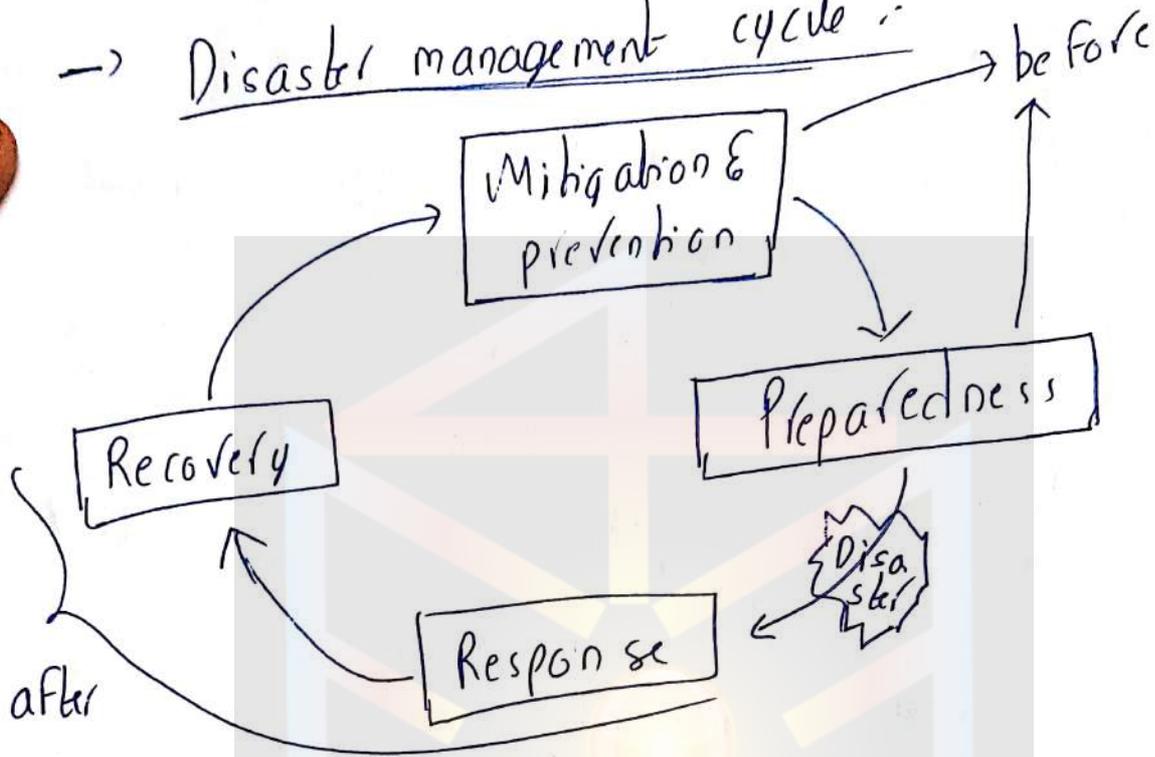


Unit 3

Approaches to disaster risk reduction:

→ Disaster management cycle:



→ Mitigation & prevention

→ To prevent future emergencies & take steps to minimize their effects.

→ The mitigation & prevention phase occurs before a disaster takes place  
→ Here an organization will take steps to protect people & property

which also decreasing risk & consequences from a given disaster situation.

→ The organization main goal is to reduce vulnerability to disaster impact (such as property damage, injuries & loss of lives)

→ Preparedness:

→ To take actions ahead of time to be ready for an emergency

→ Planning how to respond

→ It focuses on understanding how a disaster might impact the community and how education, outreach & training can build capacity to respond & recover from disaster.

→ pre disaster strategic planning is done.

→ provides more information on how to better prepare an organization for a disaster.

→ Response :-

→ To protect people & property in the wake of an emergency or crisis

→ The response phase occurs in the immediate aftermath of a disaster.

→ Organization must focus their attention on addressing immediate threats to people, property & business.

e.g. evacuation, emergency relief.

→ Triage is sorting out patients based on the severity of injury.

→ As the response period progresses, focus will typically shift from immediate emergency issue to conducting repairs, restoring utilities, reestablishing operations & cleaning up.

(The organization now begins planning & reconstruction of damaged infrastructure.)

→ 5 Factors govern a quick disaster response

- Nature & extent of the destruction
- Environment of the disaster
- Available resources
- Chosen response action
- Understanding of effective policy.

→ Recovery is

→ To rebuild after a disaster in an effort to return operations back to normal.

→ The recovery phase takes place after a disaster. This phase is the restoration of an organization following impacts from a disaster.

→ The recovery phase of a disaster can last anywhere from 6 months to 1 year. (short term) or more means (long term)

→ Planning for disaster recovery:

→ Risk assessment developing, documenting, implementation. Testing & maintaining a disaster recovery plan.

→ There must be a disaster recovery committee that should include at least one person from management, information technology, record management & building maintenance.

→ The committee will take decision on what, how, when to do anything

ex temporary housing etc.

## Unit – 3 Approaches to disaster risk reduction

### Prevention

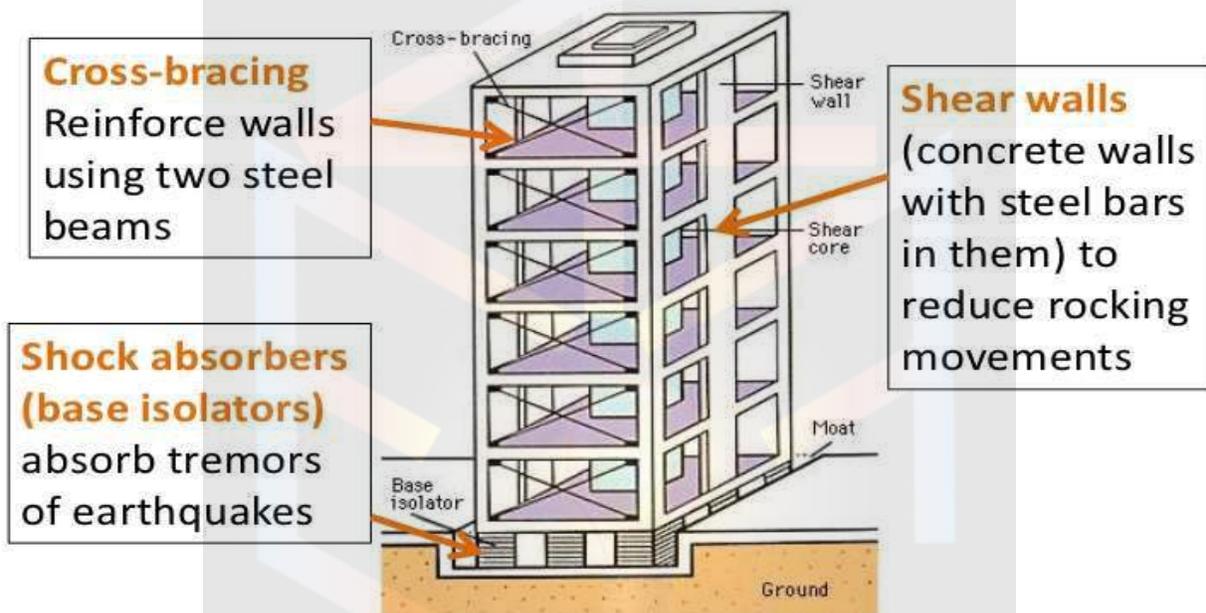
- Proactive process consisting of a set of control strategies to ensure that a disaster does not happen.
- The elements of an effective disaster prevention are the early detection of abnormal conditions and notification of persons capable of dealing with the pending crisis
- By detecting and treating minor problems early, major problems are avoided
- Disaster prevention is improved with intelligent monitoring devices
  - Temperature, Humidity, water, smoke, fire, air flow, AC power quality, Personnel access security, halon triggering state
- Actions in disaster prevention:
  - Activating local or remote alarms indicators like sirens, bells, light signals
  - Taking control of the affected resource to isolate and cut of power, water and fuel from the mail supply
  - Interfacing with existing security system
  - Sending a signal to designated personnel
  - Degrading the system by terminating normal operations and protecting data files

### Disaster mitigation and preparedness

- Structural mitigation

- Construction projects which reduce economic and social impacts i.e dams
- Non structural mitigation
- Policies and practices which raise awareness of hazards or encourage developments

## Earthquake Resistant Building



Mitigation includes

- Reviewing building codes
- Vulnerability analysis updates
- Zoning and land use management and planning
- Reviewing of building use regulations and safety codes
- Implementing preventative health measures
- Political intervention and commitment

- Public awareness

#### Disaster mitigation and infrastructure

- Investment in infrastructure for reconstruction and sustainable socioeconomic development
- Back up generator for power and backup copy for critical information
- Strengthening vulnerable areas like roofs, exterior doors, windows

#### **Community Based Disaster Risk Management:**

- Communities need to be prepared for natural and human made disaster because these can strike anywhere regardless of location, culture, and history
- Local organizations can react immediately.
- Goals of community organizing include
  - forming groups
  - bringing about social justice
  - obtaining maintaining or restructuring power
  - developing alternative institutions
  - maintaining or revitalizing neighborhoods
- Communities are well trained culturally, socially and psychologically prepared and effective in responding to aftermath of disasters
- When the capacities of community are recognized, solutions come from within the community itself
- Solutions are realistic and are involved in disaster mitigation process
- There is need for community capacity building that encompass consideration that cover housing conditions and income generation

- Sustainable development can reduce vulnerability by addressing the root causes of disasters
- Aim: to develop a new strategy which reduces vulnerability and strengthen people's capacities to cope with hazards
- Community Groups in disaster management:
  - Informal organizations – local community groups
  - Social workers → enhance community preparedness for disasters, educating people on how to mitigate consequences of disasters, coordinating disaster management, playing a monumental role in providing psychological support
  - Training and capacity building is important
- Challenges encountered in community based disaster risk management:
  - Inadequate resources
  - Poor quality leadership
  - Dependency syndrome
  - Lack of inertia
  - Internal conflict
  - Lack of transparency
  - Conflicting government

Structural and nonstructural sources and mitigation measures

#### Structural mitigation:

- Any physical construction to reduce or avoid possible impacts of hazards or application of engineering techniques to achieve hazard resistance
- Components:
  - Resistant construction

- Building codes and regulatory measures
  - Relocation
  - Structural modification
  - Physical modification
  - Plinth beam
  - Foundation
  - Corrosion
- Structural mitigation (building construction) measures depends on
- Geographical area of building construction
  - Earth quake zoning of building construction
  - Type of structure – frame, load bearing or wooden
  - Soil patten – rocky or sandy
  - Roofing pattern – RCC, mud tiles, cement or steel sheet
  - Age of building

### Non structural mitigation

- Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risk or impacts.
- These include those that are either attached or kept in the building
- Components:
  - Furniture
  - School equipment
  - Utensil
  - Electrical wirings
  - Frames, notice boards

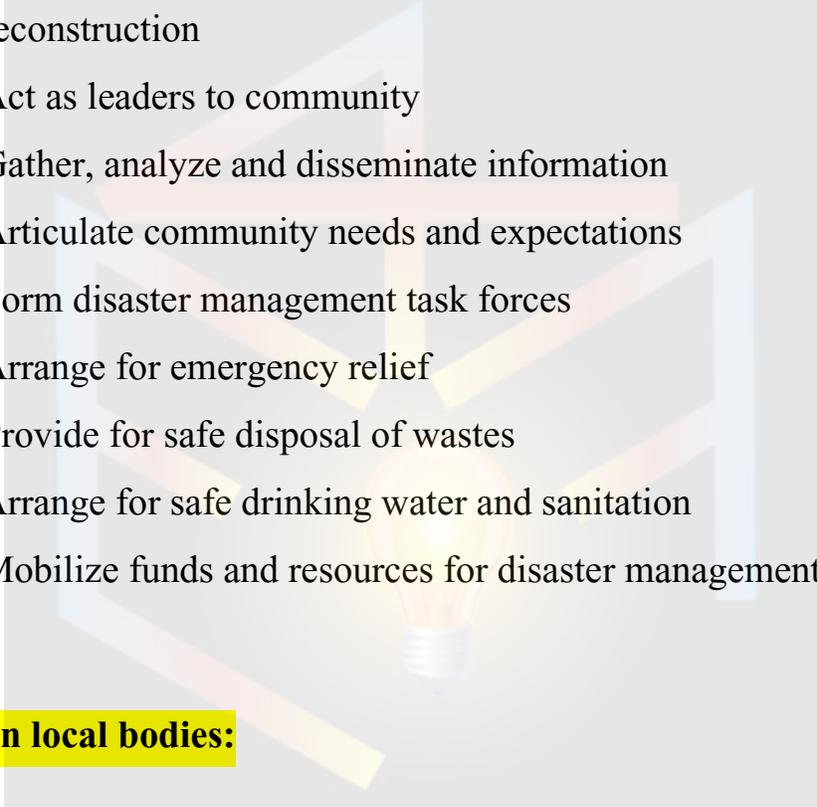
- Study materials
- Storage cabinet
- Laboratory material
- Smoke in airway
- Doors and windows
- Fire extinguishers
- Risk identification of Non structural mitigation
  - Damage to belongings
  - Damage to furniture and equipment
  - Hazards around the area

### **Role of community in disaster management:**

- Same as community based disaster management

### **Role of Panchayat Raj Institutions**

- Panchayati Raj institutions are elected by the local people.
- It is the most appropriate institution from the village to district level in view of its proximity to the people
- Aim of Panchayat Raj Institutions
  - Promote population participation through an institutional framework

- 
- Provide a base for integration of various concerns of community with that of the non governmental organizations and community based organizations
  - Sensitize local communities
  - Discuss and evolve strategies to manage crisis
  - Ensure transparency and accountability in mitigation efforts
  - Coordinate activities of restoration, rehabilitation and reconstruction
  - Act as leaders to community
  - Gather, analyze and disseminate information
  - Articulate community needs and expectations
  - Form disaster management task forces
  - Arrange for emergency relief
  - Provide for safe disposal of wastes
  - Arrange for safe drinking water and sanitation
  - Mobilize funds and resources for disaster management

### **Role of Urban local bodies:**

- Maintaining vehicles, sanitary facilities, shelter and rest facilities, relief and replacement
- Keeping unauthorized persons out of disaster area in order to prevent looting and decreasing congestion
- Handling the dead
- Warning and communication with public
- Evacuating neighbourhoods

- Coordinating with volunteers
- Acquiring and allocating unusual resources
- Dealing with livestock or family pets
- Disposing unclaimed valuables
- Disbursing large amounts of donation
- Controlling emergency
- Maintaining hospital wards for emergencies
- Checking the hospitals, nursing homes
- Prioritizing utility sources delivery
- Sharing information about location, scope and character of disaster
- Sharing information about the state of transportation route facilities
- Generating and sharing prediction about weather conditions

### **Role of state and country on disaster management**

#### **Disaster Management Act 2005**

##### Vision

- To build a safe and disaster resilient India by developing a holistic strategy through a prevention, mitigation, preparedness and efficient response

##### Strategy:

- Pre disaster phase:
  - Prevention
  - Mitigation
  - Preparedness
  - Capacity building
  - Community based disaster management
- Post disaster phase
  - Prompt and efficient response
  - Reconstruction and recovery

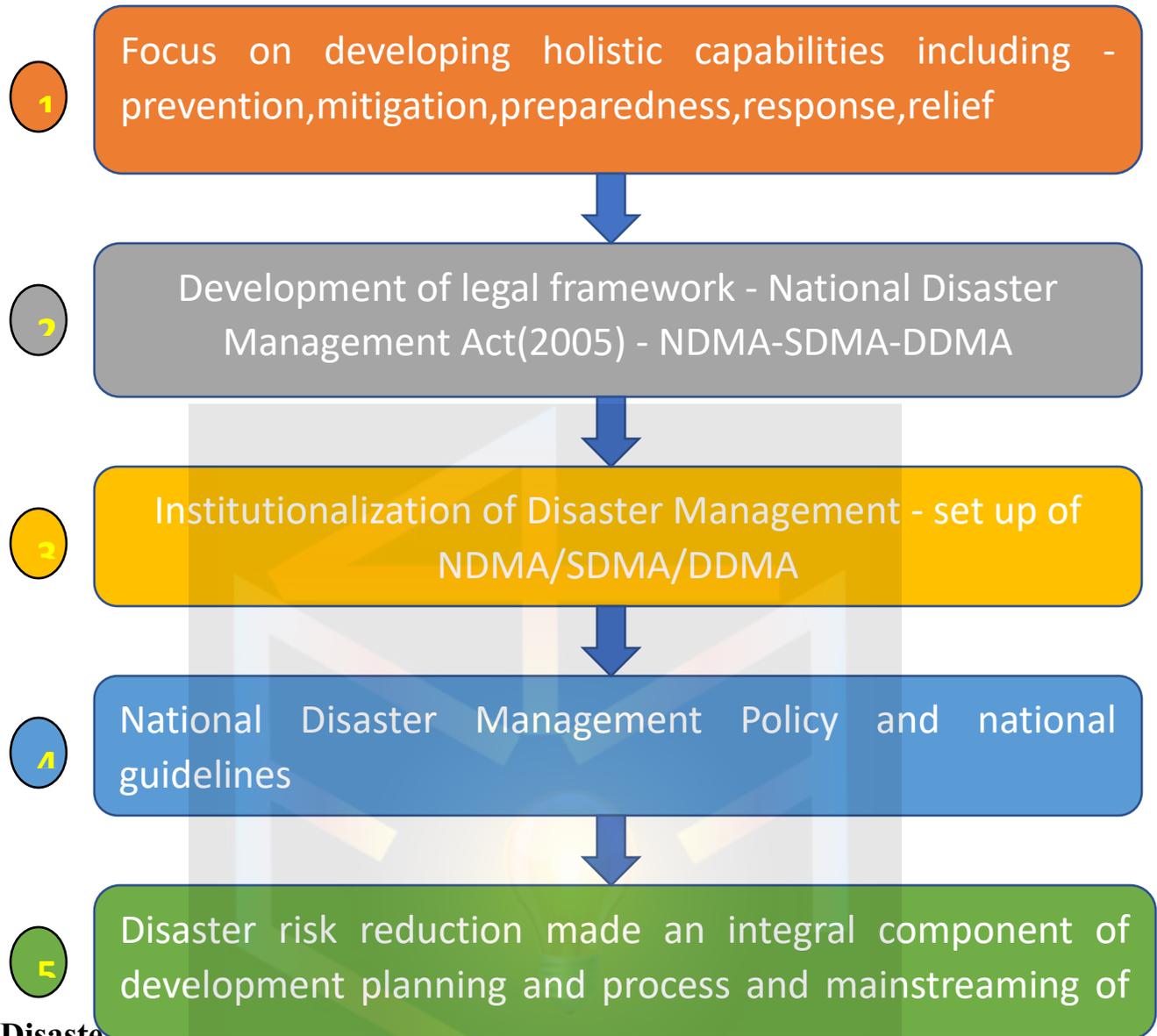
Approach:

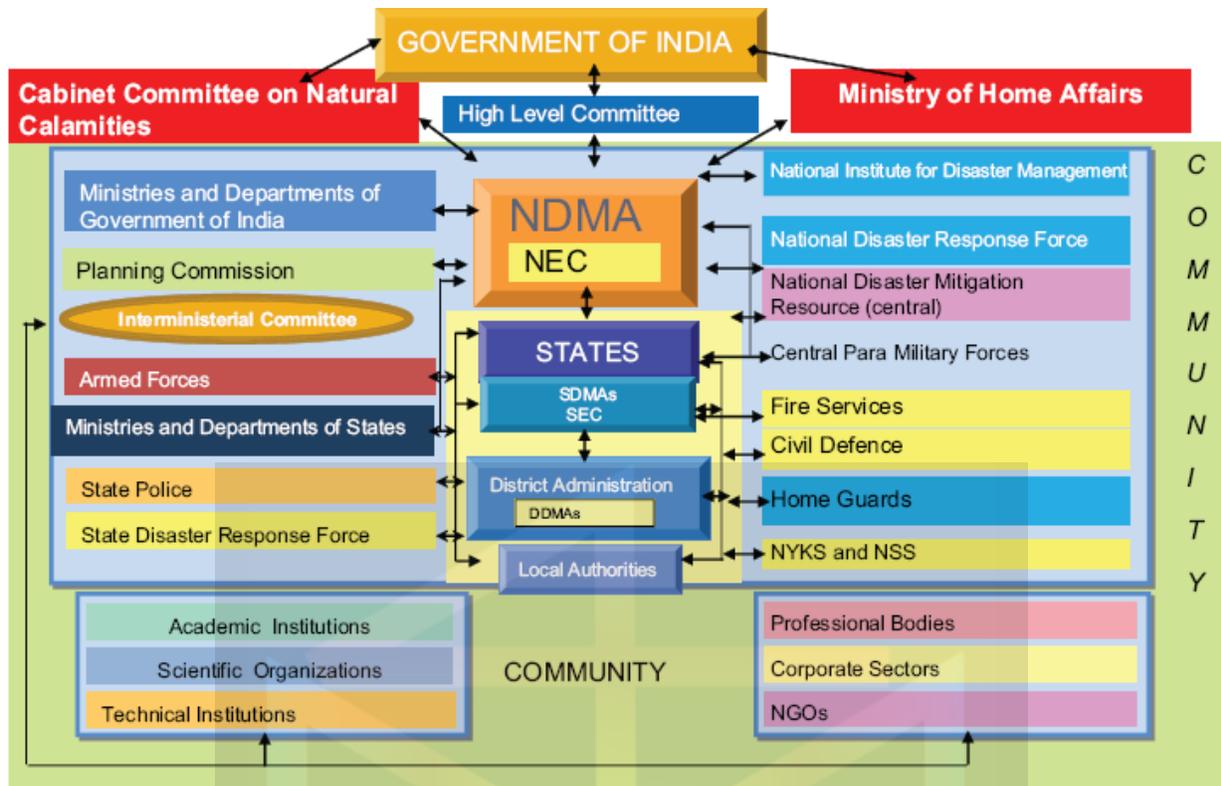
- Paradigm shift from response centric to a holistic and integrated approach
- Backed by institutional frame work
- Supported by financial mechanism

**Disaster management structure**

- NMDA is apex body with honorable PM as chairperson
- Disaster management structure = at 3 levels = national, state, district
- National executive committee = secretaries of 14 ministries and chief of integrated defence staff function as Executive committee of NDMA

**Changing approach to disaster management:**





**National level institutions:**

- National disaster management authority
- National executive committee
- National institute of disaster management
- National disaster response force
- National civil defence college
- National fire service college

**National disaster management authority:**

- Constituted with section 3(1) of act on 27<sup>th</sup> September 2006
- Prime minister = chair person
- Responsibilities:
  - Lay down policies on disaster management
  - Approve national plan
  - Approve plans prepared by ministries or department of government of India
  - Co-ordinate enforcement and implementation of policy and plan for disaster management
  - Provide support to other countries
  - Take measures for the prevention of disaster, mitigation or preparedness
  - Recommend provision of funds for purpose of mitigation

#### Composition of NDMA

- 9 members nominated by prime minister
- One secretary
- 5 joint secretaries including 1 financial advisor
- 10 posts of joint advisors and directors
- 14 assistant advisors
- Under secretaries
- Assistant financial advisor
- Duty officer along with supporting staff

#### **National executive committee**

- Formed under section 8 of Disaster management act 2005  
To assist national authority in performance of its functions
- Chair person= home secretary
- Secretaries to government have administrative control of agriculture, atomic energy, defence, drinking water supply, environment and forest, finance, health, power

**State level institutions:**

1. State disaster management authority
  - Present in all states as per Disaster management act 2005
2. State Executive Committee
  - Section 20 of disaster management
  - Head = chief secretary of state government

**District Disaster Management Authority**

- Section 25 under disaster management
- District magistrate/ district collector/ deputy commissioner = chairperson
- Chairperson of zila parishad = co- chairperson
- Other members
  - CEO of district authority
  - Superintendent of police
  - Chief medical officer of district
  - Two district level officers

**National institute of Disaster management:**

- National centre of disaster management is established at Indian Institute for Public Administration in 1995

- It was upgraded as national institute of disaster management on 2003
- Section 42 of disaster management act 2005 provides following responsibilities
  - Developing training modules
  - Undertake research and documentation in disaster management
  - Organize training programmes
  - Undertake and organize study courses, conferences
- Government constituted a 14 member governing body in 2007

**Figure 2.4: Governing Body of National Institute of Disaster Management**

In terms of Section 42(4) of the Disaster Management Act, 2005 read with Rule 6 of the Disaster Management (National Institute of Disaster Management) Rules, 2006, Governing Body of the NIDM has been constituted vide Order No. 45/1/2007-NDM-IV dated 3<sup>rd</sup> May, 2007 with following members:-

i.	The Vice-Chairperson, National Disaster Management Authority (NDMA)	Chairperson
ii	Union Home Secretary	Vice-Chairperson
iii	Secretary (BM)	Member
iv	Secretary, Ministry of Finance, Department. of Expenditure	Member
v	Secretary/ Additional Secretary, NDMA	Member
vi	Additional Secretary and Financial Advisor, Ministry of Home Affairs	Member
vii	Secretary(Disaster Management), Government of Gujarat	Member
viii	Vice-Chancellor, Guru Gobind Singh Indraprastha University, Delhi	Member
ix	Director, Indian Institute of Technology, Roorkee	Member
x	Director, Indian Institute of Management, Kolkatta	Member
xi	Director, National Eco-physical Research Institute, Hyderabad	Member
xii	Secretary, Department of Space	Member
xiii	Secretary, Department of Science and Technology	Member
xiv	Executive Director, NIDM	Member Secretary

### **National Disaster Response Force:**

- Under section 44 of Disaster management act 2005
- 2 battalions each from
  - Border security force
  - Indian Tibetan border police
  - Central industrial security force
  - Central reserve police force
- 8 battalions of NDRF has 144 specialized teams
- 72 teams designed to cater to chemical, biological, radiological and nuclear calamities
- Has 1149 personnel

#### Task and role of NDRF

- NBC disaster = decontamination of area and personnel
- Removal of debris
- Extrication of victims = live or dead
- First medical response to victims
- Extend moral support to victims
- Assistance to civil authorities in distribution of relief material
- Coordination with sister agencies
- Providing assistance to foreign countries

#### Other activities of NDRF

- Conducting familiarization exercise
- To conduct mock exercises in coordination with other stake holders
- To conduct community awareness program

- To organize demonstrations and exhibitons
- To undergo different kinds of training
- To train state disaster response force, community and NGO in disaster management

### **State disaster response force**

- Advised to set up their own specialist response force
- State government advised 10% of state disaster response fund and capacity building grant

### **Civil defence:**

- Civil defence act in 1968
- Act was amended in 2010
- To utilize services of civil defence volunteers to enhance public participation in disaster management related activities

### **Role of Civil defence**

- Guards the hinterland
- Supports armed forces
- Mobilize citizens
- Helps civil administration in saving life and property
- Minimize damage
- Maintain continuity in production centers
- Raising public morale
- Protects public against nuclear weapons, biological and chemical warfare

### **3 tier structure is formulated**

- Civil Defence Advisory Committee under the Chairmanship of Union Home Minister,
- Civil Defence Committee under the Chairmanship of Home Secretary
- Civil Defence Joint Planning Staff Committee under the Chairmanship of Director General Civil Defence.

### **Eligibility to become volunteers**

- A person to apply for appointment to a civil defence corps must fulfil following
  - Citizen of india or Bhutan or Nepal
  - Completed Age 18 yrs
  - Passed at least primary standard
  - Physically fit and mentally alert
  - Any service in national volunteer force and in armed forces of union
  - Serve in voluntary and honorary capacity

### **Directorate General of Civil defence**

- IPS officer = heads the organization
- Has dual charge of Directorate general national disaster response force and civil defence

### **Disaster and development**

- Destroy development initiatives
- Development programmes designed to decrease susceptibility to disasters

#### Development initiatives countries faced with disaster

- Partnership – close collaboration among donors, governments
- Flexibility – development agencies must be efficient and flexible, adaptable to local environment
- Selectivity – resources are the public asset

