CHAPTER II - DISASTER SCENARIO IN INDIA & RESPONSE MECHANISM

Emerging Disaster Scenario in India

2.1. **Disaster Scenario in India.** India is one of the World Bank Natural Disaster Hotspots[39] and is highly vulnerable to a variety of natural as well as human induced hazards. Our country has experienced a number of major disasters in the last one and a half decades. India suffered a loss of 62,516 deaths only on account of natural disasters between year 2000 and 2012 and huge economic losses worth 2.1 Billion USD on an average per year[40] during the same period. Due to the geographic layout, India is highly prone to disasters such as tsunami, earthquakes, floods, avalanches, droughts and cyclones. *Flooding alone affects millions of people in India and kills hundreds across various states from June through September*[41]. The last few years country has witnessed some of the worst disaster

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[39] 'Natural Disaster Hotspots: A Global Risk Analysis—Synthesis Report', 2008.

[40] EM Dat web site accessed at 1100hrs on 20 August 13 http://cred01.epid.ucl.ac.be:5317/?after=2012&before=2012&region%5B%5D=Southern+Asia&dis_group%5B%5D=Natural&agg1=country_name&agg2=.

[41] Asia Pacific Daily Report Sept 04 2008, Pacific Disaster Management Information Network, pp 02.

(refer Fig 2.1) and loss of lives in few major natural disasters in the country in last 13 years are as follows: -

Event	Year	Losses
• Gujarat Earthquake	2001	(25, 000 deaths)[42].
• Tsunami	2004	(10, 749 deaths)[43].
• Kashmir Earthquake	2004	(16,389 deaths).
• Maharashtra Floods	2005	(1094 deaths)[44].
• Bihar Floods	2008	(1023 death).
• Mud Slides in Ladakh	2010	(234 deaths).
• Uttrakhand Floods	2013	(over 5000, exact fig NA).

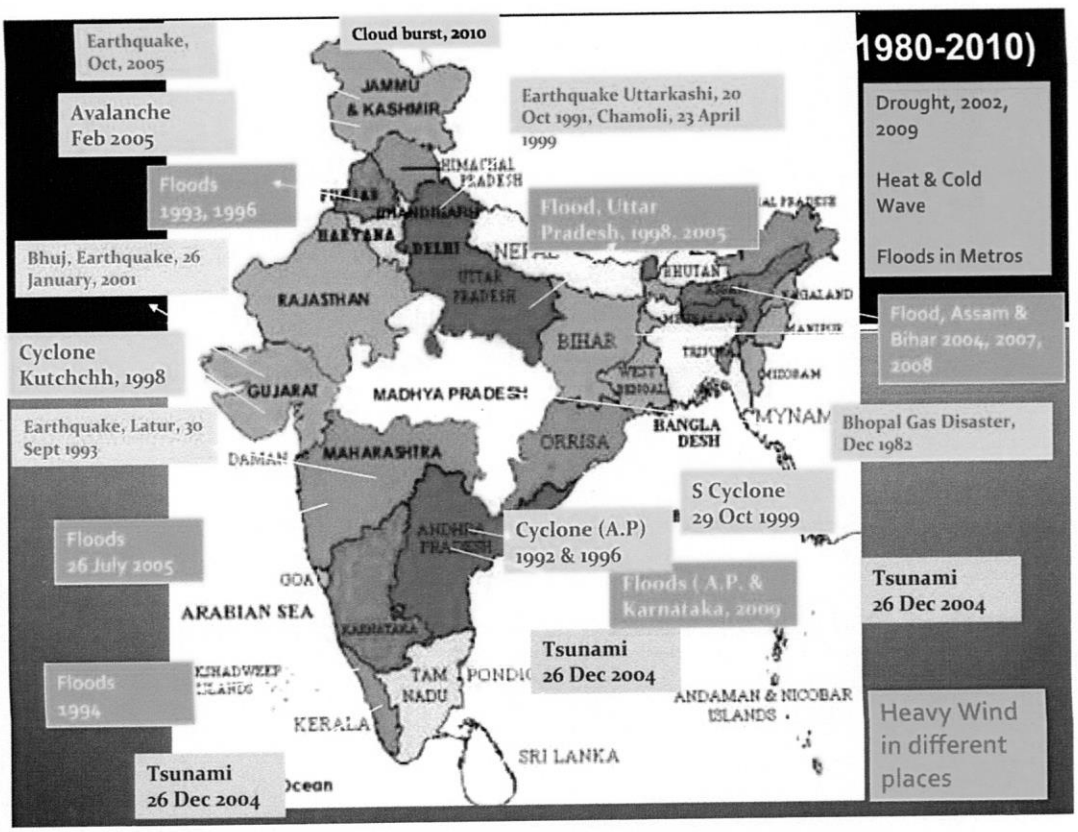

Fig 2.1 : Major Disasters in India since 1980 – 2010[45] (Source – NIDM)

[42] MHA Publication, 'Disaster Management in India', May 2011, pp 5.
[43] Ibid, pp 5.
[44] Ibid.
[45] Ibid, pp 10.

2.2. **Natural Disasters Trends and Losses**. *There is a distinct increase in the frequency of in India and their impact in terms of casualties and damage*[46]. A trend analysis of last 115 years (refer fig 2.2) shows that the frequency of disasters has risen exponentially in last 30 years compelling us to focus on disaster management more holistically. Emerging disaster trends in India are as follows:-

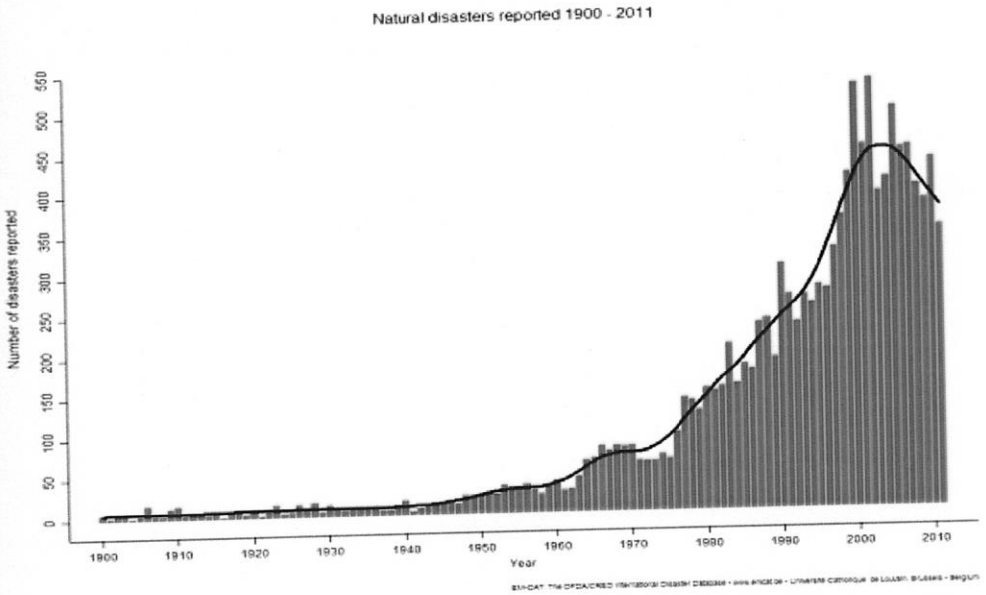

Fig 2.2 : Disaster Trends in India in Last 110 years (Source :EM DAT)

(a) India suffers huge losses owing to disasters on yearly basis. A comprehensive picture of losses suffered by India in last 12 years since 2000 is as follows[47]:-

Table 2.1 – Details of Losses in Disasters in India in Last 12 Years

No of Disasters	Nos killed	Nos Injured	Nos Affected	Nos Rendered Homeless	Total Damage in 000' $
227	62516	186765	619683961	10640545	28164910

[46] Report of the CAG on Performance Audit of Disaster Preparedness of India, Union Govt of India (MHA) 'Report No 5 of 2013', pp 71.
[47] APPPA 39 Assignment Report on Use of SPSS, Nov 2013.

(b) India suffered substantially in year 2001 when we had 21045 deaths owing primarily to Gujarat earthquake and again in 2004 when we had 17737 deaths owing to ill-fated Indian Ocean Tsunami (refer Fig 2.3). On an average India has had nearly 4809 deaths every year in last 12 years. As regards average losses in economic terms, India has been losing more than 2.3 billion USD worth every year owing to damages due to natural disasters. India is losing nearly 2% worth of our GDP every year[48] which is quite substantial. India on most occasion has suffered casualties between a range of 1500 to about 5000. There are however two outliers ie in year 2001 and in 2004 when India suffered max casualties owing to Gujarat earthquake and the Indian Ocean Tsunami.

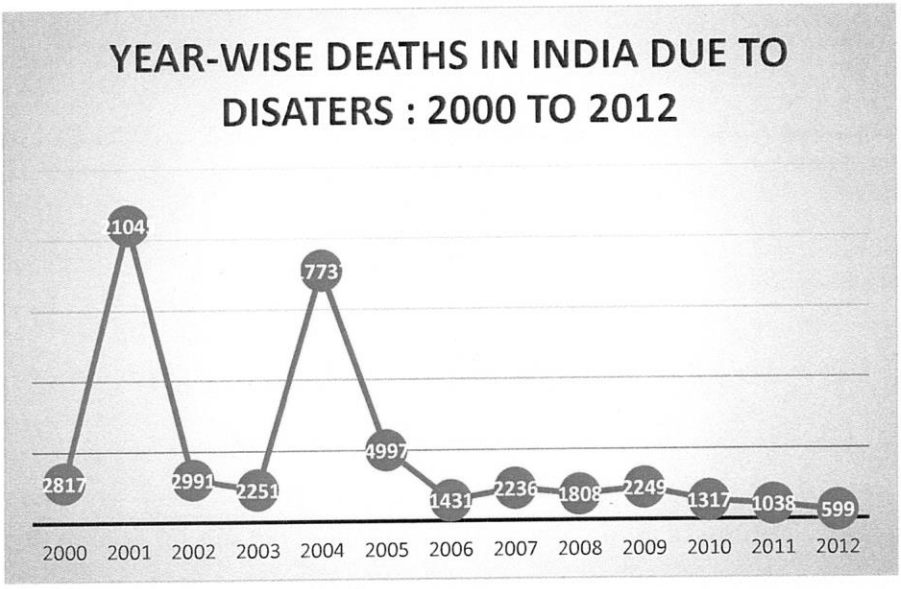

Fig 2.3 – Year-wise Deaths in India due to Disasters; 2000 – 2012

2.3. **Disaster Vulnerability**. India is amongst the most disaster prone countries of the world[49]. Almost 58.6 per cent of the landmass is prone to earthquakes of

[48] AE Ahmad, Secretary (Border Management) MHA, 'Disaster Management in India', May 2011.
[49] Issar Ranjeet, Secretary, Ministry of Housing & Urban Poverty Alleviation, Govt of India, in Foreword of 'Vulnerability Atlas of India', 1st Edition, Published by BMTPC, 2006.

moderate to very high intensity; over 40 million hectares (12 per cent of land) are prone to floods and river erosion; of the 7,516 km long coastline, close to 5,700 km is prone to cyclones and tsunamis; 68 per cent of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches[50] (refer Fig 2.4 below).

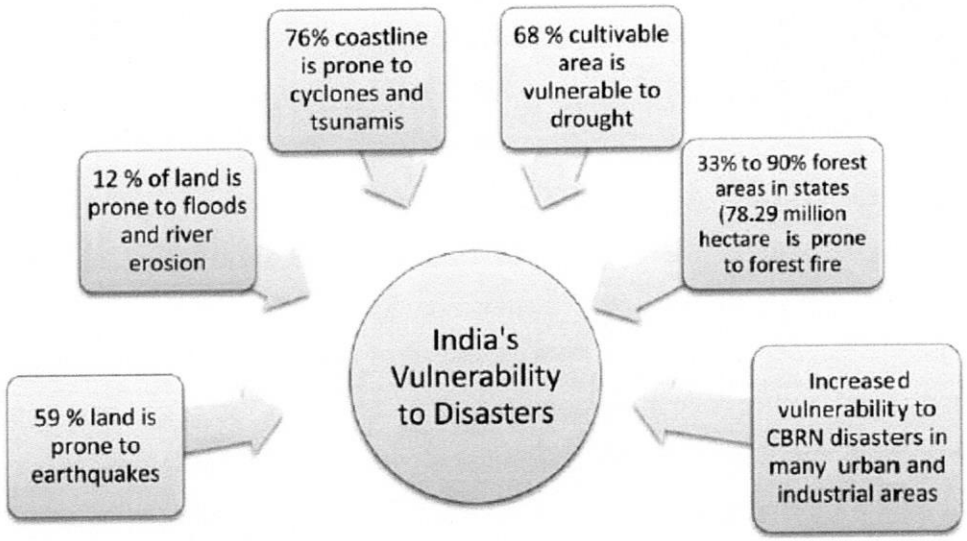

Fig : 2.4 India's Disaster Vulnerability Profile[51]
(Source : CAG Report No 5, 2013)

The basic reason for the high vulnerability of the country to natural disasters is its unique geographical and geological situations. As far as the vulnerability to disaster is concerned, the five distinctive regions of the country i.e. Himalayan region, the alluvial plains, the hilly part of the peninsula, and the coastal zone have their own specific problems. While on one hand the Himalayan region is prone to disasters like earthquakes and landslides, the plain is affected by floods almost every year. The desert part of the country is affected by droughts and famine while

[50] MHA Publication on Disaster Management in India, May 2011.
[51] Report of the CAG on Performance Audit of Disaster Preparedness of India, Union Govt of India (MHA) 'Report No 5 of 2013', pp 3.

the coastal zone susceptible to cyclones and storms. Along with the natural factors, various human induced activities like increasing demographic pressure, deteriorating environmental conditions increase disaster vulnerability of our country. With a combination of these reasons not only has the frequency of disasters increased in recent past but also the magnitude of disasters, which has resulted in colossal losses and often beyond the coping capacity of existing govt machinery at districts / state level. Often such disasters have warranted multi-agency response involving the community, districts govt officials, state govt, Central govt, Armed Forces, NDRF, NGOs and sometimes experts from foreign countries. Hence, the importance of a great amount of pre-planning, coordination, collaboration and synergy to ensure successful conduct of rescue and relief operations.

Disaster Management Approach in India

2.4. **India's Earlier Approach to Disaster Management.** Disaster management in India has evolved from *an activity-based reactive setup to a proactive institutionalized structure; from single faculty domain to a multi-stakeholder setup; and from a relief-based approach to a 'multi-dimensional pro-active holistic approach for reducing risk*[52]. Shifting from relief and response mode, disaster management in India started to address the issues of early warning systems, forecasting and monitoring setup for various weather related hazards. A structure for flow of information, in the form of warnings, alerts and updates about the oncoming hazard, also emerged within this framework. Till about 2002, India's approach to disaster was passive-more relief centric. The same has changed gradually to more proactive approach ie disaster prevention, mitigation and preparedness, though India has miles to go. In the new millennium, an Administrative Reforms Commission (ARC), only the second in independent India, was constituted by the Central Govt, to examine and suggest measures for efficient

[52] MHA Publication, 'Disaster Management in India', May 2011, pp 55.

and sustainable administration at all levels[53] Its terms of reference included Crisis Management and to suggest ways to "quicken the emergency responses of administration, and increase the effectiveness of the machinery to meet the crisis situation and enhance crisis preparedness." [54] Soon after, a comprehensive Disaster Management Act was passed by the Parliament in December 2005[55]. In place of archaic relief departments, states were encouraged to set up disaster management departments, Disaster Management Authorities and promulgate Disaster Management Codes in place of outdated Relief Codes.

2.5. **India's Disaster Management Structure**. The institutional structure for disaster management in India is in a state of transition. The new setup, following the implementation of the National Disaster Management Act 2005, is evolving; while the previous structure also continues. Thus, the two structures co-exist at present. The NDMA has been established at the centre, and the SDMA at state and district authorities at district level are gradually being formalized. In addition to this, the National Crisis Management Committee (NCMC), part of the earlier setup, also functions at the Centre. The nodal ministries, as identified for different disaster types function under the overall guidance of the MHA (nodal ministry for disaster management). This makes the stakeholders interact at different levels within the disaster management framework. Within this transitional and evolving setup, two features of the institutional structure for disaster management are distinct. Firstly, the structure is hierarchical and functions at four levels – centre, state, district and local. In both the setups – one that existed prior to the implementation of the Act, and other that is being formalized post-implementation of the Act, has institutionalized structures at the centre, state, district and local levels. Each preceding level guides the activities and decision making at the next level in hierarchy. Secondly, it is a multi-stakeholder setup, i.e., the structure draws

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[53] Govt of India (2005b), ARC Constitution Resolution.
[54] Govt of India (2005b). ARC Terms of Reference, clause 12.
[55] The Gazette of India (2005). Section 2 (e) of the DM Act, 2005, included all phases of prevention, mitigation, capacity-building, preparedness, response, evacuation, rescue, relief, rehabilitation and reconstruction in disaster management.

involvement of various relevant ministries, government departments and administrative bodies (refer fig 2.5).

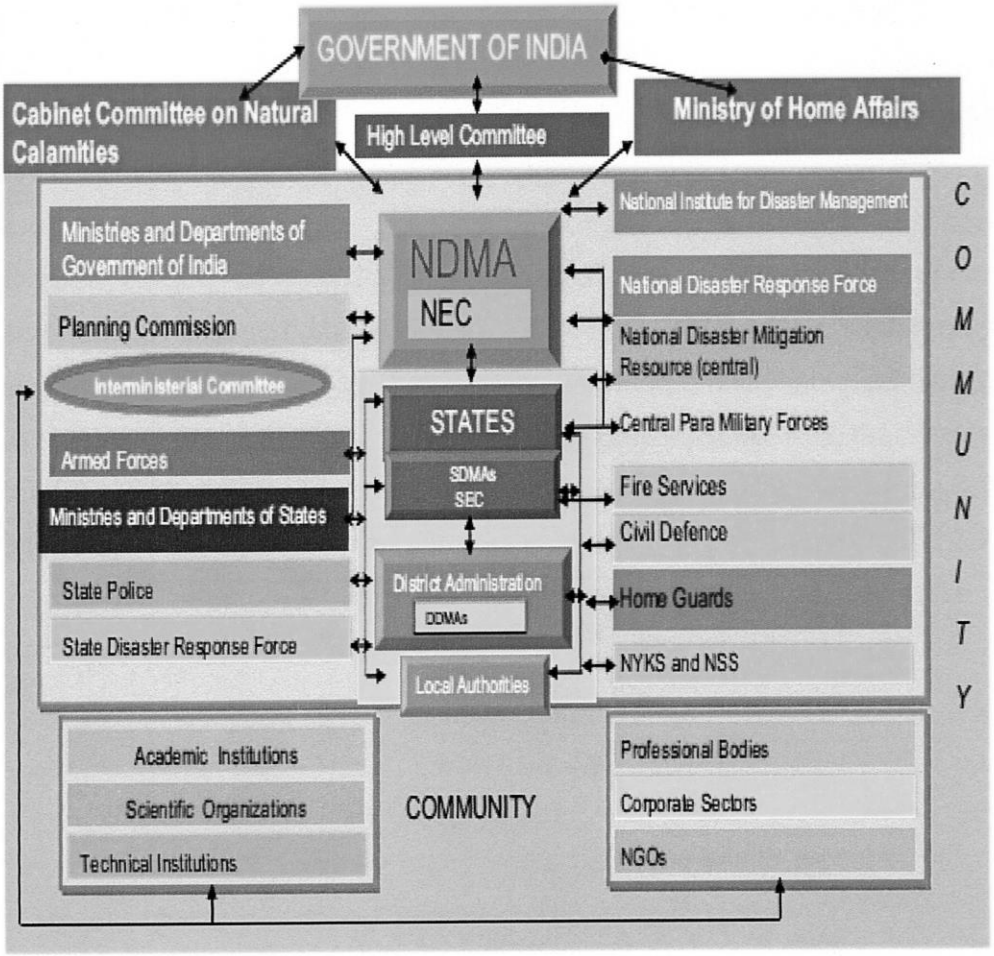

Fig 2.5 : National Disaster Management Structure in India

(Source : MHA Publication 'Disaster Management in India, May 2011)

2.6. **Response Management**. *Response management constitutes the functions of planning, execution and coordination*[56]. Planning in the pre-disaster phase is the responsibility of various authorities created under the DM Act, the execution of the plans has to be carried out by various line departments of the Govt and the existing administrative structure in the country. For proper planning and ensuring smooth execution of plans, bodies like NDMA, National Executive Committee (NEC), SDMA and State Executive Committee (SEC) have been created at the National and State Level. At the District level, planning, execution and coordination of all the activities related to disaster management have been vested in the DDMA headed by District Magistrate. The Chairperson of the Zila Parishad has, however, also been placed as the Co-Chairperson of the DDMA to elicit community participation in Disaster Management. The responsibility for disaster response clearly lies with the District Magistrate being the head of the District administration. As on date all 28 states and UTs have formulated SDMAs in their respective states/UTs. Some states have even formed DDMAs in few disaster prone districts. In Chhattisgarh state, 18 out of 27 districts have DDMAs[57]. (Refer Fig 2.6 & 2.7 for Administrative Structure of Disaster Management in India and Response Setup across the Country, respectively)

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[56] IGNOU Training Manual, Booklet 3, 'Responding to disasters', pp28.
[57] Ashok Shukla, Dy Director, DM II, MHA in an unstructured interview, 26 Feb 14.

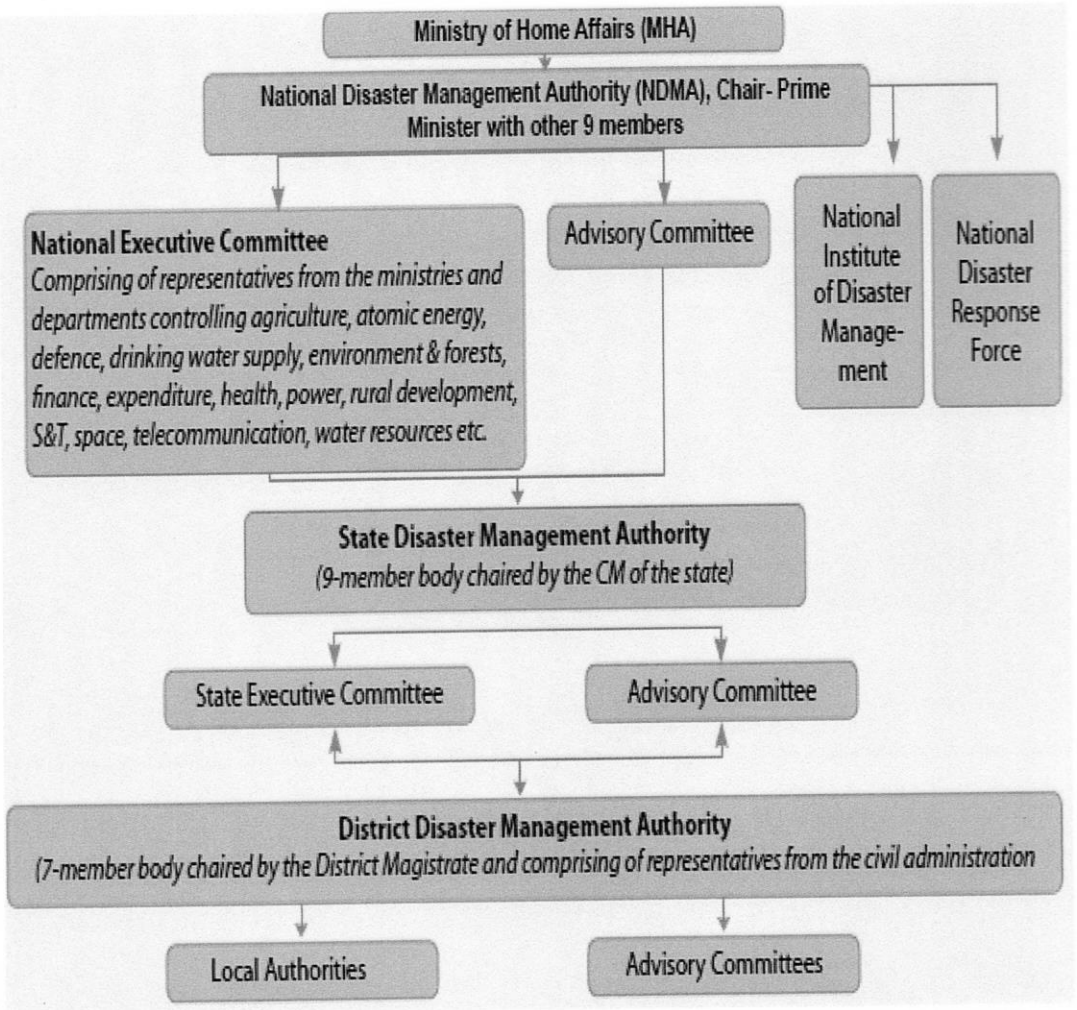

Fig 2.6 : Administrative Structure of Disaster Management in India

(Source : MHA Publication 'Disaster Management in India, May 2011)

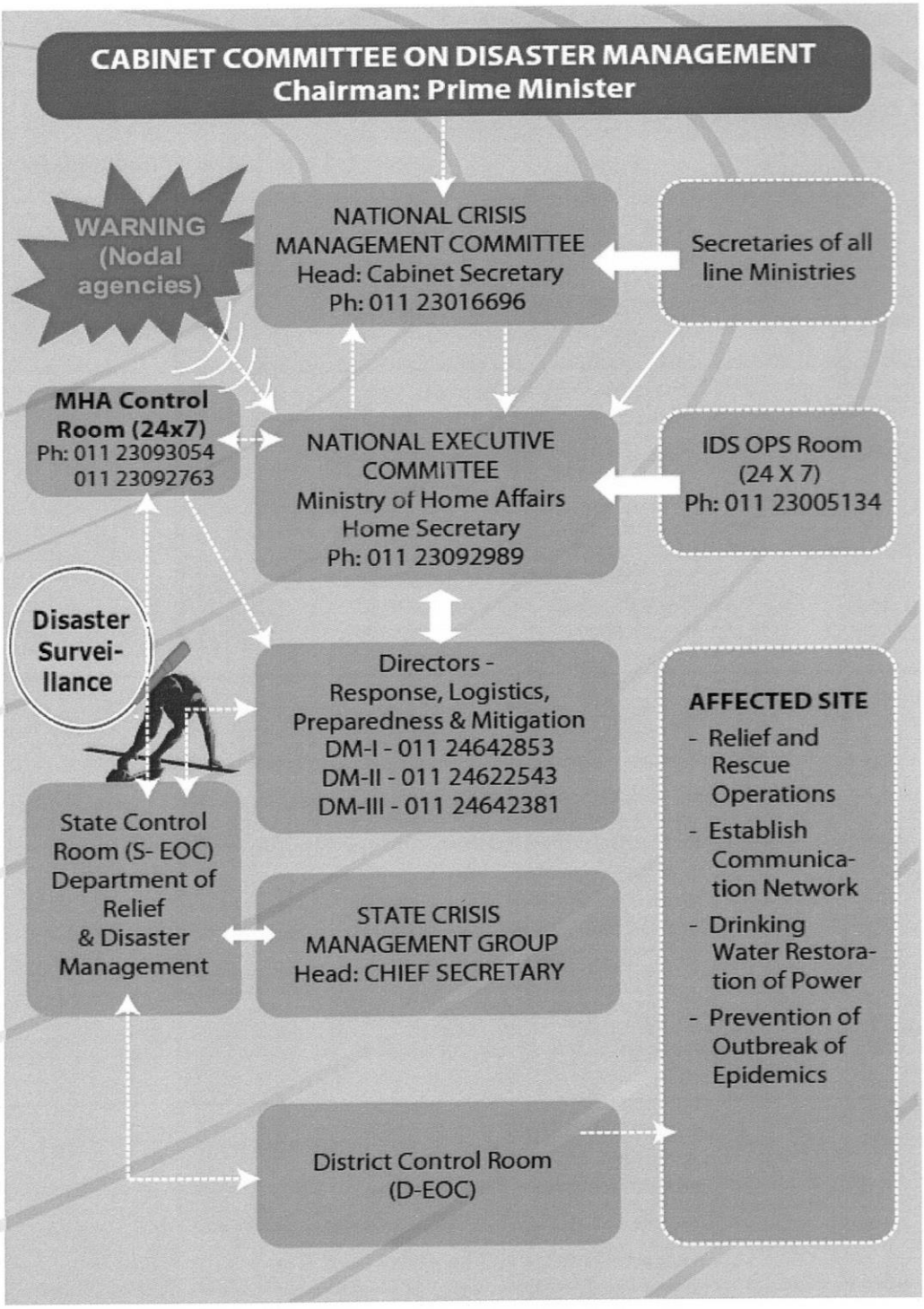

Fig 2.7 : Disaster Response Setup across the Country

(Source : MHA Publication 'Disaster Management in India, May 2011)

2.7. **Levels of Disaster Handling**. The levels of disasters have been categorised as L0, L1, L2, L3 in India based on the ability of various authorities to deal with them. The levels also have colour codes for ease of comprehension and fast dissemination[58] (refer Fig 2.8):-

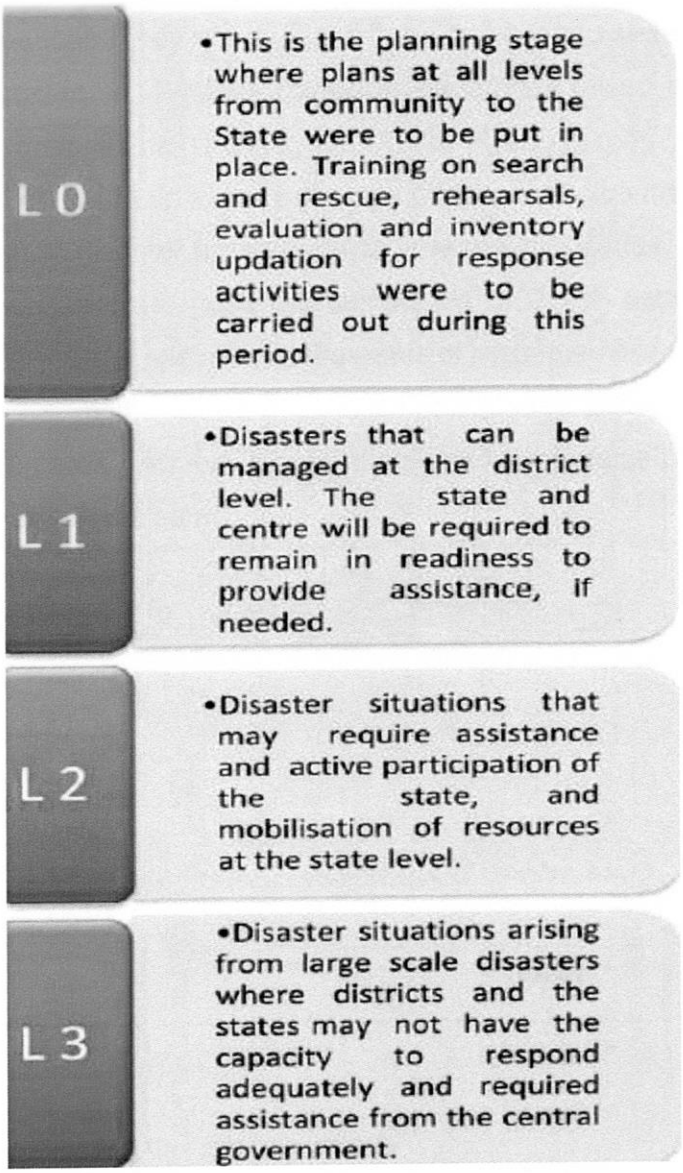

Fig 2.8 – Levels of Disaster Response

(Source : CAG Report No 5, 2013)

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[58] Report of the CAG on Performance Audit of Disaster Preparedness of India, Union Govt of India (MHA) 'Report No 5 of 2013', pp 4.

2.7. **NDRF**. NDRF is a unique feature of India's disaster response framework. NDRF has been constituted under Section 44 of the DM Act, 2005 by up-gradation/conversion of eight standard battalions of Central Para Military Forces i.e. two battalions each from Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Central Industrial Security Force (CISF) and Central Reserve Police Force (CRPF) to build them up as a specialist force to respond to disaster or disaster like situations. They are a unique force in the world raised and trained for disaster response. In all 10 NDRF battalions have been raised as of Feb 14 and two more are in the pipeline (refer Fig 2.9). To be able to respond faster and better and facilitate NDRF build up in case of mega disasters, states are to set up SDRF and locate these in disaster prone districts in respective states. As per MHA, all states have been asked to raise 3-6 companies of SDRF depending upon the disaster vulnerability and specific requirements of response, as the case may be[59]. A few states have raised these SDRF companies and platoons by converting existing Home Guards / Armed Constabulary units / companies and a few are in the process of raising the same.

[59] Vinay Kajla, Jt Advisor Ops, Response Division NDMA, in an unstructured interview on 16 Feb 14.

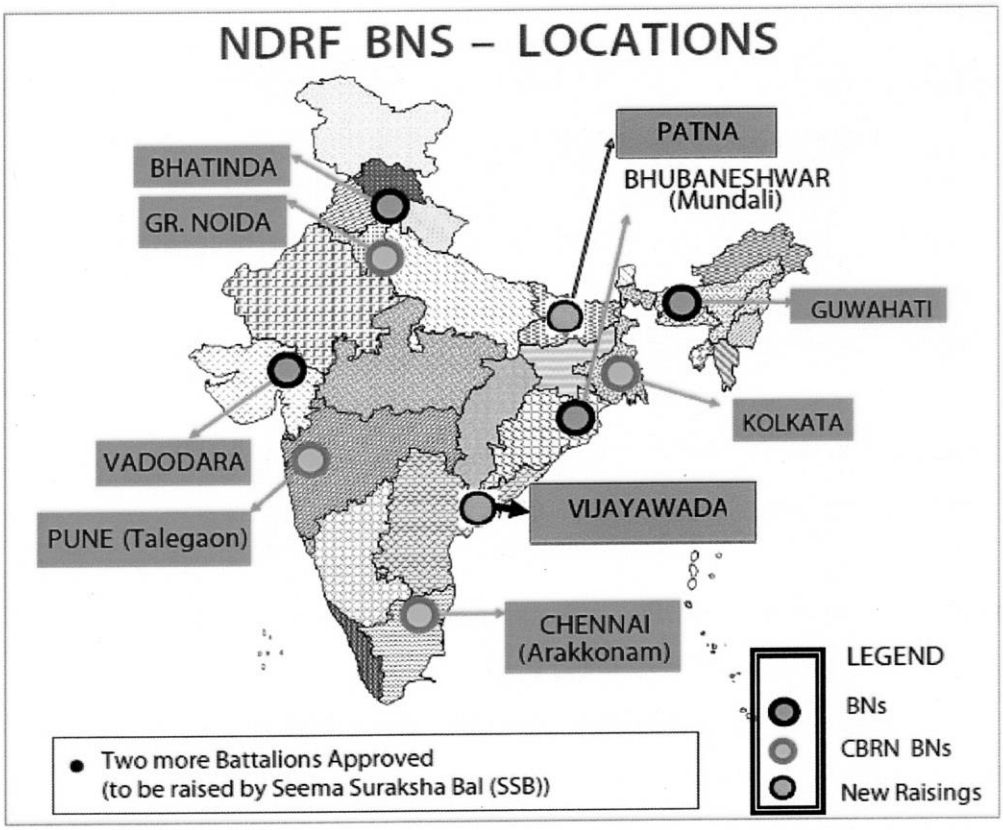

Fig 2.9 : NDRF Locations* in the Country (*as in 2011)
(Source : MHA Publication 'Disaster Management in India, May 2011)

2.8. **Shortcomings in Disaster Response - Felt Need for ICS / IRS**. India has a long history of rendering relief in an organized fashion in times of drought and famine. The states have antiquated relief code which deals with the general principles of administration of relief. But with increasing trends of disasters/ losses and in keeping with our renewed approach to disaster management of preparedness and response, the shortcomings must be examined. Though India

has been responding to disasters, the analysis of various disaster response indicated the following shortcomings[60]:-

(a) Lack of accountability because of the ad-hoc and emergent nature of arrangements and no prior training for effective performance.

(b) Lack of an automatic orderly and systematic planning process.

(c) Unclear chain of command and supervision of response activity. .

(d) Lack of proper communication plan, use of conflicting codes and terminology many a times resulting in complete communication failure.

(e) Inefficient use of available resources resulting in suboptimal outcome.

(f) Lack of predetermined method / system to effectively integrate inter-agency requirements into the disaster management structures and planning process.

(g) Lack of coordination between the first responders, professionals and NGOs with specialized skills during the response phase.

(h) Lack of use of common terminology for different resources resulting in improper requisitioning and inappropriate resource mobilization and delay etc;

(j) While disaster response is state subject the resources such as Armed Forces, NDRF, CAPF are not at the disposal of the states. Hence, willy-nilly Centre has to be approached resulting in certain amount of delays which

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[60] JK Sinha, Member, National Disaster Management Authority, New Delhi while addressing at HPSDMA, Shimla.

may get further delayed in case requisite seriousness is not ascribed to the situation by either of the link in the chain[61].

(k) Culture of not delegating is a major impediment to governance[62] and the same assumes greater importance in disaster response.

(l) Disaster response in our case is mostly personality driven exercise rather than system driven[63]. Hence, the need for a system so that the response can match the aspirations irrespective of personalities involved.

2.9. In spite of an elaborate institutional mechanism, is the country equipped to manage the disasters that affect 25 million people every year? [64] As a way forward, the working group on Disaster Management for the 11th plan and as also MHA have recommended / taken various initiatives to include building culture of preparedness and robust early warning systems coupled with effective response plans at district, state and national levels. IRS is one such initiative of MHA /NDMA that will help professionalize our disaster response if implemented in the disaster prone states.

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[61] Vinay Kajla, Jt Advisor, Response NDMA in an interview, 16 Feb 14.
[62] Dr Piyush Rautela, Executive Director, DMMC, Dehradun while interacting at Dehradun, 28 Feb 14.
[63] Ibid.
[64] Menon Vinod and Shirish Kavad, 'Disasters : Background & Perspective'
http://infochangeindia.org/disasters/backgrounder/disasters-background-a-perspective.html