

DISASTER MANAGEMENT IN INDIA TIME TO FOCUS ON PREVENTING THE NEXT DISASTER

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Abstract

Over the past fifty years, there has been a significant evolution in thinking about disasters among aid workers, economic development specialists, policymakers, community planners, academics and other involved in the disaster field. The debate has shifted from the narrow concept of providing quick disaster “relief” based on a charitable impulse to a broader concept of disaster “management” that encompasses community involvement in prevention and preparedness, mitigation, emergency relief, rehabilitation as well as long-term development that incorporates both prevention and preparedness.

At 6.29 am, on the morning of December 26, 2004 an undersea earthquake erupts in Sumatra, triggering off tidal waves called tsunami. A minute later, the India Meteorological Department (IMD) gets the news, in 15 minutes; IMD tracks the tsunami to the Indonesian coastline. At 7.50 am, the tsunami hits Car Nicobar, The Island is almost wiped out. Then the tidal wavers head for the southern coast of India. At 8.50 am, Tamil Nadu is hit. (Table.1.1, Tsunami damage in India).

Following the unparalleled tragedy that has killed over 150,000 across the world, particularly in Indonesia and Sri Lanka, tsunami is the new word on the world’s mind. But something worse could happen. What is the state of our disaster preparedness? Do we need to be part of a global combat network? With 22 states and union territories on the official list of disaster-prone areas, who’s next? India cannot afford to take any more chances. We must be ready now. (Refer Table 1.2, Global list of Some Historical Tsunami Deaths, & Table 1.3 List of Tsunami that Affected India).

Disaster Mitigation Initiates

The phrase disaster management means a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for the following (i) prevention of danger or threat of any disaster; (ii) mitigation or reduction of risk of any disaster or its severity or consequences; (iii) capacity-building; (iv) preparedness to deal with any disaster; (v) prompt response to any threatening disaster situation or disaster; (vi) assessing

the severity or magnitude of effects of any disaster; (vii) evacuation, rescue and relief; and (viii) rehabilitation and reconstruction.

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Thus, mitigation means measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation Preparedness refers to the state of readiness to deal with a threatening disaster situation or disaster and the effects thereof. Reconstruction means repair or construction of any property after a disaster. And resources include manpower services, materials and provisions. The Bill states that the phrase capacity- building includes (i) identification of existing resources and resources to be acquired or created. (ii) Acquiring or creating resources identified under sub-clause (i) and (iii) organization and training of personnel and coordination of such training for effective management of disasters.

The Government of India has adopted mitigation and prevention as essential components of their development strategy. The Tenth Five Year Plan document has a detailed chapter on Disaster Management. The plan emphasizes the fact that development cannot be sustainable without mitigation being built into developmental process. Each State is supposed to prepare a plan scheme for disaster mitigation in accordance with the approach outlined in the plan. In brief. Mitigation is being institutionalized into developmental planning.

Disasters can have devastating effect on the economy; they cause huge human and economic losses, and can significantly set back development efforts of a region or a State. Two recent disasters, the Orissa Cyclone and the Gujarat Earthquake, are cases in point. With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus needed to look at disasters from a development perspective as well.

Further, although disaster management is not generally associated with plan financing, there are in fact a number of plan schemes in operation, such as for drought proofing, afford station, drinking water, etc. which deal with the prevention and mitigation of the impact of natural disasters, External assistance for post-disaster reconstruction and streamlining of management structures also is a part of the Plan. A specific, centrally sponsored scheme on disaster management also exists. The plan thus already has a defined role in dealing with the subject.

Recently, expert bodies have dwelt on the role of the Planning Commission and the use of plan funds in the context of disaster management, Suggestions have been made in this regard by the Eleventh Finance Commission, and also the High Powered Committee on Disaster Management. An approach on planning for safe development needs to be set out in the light of these suggestions.

But a basic lesson that all disaster situations have taught us is that without the involvement of the local people and the affected community, the implementation of any plan is not possible, it rues “The Disaster Management Bill 2005 leaves 70 million disabled people endangered,” announces <http://v1.dpi.org.citing www.dnis.org>.

Although our country has been subjected to natural disasters from time to time, these have never been adequately factored into our planning process, “laments India Economic Road Map: The Next Five years 2002-2007” on <http://planningcommission.nic.in>. “By and large, we have taken the approach that these events are transient in nature and, therefore, can be addressed as and when they arise.

“Between 1988 and 1997 disasters killed 5, 1116 people and affected 24.79 million very year,” says <http://www.undpquakerehab.org/> about Indian statistics, in a document titled, ‘Natural Disaster Risk Management Programme’. “In 1988, 11.2 per cent of total land area was flood prone, but in 1998 floods inundated 37 per cent geographical area”. Indian subcontinent is among the world’s most disaster prone areas, states Building Materials and Technology Promotion Council (www.bmtpc.org). The numbers it gives are: 54 per cent of land vulnerable to earthquakes; 8 per cent of land vulnerable to cyclones, and 5 per cent of



land vulnerable to floods. “In 21 cyclones in Bay of Bengal 1.25 million lives have been lost in India and Bangladesh”, informs a page titled ‘Disaster Mitigation & Vulnerability Atlas of India’.

India is spending huge amounts on disaster relief measures. Why not spend it on disaster management instead?

“We must set the stage for the efforts in the longer term, as we move from saving lives to recovery and reconstruction”.

-Kofi Annan, UN Secretary- General

What? Why? Our disaster preparedness

Disasters are not predictable. They follow no standard operating procedures. Disaster preparedness is about managing the unknown, not a science but a social behavior that’s responsive, predictive and imaginative. Effective disaster management depends on four factors:

- Preparedness: knowing where and when disaster will hit.
- Mitigation: through measures like coastal zone regulation, building earthquake-resistant buildings, before the event.
- Relief: effective action, like moving supplies quickly
- Rehabilitation: building lives again.

(Orissa, 1999. Bhuj, 2001)

The Orissa super-cyclone and the earthquake in Bhuj, Gujarat exposed serious limitations in India’s preparedness system:

- India has no national disaster management policy
- During a crisis, the state administration is in charge; the Central government only offers financial and material help
- Disasters are nobody’s job. Different ministries-home, agriculture, science-take turns when disasters strike. This creates an administrative crisis during the calamity
- Disasters are treated as a one time crisis
- Disaster management is non-plan expenditure

To deal with the aftermath of the situation in Orissa, the national cyclone mitigation project and a core group on cyclone mitigation were announced. Due to lack of funds and direction, these are yet to take off. The death toll reported so far, as well as the number of persons who are missing or have been displaced, is given in the Table.

Table: Number of deaths, injuries and missing and displaced persons due to tsunami in India

No. of deaths	No. of injured persons	No. of missing persons	No. of displaced persons	No. of affected districts/islands
10,872	Tamil Nadu (3432 as on 3-2- 2005)	5,764 persons are reported to be missing in A&NIslands and are feared to be dead	647,556	41
	Andaman & Nicobar (1514 as on 3-3-2005)			



	Pondicherry (561 as on 12-01-2005)			
	Kerala (1707 as on 10-01-2005)			

Note: Figures from Andhra Pradesh not available.

Earthquakes don't kill, buildings do

Bhuj showed that science could be used to track earthquake prone areas and specific earthquake monitoring and micro zoning would help in this. Policy's role was to make sure that building codes on earthquake proofing were enforced in vulnerable areas to minimize deaths.

An environmentalist wrote: earthquakes do not kill. Buildings do. Therefore, once we understand the vulnerability of seismic areas, we have to use this knowledge to ensure that structures that come up are earthquake resistance. But this is precisely where we fail. Even after the devastating Bhuj earthquake contractors are merrily abusing the building requirements for earthquake-prone regions, whether Assam or Delhi.

Of the 11 national programmes announced after Bhuj, the first was the earthquake risk mitigation programme to enable engineers in quake-resistant buildings to accelerate the process of vulnerability- reduction. The government also committed to enforce earthquake-resistant building codes in seismic zones.

We do not need new science to teach us this. But what we need is to ensure government agencies strictly regulate, so ensuring structures are built taking into account building codes.

Island Ecology

“About 10percent of tsunami impact could have been absorbed by the now non-existent mangrooves, and sea beaches,” says Sameer Acharya, secretary, Society for Andaman & Nicobar Ecology, a non-governmental organization (NGO) based in Port Blair. After Tsunami, an international research team discovered just how important mangroves were in a dramatic way. In a recent paper published in Oct.8 issue of the Journal Science, they showed how three villages shielded by the Pichavam mangrove forests in Cuddalore district escaped without a single death. The Science paper confirmed earlier laboratory experiments, which showed that 30 trees per 100 square meters could reduce the intensity of a tsunami by more than 90 per cent. The same went for coral reefs. A report published in National Geographic showed that settlements behind a bank of intact coral reefs in the Maldives similarly escaped the worst effects of the Tsunami. The importance of mangroves & coral reefs can be underlined by these facts.

The Supreme Court has revised its ban on tree felling in forest areas and allowed the administration to use timber for rehabilitation work. The government subsidizes this distruction. Between 1991 and 2001; total subsidies to industry have grown from Rs208.57 lakh to Rs 411.23 lakh in 2000-01.Many relief workers in tsunami- affected areas now report that areas with mangroves or any other natural barriers, like Pondicherry, have incurred less loss in life & property than Nagapattinam and Cuddalore, where the Tsunami waves went through the low lying areas that were occupied by settlements instead of forests. “There should be some kind of a planned development; there should be some kind of law enforcement in terms of what region



to be occupied even in the coastal region,” says V Rajamani, a seismological scientist based in Chennai.

India needs centralized ocean management

In the US, a single body, the National Oceanic and Atmospheric Administration, coordinates all oceanographic and atmospheric studies, but in India, there is a multiplicity of organizations involved in oceanographic studies, under various ministries, and this causes an information whirlpool. To name a few:

- Department of Ocean Development: funds for oceanographic studies
- Survey of India: maintains tidal gauges; managed by local port trusts.
- IMD: entrusted with disaster warnings, including those from the sea.
- Geological Survey of India: for marine geological studies, including undersea earthquakes.

Why, with all these organization, do we still lack proper data? Research on India’s strategic areas (defense, nuclear and space) gets prioritized, while modernized tide gauge systems to provide real-time data on wave behavior gets sidelined, even if the amount involved is as tiny as Rs. 10 crore, Along our 5,700 km-long coastline, there are only 10-12 tide gauges, and they, too, are operated manually. Survey of India (soi) had in fact mooted a proposal to have an array of digital tide gauges to transmit real time data by satellite to a 24-hour centre at the soi headquarters, Dehradun.

Learning from the Tsunami: Mitigating Crises in the Future

Now tsunami have struck here, India is also considering being part of a global tsunami warning system, besides developing an indigenous one that will be built at a cost of Rs.125 crore, DOD will be the nodal agency. Disaster management demands, firstly, scientific knowledge to understand the map our vulnerability.

But science needs now to go beyond mere technology and to start thinking of the people they’re for instead of the infrastructure they’re with. The scientific establishment, in its ivory tower, cannot respond to disasters unless they know what’s needed on the ground and who to share information with. So ocean science, like the others, needs to be part of a wider vision where technology, people, administration all comes together to combat disaster impact.

What we must understand is that we can never have an effective disaster surveillance system, without strong, capable and accountable scientific institutions and people to head them.

Secondly, understand that instrumentation-however important, however sophisticated-will not save lives. Science can merely help us predict natural disasters; only warn us about our vulnerability. The challenge is to use this scientific knowledge for policy and implementation.

Let me repeat what an environmentalist, said “If we do not change our governance system, we will only end up shedding crocodile tears after every disaster.”

One year later-What the UN is doing: Over the past 12 months the UN has:

- Built over 200 health care centers;
- Rebuilt over 25,340 permanent shelters;
- Fed over 2 million people;
- Provided over 561.000 children with school-in-a-box kits while their schools are built.



These figures are just an attempt to show that ensuring transparency and accountability in the recovery process is essential to “build back better”.

Communities are the first responders to a disaster. The current status of formulation of village disaster management plans and their training in India is given on table 1.3.

Role Of Corporate Sector In Disaster Management

While disaster reduction is a collective responsibility of the entire society, the corporate sector can contribute very significantly. What task is nobler than rehabilitating the lives shattered in a disaster and rebuilding their future through effective mitigation? The corporate world should reinvent their mission and vision and redefine their priorities in the enlightened context of social responsibility. Conferences, Seminars and Discussions should be held. Aim should be to build a culture of prevention towards a disaster free society. The involvement of the corporate sector in disaster management & mitigation is the most pressing need of the hour. As there will be no end to these calamities, its time to lay down new & bold approaches in terms of preparedness, connectivity among communities, corporate & governments.

How And Why Is The Corporate Sector Involved In Mitigating Disasters?

To illustrate the private sector motivation and role in the disaster response and recovery, a research was conducted on corporate responses to the Gujarat Earthquake in India. The analysis produced findings based on in-depth interviews with national and multinational companies, which responded to the Gujarat Earthquake. These indicated that corporations are motivated to become involved in disaster response and recovery based on five organizational factors:

1. Social Values
2. Disaster Sensitivity
3. Internal Organization
4. External Pressures
5. Perceived Benefits

These dimensions expands the understanding of corporate motivations that focuses primarily on organizational benefits and stakeholder expectations, and introduces the critical influences of social values, commitment to philanthropy, and resource availability and relevancy. The corporate sector has, till now, focused primarily on providing immediate relief. This succor comes in the form of providing large amounts of case to substantiate the relief efforts of the government, providing medical and food aid to the needy, and in some cases, helping affected communities in their rehabilitation process in the wake of a calamity.

Towards disaster-resistant societies

A number of lessons emerge from various studies and assessments of the numerous disaster occurrences in India. The key lesson felt by many researchers, organizations, & the government is the need for a gradual shift of focus from the “immediate measures” to the ‘long -term efforts’ of disaster management. We can’t stop or change the nature of disasters. What we can change, certainly control, is the scale that a disaster wrecks. This is what disaster preparedness. Disasters can retail death only when the response to it is lazy, i.e unplanned. Therefore, disasters have to be planned for, actively encountered, not only at the level of policy (of which India is seen enough already, in the last five years) but also, and specifically, at where it hits hardest: people affected. Affected because they were not informed, affected because machinery busily whirring to only reproduces itself day after administered day never factored them in its positivist mathesis.



It's not usual to point out that the real victim of the recent disaster is Indian Science, and to the extent that the State controls research, actually the Indian State. Its time to change. However, there is a need to revisit an infuse pragmatism in the process to truly communicate to the masses that India may soon become disaster resistant. It would be apt to

Conclude by reminding us that “Everyone sits down to a banquet of consequences at one point of time”-Leo Tolstoy.

India is spending huge amounts on disaster relief measures. Why not spend it on disaster management instead? ‘Link Disaster Management with Welfare’, is the need of the hour. We are passing through times when countries are grappling with disasters and struggling to cope with their aftermath as we have seen in the recent past- the Tsunami, the Mumbai floods, Hurricane Katrina, followed by Rita. The pressing need of the hour is to build a culture of prevention towards a disaster free society, and lay down new and bold approaches in terms of preparedness, connectivity among communities, corporates and governments.

Let us wish that such calamities never happen again. But if they do then we must be prepared.

Table 1.1 - Tsunami damage in India

Factor	Andra Pradesh	Kerla	Tamil Nadu	Pondichery	Total
Population affected	211,000	691,000	2,470,000	43,000	3,415,000
Area affected (km²)	7.9	Unknown	24.87	7.9	40.67
Length of coast affected (km)	985	250	1,000	25	2,260
Extent of penetration (km)	0.5 – 2.0	1 - 2	1 – 1.5	0.30 – 3.0	
Reported height of tsunami (m)	5	3 – 5	7 – 10	10	
Villages affected	301	187	362	26	876
Dwelling Units	1,557	11,832	91,037	6,403	110,829
Cattle lost	195	Unknown	5,476	3,445	9,116

Table –1.2 Global Lists of Some Historical Tsunami Deaths

Year	Place	Number of Lives lost
1692	Port Royal Jamaica	3000
1703	Tsunamis in Honshu, Japan following a large earthquake	5000
1707	38 foot Tsunami, Japan	30,000
1741	Following Volcanic eruptions 30 feet wave in Japan	1400
1753	Combine effect of an earthquake and Tsunami in Lisbon, Portugal	50,000
1868	Tsunami Chile and Hawaii	More than 25000
1883	Krakatoa Volcanic explosion and Tsunami Indonesia	36,000
1896	Tsunami Sanrika, Japan	27,000
1933	Tsunami, Sanrika Japan	3000
1946	32 foot high waves in Hilo,Hawaii	159
22May,1960	Along the coast of Chille	Approx.2000 (+3000)



		person missing).
1964	195 foot waves engulf Kodiak, Alaska after the Good Friday Earthquake	131
17Aug.1976	Philippines	8000
19Aug.1977	Indonesia	189
18July.1979	Indonesia	540
12Sept.1979	New Guinea	100
12Dec.1979	Columbia	500
26May 1983	Sea of Japan	500
1998	Papua New Guinea	Approx.100

Source: Prevention/Protection and Mitigation from Risk of Tsunami, a modified document (strategy paper), 2005, Ministry of Home Affairs Government of India.

Table1.3 List of Tsunami that Affected India

Date	Remarks
12April,1762	Earthquake in Bay of Bengal. Tsunami wave of 1.8m at Bangladesh Coast
19thAug.1868	Earthquake Mag.7.5 in Bay of Bengal. Tsunami run-up 4.0m at Port Blair
31stDec.1881	Earthquake of Mag.7.9 in Bay of Bengal reported tsunami run –up level of 0.76m at Car Nicobar,0.3m at Nagapattinam,1.22m at Port Blair
27thAug.1883	Karakatoa,1.5m Tsunami at Madras,0.6m at Nagapattainam,0.2m at Arden
1884	Earthquake in the western part of Bay of Bengal Tsunami at Port Blair, Doublet(Mouth of Hoogly River)
26thJune 1941	8.1 quake in the Andaman Sea at 12.9 N,92.5E Tsunami on the east coast of India with amplitudes from 0.75 to 1.25m.Some damage from East Coast was reported.
27 th Nov.1945	Mekran Earthquake (Magnitude 8.1).12 to15mwaveht.inOrmara in Pasi(Mekran coast).Considerable damage in Mekran coast. In Gulf of Cambay of Gujrat wave heights of 11-11.5m was estimated.
26thDecember 2004	Earthquake of magnitude 9.3 off north Sumatra coast generated devastating Tsunami waves affecting several countries in South East Asia.

Source: Prevention/Protection and Mitigation from Risk of Tsunami, a modified document (strategy paper), 2005, Ministry of Home Affairs Government of India.

Table 1.4: The current status of formulation of village disaster management plans and their training are as follows: Table 1.3

Phase	Programme State	Village DM Plans	DMC members trained	First Aid	Search & Rescue
I (Oct 2002 onwards)	Bihar	858	12390	2717	3876
	Gujarat	1340	15833	5821	1056
	Orissa	9170	110016	1769	1788
II (June 2003)	Arunachal Pradesh	0	0	0	0
	Assam	40	200	160	160
	Delhi	50	180	30	0
	Maharashtra	0	0	0	0
	Manipur	0	0	0	0
	Meghalaya	0	173	0	0

onwards)	Mizoram	0	0	0	0
	Nagaland	0	0	0	0
	Sikkim	80	0	903	0
	Tamil Nadu	161	78	18	25
	Tripura	0	0	0	0
	Uttaranchal	75	562	40	7
	Uttar Pradesh	0	0	0	0
	West Bengal	0	0	0	0
	Total	11774	139432	11458	6912

Source: 3rd Meeting of the Project Management Board (PMB), GOI-UNDP Disaster Risk Management Programme (2002-2007).

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