanding/preparedness has brought forth a range of issues that seek urgent attention at all levels. In the absence of such measures growing numbers in our population are at a risk of prospective hazards such as air accidents, boat capsizing, building collapse, electric fires, festival related disasters, forest fires, mine
flooding, oil spills, rail accidents, road accidents, serial bomb blasts, and fires. Nuclear, Chemical and Biological threats are apparent in the present scenario.

**The Indian scenario on disasters**

The Indian subcontinent is highly vulnerable to natural disasters occur frequently in the Himalayan region. Among the states/ Union Territories in the country, 25 are disaster prone. On an average, about 50 million people in the country are affected by one or more disasters every year, besides loss of property worth several millions (Table 1).

In the 1970s and the 80s, droughts and famines were the biggest killers in India, the situation stands altered today. It is probably a combination of factors like better resources management and food security measures that has greatly reduced the deaths caused by droughts and famines. Floods, high winds and earthquakes dominate (98 percent) the reported injuries, with ever increasing numbers in the last ten years. The period from 2001 to 2011 has been associated with a large number of earthquakes in Asia that have a relatively high injury to death ratio. Floods, droughts, cyclones, earthquakes, landslides and avalanches are some of the major natural disasters that repeatedly and increasingly affect India (Table 2).

The natural disasters directly affect economies, agriculture, food security, water, sanitation, the environment and health every year. Different natural hazards because varying levels of physical damage to infrastructure and agriculture with implications for their indirect impacts.

**Table 1:** Lose of life and property due to Disasters in India (1980 – 2010).

<table>
<thead>
<tr>
<th>Year</th>
<th>Types of Disasters</th>
<th>People affected</th>
<th>Life lost</th>
<th>Economic damage (USD × 1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>Flood</td>
<td>30,000,023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>Drought</td>
<td>100,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flood</td>
<td>33,500,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>Epidemic</td>
<td></td>
<td>3290</td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>Drought</td>
<td>300,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>Epidemic</td>
<td></td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Storm</td>
<td></td>
<td></td>
<td>2,200,000</td>
</tr>
<tr>
<td>1993</td>
<td>Flood</td>
<td>128,000,000</td>
<td></td>
<td>7,000,000</td>
</tr>
<tr>
<td></td>
<td>Earthquake</td>
<td></td>
<td></td>
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</tbody>
</table>
### Table-2: Damage due to Natural disasters during last ten years in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Live Lost human (in No.)</th>
<th>Lost Cattle (in No.)</th>
<th>Houses damaged (in No.)</th>
<th>Cropped areas affected (in Lakh hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>834</td>
<td>21,269</td>
<td>3,46,878</td>
<td>18.72</td>
</tr>
<tr>
<td>2002-03</td>
<td>898</td>
<td>3,729</td>
<td>4,62,700</td>
<td>21.00</td>
</tr>
<tr>
<td>2003-04</td>
<td>1,992</td>
<td>25,393</td>
<td>6,82,209</td>
<td>31.98</td>
</tr>
<tr>
<td>2004-05</td>
<td>1,995</td>
<td>12,389</td>
<td>16,03,300</td>
<td>32.53</td>
</tr>
</tbody>
</table>

Source: “EM-DAT: The OFDA/CRED International Disaster Database"
National Disaster Management system in India

The government at various levels too, has responded by taking appropriate measures for prevention and mitigation of the effects of disasters. While long-term preventive and preparedness measures have been taken up, the unprecedented nature of the disasters has called in for a nationwide response mechanism wherein there is a pre-set assignment of roles and functions to various institutions at central, state and the district level.

The Administrative Response
The Division of Disaster Management of Ministry of Home Affairs, Government of India is the nodal ministry for all matters concerning disasters at the Centre except the drought. The Drought Management is looked after by the Ministry of Agriculture, Government of India as pointed out earlier, the central government only supplements the efforts of the State Government.

The Chief Secretary is the head of the State Administration. The State Headquarters has, in addition, a number of Secretaries who head the various Departments handling specific subjects under the overall supervision and co-ordination of the chief Secretary.

States are further divided into districts, each headed by a District Collector. It is the District Collector who is the focal point at the district level for directing, supervising and monitoring relief measures for disaster and for preparation of district level plans.

Non Governmental Organizations
Emerging trends in managing natural disasters have highlighted the role of Non Governmental Organizations as one of the most effective alternative means of achieving an efficient communication link between the Disaster Management agencies and the affected community. Many different types of NGOs are already working at advocacy level as well as grassroots level, in typical disaster situations they can be of help in preparedness, relief and rescue, rehabilitation and reconstruction.
The Community
Now the community as an institution in itself is emerging as an effective player in the entire mechanism of disaster administration. In the event of disasters, the community, if well aware of the preventive actions it is required to substantially reduce the damage caused by the disaster. Awareness and training of the community is particularly useful in areas prone to frequent disasters.

New Strategies for a Safer Future

Preparedness, Mitigation and Prevention
Preparedness measures such as training of role players including the community, development of advanced forecasting systems, effective communications, and above all a sound and well networked institutional structure involving the government organizations, academic and research institutions, the armed forces and the NGO’s have greatly contributed to the overall disaster management in the country.

Role of Local Bodies
The 73rd and 74th Amendments paved the way for a constitutional status for local governments - Urban Local Bodies and Panchayati Raj institutions, to play a greater role of immediate concern.
Local governance institutions, with their grass-root level contacts with the common people, can make a substantial contribution to the process of spreading awareness.

Institutional and Policy Framework
1. At the national level, the Ministry of Home Affairs is the nodal Ministry for all matters concerning disaster management. The Central Relief Commissioner (CRC) in the Ministry of Home Affairs is the nodal officer to coordinate relief operations for natural disasters.
2. National Crisis Management Committee (NCMC): Cabinet Secretary, who is the highest executive officer, heads the NCMC. Secretaries of all the concerned Ministries /Departments as well as organizations are the members of the Committee.
3. Crisis Management Group: The Central Relief Commissioner in the Ministry of Home Affairs is the Chairman of the CMG, consisting of senior officers (called nodal officers) from various concerned Ministries. The CMG’s functions are to review every year contingency plans formulated by various Ministries/Departments in their respective sectors.
4. Contingency Action Plan: A National Contingency Action Plan (CAP) for dealing with contingencies arising in the wake of natural disasters has been formulated by the Government of India and it had been periodically updated.

References

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5. Disaster Risk Reduction - The Indian Model, Ministry of Home Affairs, Govt. of India, New Delhi, 2003.