

FY-2018

Country Report- INDIA



**VISITING RESEARCHER PROGRAMME
ADRC COUNTERPART: MINISTRY OF
HOME AFFAIRS, INDIA
FY-2018**

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COUNTRY REPORT -INDIA



A. General Information about India:

1. **Capital City:** New Delhi
2. **Official Language:** Hindi
3. **Constitutional Languages:** 22
4. **Head of the State:** Hon'ble President of India
5. **Head of the Government** Hon'ble Prime Minister of India
6. **Head of Disaster Management (Chairman, NDMA):** Hon'ble Prime Minister of India

7. Geography:

India is one of the oldest civilizations in the world with a kaleidoscopic variety and rich cultural heritage. India has total **29** States and **7** are Union Territories. It covers an area of **3,287,590** sq. km extending from the snow-covered Himalayan heights to the tropical rain forests of the south. As the 7th largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which give the country a distinct geographical entity. Bounded by the Great Himalayas in the north, it stretches southwards and at the Tropic of Cancer, tapers off into the Indian Ocean between the Bay of Bengal on the east and the Arabian Sea on the west.

Lying entirely in the northern hemisphere, the mainland extends between latitudes 8° 4' and 37° 6' north, longitudes 68° 7' and 97° 25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. It has a land frontier of about 15,200 km. The total length of the coastline of the mainland, Lakshadweep Islands and Andaman & Nicobar Islands is 7,516.6 km. The Indian peninsula is separated from mainland Asia by the Himalayas. The Country is surrounded by the

Bay of Bengal in the east, the Arabian Sea in the west, and the Indian Ocean to the south. Indian neighbours consist of Afghanistan and Pakistan to the north-west; China, Bhutan and Nepal to the north; Myanmar to the east; and Bangladesh to the east of West Bengal. Sri Lanka is separated from India by a narrow channel of sea, formed by Palk Strait and the Gulf of Mannar.

8. Geology:

Geologically; India is divided into 3 major regions based on rocks, structures and geologic history. 1. The Peninsular Plateau region – It also includes the Shillong Plateau and the Kutch Kathiawar region (Outliers) 2. The Extra-peninsular region – the mountainous region of Himalayas- The Himalayas are young, weak and flexible in their geological structure, unlike the rigid

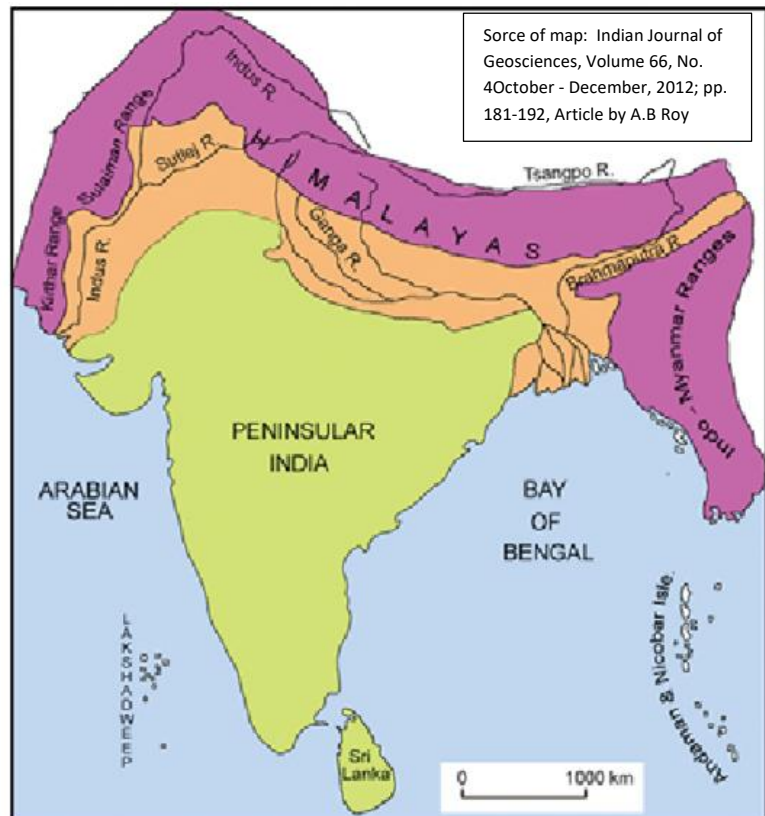


Figure: 1 Geology of India

and stable Peninsular Block. Consequently, they are still subjected to the interplay of exogenic and endogenic forces, resulting in the development of faults, folds and thrust plains. These mountains are tectonic in origin, dissected by fast-flowing rivers which are in their youthful stage. Various landforms like gorges, V-shaped valleys, rapids, waterfalls, etc. are indicative of this stage. 3. The Indo-Gangetic Plain between the above two. In addition to these, there are 2 minor divisions: The Coastal Plains (Eastern and western), The Islands (Lakshadweep and Andaman and Nicobar). Tectonic plate movements both Inter and Intra Plate movements cause Earthquakes in India. The Indian Plate collides with the Eurasian Plate at the suture of Himalayan belt. Hence the Himalayan belt is seismically very active.

9. Climate:

The climate of India can broadly be classified as a tropical monsoon one. But, in spite of much of the northern part of India lying beyond the tropical zone, the entire country has a tropical climate marked by relatively high temperatures and dry winters. There are four seasons as designated by the Indian Meteorological Department, namely:

- ✚ Winter (December-February)
- ✚ Pre-Monsoon/ Summer (March-May)
- ✚ Monsoon/rainy season (June-September)
- ✚ Post monsoon season/autumn (October-November)

10. Population:

India's population, as on 1 March 2011 stood at **1,210,193,422** (623.7 million males and 586.4 million females). India's population consists of approximately 16.7% (1/6th) of the world population. More than 50% of the population is below 25 years of age and more than 65% is below 35 years. The average annual exponential growth rate stands at 1.64 per cent during 2001-2011. The Crude Birth and death rates were 18.3 and 7.3 respectively in 2009. Sex Ratio - 940 females per 1000 males according to 2011 census. Population density is 382 persons/sq. km. as per 2011 census. The next population census data is expected to be published in 2021.

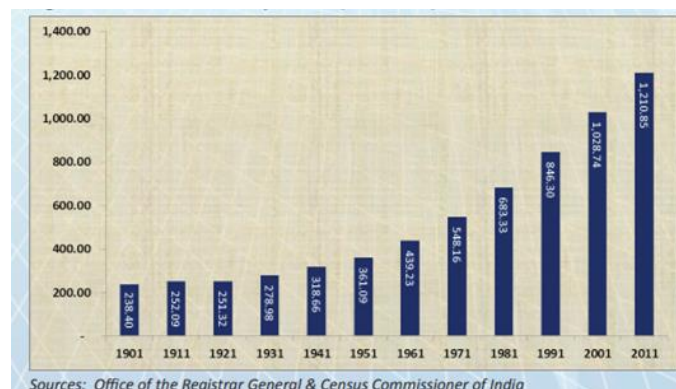


Figure: 2 Decennial Population (in million)-Year wise

B. Disaster Risk Profile of India:

India is highly vulnerable to floods, droughts, cyclones, earthquakes, landslides, avalanches, tsunamis and forest fires. Out of total 36 (29 States and 7 Union territories) in the country, 27 of them are disaster prone. Almost 58.6 per cent of the landmass is prone to earthquakes of moderate to very high intensity. Over 40 million hectares (12 per cent of land) are prone to floods and river erosion. Out of the total 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. Himalayan region is prone to disasters like earthquakes and landslide, the plain is affected by floods almost every year. The desert part of the country is affected by droughts and famine while the coastal zone susceptible to cyclones and storms. The Geo-tectonic movements going on in the ocean floor make the coastal region prone to tsunami disaster too.

C. Disasters Affecting India:

I. Classification of hazards in India:

Disaster affecting India can be classified into 6 broad categories: A. Water and climate related disasters B. Accident Related Disaster C. Geological Disasters D. Chemical Industrial and nuclear related disaster E. Biological Disaster F. State Specific Disaster

The categories and sub-categories containing list of disasters affecting India are described in the following pages

I. Water and climate related disasters

- Floods and drainage management
- Cyclones
- Tornadoes and hurricanes
- Hailstorm
- Cloud burst
- Heat wave and cold wave
- Snow avalanches
- Droughts
- Sea Erosion
- Thunder and lightning
- Tsunami

II. Accident related disasters

- Forest fires
- Urban fires
- Mine flooding
- Oil spills
- Major building collapse
- Serial bomb blasts
- Festival related disasters
- Electrical disasters and fires
- Air, road and rail accidents
- Boat capsize
- Village fire

III. Biological related disasters

- Biological disasters and epidemics
- Pest attacks
- Cattle epidemics
- Food poisoning

State Specific disasters: (Assam)

- Erosion
- Lightning
- Thunderstorm

IV. Geological related disasters

- Landslides and mudflows
- Earthquakes
- Dam failures/ Dam bursts

V. Chemical, industrial and nuclear related disasters

- Chemical and industrial disasters
- Nuclear disaster

The above mentioned categorical classification of disasters affecting India is quite a broad classification and is under the process of re-classification and a more detailed list is being prepared by the National-Disaster Management Authority, with all kinds of localised disasters affecting various parts of India. The criteria for revised classification was widely discussed during the “National workshop on Disaster database” held in New Delhi on 2nd May, 2018.

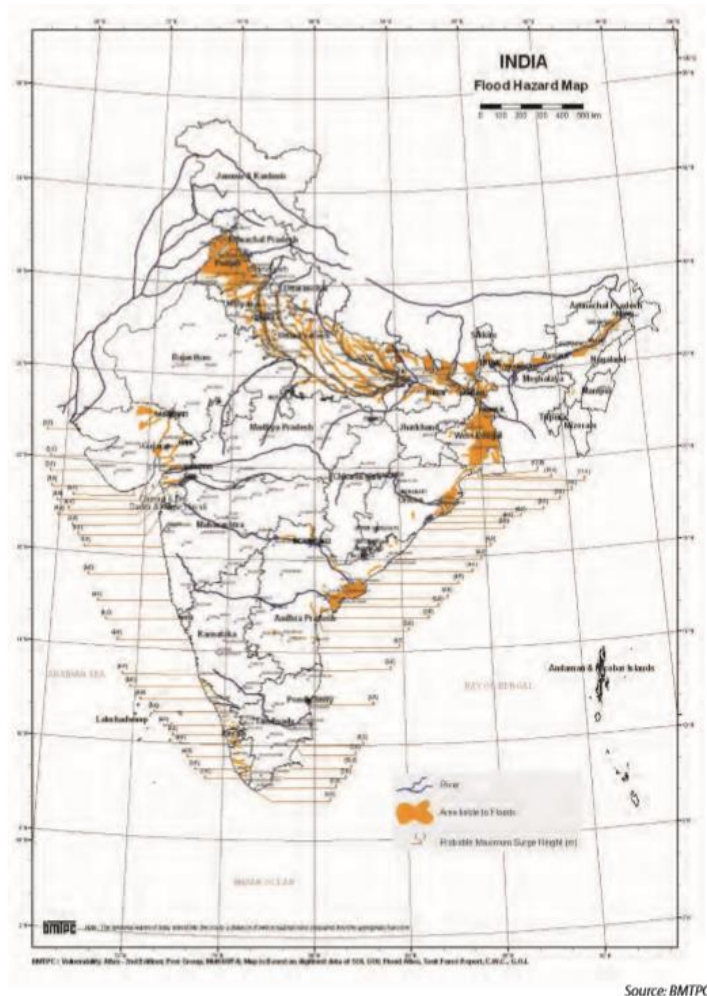
II. Brief about hazards having major affect in India and area of occurrence:

Briefly explained below are the few hazards that cause greater damage to the Country's economy due to its occurrence. And the scale of occurrence of such disasters is quite massive within the country.

1. Flood:

India is one of the most flood prone countries in the world. The principal reasons for flood lie in the very nature of natural ecological systems in this country, namely, the monsoon, the highly silted river systems and the steep and highly erodible mountains, particularly those of the Himalayan ranges. Most of the floods occur during the monsoon period and are usually associated with tropical storms or depressions, active monsoon conditions and break monsoon situations and also one of the common phenomena occurring in recent times is due to excessive release of dam water, the downstream areas face flood havoc.

Twenty-three of the 36 states and union territories in the country are subject to floods and 40 million hectares of land, roughly one-eighth of the country's geographical area, is prone to floods. The National Flood Control Program was launched in the country in 1954. Since then sizeable progress has been made in the flood protection measures. By 1976, nearly one third of the flood prone area had been afforded reasonable protection; considerable experience has been gained in planning, implementation and performance of flood warning, protection and control measures (CWC, 2007). As depicted in the map at Figure: 1, States which are highly prone to flooding are Assam, Bihar, West Bengal, Orissa, Uttar Pradesh, Punjab, Haryana, Gujarat, Andhra Pradesh, Telangana, Maharashtra and Kerala.

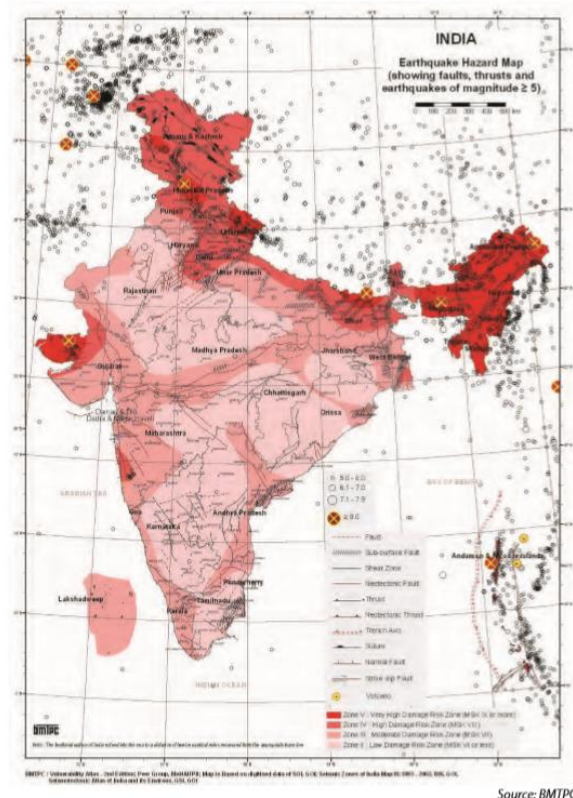


2. Earthquakes:

India has been divided into four seismic zones according to the maximum intensity of earthquake expected. Of these, Zone V is the most active which comprises of whole of Northeast India, the northern portion of Bihar, Uttarakhand, Himachal Pradesh, J&K, Gujarat and Andaman & Nicobar Islands. India has highly populous cities and the constructions in these cities are not earthquake resistant. Regulatory mechanisms are weak, thus any earthquake striking in one of these cities would turn into a major disaster. Major earthquakes have struck different parts of India over a span of the last 15 years.

Massive earthquakes generally occur near the junction of two tectonic plates, e.g., along the Himalayan range, where the **Indian plate** goes below **Eurasian plate**. The Indian sub- continent situated on the boundaries of two continental plates is very prone to earthquakes. Some of the most intense earthquakes of the world have occurred in India.

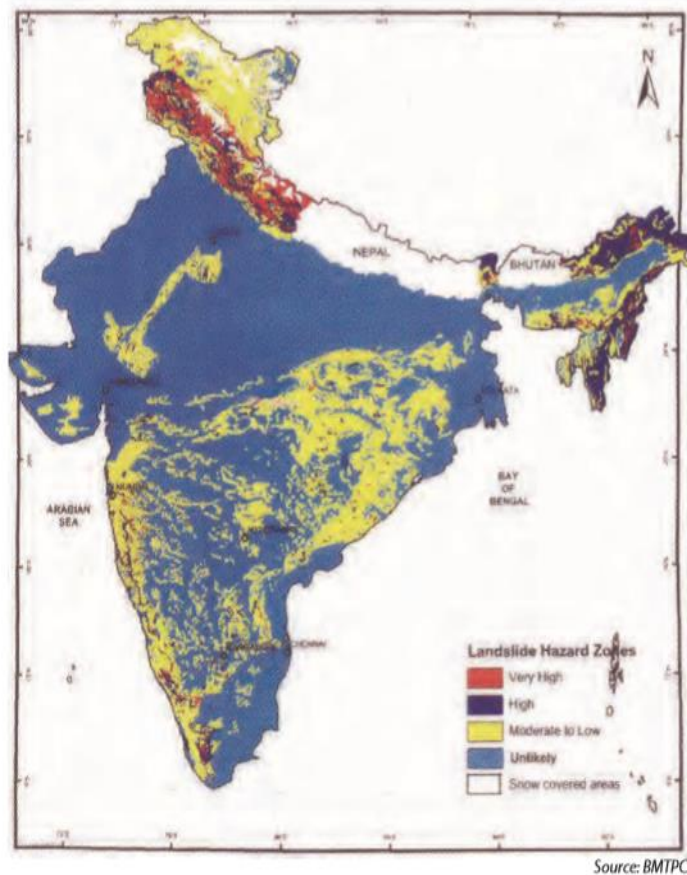
India has a very high frequency of great earthquakes (magnitude greater than 8.0); for instance, during 1819 to 1950, the country was hit by four great earthquakes. Kutch Earthquake (Gujarat) of 1819 (magnitude 8.3), Assam earthquake of 1897 (magnitude 8.7), Kangra (Himachal Pradesh) earthquake of 1905 (magnitude 8.6), Bihar-Nepal earthquake of 1934 (magnitude 8.4), The Andaman earthquake of 1941 (magnitude 8.1) and the Assam-Tibet earthquake of 1950 (magnitude 8.7). However, Earthquakes of 8 magnitudes has not occurred in last 6 decades. But earthquakes measuring 5, 6 & 7 in Richter Scale have occurred. For instance, the Koyna Earthquake of 1967, Bihar-Nepal earthquake, 1988, Uttarkashi Earthquake 1991, Killari (Latur earthquake) of 1993, Jabalpur Earthquake of 1997, Bhuj Earthquake of 2001, Kashmir earthquake 2005, Sikkim earthquake of Sept, 2011 (6.8), The Bay of Bengal earthquake of May, 2014 (6.0), The Imphal earthquake of January, 2016, (6.7), The Tripura earthquake of January, 2017 (5.5). And lastly a 9 Richter scale Earthquake in Indian Ocean that occurred in 2004 and triggered tsunami.



Source: BMTPC

3. Landslides:

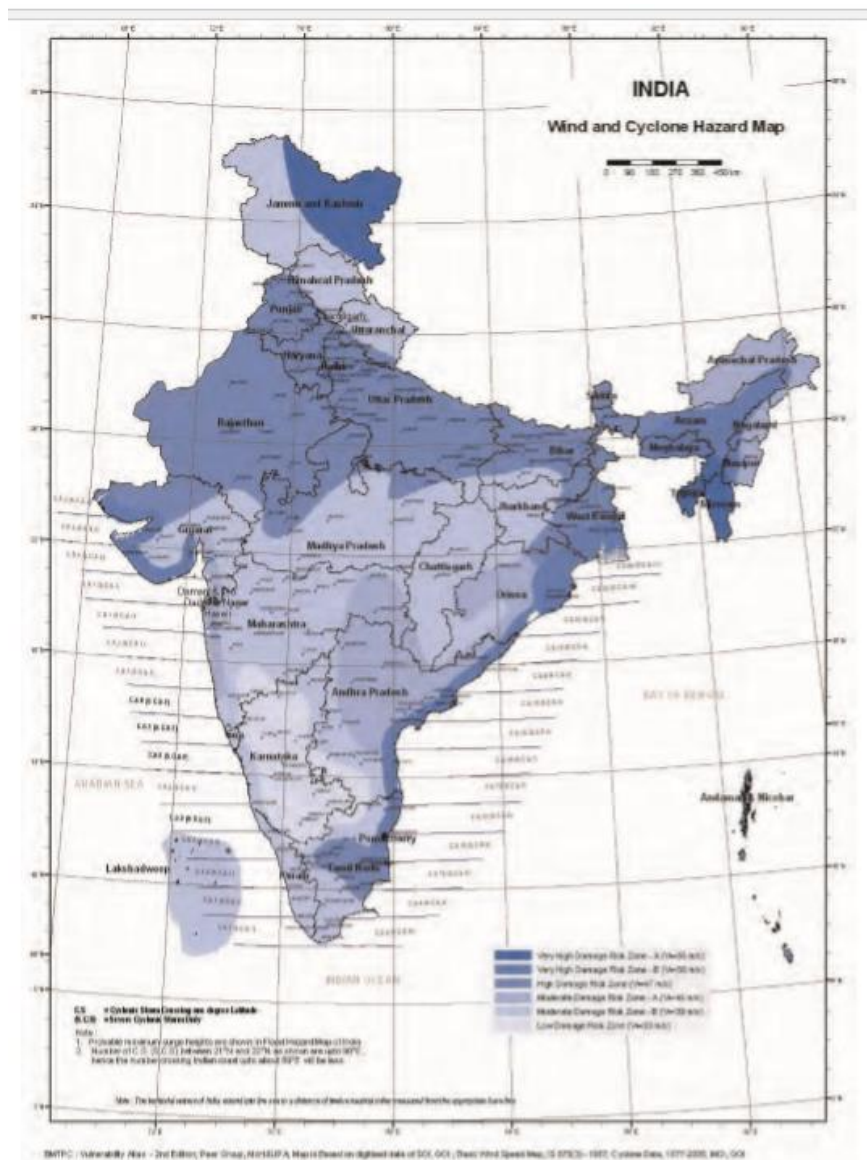
Landslides constitute a major natural hazard in our country, which accounts for considerable loss of life and damage to communication routes, human settlements, agricultural fields and forest lands. Landslides mainly affect the Himalayan region and the western Ghats of India. Landslides are also common in the Nilgiri range. It is estimated that 30 percent of the world's landslides occur in the Himalayas. Due to its unique nature, the Himalayas have a history of landslides that has no comparison with any other



mountain range in the world. Landslides are also common in Western Ghats. In the Nilgiri hills, in 1978 alone, unprecedented rains in the region triggered about one hundred landslides which caused severe damage to communication lines, tea gardens and other cultivated crops. In figure 3, all the areas marked in red are highly landslide prone. States like Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Meghalaya, Sikkim, Assam, Kerala, Karnataka, Maharashtra are highly prone to landslides.

4. Tropical Cyclones:

The major natural disaster that affects the coastal regions of India is cyclone and as India has a coastline of about 7516kms, it is exposed to nearly 10 percent of the world's tropical cyclones. About 71 percent of this area is in ten states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Puducherry, Andhra Pradesh, Orissa and West Bengal) (Figure:4). The islands of Andaman, Nicobar and Lakshadweep are also prone to cyclones. On an average, about five or six tropical cyclones form in the Bay of Bengal and Arabian sea and hit the coast every year. Out of these, two or three are severe. When a cyclone approaches to coast, a risk of serious loss or damage arises from severe winds, heavy rainfall, storm surges and river floods. The effect of a storm surge is most pronounced in wide and shallow bays exposed to cyclones such as in the northern part of Bay of Bengal. Some of the major cyclones that have affected India in the last decade (2008-2018) are –



Source: BMTPC

- i. Cyclone Vardah- 2016-Tamil Nadu & Andhra Pradesh
- ii. Cyclone Phialin- 2013-Orissa
- iii. Cyclone Hudhud-2014-Orissa, Andhra Pradesh
- iv. Cyclone Khaimuk-2008-Andhra Pradesh
- v. Cyclone Laila-2010- Andhra Pradesh
- vi. Cyclone Nilam-2012- Andhra Pradesh, Tamil Nadu
- vii. Cyclone Helen-2013- Andhra Pradesh

- viii. Cyclone Lehar-2013- Andhra Pradesh
- ix. Cyclone Kyant-2016- Andhra Pradesh, Tamil Nadu
- x. Cyclone Phyan-2009-Maharashtra
- xi. Cyclone rashmi-2008-West Bengal
- xii. Cyclone Aila-2009- West Bengal
- xiii. Cyclone Komen-2015- West Bengal
- xiv. Cyclone Roanu-2016- West Bengal, Tamil Nadu
- xv. Cyclone Mora-2017-West Bengal
- xvi. Cyclone Nisha-2008-Tamil Nadu
- xvii. Cyclone Jal-2010-Tamil Nadu
- xviii. Cyclone Thane-2011-Tamil Nadu
- xix. Cyclone Madi-2013-Tamil Nadu
- xx. Cyclone Nada-2016-Tamil Nadu
- xxi. Cyclone Ockhi-2017-Tamil Nadu

5. Drought:

The primary cause of any drought is deficiency of rainfall and in particular, the timing, distribution and intensity of this deficiency in relation to existing reserves. A prolonged period of relatively dry weather leading to drought is a widely recognized climate anomaly. Drought can be devastating as water supplies dry up, crops fail to grow, animals die, and malnutrition and ill health become widespread. The environmental effects of drought, including salinization of soil and groundwater decline, increased pollution of freshwater ecosystems and regional extinction of animal species. In India around 68 percent of the country is prone to drought in varying degrees. Of the entire area 35 percent receives rain falls between 750 mm and 1125 mm which is considered drought prone while 33 percent which receives rainfalls between less than 750 mm is considered to be chronically drought prone.

6. Tsunami:

Tsunamis and earthquakes happen after centuries of energy build up within the earth. A tsunami (in Japanese 'tsu' means harbor and 'nami' means wave) is a series of water waves caused by the displacement of a large volume of a body of water, usually an ocean. Seismicity generated tsunamis are result of abrupt deformation of sea floor resulting vertical displacement of the overlying water. Earthquakes occurring beneath the sea level, the water

above the reformed area is displaced from its equilibrium position. The release of energy produces tsunami waves which have small amplitude but a very long wavelength (often hundreds of kilometer long). It may be caused by non-seismic event also such as a landslide or impact of a meteor. Tsunami in the deep ocean may have very long waves length of hundreds of kilometer and travels at about 800 km per hour, but an amplitude of only about 1 km. It remains undetected by ships in the deep sea. However, when it approaches the coast its wavelength diminishes but amplitude grows enormously, and it takes very little time to reach its full height. Computer model can provide tsunami arrival, usually within minutes of the arrival time. Tsunamis have great erosion potential, stripping beaches of sand, coastal vegetation and dissipating its energy through the destruction of houses and coastal structure. Indian Ocean Tsunami (2004) was triggered by an earthquake measuring 9.3 in the Richter scale and caused a lot of damage in the coastal areas.

7. Thunderstorm, Hailstorm and Dust Storm:

As winter season transforms into spring, the temperature rises initially in the southern parts of India, giving rise to thunderstorms and squally weather which are hazardous in nature. While the southernmost part of the country is free from dust storms and hailstorms, such hazardous weather affects the central, north-eastern, north and north-western parts of the country. The hailstorm frequencies are highest in the Assam valley, followed by hills of Uttarakhand, Jharkhand and Vidarbha Maharashtra (Philip & Daniel 1976). However, thunderstorms also occur in Kolkatta, Delhi, Jaipur and Ahmedabad. Tornadoes are rare in India but some of them are quite devastating.

D. Recent Significant Disasters in India (2015-2018):

i. Disaster that occurred in India during 2015:

- February 13 Anekal derailment
- March North India unseasonal rain
- March Swine flu outbreak
- March 20 Uttar Pradesh train accident
- April 25 Nepal earthquake
- May 12 Nepal earthquake
- May 25 Muri Express derailment
- May–June Heat Wave
- June 17 Mumbai alcohol poisoning
- June 24 Gujarat flood
- July 27–30 North Gujarat flood
- August 4 Harda twin train derailment
- September 12 Petlawad explosion
- November 8–10 South Indian floods

ii. Disaster that occurred in India during 2016:

- January 4 Imphal earthquake
- January 22–24 East Asia cold wave
- February 3 Siachen Glacier avalanche
- February 5 Gujarat road accident
- March 31 Kolkata flyover collapse
- April 10 Puttingal temple fire
- April 13 Myanmar earthquake
- April 26 National Museum fire
- April–May Uttarakhand forest fires
- April–May INDIAN HEAT WAVE
- May 17 Cyclone Roanu
- July 22 Air Force An-32 disappearance
- July Assam floods
- August 16 Bihar hooch tragedy
- August 24 Myanmar earthquake
- November 20 Pukhrayan train derailment
- December 12 Cyclone Vardah
- December 28 Kanpur train accident
- December Smog in Delhi

iii. Disaster that occurred in India during 2017:

- January 3 Tripura earthquake
- January 3–14 North India cold wave
- January 14 Patna boat accident
- January 21 Kunderu train derailment
- January 25 Gurez sector avalanche
- January 28 Ennore oil spill
- February 6 Uttarakhand earthquake

- July Assam-Brahmaputra floods
- July Gujarat flood
- July West Bengal flood
- August GORAKHPUR HOSPITAL DEATHS
- August Nepal and India floods
- August 19 Khatauli train derailment
- August 23 Auraiya train derailment
- August Bihar flood
- August 29 Mumbai flood
- September 29 Mumbai stampede
- November 1 NTPC power plant explosion
- November 29 Cyclone Ockhi
- December 23 Rajasthan bus crash
- December 28 Kamala Mills fire

iv. *Disaster that occurred in India during 2018:*

- Indian dust storms
- May Nipah Virus outbreak in Kerala
- August Kerala floods
- September South Kolkata Majherghat bridge collapse

E. Disaster Risk Management System in India:

i. Legal framework:

a. *Enactment of the Disaster Management Act 2005*

The Disaster Management Act, 2005 came into the statute book on 26 December 2005 by a Gazette notification, exactly on the first anniversary of the devastating tsunami of 2004, which killed nearly 13,000 people in India alone and affected 18 million people. The Act provides a legal and institutional framework for “the effective management of disasters and for matters connected therewith or incidental thereto.” It provides for establishment of National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA) and District Disaster Management Authorities (DDMA) at the National, State and District levels with adequate financial and administrative powers and creation of the National Institute of Disaster Management (NIDM) with the mandate of undertaking training and capacity building, Develop Training Modules on various aspects of Disaster management, Undertake Research and Documentation, Formulate and implement comprehensive HRD Plan covering all aspects of DM, Provide assistance in national level policy formulation and Provide assistance to state

governments and State Training Institutions. The act also provides guidelines for creation of National Disaster Response Fund, National Mitigation Fund, Establishment of funds by State Government and Allocation of funds by Ministries and Departments for Emergency procurement. The act also provides for establishment of National Disaster Response Force (NDRF).

b. National Policy on Disaster Management 2009

The National Policy on Disaster Management was approved by the Government in November 2009. This comprehensive policy document lays down policies on every aspect of holistic management of disasters in the country. The main aim the policy espouses to achieve is to minimize the losses to lives, livelihoods and property, caused by natural or manmade disasters with a vision to build a safe and disaster resilient India by developing a holistic, proactive, integrated, multi-disaster oriented and technology driven strategy. With this national Policy in place in India, a holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels. The themes underpinning the policy include community based disaster management, capacity development in all spheres, consolidation of past initiatives and best practices and cooperation with agencies at national and international levels with multi-sectoral synergy.

The Policy is also intended to promote a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education. It encourages mitigation measures based on environmental sustainability. It seeks to mainstream disaster management into the developmental planning process and provides for Institutional and Financial arrangements at National, State, and District-levels for Disaster Prevention, Mitigation, Preparedness and Response as it ensures adequate budgeting for disaster mitigation activities in all Ministries and Departments.

The Disaster Management Act 2005 has provided the legal and institutional framework for Disaster Management in India at the National, State and District levels. In the federal polity of India the primary responsibility of disaster management vests with the State Governments. The Central Government lays down policies and guidelines and provides technical, financial and logistic support while the district administration carries out most of the operations in collaboration with central and state level agencies.

In the Central Government there are existing institutions and mechanisms for disaster management while new dedicated institutions have been created under the Disaster Management Act of 2005.

c. State Policies on Disaster Management:

At the State Level the State Disaster Management Authority (SDMA), headed by the Chief Minister, lays down policies and plans for disaster management in the State. It is also responsible to coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures. The State Disaster Management Department (DMD) which is mostly positioned in the Revenue and relief Department is the nodal authority.

Legal provisions under Constitution of India:

A number of constitutional provisions provide for States' obligation to provide relief and rehabilitation. **Article 21** of the Indian Constitution guarantees every person right to life and personal liberty. It casts a positive obligation on the State to take all possible steps for prevention, preparedness and mitigation of disasters. **Article 21** has been liberally interpreted by the Supreme Court to expand the scope of life and can be said to be the repository of all important human rights. Besides, this **Article 38** directs State to promote the welfare of the people. **Article 51** directs State to honor the international treaty obligations. India is a party to a number of international treaties on environment which contain specific provision on disaster management. Under **Article 51** India is under an obligation to honor its international commitments. India is a party to a number of international Conventions which highlight its obligation to protect its people from disasters. The United Nations General Assembly designated the 1990s as the International Decade for Natural Disaster Reduction (IDNDR). Its basic objective was to decrease the loss of life, property destruction and social and economic disruption caused by natural disasters, such as earthquakes, tsunamis, floods, landslides, volcanic eruptions, droughts, locust infestations, and other disasters of natural origin.

Even other than this, State is responsible under the doctrine of *parens patriae*. Doctrine of *parens patriae* imposes an obligation on the State or sovereign authority to protect persons under disability. This doctrine which was originally applicable to the king has been applied by

Courts in a number of cases to make the State responsible for providing relief to victims of disaster.

Various laws related to Disaster Management- Prevention, Mitigation, Response, Recovery and Rehabilitation:

General acts:

1. *THE INDIAN PENAL CODE, 1860* 2. *THE INDIAN EVIDENCE ACT, 1872* 3. *THE CIVIL DEFENSE ACT, 1968.* 4. *THE WILD LIFE (PROTECTION) ACT, 1972* 5. *THE CODE OF CRIMINAL PROCEDURE, 1973* 6. *THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT, 1974* 7. *THE WATER (PREVENTION AND CONTROL OF POLLUTION) RULES, 1975* 8. *FOREST (CONSERVATION) ACT, 1980* 9. *THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT, 1981* 10. *THE AIR (PREVENTION AND CONTROL OF POLLUTION) RULES, 1982* 11. *ENVIRONMENT (PROTECTION) ACT, 1986* 12. *THE ENVIROMENT (PROTECTION) RULES, 1986* 13. *THE FACTORIES ACT, 1948 AS AMENDED BY THE FACTORIES (AMENDMENT) ACT, 1987.* 14. *PUBLIC LIABILITY INSURANCE ACT, 1991* 15. *THE PUBLIC LIABILITY INSURANCE RULES, 1991* 16. *THE PROTECTION OF PLANT VARIETIES AND FARMERS'RIGHTS ACT, 2001* 17. *THE BIOLOGICAL DIVERSITY ACT, 2002* 18. *FOREST (CONSERVATION) RULES, 2003* 19. *DISASTER MANAGEMENT ACT, 2005.* 20. *FOOD SAFETY AND STANDARDS ACT 2006* 21. *THE DISASTER MANAGEMENT (NATIONAL DISASTER RESPONSE FORCE) RULES, 2008* 22. *CULTURAL HERITAGE CONSERVATION BILL, 2010* 23. *NATIONAL GREEN TRIBUNAL ACT 2010* 24. *WETLANDS (CONSERVATION AND MANAGEMENT) RULES, 2010*

Acts related to Fire Prevention:

1 *THE BOILERS ACT, 1923* 2. *THE CINEMATOGRAPH FILM RULE 1948* 3. *OILFIELDS (REGULATION AND DEVELOPMENT) ACT, 1948* 4. *THE CINEMATOGRAPH ACT, 1952* 5. *THE INFLAMMABLE SUBSTANCES ACT, 1952* 6. *THE MINES ACT, 1952* 7. *INDIA ELECTRICITY RULES, 1956* 8. *THE COAL MINES REGULATIONS, 1957* 9. *THE COAL MINES (CONSERVATION AND DEVELOPMENT) ACT, 1974* 10. *THE MINES RESCUE RULES, 1985* 11. *INDIAN ELECTRICITY ACT 2003* 12. *THE MINES AND MINERALS (DEVELOPMENT & REGULATION) ACT, 2010* 13. *THE OIL MINES REGULATIONS, 2011*

Acts related to Explosives:

1. THE EXPLOSIVES ACT, 1884 2. THE EXPLOSIVE SUBSTANCES ACT, 1908(AS AMENDED BY THE AMENDMENT ACT OF 2001) 3. PETROLEUM ACT, 1934 4. THE ATOMIC ENERGY ACT 1962 5. THE STATIC AND MOBILE PRESSURE VESSELS (UNFIRED) RULES 1981 6. ATOMIC ENERGY (WORKING OF THE MINES, MINERALS AND HANDLING OF PRESCRIBED SUBSTANCES) RULES, 1984 7. HAZARDOUS WASTES (MANAGEMENT AND HANDLING) RULES, 1989 8. THE GAS CYLINDER RULES 2004 9. THE PETROLEUM AND NATURAL GAS REGULATORY BOARD ACT, 2006 10. THE EXPLOSIVES RULES, 2008 11. HAZARDOUS WASTES (MANAGEMENT, HANDLING AND TRANSBOUNDARY MOVEMENT) RULES, 2008.

Acts related to Flood, dam burst, tsunami & Cyclone:

1. DAM SAFETY BILL 2010 2. COASTAL REGULATION ZONE NOTIFICATION 2011

Acts related to Lightning:

1. INDIAN STANDARD PROTECTION OF BUILDINGS AND ALLIED STRUCTURES AGAINST LIGHTNING CODE OF PRACTICE 1991

Acts related to Earthquake, Snow Avalanches and Landslides:

1. INDIAN STANDARDS ON EARTHQUAKE ENGINEERING 2. MODEL TOWN AND COUNTRY PLANNING ACT 1960 3. MODEL BUILDING BY- LAWS 2004 4. NATIONAL BUILDING CODE OF INDIA 2005

Acts related to Chemical/ Industrial/ Nuclear Disasters:

1. ATOMIC ENERGY (SAFE DISPOSAL OF RADIOACTIVE WASTES) RULES, 1987. 2. THE BHOPAL GAS LEAK DISASTER (PROCESSING OF CLAIMS) ACT, 1985 3. CALCIUM CARBIDE RULES, 1987 4. THE MANUFACTURE, STORAGE AND IMPORT OF HAZARDOUS CHEMICAL RULES, 1989 5. CHEMICAL ACCIDENTS (EMERGENCY PLANNING, PREPAREDNESS, AND RESPONSE) RULES, 1996 6. THE MAJOR ACCIDENT HAZARD CONTROL RULES, 1997 7. DUMPING AND DISPOSAL OF FLY ASH DISCHARGED FROM COAL OR LIGNITE BASED THERMAL POWER PLANTS ON LAND RULES 1999 8. THE CHEMICAL WEAPONS CONVENTION ACT, 2000 9. ATOMIC ENERGY (RADIATION PROTECTION) RULES 2004 10. WEAPONS OF MASS DESTRUCTION AND THEIR DELIVERY SYSTEMS (PROHIBITION OF UNLAWFUL ACTIVITIES) ACT, 2005 11. THE CIVIL LIABILITY FOR NUCLEAR DAMAGE ACT, 2010

Acts related to Biological Disasters:

1. BIO- MEDICAL WASTE (MANAGEMENT AND HANDLING) RULES 1998 2. THE MUNICIPAL SOLID WASTES (MANAGEMENT & HANDLING) RULES, 2000 3. RULES FOR THE MANUFACTURE, USE, IMPORT, EXPORT AND STORAGE OF HAZARDOUS MICRO ORGANISMS GENETICALLY ENGINEERED ORGANISMS OR CELLS 1989

Acts related to Poisoning:

1. THE DESTRUCTIVE INSECTS AND PESTS ACT, 1914 2. THE POISONS ACT, 1919 3. THE DRUGS AND COSMETICS ACT, 1940 4. THE PREVENTION OF FOOD ADULTERATION ACT, 1954 5. THE INSECTICIDES ACT, 1968 6. THE INSECTICIDES RULES, 1971 7. THE NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES ACT, 1985 8. THE CONSUMER PROTECTION ACT, 1986 9. THE BATTERIES (MANAGEMENT AND HANDLING) RULES, 2001. 10. BATTERIES (MANAGEMENT & HANDLING) AMENDMENT RULES, 2010 11. E-WASTE (MANAGEMENT AND HANDLING) RULES, 2011 12. PLASTICS (MANUFACTURE, USAGE AND WASTE MANAGEMENT) RULES, 2011

Acts related to Accident:

1. THE INLAND VESSELS ACT, 1917 2. THE INDIAN CARRIAGE OF GOODS BY SEA ACT, 1925 3. THE AIRCRAFT ACT, 1934 4. AIRCRAFT RULES, 1937. 5. NATIONAL HIGHWAYS ACT, 1956 6. THE MERCHANT SHIPPING ACT, 1958 7. CARRIAGE BY AIR ACT 1972 8. THE INLAND WATERWAYS AUTHORITY OF INDIA ACT, 1985 9. MOTOR VEHICLES ACT 1988 10. THE RAILWAYS ACT, 1989 11. CENTRAL MOTOR VEHICLES RULES, 1989 12. THE RAILWAY ACCIDENTS AND UNTOWARD INCIDENTS (COMPENSATION) RULES, 1990 13. RAILWAY (NOTICES OF AND INQUIRIES INTO ACCIDENTS) RULES, 1998 14. STATUTORY INVESTIGATION INTO RAILWAY ACCIDENTS RULES 1998 15. CARRIAGE BY ROAD ACT, 2007 16. CARRIAGE BY ROAD RULES 2011

Acts related to Stampede:

1. A GUIDE FOR ADMINISTRATORS AND ORGANIZERS OF EVENTS AND VENUES OF MASS GATHERING- A GUIDE FOR STATE GOVERNMENT, LOCAL AUTHORITES, ADMINISTRATORS AND ORGANISERS, NDMA 2. POLICE ACT 1861

Acts related to Epidemic Diseases:

1. EPIDEMIC DISEASE ACT 1897

Acts related to Drought:

1. JUDGEMENTS OF SUPREME COURT RELATING TO DROUGHT

Acts related to Cloud Burst:

1. DAM SAFETY BILL 2010

Acts related to Pest attack:

1. DESTRUCTIVE INSECTS AND PESTS ACT 1914 2. INSECTICIDES ACT 1968 3. INSECTICIDES RULES 1971

IMPORTANT GUIDELINES OF NDMA:

1. NATIONAL DISASTER MANAGEMENT GUIDELINES- MANAGEMENT OF EARTHQUAKES 2. NATIONAL DISASTER MANAGEMENT GUIDELINES ON TSUNAMI 3. THE NATIONAL GUIDELINES FOR THE MANAGEMENT OF CYCLONES 4. NATIONAL GUIDELINES FOR FLOOD MANAGEMENT BY THE NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA) 5. NATIONAL DISASTER MANAGEMENT GUIDELINES- MANAGEMENT OF URBAN FLOODING 6. NATIONAL DISASTER MANAGEMENT GUIDELINES: MANAGEMENT OF DROUGHT 7. GUIDELINES FOR DIVERSION OF FOREST LANDS FOR NON-FOREST PURPOSE UNDER THE FOREST (CONSERVATION), ACT 1980 8. NATIONAL DISASTER MANAGEMENT GUIDELINES—MANAGEMENT OF LANDSLIDES AND SNOW AVALANCHES 9. THE GUIDELINES ON MANAGEMENT OF NUCLEAR AND RADIOLOGICAL EMERGENCIES 10. NATIONAL GUIDELINES ON CHEMICAL DISASTER MANAGEMENT 11. NATIONAL DISASTER MANAGEMENT GUIDELINES: MANAGEMENT OF CHEMICAL (TERRORISM) 12. NATIONAL DISASTER MANAGEMENT GUIDELINES—MANAGEMENT OF BIOLOGICAL DISASTER 13. NATIONAL DISASTER MANAGEMENT GUIDELINES PSYCHO-SOCIAL SUPPORT AND MENTAL HEALTH SERVICES 14. NATIONAL DISASTER MANAGEMENT GUIDELINES PREPARATION OF STATE DISASTER MANAGEMENT PLANS 15. NATIONAL DISASTER MANAGEMENT GUIDELINES—INCIDENT RESPONSE SYSTEM 16. GUIDELINES ON 'NATIONAL DISASTER MANAGEMENT INFORMATION AND COMMUNICATION SYSTEM' 17. NATIONAL DISASTER MANAGEMENT GUIDELINES SCALING, TYPE OF EQUIPMENT AND TRAINING OF FIRE SERVICES 18. NATIONAL DISASTER MANAGEMENT GUIDELINES SEISMIC RETROFITTING OF DEFICIENT BUILDINGS AND STRUCTURE

i. Institutional framework:

➤ The National Disaster Management Authority:

The National Disaster Management Authority (NDMA) was initially constituted on May 30, 2005 under the Chairmanship of Prime Minister vide an executive order. Following enactment of the Disaster Management Act, 2005, the NDMA was formally constituted in accordance with Section-3(1) of the Act on 27th September, 2006 with Prime Minister as its Chairperson and nine other members, and one such member to be designated as Vice-Chairperson. The NDMA has been mandated with laying down policies on disaster management and guidelines which would be followed by different Ministries, Departments of the Government of India and State Government in taking measures for disaster risk reduction. It has also to laid down guidelines to be followed by the State Authorities in drawing up the State Plans and to take such measures for the management of disasters, Details of these responsibilities are given as under :-

- (a) Lay down policies on disaster management;
- (b) Approve the National Plan;
- (c) Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan;
- (d) Lay down guidelines to be followed by the State Authorities in drawing up the State Plan;
- (e) Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
- (f) Coordinate the enforcement and implementation of the policy and plan for disaster management;
- (g) Recommend provision of funds for the purpose of mitigation;
- (h) Provide such support to other countries affected by major disasters as may be determined by the Central Government;

(i) 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;

(j) Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

Besides the nine members nominated by the Prime Minister, Chairperson of the Authority, the organizational structure consists of a Secretary and five Joint Secretaries including one Financial Advisor. There are 10 posts of Joint Advisors and Directors.

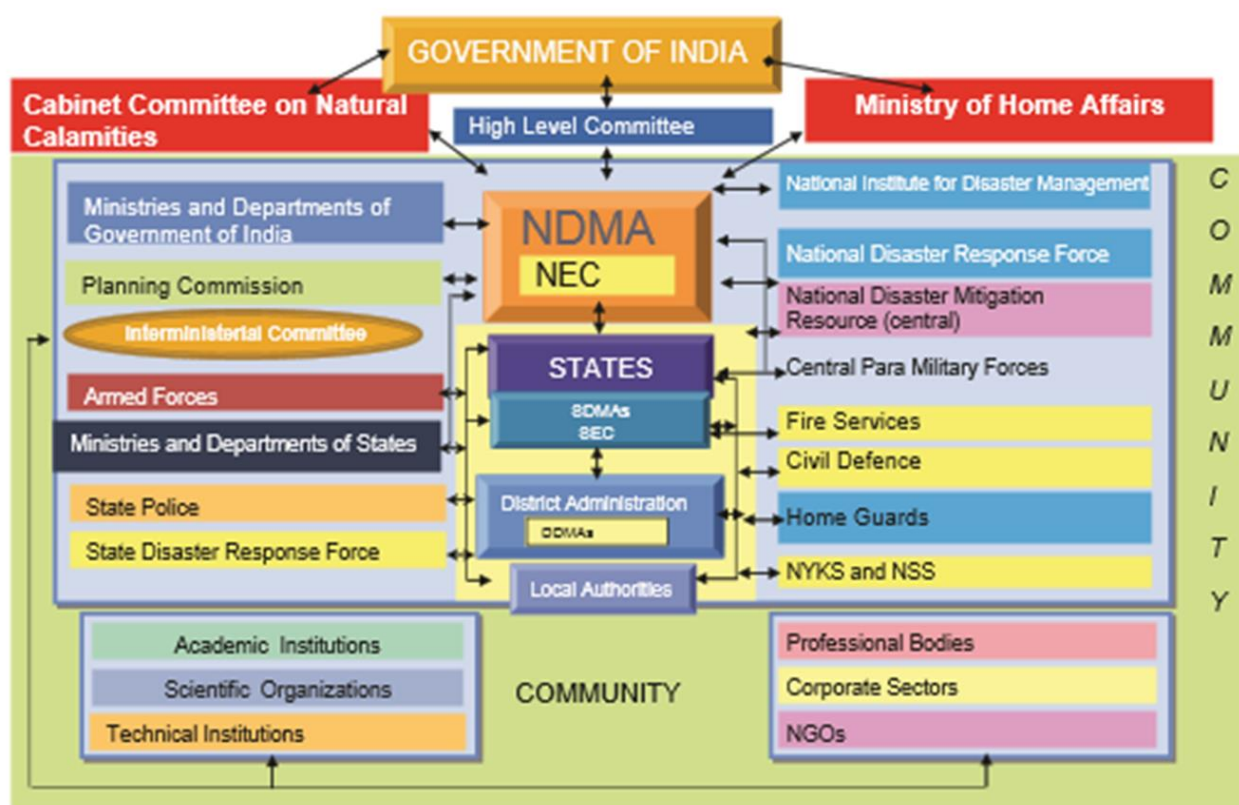
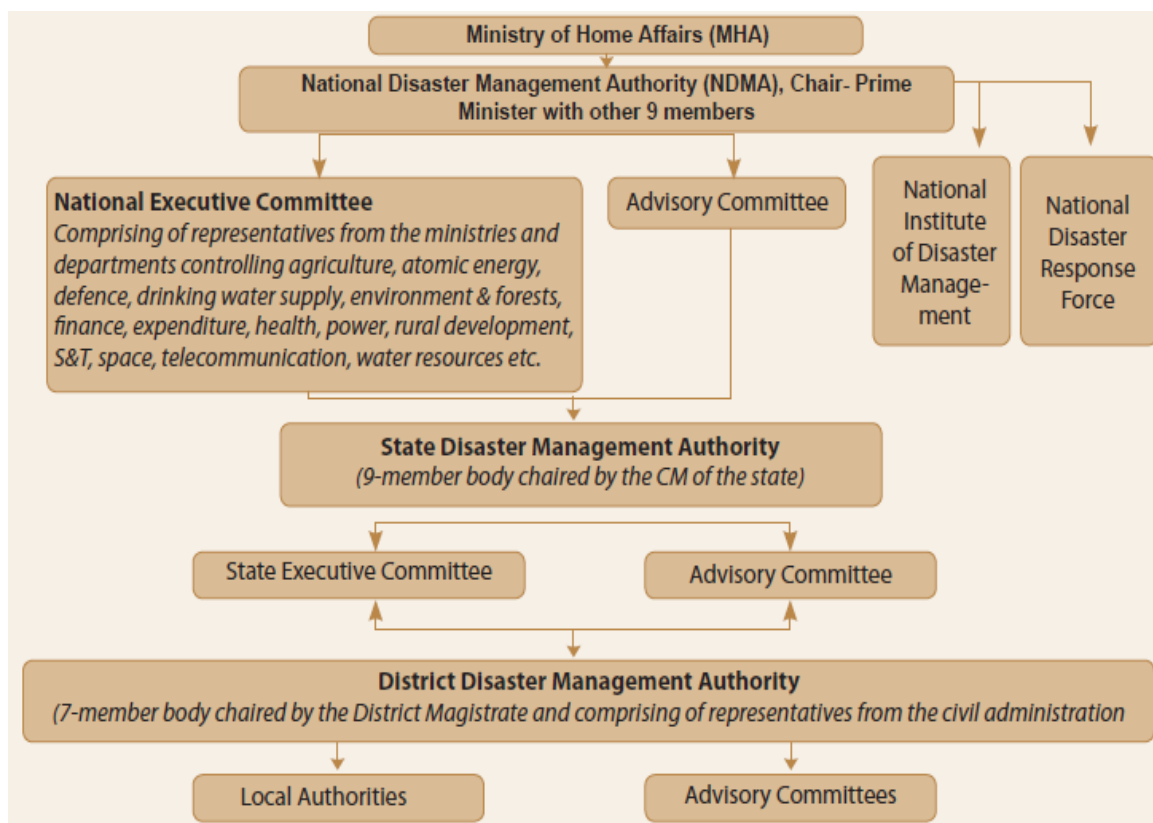


Figure showing the Institutional Framework for DM in India

The Ministry of Home Affairs (MHA) in the Central Government has the overall responsibility for disaster management in the country.



State Relief Codes / DM Codes

Many States have manuals and codes for management of drought, floods and other disasters and relief measures to be taken, etc. Now many states are in the process of changing their State Relief codes into Disaster Management Manuals.

➤ **State Disaster Management Authority (SDMA):**

The DM Act, 2005 provides for constitution of SDMAs and DDMA in all the states and UTs. As per the information received from the states and UTs, except Gujarat and Daman & Diu, all the rest have constituted SDMAs under the DM Act, 2005. Gujarat has constituted its SDMA under its Gujarat State Disaster Management Act, 2003. Daman & Diu have also established SDMAs prior to enactment of DM Act 2005.

➤ **District Disaster Management Authority (DDMA):**

In the district level the **District Disaster Management Authority (DDMA)** is headed by the District Magistrate, with the elected representative of the local authority as the Co-Chairperson. DDMA is the planning, coordinating and implementing body for disaster

management at district level. It will, inter alia prepare the District Disaster Management Plan and monitor the implementation of the National and State Policies and the National, State and the District Plans. DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the SDMA are followed by all departments of the State Government at the district level and the local authorities in the district.

➤ **The Local Authorities** both the rural local self-governing institutions (Panchayati Raj Institutions) and urban local bodies (Municipalities, Cantonment Boards and Town Planning Authorities) These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with guidelines of the NDMA, SDMA and DDMA.

➤ **National Institute of Disaster Management**

The National Institute of Disaster Management (NIDM) functions as the nodal center for Human Resource Development in the area of Disaster Mitigation and Response. It is a premier national organization working for human resource development at national level in the area of disaster mitigation and management. The NIDM came into existence since October 16, 2003 by a Government of India order upgrading the National Centre for Disaster Management (NCDM) located in New Delhi, and established by the Ministry of Agriculture, Department of Agriculture and Cooperation, Government of India, in March 1995. The DM Act, 2005 has brought the institute under the MHA and has assigned roles as per the Act.

The National Institute of Disaster Management (NIDM) has the mandate for human resource development and capacity building for disaster management within the broad policies and guidelines laid down by the NDMA. NIDM is required to design, develop and implement training programs, undertake research, formulate and implement a comprehensive human resource development plan, provide assistance in national policy formulation, assist other research and training institutes, state governments and other organizations for successfully discharging their responsibilities, develop educational materials for dissemination and promote awareness among stakeholders in addition to undertaking any other function as assigned to it by the Central Government

➤ **National Disaster Response Force (NDRF)**

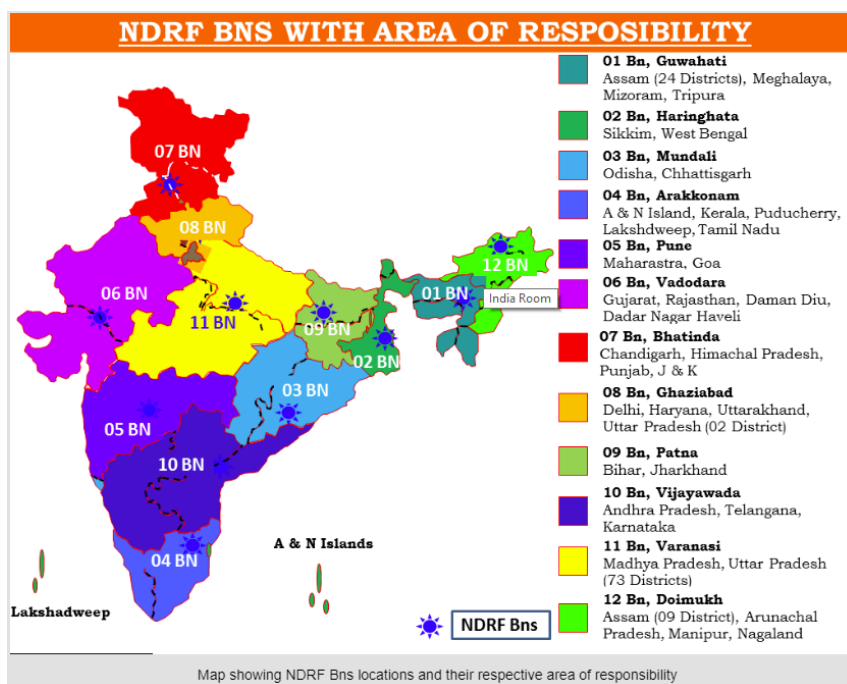
The Disaster Management Act has mandated the constitution of a Specialist Response Force to a threatening disaster situation or a disaster. This Force functions under the National Disaster Management Authority which has been vested with its control, direction and general superintendence. This is a multi-disciplinary, multi-skilled, high-tech force for all types of disasters capable of insertion by air, sea and land. All the 12 battalions are equipped and trained for all natural disasters including four battalions in combating nuclear, biological and chemical disasters.

Presently this Force is constituted of 12 battalions, three each from the BSF and CRPF and two each from CISF,

ITBP and SSB. 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. The total strength of each battalion will be approximately 1,149. These NDRF battalions are located at 12 different locations in the country based on the vulnerability profile to cut down the response time for their deployment. During the preparedness period/in a threatening disaster situation, proactive deployment of these forces is carried out by the NDMA in consultation with State authorities.

➤ **State Disaster Response Force (SDRF):**

The States/UTs have also been advised to set up their own Specialist Response Force for responding to disasters on the lines of National Disaster Response Force vide Ministry of Home Affairs letter dated 26th July 2007 and 8th March, 2011. The Central Government is providing assistance for training of trainers. The State Governments have been also advised to utilize 10 percent of their State Disaster Response Fund and Capacity Building Grant for the procurement of search and rescue equipment and for training purposes of the Response Force.



➤ Civil Defense

The Civil Defense Policy of the Govt. of India until 1962 was confined to making the states and UTs conscious of the need of civil protection measures and to keep in readiness civil protection plans for major cities and towns under the Emergency Relief Organization (ERO) scheme. The legislation on Civil Defense (CD) known as Civil Defense Act was enacted in 1968 which is in force throughout the country. The Act defines CD and provides for the powers of Central Government to make rules for CD, spelling out various actions to be taken for CD measures. It further stipulates for constitution of CD corps, appointment of members and officers, functions of members etc. The Act has since been amended in 2010 to cater to the needs of disaster management so as to utilize the services of Civil Defense volunteers effectively for enhancement of public participation in disaster management related activities in the country. The CD Organization is raised only in such areas and zones which are considered vulnerable to enemy attacks. The revision and renewal of categorized CD towns is done at regular intervals, with the level of perceived threat or external aggression or hostile attacks by anti-national elements or terrorists to vital installations.

Committees under Disaster management:

The Cabinet Committee on Management of Natural Calamities (CCMNC) oversees all aspects relating to the management of natural calamities including assessment of the situation and identification of measures and programs considered necessary to reduce its impact, monitor and suggest long term measures for prevention of such calamities, formulate and recommend program me for public awareness for building up society's resilience to them. The Cabinet Committee on Security (CCS) deals with the matters relating to nuclear, biological and chemical emergencies

The National Crisis Management Committee (NCMC) under the Cabinet Secretary oversees the Command, Control and Coordination of the disaster response.

The Disaster Management Act, 2005 has created new institutions at the national, state, district and local levels. The new institutional framework for disaster management in the country is as under:

The National Executive Committee (NEC) is mandated to assist the NDMA in the discharge of its functions and further ensure compliance of the directions issued by the Central Government. The NEC comprises of the **Union Home Secretary as the Chairperson**, and the Secretaries to the GOI in the Ministries/Departments of Agriculture, Atomic Energy, Defense, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and Secretary, NDMA are special invitees to the meetings of the NEC. The National Executive Committee is responsible to prepare the National Plan and coordinate and monitor the implementation of the National Policy and the guidelines issued by NDMA.

State Executive Committee (SEC) The Act envisages establishment of State Executive Committee under Section 20 of the Act, to be headed by Chief Secretary of the state Government with four other Secretaries of such departments as the state Government may think fit. It has the responsibility for coordinating and monitoring the implementation of the National Policy, the National Plan and the State Plan as provided under section 22 of the Act.

F. Disaster Budget of India:

The Second Finance commission brought the concept of Margin Money as a separate fund for the management of natural calamities. The margin money allocated to the states by various finance commissions steadily increased from Rs.13.75 crores during 1955-60 to Rs.1203.75 crores during 1985-90. The Ninth finance commission (1990-95) constituted the Calamity Relief Fund (CRF) to be contributed by the central government and the state Governments on 75:25 basis as non-plan grant. CRF allocation to the states has registered an increase from Rs.4020 crores during 1990-95 to Rs. 21333.33 crores during 2005-10. The tenth (1995-2000), eleventh (2000-2005) and the Twelfth Finance commissions (2005-2010) retained the scheme with minor modifications.

The Tenth Finance commission had constituted the National Fund for Calamity relief to deal with catastrophic disasters, which was substituted by National Calamity Contingency Fund (NCCF) by the Eleventh Finance Commission with an initial corpus of Rs.500 crores.

The 14th Finance commission has recommended Goods and Service Tax (GST) for funding catastrophe with total amount of Rs. 61,220 crores by introducing State Disaster response Fund with the contribution of 10 % by the State Government (Rs.6,123 Crore) and National Disaster Response Fund as recommended in clause 46 (section 46) of the National Disaster Management Act 2005. with the contribution of 90% by the Central Government. (Rs. 55,097 Crores). States can use this allocation for 12 notified natural calamities viz; avalanches, cyclone, cloudburst, drought, earthquake, tsunami, fire, flood, hailstorm, landslides, pest attack and cold wave/frost. In addition, 10% of the annual fund allocation of the SDRF may be used for localized State specific natural disaster. In case of a large scale disaster, if the State is unable to manage with SDRF funds, demand for central assistance is sought and central govt. releases funds available under NDRF. The volume of post disaster funding is continuously growing and now it has reached from Rs.500crore to Rs. 61,219 crores. National Disaster Management Act has also made a mention of the creation of National Disaster Mitigation Fund, Clause 47 exclusively for the purpose of mitigation

G. Recent National Initiatives on Disaster Management in India:

a. India-Japan Workshop on Disaster Risk Reduction, 2018

The Ministry of Home Affairs, Government of India has organized the first India-Japan Workshop on Disaster Risk Reduction on 19-20 March, 2018 at Vigyan Bhawan, New Delhi. The workshop was attended by 150 domain experts from Japan and India. The two-day workshop was the follow-up of the Memorandum of Cooperation (MoC) signed between the Government of India and the Government of Japan on Cooperation in the field of Disaster Management, which was signed during the visit of Prime Minister of Japan, Mr. Shinjo Abe to India in 2017. The workshop deliberated on various themes viz. disaster management policy framework, risk assessment, disaster resilient infrastructure, early warning system, preparedness by sub-national governments and approaches by private sector.

b. First International Workshop on Disaster Resilient Infrastructure (IWDR), 2018

1. In pursuance with 1st point of Hon'ble Prime Minister's 10point agenda on Disaster Risk Reduction, which calls for global cooperation in the field of disaster resilient infrastructure, National Disaster Management Authority (NDMA) in collaboration with United Nations Office for Disaster Risk Reduction (UNISDR), organized first of its kind International Workshop on Disaster Resilient Infrastructure (IWDR) on 15-16 January, 2018 at Hotel Ashok in New Delhi.
2. The Workshop was inaugurated by Shri Rajnath Singh, Union Home Minister on 15th January, 2018. More than 180 delegates including experts from 21 countries, multilateral development banks, the United Nations, the private sector, academics and national representatives of Central Government and State Governments attended the event. The valedictory session was chaired by Dr. Rajiv Kumar, Vice-Chairman, NITI Aayog, and co-chaired by Shri Kiren Rijju, Hon'ble Minister of State in the Home Affairs.
3. Apart from inaugural and closing ceremony, the workshop had five technical sessions on "Disaster Resilient Infrastructure: Opportunities and Challenges", "Risk Management of Key Infrastructure Sectors", "Risk Assessment, Standards, Design and Regulation for Infrastructure Development, Operation and Maintenance", "Financing Disaster Resilient Infrastructure" and "Reconstruction and Recovery of Critical Infrastructure after Disasters".
4. The Workshop emphasized the role of risk resilient infrastructure. It identified best global practices prevailing in the resilient infrastructure, as well as key challenges and gaps in existing practices and ways to address them. Potential areas for collaboration among the stakeholders on disaster resilient infrastructure were also identified.

c. First Joint Disaster Management Exercise for BIMSTEC Countries, 2017

1. The Government of Republic of India hosted the first Annual Disaster Management Exercise for 'Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation' (BIMSTEC) countries (BIMSTEC DME-2017) on 10-13 October, 2017 in New Delhi and the National Capital Region (NCR).
2. BIMSTEC DME-2017 provided a very good platform for sharing best practices and experience to all member countries involving their response teams. During the simulation exercise, various components viz. Table Top Exercise (TTX), Field Training Exercise (FTX) and After Action Review (AAR) facilitate in demonstrating the important aspects of Disaster Risk Reduction, strengthening regional response and coordination for effective disaster management among the BIMSTEC member countries. About 200 disaster professionals from all seven BIMSTEC countries participated for the first time in table top and field exercises.

d. Second Meeting of national Platform for Disaster Risk Reduction held in Bigyan Bhawan, New Delhi during 2017

1. The meeting was attended by delegates from State/UT governments, Academic institutions, research centres, Media, CSUs, and union agencies. The meeting provided a road map for implementing Prime Minister's ten-point agenda for Disaster Risk Reduction in the development plans and policies.
2. The meeting was held in May, 2017

e. First Asian Ministerial Conference for Disaster Risk Reduction, 2016 after adoption of SFDRR

1. The Government of India, in collaboration with the United Nations International Strategy for Disaster Reduction (UNISDR), hosted the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2016 in New Delhi from 3-5 November 2016. Delegations from 41 Asia and Asia Pacific countries participated in the Conference. Besides, few countries were represented through their respective Embassies stationed in New Delhi. In addition, representatives of UN agencies, NGOs and other local stakeholders like Union Ministers, Deputy Chief Minister and Ministers of States/UTs, Secretaries of Union Ministries, Chief Secretaries, Director General of Police, Relief Commissioners, Secretaries of the States/UTs, Members of District Disaster Management Authorities, Senior functionaries of Zilla Parishads, Municipal Corporations and Municipal Councils and experts in the field of disaster management etc. also attended the Conference.
2. The theme of AMCDRR 2016 was "Risk Sensitive Development for Community Resilience". The Conference had six Technical Sessions, three Featured Events, three Ministerial Sessions and 22 Thematic Events on various cross-cutting and impinging issues such as strengthening community resilience, risk resilient critical infrastructure,

implementing the health aspects of Sendai framework, promoting educational continuity and resilience of children and communities, disaster risk identification and financing solutions etc. The Conference concluded with (i) a Political Declaration, reaffirming the government and stakeholders' commitment to Disaster Risk Reduction, and (ii) Adoption of Asia Regional Plan for implementation of the Sendai Framework for Disaster Risk Reduction.

f. Cooperation with UNISDR, 2016

1. The Government of India and United Nations Office for Disaster Risk Reduction (UNISDR) signed a Statement of Cooperation in November 2016 during the second day of the AMCDRR 2016, in New Delhi. The Statement underlined the guiding principles, objectives and areas of cooperation between India and UNISDR towards the effective implementation and monitoring of the Sendai Framework on Disaster Risk Reduction (SFDRR), which was adopted at the Third World Conference on DRR at Sendai in Japan in March 2015.
2. India partnered with UNISDR to work towards strengthening the capacity of Asian countries in ensuring risk resilient development. It will also facilitate the sharing of knowledge and experiences, and collaborative efforts towards addressing critical regional challenges.
3. The cooperation aims to ensure effective implementation and monitoring of the Sendai Framework through training and capacity building for Asian countries; promoting international and regional cooperation to reinforce political commitment, facilitate knowledge sharing and strengthen the capacity of UNISDR for monitoring and review of the Sendai Framework.
4. The statement was officially signed by Shri. Bipin Mallick, Additional Secretary, Government of India and Mr. Robert Glasser, Special Representative of the UN Secretary-General for Disaster Risk Reduction.

g. Meeting of BRICS Ministers for Disaster Management, 2016

1. The Meeting of BRICS Ministers for Disaster Management was held on 22 - 23 August, 2016 in Udaipur, Rajasthan. The Udaipur Declaration agreed for setting up a Joint Task Force on Disaster Risk Management (DRM) for regular dialogue, exchange, mutual support and collaboration among BRICS countries. The joint Task Force is expected to initiate the actions as agreed in the Roadmap for implementation of the Joint Action Plan signed by the BRICS countries at the Udaipur Meet.

h. First Disaster Management Exercise with SAARC Countries in 2015

1. The Government of India organized the South Asian Annual Disaster Management Exercise (SAADMex) from 23-26 November 2015, in New Delhi. The main objective

was to synchronize efforts to institutionalize regional cooperation on disaster response among SAARC member countries.

2. All the SAARC member countries participated in first ever joint exercise conducted by the National Disaster Response Force (NDRF) of India. The focus was to test the inter-governmental coordination and create synergy to synchronize efforts to institutionalize regional cooperation on disaster response among the member countries of the SAARC region.
3. It was followed by the SAARC Regional Workshop on sharing best practices and to deliberate upon the outcomes of SAADMEX 2015 on 27th November 2015.

H. National Flagship Projects on Disaster Management in India:

1) National Cyclone Risk Mitigation Project:

To reduce the loss of life and properties in the events of future calamities, the Ministry of Home Affairs, with support from the World Bank, in two phases, introduced a project in the cyclone prone coastal states and Union Territories. The (NDMA) is the implementing agency.

2) Infrastructure Development for 10 battalions and 10 teams of NDRF:

The Ministry of Home Affairs sanctioned a scheme in March, 2015, to raise the infrastructure of 10 Battalions and 10 team locations. The project includes construction of Office Buildings, Training Block (Basic rubble field and props, High rise rescue, Advance search & rescue and Swimming pool deep diving etc.) and Residential quarters.

3) Creation of a National Disaster Response reserve (NDRR):

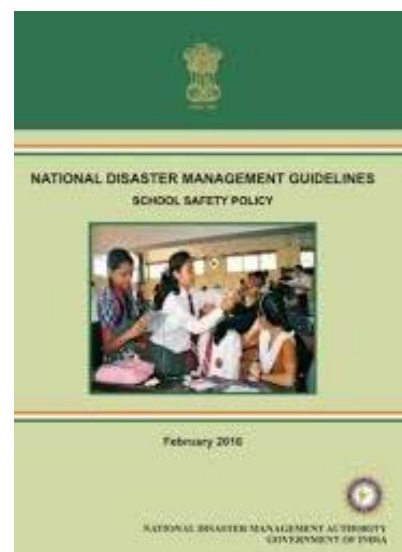
The purpose of NDRR is to mitigate the sufferings of the victims of the disaster which are beyond the coping capacity of the States. The tentative items to be kept in NDRR are tents, food, medicines, blanket, temporary shelters lighting equipment etc. Items are procured by NDRF with financial assistance from MHA.

4) Aapda Mitra Scheme:

Training community volunteers in disaster response in the 30 most flood-prone districts of 25 states in India.

5) Sustainable Reduction in Disaster Risk in 10 Multi-hazard Districts:

Strengthen community and local self-government's preparedness and response in the ten most multi-hazard



vulnerable districts, two each in five identified states (Uttarakhand, Assam, Bihar, Himachal Pradesh and Jammu and Kashmir)

6) National Emergency Communication Plan (Phase II): The project aims to provide VSATs for voice, data and video communication between National Emergency Operation Centre, NDRF and NDMA.

7) School Safety Programme: The project aims to promote a culture of safety in schools.

8) National Earthquake Risk Mitigation Project: The project aims to enhance the preparedness of the nation to face earthquakes and to reduce the loss to life and property caused by earthquakes.

9) National Landslide Risk Mitigation Project: This project aims to strengthen the structural and non-structural landslide mitigation efforts to reduce the landslide risk and vulnerability in hilly districts prone to landslides and mud flows.

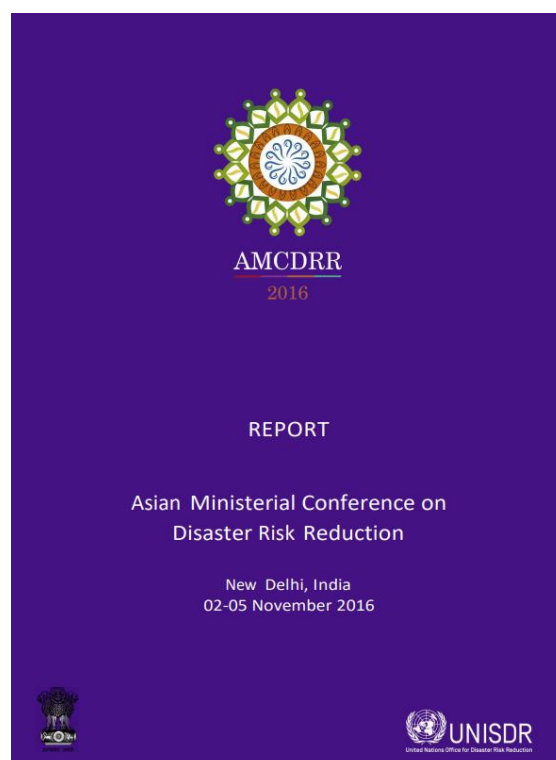
10) National Flood Risk Mitigation Project: This project aims to mitigate consequences of floods by improving capacity for effective preparedness, promptness in response and to assess the risk and vulnerabilities associated with floods.

I. Targets under Global International Frameworks:

The Roadmap chalked out at the end of AMCDRR, 2016 convention for implementation of DRR to meet the Global targets is as follows:

The 15-year timeframe of the Sendai Framework together with other international frameworks including the SDG's – provides an opportunity for greater coherence and integration in terms of planning, implementation and monitoring. By providing guidance towards the achievement of the Sendai Framework's seven global targets and by presenting a set of intended results in chronological order, the Road Map contributes to this process of mutual reinforcement in Asia.

The Road Map fits within the overarching policy direction and will steer the two-year action plan.



The below milestones are based on a shared vision across Asia towards risk prevention and resilience building that will achieve the 7 global targets of the Sendai Framework. The milestones are sequenced in a way to enable this. The earlier milestones – such as the development and establishment of countries’ disaster risk management status, disaster damage and loss databases, and national and local strategies and plans (target e) – are relevant for other targets, namely a reduction in mortality, people affected, economic losses and losses of critical infrastructure and services.

The regional plan will support progress against all Sendai Targets specially to target a) i.e. enhanced international cooperation. It also facilitates achievement of target b) i.e. the strengthening of trans-boundary early warning systems and the sharing of disaster risk information. The key milestones of the Road Map are as below.

By 2016

1. Translation and dissemination of key messages and essence of the Sendai Framework in national languages to increase awareness.
2. All countries have identified their Sendai Framework focal point.
3. 20 percent of countries take stock of their current status of disaster risk reduction.
4. The AMCDRR agreed on implementation of the Asia Regional Plan for implementation of the Sendai Framework which was one of the outcomes of the Conference.

By 2018

1. Technical guidance by UNISDR to national indicators is finalized with a link to SDG targets and indicators.
2. 50 percent of countries have prepared a design to establish a national mechanism to collect, analyse and disseminate information on disaster losses and risk aiming to achieve appropriate level of disaggregation for gender, age and disability.
3. 40 percent of countries have revised/ developed their national strategies and/ or plans for disaster risk reduction in line with the Sendai target e).

4. 50 percent of countries have reviewed their initial progress in implementation of the Sendai Framework through the Sendai Monitor.

5. 40 percent of countries have established multi-sectoral and multi-stakeholder national and local platforms to foster the dialogue and cooperation between governments, science and technology community and other stakeholders for risk sensitive development and innovative risk management.

6. 10 percent of countries have developed regulatory or policy frameworks to reinforce risk considerations and risk reduction measures into development initiatives, particularly in the infrastructure sector.

By 2020

1. All countries have established methodologies to collect disaster loss data and risk profiles, with gender, age, disability disaggregated data.

2. All countries have revised/developed their national strategies and/or plans for disaster risk reduction with increased focus on local actions, ace).

3. 30 percent of countries have developed regulatory or policy frameworks to re- inforce risk considerations and risk reduction measures into development initiatives, in particular in the infrastructure sector

4. 60 percent of countries have established multi-sectoral and multi-stakeholder national and local platforms.

5. Review regional targets under the Asian Regional Plan from 2022-2028, every biennium.

By 2022

1. 50 percent of countries have developed regulatory or policy frameworks to re- inforce risk considerations and risk reduction measures into development initiatives, in particular in the infrastructure sector.

2. 60 percent of countries have improved their early warning systems including improved monitoring and forecast systems evacuation procedures, analyses of risk, availability and access to early warning information.
3. All countries have established multi-sectoral and multi-stakeholder national and local platforms.

By 2030

1. All countries have demonstrated reduction in disaster-related mortality, affected population, economic losses and damages to critical infrastructure and basic services.
2. All countries have reviewed their progress of implementation through the Sendai Monitor.
3. A regional review report of the Sendai Framework is available.
4. All countries have risk-sensitive development planning and practice.
5. All countries have improved their governance and accountability for risk-resilient investment in both the public and private sector.
6. Sub-regional and regional cooperation mechanisms established for transboundary disaster risk reduction efforts.

V. Two-year Action plan (2017-2018)

The two-year action plan is in line with the policy direction and contributes to the achievement of the milestones in the long term road map. The action plan is derived from priorities shared by governments and stakeholders during the development of the Asia Regional Plan and in consultations through the IAP. The two-year action plan will be reviewed and updated in line with the biennial Asian Ministerial Conferences and through the IAP forum.

Regional level actions

These actions cover trans-boundary issues, regional cooperation mechanisms and so on. They will be implemented through the cooperation of countries and by regional and sub-regional actors

such as inter-governmental organizations (IGOs); UN regional entities; other regional and international organizations; networks and consortiums; and stakeholders and partners.

UNISDR, as the secretariat will have the role of facilitating and advocating for implementation of these actions in line with the Sendai Framework. The actions are as follows:

Strengthen the Regional Platform for DRR – i.e. the Asian Ministerial Conference, the ISDR Asia Partnership and its secretariat – by means of enhanced high-level engagement of governments, intergovernmental organizations and partners to support the implementation and monitoring of the Sendai Framework.

- a. Establish a collaborative mechanism of UNISDR, intergovernmental organisations (IGOs) and UNESCAP Regional Coordination Mechanism to support the implementation and monitoring of Sendai Framework in line with the SDGs.
- b. Strengthen existing regional mechanisms to reduce the risk of and enhance early warning and preparedness for trans-boundary disasters.
- c. Strengthen regional cooperation including through public-private partnership for the application of science, technology and innovation in policy making for disaster risk reduction.
- d. Promote and support gender-sensitive DRR actions at national and local level including universal access to sexual and reproductive health-care services, prevention and response to gender-based violence and women's leadership.
- e. Strengthen the role of inter-governmental organizations (IGOs) and cooperation among them for information and knowledge exchange and concerted support to national actions.
- f. Establish regional cooperation for disaster resilient infrastructure development in the region with an aim of 'preventing future risks'.
- g. Strengthen regional cooperation between private sector organizations and chambers of commerce to promote public private partnership for DRR.
- h. Enhance stakeholder groups' engagement in the Sendai Framework by means of implementation and monitoring of their voluntary commitments.
- i. Implement the 'United Nations Plan of Action on Disaster Risk Reduction for Resilience' and integrate disaster risk reduction into UN country level operations through regional UN Development Group processes.

- j. Strengthen UNISDR to facilitate, coordinate and advocate for the implementation of the Asia Regional Plan by countries, partners, inter-governmental organizations, UN, international organizations and stakeholders.
- k. Promote the provision of human, financial and technical resources by multilateral and bilateral donors to support actions from the Asia Regional Plan. Raise public awareness of Tsunami taking the opportunity of the World Tsunami Awareness Day on 5th November.

National and local level actions:

The following national and local specific actions address priorities of Asia in the next two years and are guided by the Sendai Framework. Bearing in mind that countries will develop or revise their national DRR strategies and plans in the coming years, this set of actions will complement such plans and provide guidance on the setting of priorities. National and local activities can be implemented by governments, stakeholders and partners. The actions are as follows below.

Priority 1: Understanding disaster risk

- a) Establish/ strengthen consistent and appropriate level of disaggregation for gender, age and disability data disaster loss baseline data at national level with local data.
- b) Assess disaster risk, vulnerability, capacity, exposure, hazard characteristics and their possible impacts (risk profiling).
- c) Establish risk information systems and promote the collection, analysis, management, use and dissemination of the relevant data and information, using
- d) space and in situ information including geographic information system (GIS), and information & communication technology and innovations.
- e) Incentivise businesses to strengthen business continuity and conduct location specific risk assessments of their operating environment and supply chain with a clear understanding of their hazard exposure, vulnerability and risks to hazards.
- f) Integrate disaster risk information into business investment planning and management across private sector entities, in particular Micro, Small and Medium Enterprises (MSMEs), through business associations, chambers of commerce and national and local platforms on DRR.

g) Mobilize public-private partnership initiatives for awareness raising, advocacy and education to strengthen private sector attitudes towards risk-sensitive development.

h) Consolidate/adapt guidelines for local risk assessments and their use in local development planning, ensuring the complementarities of proven traditional, indigenous and local knowledge and practices, and science and technology.

i) Institutionalize efforts to build the knowledge and capacity of local and national government officials, civil society, communities and volunteers to monitor hazards, exposure and social vulnerabilities.

j) Raise public awareness of disasters by taking the opportunities provided by the International Day for Disaster Reduction and the World Tsunami Awareness Day.

Priority 2: Strengthening disaster risk governance to manage disaster risk

a) Review/ revise existing national and local disaster risk reduction strategies/ plans in line with the Sendai Framework, Paris Agreement, SDGs and New Urban Agenda to ensure disaster risk sensitive development.

b) Establish/ strengthen multi-stakeholder and multi-sectoral national and local platforms that are gender responsive and inclusive, with the participation of local community representatives and other stakeholders.

c) Improve the legal, policy and regulatory environment to incentivize businesses to reinforce DRR.

d) Build corporate governance and risk-sensitive investment beyond corporate social responsibility, through business associations, chambers of commerce and national and local platforms on DRR.

e) Develop guidelines for coherent implementation of the 2030 development agendas at the local and national level involving the relevant national authority.

f) Promote implementation of health aspects of the Sendai Framework for Disaster Risk Reduction 2015-2030, including the Bangkok Principles, with a view to ensuring more systematic cooperation, coherence and integration between disaster and health risk management.

g) Undertake an inventory of available local DRR strategies/plans and work towards achieving the Sendai Framework Target e) on 'risk-informed local DRR strategies/plans' by 2020.

- h) Foster local leadership and forums such as the 'Asian Local Disaster Risk and Resilience Forum'.
- i) Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in disaster risk reduction.

Priority 3: Investing in disaster risk reduction for resilience

- a) Establish/strengthen regulatory frameworks to reinforce risk consideration in structural and non-structural investments.
- b) Promote national mechanisms for disaster risk transfer and insurance as appropriate.
- c) Increase resilience and integrate disaster risk reduction into business models, corporate practices, and supply chains through intensified partnerships between the private sector, local government and other stakeholders.
- d) Promote appropriate financial mechanisms to integrate disaster risk reduction considerations and measures to support the building of disaster resilient communities by engaging development funds, banks, private foundations and stakeholders.
- e) Allocate resources to local governments as appropriate to implement DRR measures.
- f) Institutionalize community-based disaster risk management (CBDRM) to strengthen resilience of households and communities.
- g) Strengthen education on disaster and climate risk reduction and accelerate the implementation of comprehensive school safety.
- h) Invest in the development of resilient health systems, and design and implementation of inclusive policies to ensure access to social safety nets and primary health care services, including maternal, new-born and child health, sexual and reproductive health.

Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

- a) Prepare/update disaster preparedness and contingency plans at local, national and regional levels with a multi-stakeholder and multi-sectoral approach, ensuring comprehensive and

accessible service and referral mechanisms to promote specific needs of women and children, the elderly, people with disabilities and other at-risk populations.

b) Strengthen multi-hazard early warning systems to ensure last-mile accessibility.

c) Integrate disaster risk concerns and measures in post-disaster recovery and reconstruction planning and practice, such as developing / revising building codes and standards in recovery and reconstruction practices at the national and local levels.

d) Expand private sector engagement in preparedness for response, recovery, and to 'build back better' through more systematic public-private cooperation.

e) Develop and implement disaster management plans that would include early warning, response coordination, evacuation plans, stockpiling of necessary materials to implement rescue and relief activities.

f) Build capacity of local authorities, including strengthening leadership of women, persons with disability and youth to develop local disaster recovery plans that include retrofitting, reconstruction, building code enforcement, post-trauma programmes, resilient livelihoods, shelter provision for displaced population etc.

g) Mainstream ecosystem-based approaches through transboundary cooperation to build resilience.

VI. Implementation and monitoring of the Asia Regional Plan

The regional plan is intended to guide the implementation of the Sendai Framework at national and local level. The application of the policy direction; pursuing the roadmap; and monitoring the 2-year action plan requires some level of dedicated support in terms of advocacy, monitoring and the provision of technical support.

In this regard, cooperation at the regional level through North-South, South-South and Triangular Cooperation will be important, including through the exchange of experiences and home-grown approaches of countries in the region, such as the Sufficiency Economy Philosophy of Thailand.

The overall roles and responsibilities of international, regional and sub-regional organizations and entities will be in-line with the Sendai Framework (General Assembly Resolution A/RES/69/283).

The IAP forum – under the stewardship of UNISDR’s Regional Office for Asia Pacific and with the engagement of governments (via Sendai focal points), inter-governmental organizations, the UN, international organizations, civil society organizations and various other stakeholders – constitutes a regional technical support mechanism.

Among its responsibilities, the regional technical support mechanism will: periodically assess the progress of the regional plan; identify key gaps in DRR in the region from the national perspective; provide or mobilize technical expertise and guidance at the regional level; and advocate for accelerated implementation of the Sendai Framework.

UNISDR is mandated to facilitate implementation, follow-up and monitoring of the Sendai Framework. As part of its support to the regional technical support mechanism, UNISDR’s Regional Office for Asia Pacific requires strengthening with adequate resources and capacities. This may include resourcing through various funding mechanisms, including increased, timely, stable and predictable contributions to the United Nations Trust Fund for Disaster Reduction as well as enhancing the role of the Trust Fund in relation to the implementation of the Sendai Framework. The following factors will support effective implementation of the Asia Regional Plan:

Regional inter-governmental organizations playing a stronger role in the regional platform for disaster risk reduction and enhanced regional cooperation to enable policy and planning for the implementation of trans-boundary risk assessments; mutual learning and exchange of good practices and information. · The entities of the United Nations system – including the regional commission, funds and programmes and the specialized agencies – promoting and supporting implementation of the regional plan through technical assistance upon request.

UNISDR’s Regional Office for Asia Pacific providing a range of support, including:

- (i) advocating for and facilitating the implementation, follow-up and review of the Asia Regional Plan through partners and the IAP forum including the Advisory Working Group for AMCDRR;

- (ii) supporting the implementation of the Sendai Framework monitoring system at the national level;
 - (iii) providing technical support to countries to establish disaster loss baselines;
 - (iv) convening the Asian Ministerial Conference with governments, regional organizations and partners;
 - (v) mobilizing science and technical work for disaster risk reduction through an enhanced role of its Asian Science and Technology Advisory Group in close cooperation with the Science and Technology Advisory Group of the UNISDR; and
 - (vi) Facilitating engagement of the various stakeholder groups, including the private sector, civil society organizations and local actors, in the implementation of the Asia Regional Plan.
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- The various stakeholder groups providing support to States, in accordance with national policies, laws and regulations, in the implementation of the Sendai Framework at all levels. This will build on their past disaster risk reduction actions. Stakeholders have consistently provided and reviewed 'Voluntary Statements of Action' at previous AMCDRRs. The Asia Regional Plan and all 'Voluntary Statements of Action' from stakeholder groups will constitute two principal regional instruments for tracking progress.
 - The periodic review of the Asia Regional Plan by governments and partners through the annual meetings of the IAP forum. There will be no separate monitoring system or mechanism specifically for the Asia Regional Plan. The progress will be reviewed through the overall monitoring of the Sendai Framework. The monitoring of the Sendai Framework will follow the internationally agreed set of indicators and monitoring system, expected to be agreed at the Open-Ended Intergovernmental Working Group (OEIWG) in November 2016 and will be endorsed by the member States at the UN General Assembly. The Asian Ministerial Conferences from 2018 onwards will provide an opportunity for the Regional Plan to be reviewed and revised based on the emerging priorities and needs. Experience sharing and peer learning among countries within the region and beyond, will be promoted toward standardized data and best practices.

PHOTOGRAPHS OF DISASTERS IN INDIA



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