

INDIA

- Seventh largest country by geographical area (3,287,590 SQ KM)
- Second most populous country (1.13 billion)
- Occupies 2.4 percent of the world's land surface area but houses 16.9 percent of the world's population.
- World's twelfth largest economy (US \$ 1 trillion)
- Fourth largest in purchasing power
- Has 28 states & 7 union territories
- Further divided in 610 districts

Geography of India

- Formed due to collision of drifting part of Gondwana supercontinent with Eurasian Plate millions yrs ago
- India lies to the north of the equator between $6^{\circ}44'$ and $35^{\circ}30'$ north latitude and $68^{\circ}7'$ and $97^{\circ}25'$ east longitude
- Highest mountain Himalaya in North & North-East
- Bounded by the Indian Ocean on the south, the Arabian Sea on the west, and the Bay of Bengal on the east, India has a coastline of 7,517 kilometers (4,671 mi)
- Has Lakshadweep Islands in Arabian Sea and Andaman & Nicobar Islands in Bay of Bengal

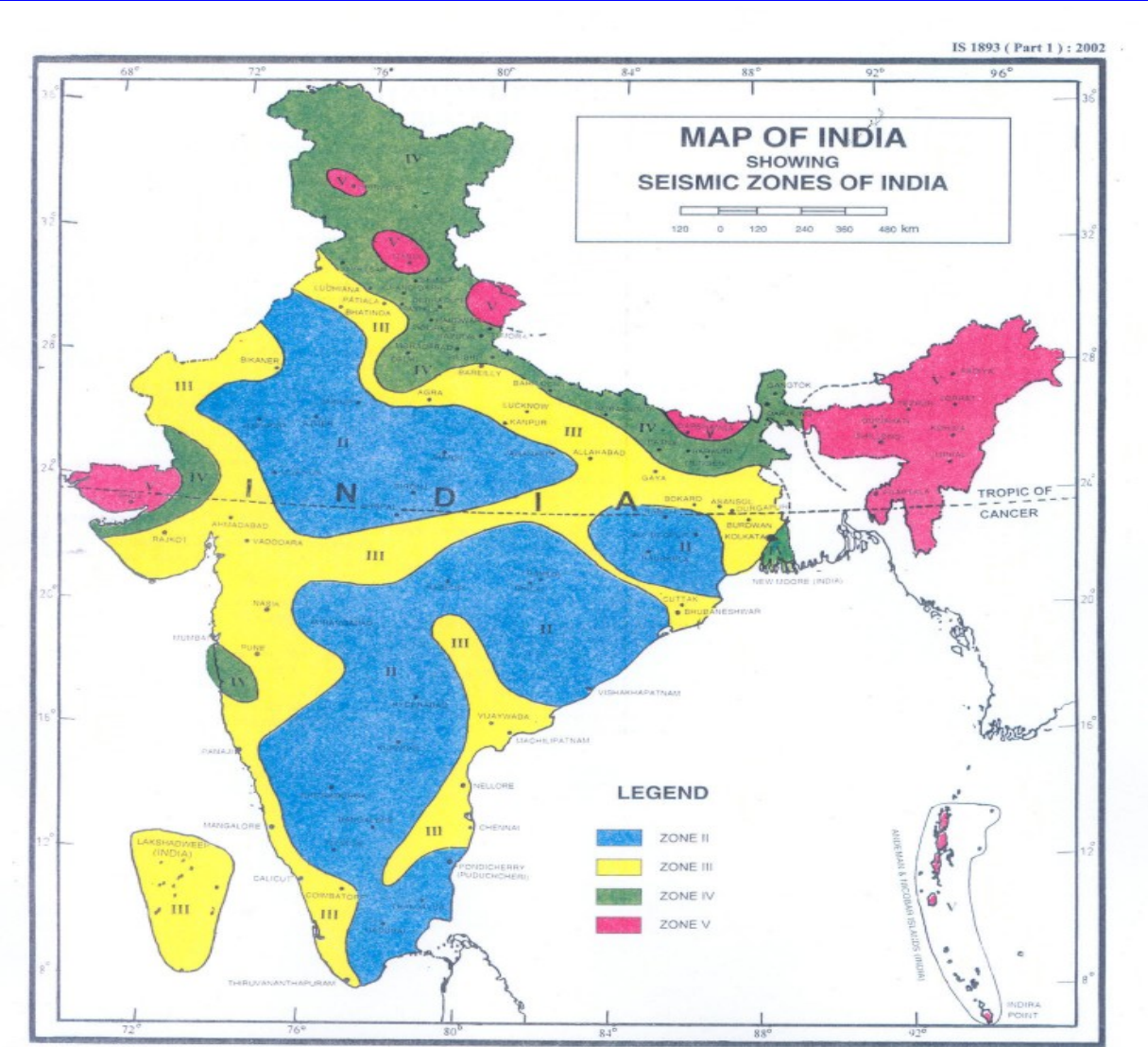
India Map



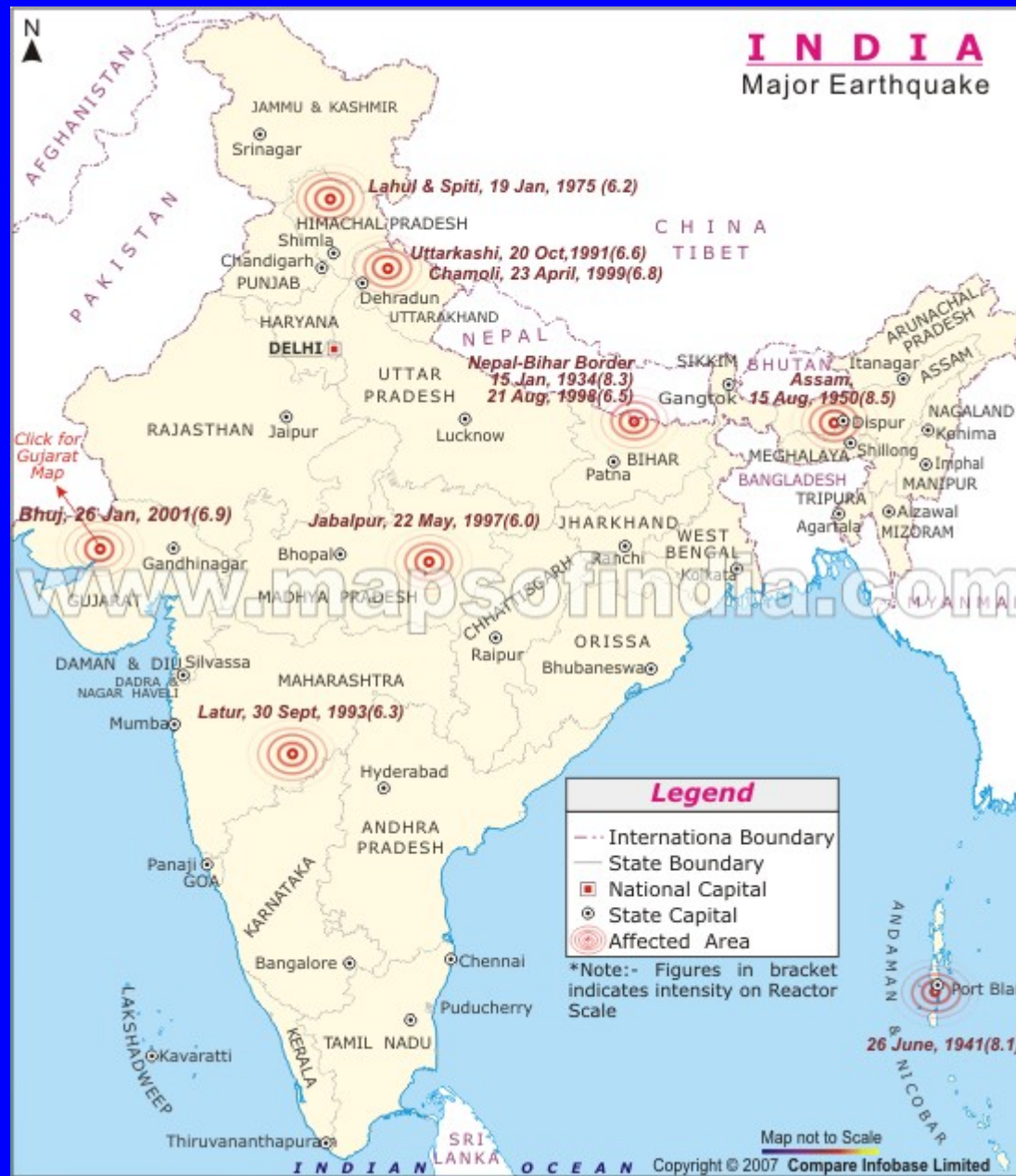
Vulnerability to Natural Disasters

- Earthquake: Large part of India is in seismic Zone III,IV &V
- Floods: Heavy rainfall & low gradient of rivers cause floods
- Cyclone & Tsunami: Large coastal line makes India vulnerable to Cyclone & Tsunami
- Drought: Heavy dependency on monsoon for agriculture causes drought
- Landslides & snowstorms: High mountains & hilly areas cause landslides & snowstorms
- About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought.
- About 1 million houses are damaged every year

Seismic Zones



NOTE : Towns falling at the boundary of zones demarcation line between two zones shall be considered in High Zone.





Bihar flood 2008 (2000 lives lost)



Tsunami, December 2004 (10000-15000 lives lost)



Bhuj Earthquake, January 2001 (13,800 lives lost)



Orissa Cyclone, October 1999 (9,500 lives lost)



Damage due to Natural Disasters

Year	People affected (Lakh)	Houses & buildings, partially or totally, damaged	Amount of property damage/loss (Rs Crore)
1985	595.6	2,449,878	40.06
1986	550.0	2,049,277	30.74
1987	483.4	2,919,380	20.57
1988	101.5	242,533	40.63
1989	30.1	782,340	20.41
1990	31.7	1,019,930	10.71
1991	342.7	1,190,109	10.90
1992	190.9	570,969	20.05
1993	262.4	1,529,916	50.80
1994	235.3	1,051,223	10.83
1995	543.5	2,088,355	40.73
1996	549.9	2,376,693	50.43
1997	443.8	1,103,549	n.a.
1998	521.7	1,563,405	0.72
1999	501.7	3,104,064	1020.97
2000	594.34	2,736,355	800.00
2001	788.19	846,878	12000

Challenges in Disaster Management

- Lack of coordination among various organizations
- Lack of reliable database of resources available at a particular place at a given time
- Non availability of trained & specialized persons for particular type of Disaster
- Absence of reliable warning dissemination/ public addressal system
- Ignorance of General public about prevention of Disaster or actions to be taken at the time of Disaster.

Acts and Regulation

- Disaster Management Act (Enacted on 23rd December, 2005): Envisaged creation of **National Disaster Management Authority (NDMA)** , headed by the Prime Minister, and State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers, to spearhead and implement a holistic and integrated approach to Disaster Management in India.
- NDMA as the apex body is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters.
- The NDMA Secretariat, headed by a Secretary is responsible to provide secretarial support and continuity. There are two Disaster Management Wings under the Secretariat. They are :-
 - (i) DM I wing dealing with mitigation, preparedness, plans, reconstruction, community awareness and dealing with financial/administrative aspects.
 - (ii) DM II wing is composed of the National Disaster Management Operations Centre with the state-of-the-art multi-redundant communication systems, to carry out the tasks of capacity development, training and knowledge management.

Roles & Responsibilities of NDMA

NDMA as the apex body is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters. Towards this, it has the following major responsibilities:-

- Lay down policies on disaster management ;
- Approve the National Plan;
- Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;
- Lay down guidelines to be followed by the State Authorities in drawing up the State Plan;
- Coordinate the enforcement and implementation of the policy and plan for disaster management;
- Recommend provision of funds for the purpose of mitigation;
- Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;

Objectives guiding Policy formation

- Promoting a culture of prevention and preparedness – by centre-staging DM as an overriding priority at all levels and at all times.
- Encouraging mitigation measures based on state-of-the-art technology and environmental sustainability.
- Mainstreaming DM concerns into the development planning process.
- Putting in place a streamlined institutional techno-legal framework in order to create and preserve the integrity of an enabling regulatory environment and a compliance regime.
- Developing contemporary forecasting and early warning systems backed by responsive and fail-safe communications and Information Technology (IT) support.
- Promoting a productive partnership with the Media, NGOs and the Corporate Sector in the areas of awareness generation and capacity development.
- Ensuring efficient response and relief with a caring humane approach towards the vulnerable sections of the society.
- Making reconstruction an opportunity to build back better and construct disaster-resilient structures and habitats.

National Disaster Response Force (NDRF)

- The Disaster Management Act has mandated the constitution of a Specialist Response Force to a threatening disaster situation or a disaster.
- to function under the NDMA which has been vested with its control, direction and general superintendence.
- a multi-disciplinary, multi-skilled, high-tech force for all types of disasters capable of insertion by air, sea and land.
- Presently constituted of eight battalions, two each from the BSF, CRPF, CISF and ITBP. Each battalion will provide 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics.

National Institute of Disaster Management (NIDM)

Nodal centre for Human Resource Development in the area of Disaster Mitigation and Response.

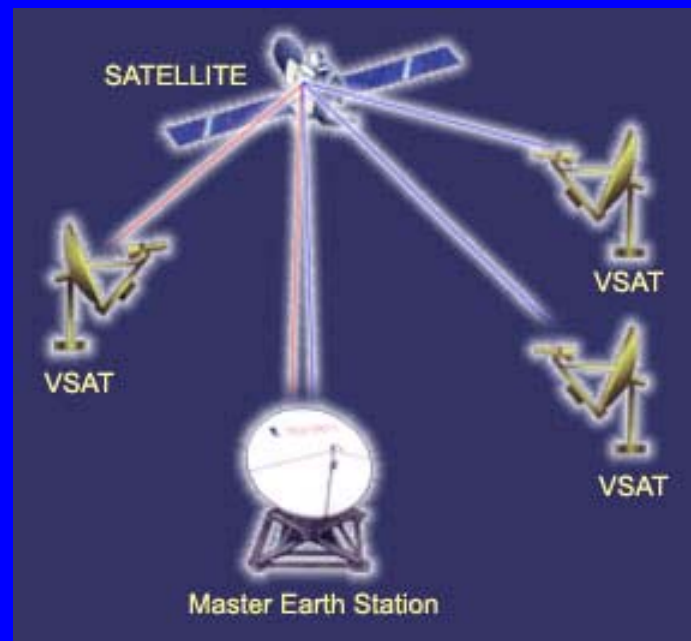
- Human Resource Development covering multiple aspects of disaster management and to play a lead role in national level policy formulation.
- To coordinate various role players within the field of disaster management: government, non-governmental organisations, public and private sector and international organisations.
- To establish an exhaustive national level information base on disaster policies, prevention mechanisms, mitigation measures, and region wise preparedness and response plans as well as resource spent on mitigation and response for various types of disasters.
- To assist various states in strengthening their disaster management systems and capacities, and in preparation of their plans and strategies for hazard mitigation and disaster response.

Regulation & Policy for Telecommunication

- Ministry of Communication & IT has representation in various committees & core groups assisting NDAM e for making plans & guidelines for dealing with various disasters
- License for telecom services has a clause which says that the Govt. can takeover telecom network/services in case of Emergency in the Public interest.
- One Satellite based network is being installed by Survey of India for collecting data about occurrence of Tsunami and dissemination of early warning in case of Tsunami
- Geographical Information System (GIS) based National Database for Disaster Management is being created with help of various organization. The crucial parameters include location of the public facilities, **communication links** and transportation network at national, state and district levels.

Regulation & Policy for Telecommunication (Contd.)

- One VSAT network 'POLNET' which was established for connectivity for Police Stations has been identified to be upgraded for Disaster management also with connectivity to be provided upto Sub Divisional Magistrate level.



Telecom Operator Initiatives

- Govt telecom operator BSNL has prepared detailed Emergency Support Function (ESF) Plan which is updated on six monthly basis. The Plan includes details of identified staff & equipment upto Secondary Switching Area (about District level) which need to be mobilized in case of Disaster.
- Each Telecom Circle (State) has been given few INMARSAT & satellite phones, which are immediately moved to Disaster site to establish first communication.
- BSNL is also acquiring some emergency telecomm vans, which can be taken to disaster site to provide immediate telecommunication. It has small fixed line exchange, small GSM BTS with extendable antenna, optical fibre cable and diesel generator set etc.

Further action plans

- Detailed plans are available for various types of Disasters, which need to be followed.
- Various Sub Committees & Core Groups need to perform their functions in coordinated manner
- GIS based Database needs to be kept updated for effective utilization
- Stress to be given to preparedness, mock drills and human resource development.
- To learn from past experiences

Thank you

Devendra Singh
Joint Advisor(CN) TRAI
Mahanagar Doorsanchar Bhawan
Jawaral Lal Nehru Marg (Old Minto Road)
New Delhi –110002
INDIA
Phone: +91 11 23220020
Email: dsingh@trai.gov.in
dsingh.trai@gmail.com