capacity) and National monuments besides other critical lifeline buildings will be regarded as a National priority.

Additional provisions in Development Control Regulations/Bye-laws for Safety in Natural Hazard Prone Areas

Registration preferred - Registration, qualification and duties of professional defined.

• In order to bring professionalism in all development and construction work, specially with respect to safety against natural hazards, registration of the following professionals have been recommended mandatory requirement.

- Structural engineer - qualification and experience defined on the basis of types and importance of structures
- Engineers
- Construction Engineer (RCE)
- Construction Management Agency
- owner shall be a RCE
- Quality Auditor
- Architect
- Geotechnical Agency
- Town Planner
- Developer

Rescue Operations

Role of National Disaster Response Force (NDRF)

The National Disaster Response Force (NDRF) is a specialized force constituted "for the purpose of specialist response to a threatening disaster situation or disaster" under the Disaster Management Act, 2005. The "Apex Body for Disaster Management" in India is the National Disaster Management Authority (NDMA). The Chairman of the NDMA is the Prime Minister. The responsibility for Disaster Management in India's federal system is that of the State Government. The 'nodal Ministry' in the central government for management of natural disasters is the Ministry of Home Affairs (MHA). When 'calamities of severe nature' occur, the Central Government is responsible for providing aid and assistance to the affected state, including deploying, at the State's request, of Armed Forces, Central Paramilitary Forces, National Disaster Response Force (NDRF), and such communication, air and other assets, as are

available. The DM act has made the statutory provisions for constitution of national disaster response force (NDRF) for the purpose of specialized response to natural and man-made disasters. Accordingly, in 2006 NDRF was constituted with 8 battalions (2battalions from BSF, 2battalions from CRPF, 2battalions from ITBP, 2battalions from CISF).As on date NDRF is having strength of 10 battalions. Each NDRF consists of 1149 personnel. Union cabinet has also approved the conversion/up gradation of 2 battalions from SSB, The force is gradually emerging as the most visible and vibrant multi-disciplinary, multi-skilled, high-tech,standalone force capable of dealing with all types of natural and man-made disaster. NDRF has proved its importance in achieving this vision by highly skilled rescue and relief operations, regular and intensive training and re-training, capacity building and familiarization exercises within the area of responsibility of respective NDRF battalions, carrying out mock drills and joint exercises with the various stakeholders. Vision of NDRF is to emerge as the most visible and vibrant multi-disciplinary ,multi-skilled ,high-tech force capable to deal with all types of natural as well as man-made disasters and to mitigate the effects of disasters.

Role and Mandate of NDRF

1. Specialized response during disasters
2. Proactive deployment during impending disaster situations
3. Acquire and continually upgrade its own training and skills
4. Reconnaissance, rehearsals and mock drills
5. Impart basic and operational level training to state response forces (police,civil,defence,home guards)
6. Community capacity building Programme
7. Public awareness campaign
8.Exhibitions, posters, pamphlets, literatures to public.

Command and control of NDRF

The National Emergency Operation Centre (NEOC), located in MHA, is mandated to function 24 hours a day, seven days a week. The NEOC is responsible for monitoring the disaster or disaster like situation, receive updates from Agencies like the IMD, Central Water Commission, Snow & Avalanche Study Establishment. After processing the information it submits its report

and updates to affected States and concerned Central Ministries and organisations. During the monsoon period, it is required to issue daily situation reports.

National Disaster Response Force (NDRF) is under the NDMA. The head of the NDRF is designated as Director General. The Director Generals of NDRF are IPS officers on deputation from Indian police organisations. Director General wears the uniform and badges of rank of an army three-star general.The NDRF is a top-heavy organisation which in addition to the DG has several Inspector Generals (IG) and Deputy IGs, who fly flags and wear army-style badges of rank**.**

Organisation of NDRF

National Disaster Response Force (NDRF) is a force of 12 battalions, organised on para-military lines, and manned by persons on deputation from the para-military forces of India: three BSF, three CRPF, two CISF, two ITBP and two Sashastra Seema Bal. The total strength of each battalion is approximately 1,149.Each battalion is capable of providing 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics. NDRF in addition to being able to respond to natural disasters, has four battalions capable of responding to radiological, nuclear, biological and chemical disasters.

Location of NDRF battalions

These NDRF battalions are located at 12 different locations in the country based on vulnerability profile of country. The main headquarters is located at New Delhi

S.NO	NDRF Unit	State	Battalions
1	01 Bn NDRF, Guwahati	Assam	BSF
2	02 Bn NDRF, Kolkata	West Bengal	BSF
3	03 Bn NDRF, Mundali	Odisha	CISF
4	04 Bn NDRF, Arakkonam	Tamil Nadu	CISF
5	05 Bn NDRF, Pune	Maharashtra	CRPF
6	06 Bn NDRF, Gandhinagar	Gujarat	CRPF
7	07 Bn NDRF, Ghaziabad	Uttar Pradesh	ITBP
8	08 Bn NDRF, Bhatinda	Punjab	ITBP
9	09 Bn NDRF, Patna	Bihar	BSF
10	10 Bn NDRF, Vijayawada	Andhra Pradesh	CRPF

11	11 Bn NDRF, Varanasi	Uttar Pradesh	SSB
12	12 Bn NDRF, Itanagar	Arunachal Pradesh	SSB

Reforms by Govt. of India for disaster management:

1. National disaster mitigation fund has been administered by NDMA. States and districts will administer mitigation funds.

2. A national disaster response fund has been administered by NDMA through the national executive committee. State and districts will administer state disaster response fund and disaster response fund respectively.

3.10 battalions of NDRF are being trained and deployed with CSSR and MFR equipment and tools in 10 strategic locations.

4. A national disaster management policy and national disaster response plan has also be drawn up.

Areas of concern for disaster management:

1. Activating an Early warning system network and its close monitoring.

2. Mechanisms for integrating the scientific, technological and administrative agencies for effective disaster management.

3. Funding: Primary of relief as disaster response.

4. Preparedness and mitigation very often ignored.

5. Emergency medicine, critical care medicine, triage, first aid.

6. Weak areas continue to be forecasting, modeling, risk prediction, simulation and scenario analysis etc.

7. Sustainability of efforts

8. Vulnerability of critical infrastructures (power supply, communication, water supply, transport, etc.

India Vulnerability to disasters:

1. 57% land is vulnerable to earthquakes, 12% is vulnerable to floods, 68% to drought,8% vulnerable to cyclone.

2.A part from natural disasters some cities in India are vulnerable to chemical and industrial disasters and man-made disasters.

Disasters and the role of Indian armed forces

The 21st century has seen an increasing number of natural disasters with alarming intensity – the 2001 Bhuj earthquake; the 2004 tsunami; the 2005 earthquake in Kashmir; heavy rainfall in Mumbai in 2006; the 2008 Bihar Kosi river flood; the August 2010 cloud burst in Leh; the September 2011 Sikkim earthquake; and, most recently, in June, the unprecedented flash floods and cloudbursts in Garhwal, parts of Kumaon and Nepal, and Kinnaur region of Himachal Pradesh. Each of these disasters has seen the active involvement of the armed forces in the relief operations.

The Disaster Management Act of 2005 provides the blue print for the National Disaster Management Authority (NDMA) at the Centre, the State Disaster Management Authorities and the District Disaster Management Authorities. The state and the district level are the weak links in disaster management efforts. It appears that the civil administration has "got used to military and central help as a norm".

The Disaster Management Act 2005 is a vital instrument which explains the role and functions of various establishments. It is also a tool to bring in a sense of accountability and responsibility. However, this act mentions the "deployment of naval, military and air forces, other armed forces of the Union or any other civilian personnel as may be required for the purposes of this Act" under the heading "Measures by the Government for Disaster Management". There is no amplification or mention of the role of the armed forces with a view to offer legal support and backup. The Act is surprisingly silent on the aspect of assigning well-defined role and responsibilities to the armed forces. However, the armed forces form the core of the government's response capacity and have become the crucial immediate responders in all serious disaster situations. Due to their vast potential to meet any adverse challenge, speed of operational response and the resources and capabilities at their disposal, the armed forces have historically played a major role in emergency support functions. These include communications, search and rescue operations, health and medical facilities and transportation, especially in the immediate aftermath of a disaster. The air and helicopter lift and movement and assistance to neighbouring countries primarily fall within the expertise and domain of the armed forces. The armed forces will also participate in imparting training to trainers and disaster management managers, especially in NBC aspects, helicopter insertion, high altitude rescue, watermanship and training of paramedics. At the national level, the Chief of the Integrated Defence Staff to the Chiefs of

Staff Committee (CISC) has already been included in the National Executive Committee (NEC). Similarly, at the state and district levels, the local representatives of the armed forces will be included in their executive committees to ensure closer coordination and cohesion."

Disaster Relief Equipment's necessary and Tools:

1. **Heavy Moving Machinery / Equipment** : JCB / Excavators, Cranes , Skit Steer Loader (Escorts) ,Crawler Tractor Size II , Portable Power Pack (Escorts) , Power Cutters, Hand held pneumatic cutters, RCC Cutters, Air Bags High Pressure Kevlar, Jacks Hydraulic 20 T and 5 T, Hydraulic wedge lifter 24 T, Hydraulic Breaker, Hydraulic Bolt Cutter, Air Chisel.

2. **Water Supply Pack:** Water Bowsers / Tankers, Rubberized Tanks (50,000 Lit.) , Water Purification Plant., Well boring Equipment's, Pumping sets (various capacities) HDPE pipe/Victaulic pipes.

3. **Power Supply Pack**: Generator Set. 63 KVA & Accessories ,Generator Sets 30 KVA & Accessories , Enervator Sets 7.5 KVA & Accessories , Electrical Repair kits, Emergency Lighting System.

4. **Communication Pack**: Telephones, Radio set HX

5**. Food Pack**: Dry rations to include ATTA, Rice, Dal, Sugar, Tea, Powder milk, Salt, Masalas, Fuel etc. and hard variety of vegetable, Precooked food/survival rations.

6. **Medical Equipment**: Stretchers Light Weight folding (serving as a cot), Oxygen Cylinder 623 liters with mask, Portable electrical, Operation Theatre on wheels. (Mobile Theatre), Emergency First Aid Pack, X-ray Machine Portable Medical Equipment Scale Complete of TSP of Field Ambulance.

Public awareness creation

Introduction

1)The impact on the disaster is affect livelihood of peoples as well as damage to infrastructure are huge.

2)The communities must be more proactive towards preparedness and reduction of risks during disasters whether it is natural or man- made.

3)We will depend a lot on the resources and the traditional knowledge.

4)we have to prepare in terms of subsistence, like planting the root crops three months before the cyclone seasons.

5) we must inform its citizens about the different types of disasters. The local residents must also be aware of how they can effectively participate in preparing for a disaster, mitigating potential impacts of a disaster and the recovery process after a disaster.

6)One of the most effective mechanisms for a country to prepare for a disaster is by conducting education and public awareness programmes at the local community level.

7) Public awareness in disaster management is a process of educating and empowering the population through sharing knowledge and information about the various types of disasters and their potential risks as widely as possible so that people act appropriately when a disaster happens.

Public awareness creation

1. Informal Training
2. Workshops
3. Mock Exercises
4. The Simple Hazard Map
5. Posters and Videos
6. Community Theatre (Drama)

Mass Campaigns

7. Church groups
8. Women's groups
9. Youth Groups

Training of personnel

1)Training personnel is the preparation of resource people to provide basic information of appropriate targeted goals.

2) provides premier world-class training, products and services through innovative methods and technologies that contribute to the protection of life and property in the environment.

3) It is a training that develops resources based on the needs of people.

Some types of Personnel Training

1) Legislation, convention, policy framework and planning

2) Health

3) Rehabilitation

4) Disasters, hazards and quarantine Organizational structure

5) Establishment of disaster committee Resource personnel

6) Leadership and discipline

Roles of different people

• Indigenous community leaders

• Religious leaders

• Teachers in local schools

• Extended families

strengthening structures to reduce damage when a hazard occurs. In addition to these physical measures, mitigation should also aim at reducing the economic and social vulnerabilities of potential disasters

Disaster risk reduction:

Disaster risk reduction is defined as the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse effects. Disaster reduction strategies include, primarily, vulnerability and risk assessment, as well as a number of institutional capacities and operational abilities. The assessment of the vulnerability of critical facilities, social and economic infrastructure, the use of effective early warning systems, and the application of many different types of scientific, technical, and other skilled abilities are essential features of disaster risk reduction.

$$\text{Disaster risk (R)} = \frac{\text{Vulnerability (V) x Hazard (H)}}{\text{Capacity (C)}}$$

OR

Disaster risk = function of H and V/C

Mass casualty Management (or) mass casualty incident

Definition: A mass casualty incident is defined as an event which generates more patients at one time than locally available resources can manage using routine procedures. It requires exceptional emergency arrangements and additional or extraordinary assistance

A mass casualty incident (often shortened to MCI and sometimes called a multiple-casualty incident or multiple-casualty situation) is any incident in which emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties. For example, an incident where a two-person crew is responding to a motor vehicle collision with three severely injured people could be considered a mass casualty incident. The general public more commonly recognizes events such as building collapses, train and bus collisions, earthquakes and other large-scale emergencies as mass casualty incidents. September 11 attacks in 2001 are well-publicized examples of mass casualty incidents.

Agencies involved in mass casualty management

A mass casualty incident can involve a variety of responders and agencies. The most common are listed below.

1. Emergency medical services

- Certified first responders or emergency medical responders may arrive as part of local emergency medical services, or may arrive on their own. They will assist with all aspects of patient care, including triage and treatment at the scene, and transport from the scene to the hospital.
- Paramedic and emergency medical technician (EMT) personnel may arrive in ambulances, in their personal vehicles, or from another agency. They will have control of all aspects of patient care, as assigned by the medical officer or incident commander.
- Ground ambulances will be assigned to the transport sector to transport patients and personnel to and from the incident scene, emergency departments of hospitals, and a designated helipad. These ambulances may be municipal services, volunteer services, or from private corporations.
- Air ambulances will transport patients from the scene or from designated helipads to receiving hospitals.

2. Fire and rescue

Fire-fighters will perform all initial rescue-related operations, as well as fire suppression and prevention. They may also provide medical care if they are trained and assigned to do so. They may arrive on a fire truck, in their personal vehicles, or from another agency. Many areas near airports will have automatic mutual aid agreements with airport fire departments in the event of a plane crash outside of the airport boundaries.

3. Public safety

- Police officers will secure and control access to the scene, to ensure safety and smooth operations.
- Utility Services will ensure that utilities in the area are turned off as necessary, in order to prevent further injury or damage at the scene.

4. Specialized teams

- Specialized rescue teams may be part of the local fire department; they may be associated with the state, provincial, or federal governments; or they may be privately operated teams. These teams are specialists in specific types of rescue, such as Urban search and rescue (USAR) or Confined Space Rescue.

- HazMat teams are responsible for cleaning up and neutralizing any hazardous materials at the scene. Sometimes these will be specialized CBRNE (chemical, biological, radiological, nuclear and high-yield explosives) teams.
- National Guard Units have medics specifically trained in mass-casualty triage who may be called in to respond to a disaster-related incident.

5. Public services

- Railways and transportation agencies will be notified if an incident involves their tracks or right-of-way, or if they are required to cease operations in and through affected areas. Transportation agencies will provide buses to transport lightly injured people to the hospital. Buses can also provide shelter at the scene (for example, "warming buses") if required.
- The media play an important role in keeping the general public informed about the incident and in keeping them away from the incident area. However, a Public Information Officer should be assigned as the only designated responder who communicates with the media, to prevent the spread of misinformation.
  - Non-governmental organizations such as St. John Ambulance, the Order of Malta, the Red Cross, the Red Crescent, the Medical Reserve Corps, and the Salvation Army will provide assistance with all aspects of a mass casualty incident, including trained medical staff, vehicles, individual registration and tracking, temporary shelter, food service, and many other important services.

6. Hospitals

Hospitals with emergency departments will have a mass casualty incident protocol which they initiate as soon as they are notified of an MCI in their community. They will have preparations in place to receive a massive number of casualties, like calling in more staff, pulling extra and spare equipment out of storage, and clearing non-acute patients out of the hospital. Some hospitals will send doctors to the scene of the incident to assist with triage, treatment, and transport of injured persons to the hospital.

This is not an exhaustive list, and many other agencies and groups of people could be involved in a mass casualty incident.

Flow of an MCI

Ideally, once an MCI has been declared, a well-coordinated flow of events will occur, using three separate phases: triage, treatment, and transportation

1.Triage

Simple triage and rapid treatment (START) is a triage method used by first responders to quickly classify victims during a mass casualty incident (MCI) based on the severity of their injury. The first-arriving crew will conduct triage. Pre-hospital emergency triage generally consists of a check for immediate life-threatening concerns, usually lasting no more than one minute per patient. It is the most common and is considered the easiest to use. Using START, the medical responder assigns each patient to one of four color-coded triage levels, based on their breathing, circulation, and mental status. The triage levels are:

- **Immediate**: Patients who have major life-threatening injuries, but are salvageable given the resources available
- **Delayed**: Patients who have non-life-threatening injuries, but are unable to walk or exhibit an altered mental status
- **"Walking Wounded"**: Patients who are able to ambulate out of the incident area to a treatment area
- **Deceased or Expectant**: Used for victims who are dead, or whose injuries make survival unlikely.

When responding to a chemical, biological, or radiological incident, the first-arriving crew must establish safety zones prior to entering the scene. Safety zones include:

The hot zone: The contaminated area

The warm zone: The area where specialists will decontaminate patients and fellow responders

The cold zone: The safe zone, where any personnel who are not specially trained in HazMat and do not have chemical or biological protection gear must remain at all times. Depending on the contaminant, the cold zone should be roughly 200–300 yards from the incident, uphill and upwind. It should also be at least 50 yards uphill and upwind from the warm zone.

2. Treatment

Once casualties have been triaged, they can be moved to appropriate treatment areas. Unless a patient is Green Tagged and ambulatory, litter bearers will have to transport patients from the incident scene to safer treatment areas located nearby. These treatment areas must always be within walking distance, and will be staffed by appropriate numbers of properly certified medical personnel and support people. The litter bearers do not have to be advanced medical personnel; their role is to simply place casualties onto carrying devices and transport them to the appropriate treatment area. Casualties should be transported in

order of treatment priority: Red-Tagged patients first, followed by Yellow-Tagged, then Green-Tagged, and finally Black-Tagged.

Each colored triage category will have its own treatment area. Treatment areas are often defined by coloured tarpaulins, flagging tape, signs, or tents. Upon arrival in the treatment area, the casualties are re-assessed and they are treated with the goal of stabilizing them until they can be transported to hospitals; transported to the morgue or medical examiner's office; or released.

3. Transport

The final stage in the pre-hospital management of a mass-casualty incident is the transport of casualties to hospitals for more definitive care. If an insufficient number of ambulances is available, other vehicles may transport patients, such as police cars, fire trucks, air ambulances, transit buses, or personal vehicles. As with treatment, transport priority is decided based on the severity of the patient's injuries. Usually, the most seriously injured are transported first, with the least serious transported only after all the critical patients have been transported**.**

MASS CASUALTY MANAGEMENT OF NATIONAL EMERGENCY SYSTEMS

Definition: The Emergency Management Plan for Mass Casualty Incidents (MCI) is for events occurring inside and outside the hospital requiring additional staff, resources, communication, and preparation**.**

The national government is the ultimate authority in emergency management as part of its overall responsibilities for the safety and security. Depending on the size and seriousness of the incident the government is responsible for implementing national coordination structures, approving extraordinary resources, calling up the military, assuming extraordinary powers, and for activating international systems of cooperation and aid.

A variety of Ministries, agencies and other organizations have roles to play in emergencies, with the Ministry of Health taking on a major one. the various branches of the military; Civil Defence agencies; Red Cross/Red Crescent, the private sector, and so on Emergency Management Council or Cabinet Emergency Committee (comprising the head of state and key ministers); National Interdepartmental Emergency Committee (top-level

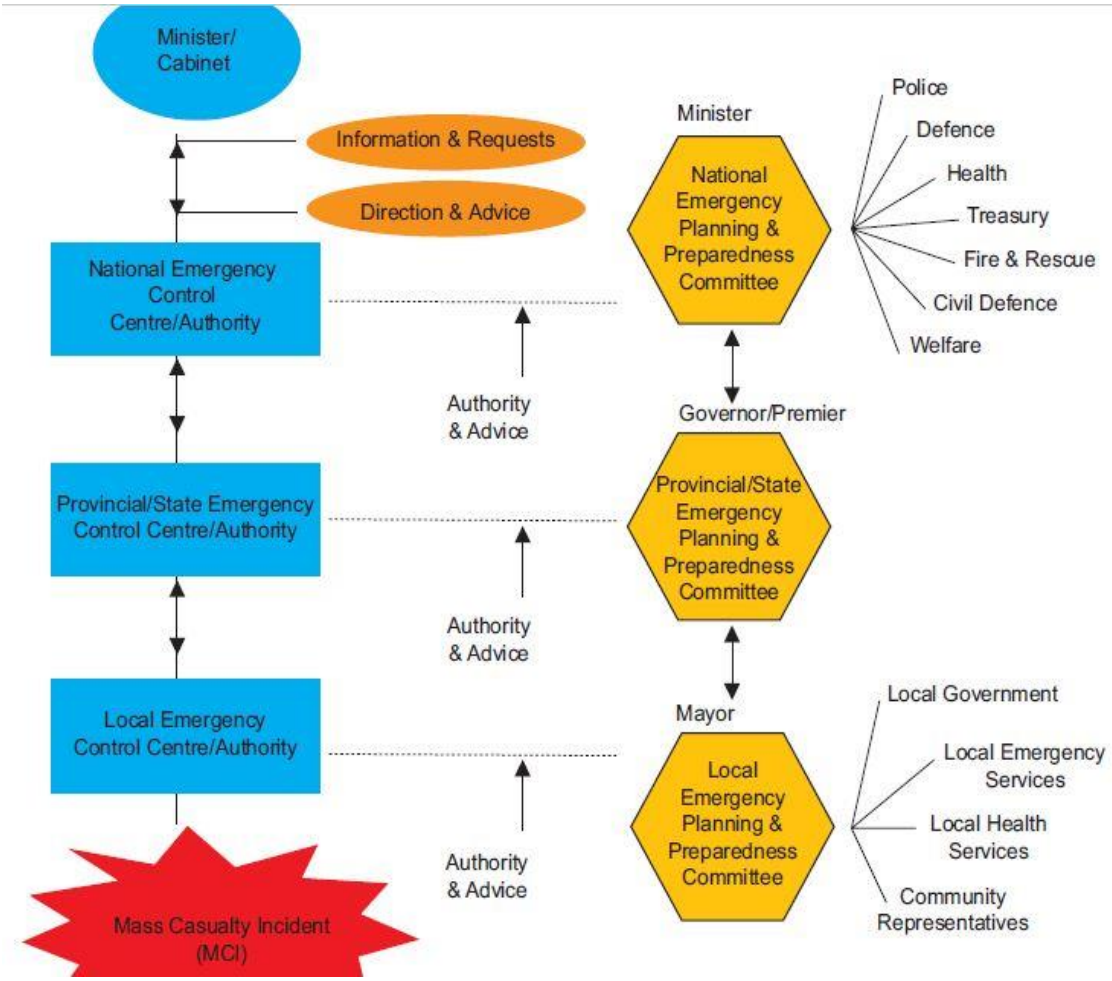
civil servants); and National Disaster Recovery Committee (a wider grouping which may include non-governmental as well as government.

The government and public administration take, national emergency management systems should include:

- Identification of lines of authority, from the national to the local level
- Financial arrangements for funding emergency work
- Arrangements to ensure that government and community activities are maintained (for Example, creation of parallel or "hardened" communications systems to take over if normal Voice or data transfer systems are affected)
- National stockpiling of appropriate resources (including provincial or state and local prepositioning of stockpiles)
- Database of national experts for advice on specifi c problems
- Protocols and formal arrangements for coordinated efforts with other countries, or between Provincial/state governments within the country.

Planning for mass casualty management at national level

1. Establishing a baseline
2. Hazard analysis and risk assessment
3. Developing a National Mass Casualty Management Plan
4. Training guidelines and standards
5. Monitoring, surveillance and early warning
6. Financial and material resources
7. Community and local government level
8. Communications planning
9. Health care facility level
10. Training and exercises



National Emergency Operational and Preparedness Structure

Qualification

Disaster operations specialists need at a least a bachelor's degree in either disaster management or a related public service discipline such as public health. This degree provides a foundation in disaster preparedness, risk reduction, and emergency planning.

It also qualifies individuals to assume entry-level positions in emergency management to gain important experience needed for leadership roles down the line.

Career in Disaster Management: Scope of Work

After pursuing a course in disaster management the applicant searches for the scope of work in this domain. Find below the scope of a disaster manager job in India.

1. **Disaster Prevention:** It is one of the most important duties of disaster managers. It is focused on events and measures undertaken to avoid the occurrence of tragedies, natural disasters, and human threats.
2. **Disaster Relief:** It is a harmonized response to decrease the impact of disasters and their long-term results. Relief activities include food and shelter, providing emergency healthcare, replacement, rescue, providing water, taking steps to prevent sickness and incapacity, etc.
3. **Disaster Recovery:** This includes originating events to help the disaster zones recover after an emergency. These activities include renovating infrastructure, managing health care and restoration, evolving policies, and practices to avoid similar conditions in the future.
4. **Disaster Alertness:** It is one of the crucial phases of disaster management, and is concerned with the reduction of the effect and injury caused by disasters. It can include events such as eliminating people and possessions from a high-alert position to enable effective and appropriate rescue processes.

Duties and Responsibilities

Find below the duties and responsibilities after making a career in disaster management.

1. The disaster managers are responsible to analyze and prepare for potential risks, such as outbreaks of infections or diseases, technical failure of electrical networks, major gas leakages, and severe weather conditions.
2. These managers have to work with various agencies to ensure that in the event of emergency normal support for local communities is provided.
3. They help in the revival of local communities to their pre-incident state.
4. They respond to incidents, such as natural disasters, and evaluate the situation as per the level of effort required.
5. They create awareness about public safety issues by organizing events, developing information, and bringing special projects.
6. They provide safety training to staff of the local authorities or business organizations.
7. They are also responsible for making the risk valuations for a diverse variety of sites, such as nuclear factories, city centers, chemical factories, and major sporting venues.

Response policy in Disaster MANAGEMENT

INTRODUCTION

Response is the Third stage of the disaster management cycle when a disaster has occurred or is imminent. Disaster response activities include setting up control rooms, putting the contingency plan in action, issue warning, action for evacuation, taking people to safer areas, rendering medical aid to the needy etc. Responders also need to cope with response-generated demands such as the need for coordination, communications, ongoing situation assessment and resource mobilization during the emergency period.

There are three phases in responding -- pre, during and post disaster. Predisaster response activities are launched as soon as the information about an impending disaster is received. The activities like setting up control rooms, evacuation of people, etc. are intended to reduce the impact of disaster on the life and property. Response activities during disaster are meant to ensure that the needs and provisions of victims are met to alleviate and minimize suffering. Post disaster response tries to achieve rapid, durable and sustainable recovery. In this unit we will be discussing why we need the Response plan, response plan at central, state and local level and role of other agencies in response plan.

WHY WE NEED RESPONSE PLANS

The response period is of crucial importance. When the earthquake hit Gujarat on 26th January 2001, Crisis Management Group at the Central Government level was informed but it could only meet five and half hours after the tragedy. The Natural Disaster Management Division at the Centre was told about the quake at 8:56 a.m. but medicos were sent to Bhuj at 7:30 p.m. Further, the State Government, which is primarily responsible for disaster management in India, had set up the control room by 9:45 a.m., but little was done for the next 36 hours. In contrast, the Swiss embassy, which was informed at 10 p.m. alerted all the team members of its response team within one hour and the team reached there next day afternoon, i.e. 14 hours after the request for help was made. This included the travel time from Switzerland to India. Unfortunately, formalities at the airport took two hours. Had Indian response been equally prompt, may be few more lives could have been saved. The above discussion highlights the need for a response plan. Early response is dependent on the state of preparedness and the existence of a suitable response plans. A timely response can reduce the magnitude of loss of life and property. Though, there has been a paradigm shift world over from response to culture of prevention and mitigation, the uncertainty involving

natural disaster makes it imperative to have a response plan. All disasters, including manmade disasters require a ready response plan, even if the prevention aspect has been taken care of in an adequate manner. For timely and adequate response, a comprehensive response plan is a prerequisite. These are useful for issue of warnings, serve as guide to officials at the critical time by assisting them take immediate action, time is not lost in consultation with senior officials and in getting formal approval from the authorities. 3 Any response plan is influenced by the politico-socio milieu and the public administration system. India is a quasi-federal state and consequently, the responsibilities are shared by both the Central Government as well as the state government, though the primary responsibility in the event of a disaster is that of the concerned state government. The response to disasters in India, in most cases, had been spontaneous and supply driven. However, India being vulnerable to all kinds of disasters, has attempted response plans especially for natural disasters. Since, administrative units in a district are found in three layers, we can discuss the Response Plans at five levels – Centre, State, District, Block and Village. The plans are formulated for relief, rehabilitation and reconstruction by separate agencies. Elements of these plans are discussed below.

❖ RESPONSE PLAN AT CENTRAL LEVEL

Constitutional and legal context of disaster management can be said to be somewhat contradictory. While, India is prone to all kinds of disasters, the subject does not find mention in any of the three Lists in the 7th Schedule. By implication, it should be the responsibility of the Central Government under the provision that subjects not listed under any List would ordinarily have to be dealt with by the Union Government. However, conventionally the primary responsibility for responding to disasters is that of the concerned state governments as most of the function in it would be considered under its domain. For ensuring appropriate policy and administrative response to natural calamities, a clear identification of the nodal organization and the pattern of interaction between the different government functionaries are necessary. Depending on the types of disaster, a nodal ministry is assigned the task of coordinating all activities of the central, state and district administration and the other support departments/ministries

Type of Disaster	*Nodal Ministry*
Air Accidents	Ministry of Civil Aviation
Civil Strife	Ministry of Home Affairs
Major breakdown of any of the Essential Services posing widespread and protected problems	Concerned Ministry
Drought	Ministry of Agriculture
Railway Accidents	Ministry of Railways
Chemical Disasters	Ministry of Environment and Forests
Biological Disasters	Ministry of Health
Nuclear Accident	Department of Atomic Energy
All Disasters other than the above	Ministry of Home Affairs

Source: Ministry of Home Affairs

The dimensions of the response at the central level are determined in accordance with the existing policy of financing the relief expenditure and keeping in view the factors like –

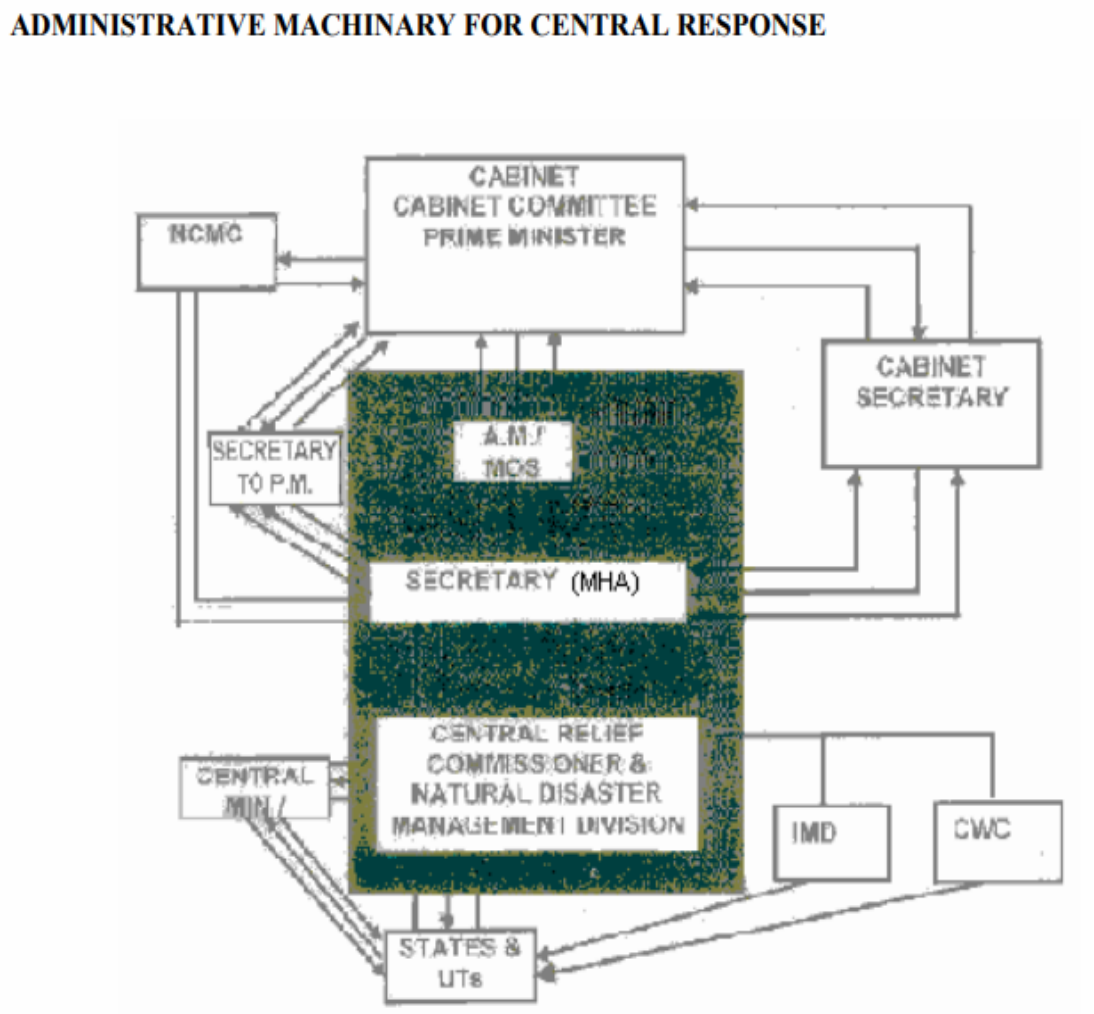
i) the gravity of the disaster; and

ii) the scale of operation So, the Disaster Response Plan at the Central Level contains –

1. **Policy Response Policies** reflect the intentions of the government and give directions to administrative efforts. The National Government adopts and implement large scale disaster response using variety of models. Models of organizational decision-making are applicable to public policy decisions. Prime Minister, Cabinet Committees and the Home Minister provide the policy response to any calamity. Home Minister is key functionary, because the Ministry of Home Affairs is now the nodal agency for natural disaster management, except for drought and epidemics. Earlier, this responsibility was with the Department of Agriculture and Cooperation. Association of highest ranking offices helps in giving the necessary thrust to disaster response. The objectives of policy response are to empathize with the victims and to sub-serve, long term and shortterm objectives of the government.
2. **Administrative Response** Policy response determines the scope of administrative response. Latter is basically implementation of the will of the government. To enact the above, the central government needs to have all the information related to a calamity for making an assessment of the situation and advising the policy-makers. In view of the resource constraints of the states, they make request for central assistance, hence the additional response of the center is in the form of assessment of the requirements of the state and to commit the resources both financial and

material. So, the administrative response broadly relates to operational requirements and provision of central assistance as per existing policy. The operational requirements can be classified into primary relief functions and secondary relief functions. The contours of operational aspect depend on the intensity of the disaster. If its management is beyond the capacity of the state government, the operational requirements are greater, otherwise the centre's responsibilities are restricted to monitor the relief work utilizing the Calamity Relief Fund (CRF). This Fund is the main source of funding for disaster relief and rehabilitation. A schematic diagram of administrative machinery to provide central response is given below:

ADMINISTRATIVE MACHINARY FOR CENTRAL RESPONSE



CABINET COMMITTEE

Depending upon the intensity of a disaster, there is provision of constitution of a cabinet committee for effective implementation of the response plan. The Home Secretary is responsible for providing all the necessary information to this committee and seek directions from it, if required. If such committee is not constituted, all matters relating to response are reported to the Cabinet Secretary.

National Crisis Management Committee

A National Crisis Management Committee (NCMC) has been constituted in the Cabinet Secretariat under the chairmanship of the Cabinet Secretary. The other members of the Committee include Secretary to the Prime Minister, Secretary, Ministry of Home Affairs and Directors of Intelligence Bureau, Research and Analysis Wing. An officer of the Cabinet Secretariat is the Convenor of the Committee. The Committee has been given the powers to give directions to the Crisis Management Group (CMG) as deemed necessary. The Secretary, Ministry of Home Affairs is responsible for ensuring that all developments are brought to the notice of the NCMC promptly.

Crisis Management Group

CMG functions under the chairmanship of the Central Relief Commissioner and consists of senior officers from ministries and departments like Finance, Food Civil Supplies, Power, Urban Development, Rural Development, Health, Planning Commission, Women and Child Development etc. The Resident Commissioners of the states affected by major natural calamity may be co-opted on the CMG during the period of crisis. The Group meets at least twice in a year in the months of December/January and May/June and as often as may be required by the Relief Commissioner. The functions of the CMG are as given below:

i) review every year the Contingency Plans formulated by the Central Ministries/Departments;
ii) review the measures required for dealing with a natural calamity;
iii) coordinate the activities of the Central Ministries and the state governments in relations to disaster preparedness and relief; and
iv) obtain information from the nodal officers on measures relating to the above.

The responsibility of preparing the Contingency Plan of the Ministry/Department, as mentioned above, is that of the nodal officer, who is not below the rank of a Joint Secretary of each ministry/department. The Detailed Action Plan, as it is known, clearly lays down the channel and manner of interaction, between agencies engaged in these functions, details of the contact points and the specific measures and time-frames for their implementation.

Relief Commissioner

The Relief Commissioner, in the Disaster Management Division functions as the nodal officer to coordinate relief operation for all natural calamities. He/she is assisted in the discharge of duties by the Additional Relief Commissioner and an Emergency Operations Centre (Control Room). The Control Room functions full scale round the clock after receipt of first information about the occurrence of a major calamity and does so for the period the Commissioner deems appropriate for dealing effectively with the crisis. The Relief Commissioner receives information relating to forecast/warning of then natural calamity from the Director General, India Meteorological Department or from the Central Water Commission on a continuing basis. This information is then passed on to the Secretary (Ministry of Home Affairs) and through him the Home Minister, the Cabinet Secretary and Secretary to the Prime Minister and further through them, the Prime Minister, the Cabinet and the National Crisis Management Committee. If required, this information is also sent to different Central Government Ministries/Departments and the state governments for appropriate follow up action.

Control Room

The Control Room is intended to be the nerve center of all emergencies and is therefore adequately equipped and optimally located. The disaster may strike outside office hours as well and the arrangement for that is through a Night Duty Cell and a telex facility. The responsibilities of the control room are as given below:

(i) collect and transmit information concerning any calamity and relief;

(ii) keep close contact with the governments of the states affected by a calamity;

(iii) interact with other Central Ministries/Departments in connection with natural calamities and relief;

(iv) maintain records containing all relevant information relating to action points and contact points in Central Ministries/Departments/State Governments; and

(iv) perform such other functions and duties as may be entrusted by the Relief Commissioner

The Duty Officer of the Control Room

The officer is an official of sufficient maturity to understand the seriousness of the information reports and convey to the Secretary, MHA/Relief Commissioner/Additional Relief Commissioner accordingly. His functions are listed and these indicate the course of action that he/she is required to take on receipt of messages of a particular nature. He contacts the members of CMG and the essential personnel of the Control Room. He also communicates with the Control Room of the concerned state government.

Financial Resource

CRF was created as per the recommendation of the Ninth Finance Commission. Constituted by each state, it is used for meeting the expenditure for providing immediate relief to the victims of cyclone, drought, earthquake, fire, flood and hailstorm. Of the total contribution 75% is contributed by Central Government and the remaining amount comes from the resources of the state governments. This amount is contributed on annual basis. Another source is the National Calamity Contingency Fund, which was set up on the recommendation of the Eleventh Finance Commission to provide assistance for immediate relief and rehabilitation. National calamities of cyclone, drought, earthquake, fire, flood and hailstorm, considered to be of severe nature requiring expenditure by the state governments in excess of the balances available in their respective CRFs qualify for relief assistance from this Fund. Prime Minister's National Relief Fund is another source of funds available for relief to persons affected by disasters. Created shortly after independence, it provides immediate relief to people in distress. The Fund depends entirely on voluntary donations received from the public. Besides providing relief to the families of those killed, it grants assistance to families affected.

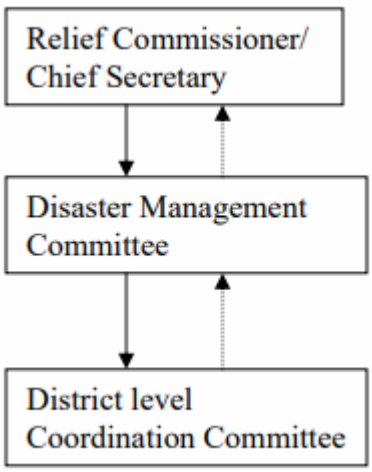
❖ STATE LEVEL RESPONSE PLAN

As mentioned above, the primary responsibility of disaster management is that of the state government concerned. Central government intervenes only when the response to the disaster is beyond the capacity of the state government. So, effectively the state has to have a

response plan which enables effective and prompt response and provides for roles both for the central as well as the district level roles. Apparently, coordination is the main feature of response plan at this level. Coordination is also important when we consider the fact that a disaster is not geographically confined and may affect several districts. Defining the role and responsibilities of each actor and committing resources, both material and financial, are the components of the state level response plans as well. Administrative mechanism for response at state level is given below

State Relief Commissioner

Most of the states have Relief Commissioners, who are in charge of the relief measures. In others, the Chief Secretary or an officer nominated by him is in charge of the response activities. He heads the Disaster Management Committee and takes all the measures for setting up of the Control Room in case of disasters. He is the link between the Centre and the District Coordination Committee. The communication lines are along the lines shown below:



State Crisis Management Group (SCMG) The SCMG functions under the chairmanship of the Relief Commissioner/Chief Secretary and consists of Senior Officers from the Ministries/Departments of Revenue, Home, Civil Supplies, Power Irrigation, Water Supply, Panchayat, Agriculture, Forests, Rural Development, Health, Planning, Public Works, and Finance. Some other officials, like local army commando, may be co-opted if the Relief Commissioner/Chief Secretary deems it appropriate for effective response. The Group adheres to the instructions and guidance received from time to time from the Government of India and formulates Action Plans for dealing with different calamities. The responsibility of approving the district level response plans has also been vested in this Group.

State Level Control Room

An Emergency Operation Centre (Control Room) is established by the Relief Commissioner of the state as soon as the news about a disaster or impending disaster is received. The Action Plan is usually on the lines of the Central Plan. However, given the area-specific vulnerabilities, each state incorporates those features which may make response appropriate. The control room gathers all the necessary information from the designated officials and keeps updated information about the Air Force, Navy and the Army for quick interaction and response.

The responsibilities of the Control Room are:

(i) to transmit the information about the developments as a result of natural disaster to the Relief Commissioner on a continuous basis till the situation improves;

(ii) to receive instructions and communicate them to the appropriate agencies for immediate action;

(iii) to collect and submit information relating to implementation of relief measures to the Central Relief Commissioner; and

(iv) to keep the state level authorities apprised of the developments on a continuing basis.

Financial Resources As mentioned above, states contribute to CRF, which is available to them in the event of any disaster striking it. Besides that, there are two more resources. The Chief Minister's Relief Fund has been set up on the pattern of Prime Minister Relief Fund. This fund becomes handy to provide immediate relief to the victims of disasters. Besides that, the concerned state government sanctions expenditure to meet relief expenditure from within its resources, which include its share of various developmental and employment generation programmes.

❖ DISTRICT RESPONSE PLAN

District administration is the focal point for the preparation of Response Plan at the district level as it is the point of public service delivery and responsible for directing, supervising and monitoring relief measures for disasters. Appropriately, the Collector/Deputy Commissioner is expected to draw up a response plan for the whole district for all kinds of disasters to which the district might be prone. Inputs are also taken from the local defence forces units in preparation of these plans. These plans are then approved by the state government. These lay

down specific action points, key personnel and contact points. Moreover, plans are periodically reviewed and updated in the light of lessons learnt in dealing with calamities from time to time and the technological advancements. Usually, this period of review is one year. Administrative Machinery at the District Level is given below.

District Relief Committee

A district level relief committee consisting of official and non-official members including the local legislators and the Members of Parliament is set up in each district to review relief measures.

District Control Room

The Plans envisage setting up of a Control Room in the wake of natural calamities for day to day monitoring of the rescue and relief operations on a continuing basis.

- **Village Level Response Plan**

Village level response plans entail hazard specific measures being undertaken by communities who are most affected by such events. This community based approach has been in existence in many disaster prone countries such as Philippines, Bangladesh and Nepal, but in India it gained momentum in the aftermath of the super cyclone of Orissa in 1998 and the earthquake of Gujarat in 2001. Major impetus for this has come from the intervention of United Nations. Apparently, this is new initiative and at an All India Level 125 of the most vulnerable districts falling in Gujarat, Orissa, Bihar, Tamil Nadu, West Bengal, Maharashtra, Delhi, Uttar Pradesh, Uttaranchal, Assam, Meghalaya and Sikkim are being covered for preparing response plans among other measures. The procedure is to form a Village Disaster Management Committee in the village. The Committee includes members ranging from Panchayat representatives to school teachers to community leaders. The response plan is developed by the community through the nominated representatives. The plans have information on resources, vulnerable elements and standard operating procedures for response groups. The plans are also ratified by the concerned Gram Sabha. The plans identify response groups, which will play an active role in the pre, during and post disaster scenario. In due course, it is proposed to form Village Task Forces (VTFs) at the community level aimed at preventing high degree of loss of life, livelihoods and property. The members would be selected from among motivated and responsible volunteers with the relevant skills. These VTFs would be formed for functions like early warning and communication,

evacuation and temporary shelter management, search and rescue, health and first aid, relief coordination, water and sanitation etc.

ROLE OF OTHER AGENCIES IN THE RESPONSE PLANS

Many international agencies respond to disasters, some as part of their mandate and some on humanitarian grounds. Foremost of them is United Nations, which provides a support system and cooperates with increased information database, a forum for communication, a format for coordination and increased efficacy through pooled resources. A mandate issued by the UN General Assembly has ensued in setting up of a standing UN-Disaster Management Team (UN-DMT) in each country with the primary purpose of ensuring a prompt, effective and concerted response by the UN system at country level in the event of a disaster. Some of the major agencies under the aegis of the United Nations are Office of the United Nations Disaster Relief Coordinator, United Nations Development Programme, Food and Agriculture Organization, World Food Programme, World Health Organization, UNHCR, UNESCO and UNICEF. International donor agencies prefer that resources made available by them are disbursed so as to bring clear benefits to the affected community. The response plans at various levels should have a mechanism to integrate such efforts so that responses are prompt and effective, and there is no duplicacy of efforts and wastage of resources.

Role of Voluntary Sector and NGOs in Response

State intervention in almost all the welfare activities is being supported by voluntary sector and non-governmental organizations, and responding to disasters is no exception. The tenacity of the local community and voluntary groups helped the state to cope with the calamities. The past two decades have seen emergence of this sector in a big way. Today we have local as well as international agencies which are very active during disasters. For example, Oxfam, Care or Ramakrishna Mission respond to almost every disaster with timely and effective relief operations. In fact, Dasholi Gram Swarajya Mandal in Uttaranchal has integrated forest response management with disaster mitigation. The tasks performed by the NGOs is beneficial for downscaling the impact of disasters. There are various types of NGOs like NGOs with dedicated field operations and resource back up, development technology related NGOs or simply educational institutions. Therefore, the plans should integrate their role to structure their responses. This would require assessment of their areas of strength. Voluntary sector and NGOs are better equipped to handle accident relief and post disaster rehabilitation work.

Role of Community Based Organisations (CBOs) in the Response Plans

It has been observed that the people who are affected most by a disaster are the first one to respond to various needs of the victims. The cooperation of such people has prompted the policy makers to formulate community based approaches. CBOs are now increasingly becoming integral part of the Response Plans. Efficacy of CBOs has been noticed especially in places where the response from the state has not been prompt or adequate due to either lack of infrastructure or inadequate arrangements, which is quite often a case in developing countries like India. Apparently, CBOs are small and grass-root agencies with informal structures but having a good grip on the local situation. As past experience is one of the factors that influences response, in some places which are very vulnerable or prone to disasters, one finds formally structured CBOs as well.

Emergency Supplies

Emergency supplies are crucial and comfort the affected people immediately. These supplies come mainly from four sources: i. Governmental sources, ii. International agencies, iii. NGOs & CBOs, and iv. Individuals. Minimum standard of relief requires supply of food, medical aid, water and sanitation facilities, and shelter must be adequately provided. Response plans need to identify the supplies and their sources, and if they are coming from more than one source, then its coordination. A sample of organizations and supplies provided by them is given below:

Agency	*Response*
District Authorities	Evacuation, Food through PDS, Water and Sanitation, Monetary Compensation, Medical aid, Construction Material
Defence Services	Evacuation, Airdropping of Food in inaccessible areas
International Agencies	Medical aid, Food Supplies, Tents
NGOs and CBOs	Food, Utensils, Clothes, Water & Sanitation, Medicines

Communication Network

Efficacy of administrative response is closely linked to effective communication network. This network enables the sharing of information by the concerned agencies which enables implementing effective strategies. Establishing a reliable communication network demands broad understanding and ability to use the capabilities of communication tools, and the application of information. Plans are only as good as the quality of information. Technological advancements, particularly in the last two decades, have provided some very potent tools to the disaster responders. Two information innovations have brought about unprecedent changes:

i) Computer-mediated communications via the Internet and the World Wide Web and the unprecedented amount of information that these modes of delivery and communication make available. Computers and networks have the prospect of making it more feasible to collect, consolidate and disseminate information. They also reduce the decision-making time. Their significance for Response Plans is that they prompt immediate action. Coordination also becomes easier and cost-effective.

ii) Geographic information System (GISs) are computer based tools and procedures that capture, store, analyse and display spatially referenced data. Since disasters are geographic events, mapping of disasters and threats can be done and in fact has been attempted through GIS and remote sensing. GIS also enables modeling, which is very important for formulating an effective Response Plan. Further advantage of GIS is in preparing evacuation routes, emergency shelter placement etc. For example, information about closed roads and infrastructure damage can be coded into a GIS and rough maps can be provided to emergency personnel on that basis. However, in a disaster situation all available communication sources are important. The use of HAM radio has be effective and also local innovative means adopted.