

District Disaster Management Plan

BHANDARA

2023-24



District Disaster Management Authority, Bhandara

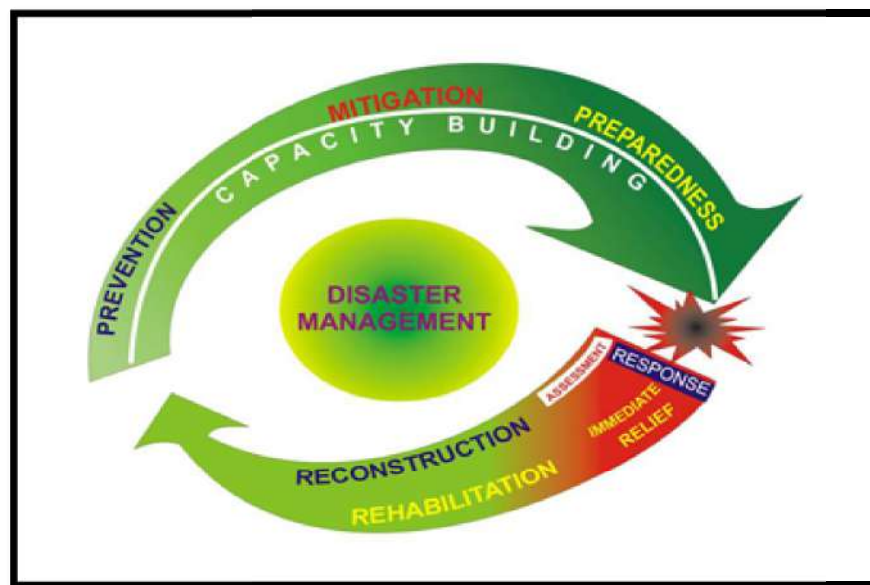
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Chapter-1

Introduction

1.1 Rationale

There is no such thing as a 'natural' disaster, only natural hazards. The District Disaster Management Plan (DDMP) provides a brief idea about the hazard scenario present in the district and gives direction to all the necessary line departments for all phases of disaster management cycle as per the NDMA guidelines. The DDMP is a progressive document in the sense that it will be periodically improved keeping up with the all changing nature of environment and different scenario of district as well as the state. This document accordance with the provisions of the DM Act 2005, the guidelines given by the State Disaster Management authority as well as the NDMA guidelines – to carry out different activities in different phases in the hazard affected areas depending on the type and the scale of hazard.



India's geo-climatic conditions as well as its high degree of socio-economic vulnerability, makes it one of the most disaster prone country in the world. A disaster is an extreme disruption of the functioning of a society that causes widespread human, material, or environmental losses that exceed the ability of the affected society to cope with its own resources.

A more modern and social understanding of disasters, however, views this distinction as artificial since most disasters result from the action or inaction of people and their social and economic structures. This happens by people living in ways that degrade their environment, developing and over populating urban centres, or creating and perpetuating social and economic systems. Communities and population settled in areas susceptible to the impact of a raging river or the violent tremors of the earth are placed in situations of high vulnerability because of their socio-economic conditions. This is compounded by every aspect of nature being subject to seasonal, annual and sudden fluctuations and also due to the unpredictability of the timing, frequency and magnitude of occurrence of the disasters.

The DDMP recognizes the need to minimize, if not eliminate. It, therefore, specifies who is responsible for what at different stages of managing disasters. The DDMP is envisaged as ready for activation at all times in response to an emergency in any part of the country. It is designed in such a way that it can be implemented as needed on a flexible and scalable manner in all phases of disaster management: a) mitigation (prevention and risk reduction), b) preparedness, c) response and d) recovery (immediate restoration to long-term betterment reconstruction).

The DDMP provides a broad idea with role clarity for rapid mobilization of resources and effective disaster management by the district disaster management authority. While it focuses primarily on the needs of the government agencies, it envisages all those involved in disaster management including communities and non-government agencies as potential users. The DDMP provides a well defined framework for disaster management covering scope of work and roles of relevant agencies along with their responsibilities and accountability necessary to ensure effective mitigation, develop preparedness, and mobilize adequate response.

1.2 Vision

To make a safer and disaster resilient district, significantly decrease the losses of life, livelihood and assets - economic, physical, social, cultural and environmental - achieving through sustainable disaster risk reduction mechanism and technology oriented strategy for prevention, mitigation and preparedness action, at all level of administrations as well as among the first responders (affected community).

1.3 Aims and objectives of the Plan

Section 30.2 (i) of National Disaster management Act 2005, make it mandatory to have a disaster management plan of every District. Under the chairmanship of the collector the District Disaster Management Department should prepare a disaster management plan include the HRVA, prevention & mitigation measures, preparedness, response and recovery plan. The border objectives of this plan are:

- Improving the understanding of disaster risk, hazard and vulnerabilities.
 - Understand the district disaster scenario through Hazard, Risk, Vulnerability and coping capacity analysis.
 - Assemble the all information from all line departments and the stakeholders related to disaster management through a unified format.
 - Prepare the resource data and maps for better preparedness plan and reducing response time.
 - Specifies who is responsible for what at different stages of managing disasters through responsibility framework.
 - Setting up District operation Centre which will act as a coordination hub or decision support centre in a normal scenario and in times of any kind of emergency convert as EOC.
 - Prepare the guidelines and mechanism for the district operation centre.
 - Prepare the SOP's (standard operation procedure) following the Incident response system for making disaster management mechanism proactive rather than reactive one.
 - Mainstreaming the understanding of prevention and preparedness by ensuring that disaster management measures should include in every sector at every level.
 - Integrate mitigation measures in all developments plans.
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- Promote the culture of disaster risk reduction for resilience through structural, non-structural and financial measures, as well as comprehensive capacity development.
- Promote the idea of “Build Back Better” in recovery, rehabilitation and reconstruction.

1.4 Approach

The DDMP incorporates substantively the approach enunciated in the Sendai SDMP and will help the district to meet the goals set in the plan. The District Disaster Management Plan broadly covers the hazard present in the district and makes the plan comprehensive and effective. The different phases of the disaster like prevention, mitigation, preparedness, response and recovery have been described briefly in the plan. The Incident Response System included in the district DMP to make the emergency management more institutionalize rather than person oriented. Ground level survey also done to understand the root causes of some hazard scenario. Different stake holders, government line departments, local authorities, community people and past experience’s rich inputs help this plan to achieve its comprehensive objectives.

1.5 Strategy

The extensive strategy of this DDMP could be identify the severity of the hazard from district perspective, because as the idea of disaster management describe the type of the hazard vary from one place to another depending on the various issues. Bhandara being an urbanized centre new kind of hazard is occurring, like- Road Accidents becoming big issues in Bhandara. So collecting the primary and secondary data regarding different kind of hazard which is causing losses of life or property and working on those data to make the prevention, mitigation and preparedness plan. The strategies are enlisted bellow-

Strategy 1: Based in the improved the understanding of disaster risk, hazards, and vulnerabilities identify the specific threat and scaling those hazards as per their severity.

Strategy 2: After identification make single hazard or multiple hazard specific structural and non-structural prevention, mitigation and preparedness plan.

Strategy 3: Formulating institutional framework for mitigation, capacity building and response at district level, taluka level and community level.

Strategy 4: Upgrading capacity through coordinating with line departments, arrange resources and their pre position for deployment, community strengthening through training and various awareness programs.

Strategy 5: A flexible and sustainable DM plan for sustainable development with minimum losses, working through all the layers of hierarchy of governance and with the community participation.

1.6 Disaster, Risk reduction and Management- Definitions

1.6.1 Disaster

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s

or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.

$$(\text{VULNERABILITY} + \text{HAZARD}) / \text{CAPACITY} = \text{DISASTER}$$

A disaster occurs when a hazard impacts on vulnerable people. The combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disaster.

1.6.2 Understanding the idea of DRR

Disasters often follow natural hazards. A disaster's severity depends on how much impact a hazard has on society and the environment. The scale of the impact in turn depends on the choices we make for our lives and for our environment. These choices relate to how we grow our food, where and how we build our homes, what kind of government we have, how our financial system works and even what we teach in schools. Each decision and action makes us more vulnerable to disasters - or more resilient to them.

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness and early warning for adverse events are all examples of disaster risk reduction.

1.7 Type Of Disaster

Primarily disasters are triggered by natural hazards or human-induced, or result from a combination of both. In particular, human-induced factors can greatly aggravate the adverse impacts of a natural disaster. Even at a larger scale, globally, the UN Inter-Governmental Panel on Climate Change (IPCC) has shown that human-induced climate change has significantly increased both the frequency and intensity of extreme weather events. While heavy rains, cyclones, or earthquakes are all natural, the impacts may, and are usually, worsened by many factors related to human activity. The extensive industrialization and urbanization increases both the probability of human-induced disasters, and the extent of potential damage to life and property from both natural and human-induced disasters. The human society is also vulnerable to Chemical, Biological, Radiological, and Nuclear (CBRN) disasters.

1.7.1 Natural Hazard

The classification mention in the National Disaster Management Plan (2016) :

- Geophysical: Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Hydro-meteorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes, and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.
- Hydrological: Events caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind set-up

- Meteorological: Events caused by short-lived/small to meso-scale atmospheric processes (in the spectrum from minutes to days)
- Climatological: Events caused by long-lived meso- to macro-scale processes (in the spectrum from intra-seasonal to multi-decadal climate variability)
- Biological: Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

1.7.2 Human-Induced Hazards

National Institute for disaster management notes that rise in population, rapid urbanization and industrialization, development within high-risk zones, environmental degradation, and climate change aggravates the vulnerabilities to various kinds of disasters. Because of inadequate disaster preparedness, communities, and animals are at increased risk from many kinds of human-induced hazards arising and call for adequate preparedness and planning.

- Accidents- industrial, road, air, rail, on river or sea, building collapse, fires, mine flooding, oil spills, etc.
- Chemical, Biological, Radiological, and Nuclear (CBRN) hazards rank very high in among the human-induced risks.
- Terrorist activities and secondary incidents add to these risks .

1.8 Levels of Disasters Management

The National Disaster Management Plan theoretically described the different disaster management labels. The disaster management and its planning at various tiers must take into account the vulnerability of disaster-affected area, and the capacity of the authorities to deal with the situation. Using this approach, the High Power Committee on Disaster Management⁵, in its report of 2001, categorized disaster situations into three 'levels': L1, L2, and L3. The period of normalcy, L0, should be utilized for disaster risk reduction.

Level-L1: The level of disaster that can be managed within the capabilities and resources at the District level. However, the state authorities will remain in readiness to provide assistance if needed.

Level-L2: This signifies the disaster situations that require assistance and active mobilization of resources at the state level and deployment of state level agencies for disaster management. The central agencies must remain vigilant for immediate deployment if required by the state.

Level-L3: This corresponds to a nearly catastrophic situation or a very large-scale disaster that overwhelms the State and District authorities.

1.9 Review of DDMP

The District Disaster Management Plan is a vital document inters of implementation and response perspective. The state plan has consist of the broader idea the vulnerability profile of whole state, but the

district plan consist with the detailed assessment report. So in case of any emergency scenario this document is very useful to response quickly and mitigates the scenario.

As per the DM act 2005, section 31 (7) the District authority shall review the plan time to time , the implementation of the plan and issue such instructions to different departments of the Government in the district as it may deem for the implementation thereof.

Following measures should taken care while updating the DM plan

- A planning should be done to review the plan on a regular basis , to ensure that the item recurring updation are changed and are current.
- When a updation is made to plan, the review date should be displayed on the review page of the plan.
- Plan holders are requested to verify that they have received the changes.

1.10 Plan Implementation

The 31 section of the DM Act 2005 applicable for the district government to make provisions for the implementation of the disaster management plans. The Chapters V and VI of the DM Act spell out the responsibilities of the central, state, and local governments with respect to disaster management. The DM Act states that every Ministry or Department of the Government of India shall make provisions, in its annual budget, for funds for the purposes of carrying out the activities and programs set out in its disaster management plan. It should also ensure by the district authority that disaster management drill and training should carry out periodically.

The main objective of the plan implementation is discussed below:

- Identify the core vulnerable areas where attention should require primary basis.
 - Identify and involve the governmental and NGO's working in disaster management sector.
 - Understand the pre- scheduled activity during pre disaster phase.
 - Make the early warning system stronger so it's being easy to reach as many as people to reach in shortest time.
 - Recognize the response mechanism in terms of response time and logistics management.
 - Strengthen the prevention and capacity building phase through difference kind of training programs.
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Chapter 2

Hazard, Risk and Vulnerability Analysis

2.1 Brief History of Bhandara District

In the seventh century, the district was included in the territories of the Haihaya Rajput kings of Chhattisgarh, whose kingdom was known as Maha Kosala. The name of the district is derived from 'Bhannara', the name by which it is mentioned in a stone inscription at Ratanpur, which confirms that the name dates back to at least the 11th century. Formerly a part of the territories of the Haihaya Rajput kings of Chhattisgarh, Bhandara was taken over by the Panwar rajput in the 12th century, followed by the Gond chiefs. By the 17th century, the district was made a part of Berar by Peshwas, who had invaded the region during the period. In 1699, the region came under the control of Parasoji Bhonsle along with the territories of Vidarbha and Berar. Raghoji Bhonsle of Vidarbha became the leader in 1743, and was succeeded by his son Janoji after his death in 1755. The feudal dynasty of Lanji governed the region from 1818 to 1830, and formed the Bhandara district in 1821. The area of Bhandara was under the rule of dynasty from 1818 to 1830. District headquarters were there at "Lanji". During 1821, the headquarters of "Lanji" was changed and was established to "Bhandara". As well as In 1867, Peshwas were ousted by Nizams during the 1850s, who ceded Berar to the British East India Company in 1903. With the re-organisation of states in 1956, Bhandara was transferred to Bombay Province from the state of Madhya Pradesh. After the formation of Maharashtra in 1960, Bhandara evolved as a district of the state. The erstwhile Bhandara district was bifurcated on 1 May 1999, and a new district, Gondia, was formed. Thus, Gondia and Bhandara came into existence.

2.2 Geographical Location

Bhandara district is situated in the valley of Wainganga. Bhandara is one of the major administrative districts in Maharashtra, and is located in the Nagpur division at 21°10'N 79°39'E. The district is enveloped by Balaghat district (Madhya Pradesh) in the north and Chandrapur in the south, while Gondia and Nagpur mark its eastern and western borders, respectively. Covering an area of 3716 km², the district of Bhandara is segregated into Three sub-divisions, Bhandara, Tumsar and Sakoli, that are further divided into seven talukas. Bhandara sub-division is divided into Two talukas: Bhandara and Pauni. Sakoli sub-division is divided into three talukas: Sakoli, Lakhani, and Lakhandur. And Tumsar sub-division is divided into two talukas: Tumsar and Mohadi.

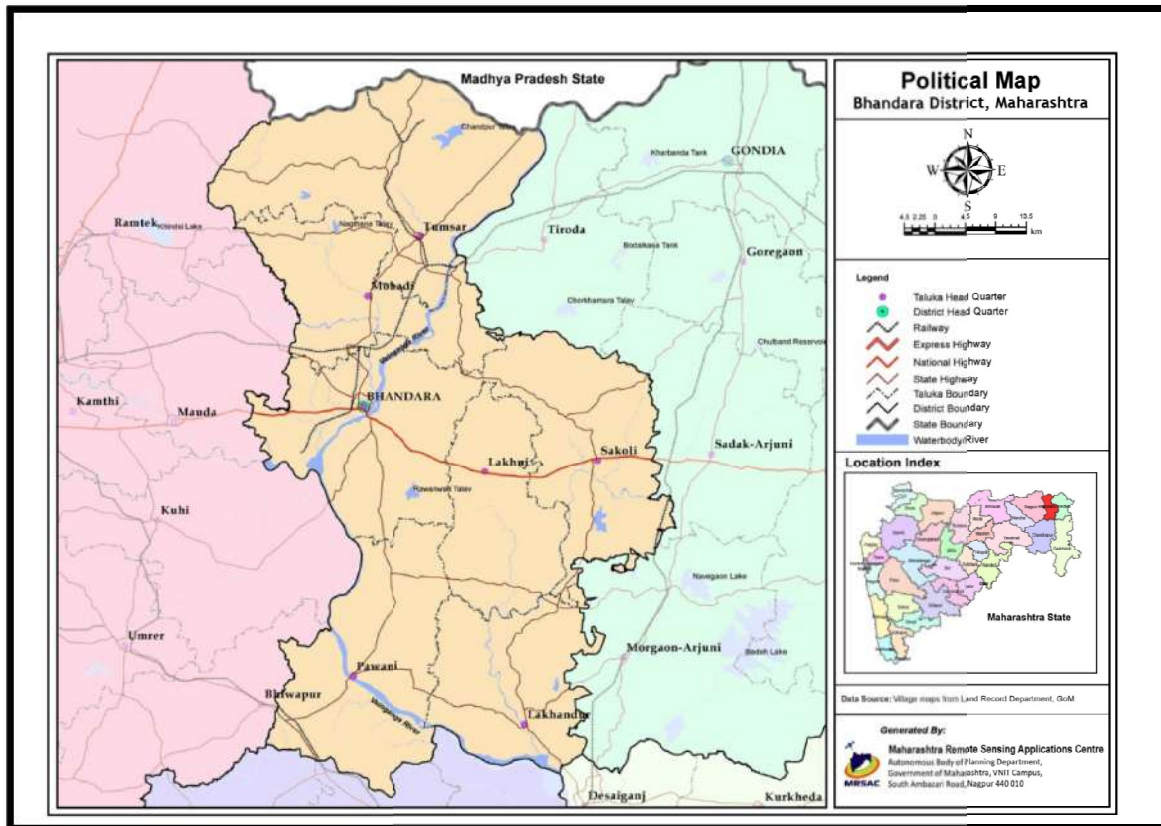
2.3 Administrative Setup

Bhandara city is the headquarter of the district. Administratively, Bhandara District is divided into 07 Talukas, 07 Panchayat Samitis (Blocks), 04 Municipal Councils, 03 Nagar Panchayat, 537 Gram Panchayats, 34 Revenue Circles, 196 Talathi Sazas, 878 Revenue Villages.

2.4 Base Map of Bhandara District

The Base Map shows the administrative divisions of Bhandara District, which includes the district boundary, taluka boundaries, surface water bodies, rivers and location of district headquarter and taluka headquarters. The boundary of surrounding districts, connectivity between district headquarter and taluka headquarters and with the surrounding districts through road and rail network is also shown.

Figure 2- Base Map of Bhandara District



2.5 Population Distribution

In 2011, Bhandara had population of 1,200,334 of which male and female were 605,520 and 594,814 respectively. In 2001 census, Bhandara had a population of 1,136,146 of which males were 573,445 and remaining 562,701 were females. Bhandara District population constituted 1.07 percent of total Maharashtra population. In 2001 census, this figure for Bhandara District was at 1.17 percent of Maharashtra population. There was change of 5.65 percent in the population compared to population as per 2001. In the previous census of India 2001, Bhandara District recorded increase of 11.23 percent to its population compared to 1991. Block wise Population, Bhandara Block 280030, Mohadi Block 150611, Tumsar Block 226108, Pauni Block 154588, Sakoli Block 136879, Lakhandur Block 123573 And Lakhandur Block 128545.

Bhandara Population Facts

Number of Households	2,78,076
Population	12,00,334
Male Population	6,05,520 (50.45%)
Female Population	5,94,814 (49.55%)
Children Population	1,26,025
Area	4,087 km ²
Population density/km²	294
Sex-ratio	982
Literacy	74.97%
Male Literacy	80.71%
Female Literacy	69.12%

2.6 Climate

The weather is extreme in all seasons, with temperatures in the summer as high as 46°C and in winter as cool as 8°C.

Climate data for Bhandara													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	27.6 (81.7)	31.1 (88)	35.2 (95.4)	39.0 (102.2)	42.1 (107.8)	38.1 (100.6)	30.5 (86.9)	29.9 (85.8)	30.8 (87.4)	31.0 (87.8)	29.3 (84.7)	27.9 (82.2)	32.71 (90.88)
Average low °C (°F)	13.3 (55.9)	15.4 (59.7)	19.6 (67.3)	24.6 (76.3)	28.9 (84)	27.4 (81.3)	24.3 (75.7)	24.1 (75.4)	23.9 (75)	21.2 (70.2)	15.2 (59.4)	12.9 (55.2)	20.9 (69.62)
Average precipitation mm (inches)	11.9 (0.469)	34.8 (1.37)	17.0 (0.669)	17.3 (0.681)	15.5 (0.61)	215.1 (8.469)	413.3 (16.272)	387.9 (15.272)	207.3 (8.161)	44.5 (1.752)	15.5 (0.61)	8.1 (0.319)	1,388.2 (54.654)
Source: Government of Maharashtra													

2.6.1 Rainfall

The normal annual rainfall in the district ranges from 1250 to 1500 mm. The rain fall generally increases from the west towards the east and from 4 north to south. It is minimum in the northern part of the district around Tumsar and Chandpur and increases westwards and south wards and is maximum around Lakhani. The south-west monsoon arrives over the district by about the second week of June. The rainfall during the period from June to September constitutes about 90 percent of the annual normal rainfall. July and August are the months with heavy rainfall, July being the rainiest month. The variation in the annual rainfall from year to year is small.

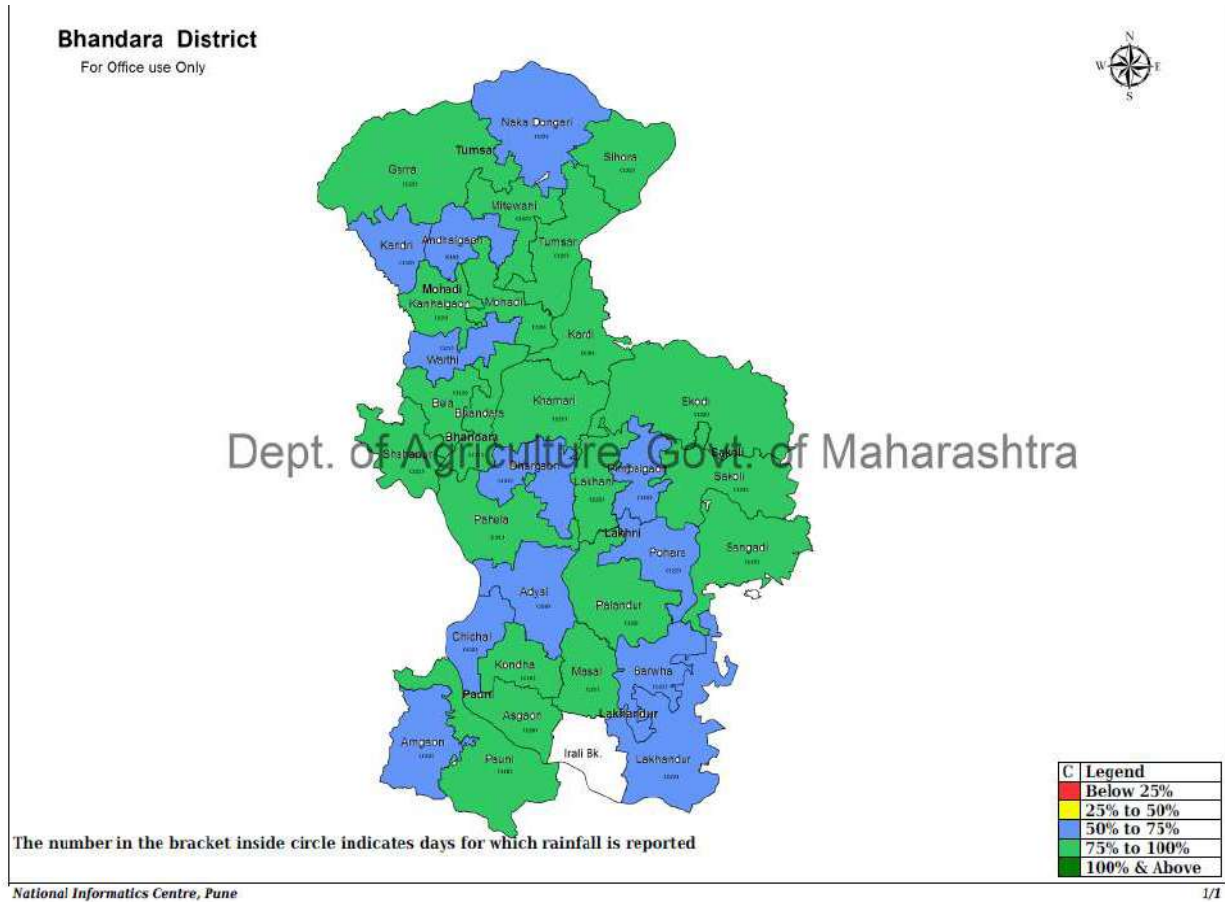
Monsoon Rainfall data,2022

(Rainfall in mm)

Sr.	Taluka	June			July			August			September		
		Normal Rainfall	Actual Rainfall	% To Normal	Normal Rainfall	Actual Rainfall	% To Normal	Normal Rainfall	Actual Rainfall	% To Normal	Normal Rainfall	Actual Rainfall	% To Normal
1	Bhandara	195.8	216.3	110.5	415.6	346.7	83.4	391.0	371.4	95.0	214.4	66.3	30.9
2	Mohadi	195.8	147.8	75.5	415.6	343.8	82.7	391.0	354.3	90.6	214.4	58.1	27.1
3	Tumsar	195.8	124.3	63.5	415.6	425.3	102.3	391.0	352.4	90.1	214.4	70.3	32.8
4	Pavna	167.1	131.9	78.9	400.7	380.8	95.0	377.6	268.5	71.1	223.8	62.8	27.0
5	Sakali	194.6	248.9	127.9	450.8	463.0	102.7	452.9	335.3	74.0	247.2	75.6	30.6
6	Lakhandur	211.1	216.8	102.7	501.2	455.2	90.8	444.3	336.0	75.6	241.2	64.7	26.8
7	Lekhani	211.1	203.6	96.4	501.2	380.1	75.8	444.3	363.9	81.9	241.2	63.4	26.3
	District-Bhandara	195.9	175.8	89.7	443.0	390.5	88.1	413.2	338.9	82.0	228.1	68.6	30.1

Source: Maharashtra Agriculture Department

Rainfall Map, 2022

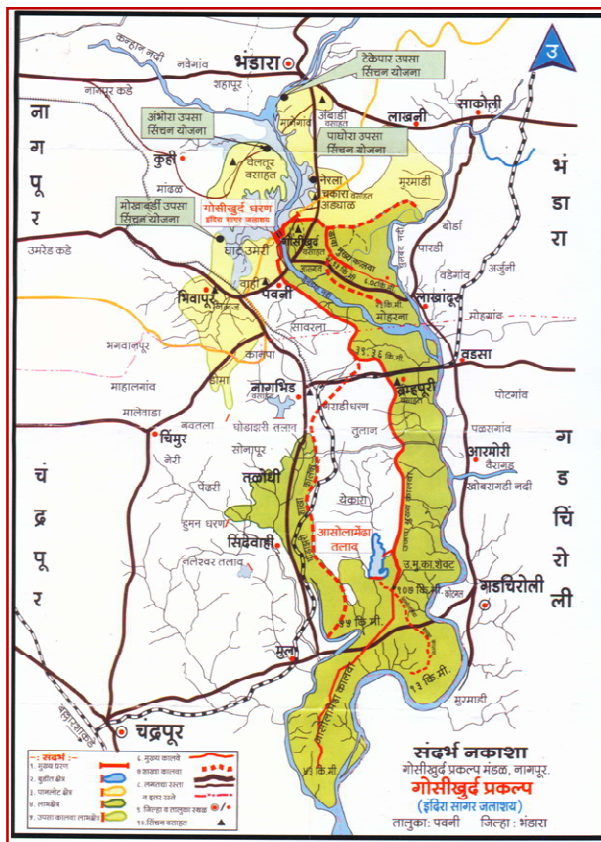
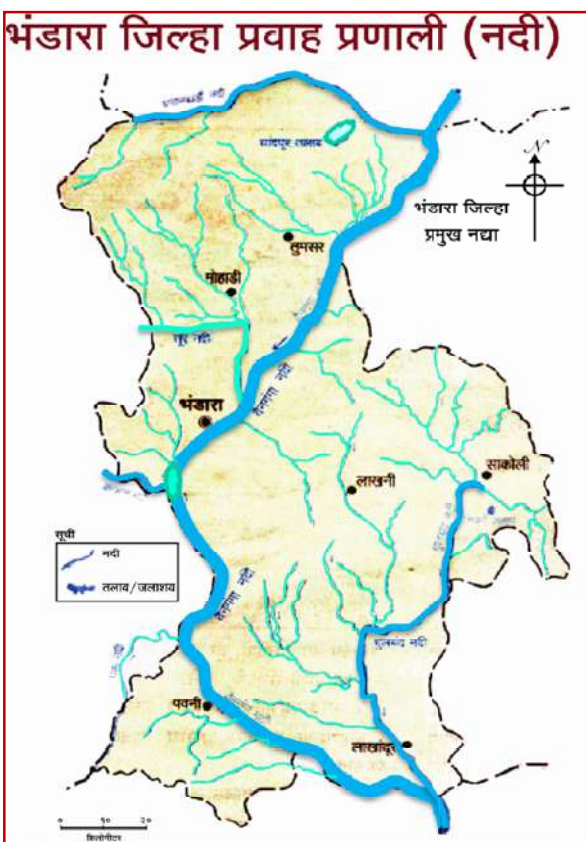


Source: Maharashtra Agriculture Department

2.7 Majors Rivers in the District

The major rivers flows through this district are Wainganga, Bawanthadi, Chulaband, Kanhan, Sur. On the banks of the Wainganga River 106 and other river banks, 54 total 160 villages are on the river banks. Due

to the release of water by Sanjay Sarovar / Dhudighat dam in Madhya Pradesh and in Pujaritola, Sirpur, Kalisasar, and Itiyadoh in Gondia district, the water level of the above rivers is increased suddenly and the flood situation in the district is created.



2.14 Transport and Trade Linkages

The district is well connected with the State sub-capital Nagpur and surrounding district headquarters through road and rail linkages (except Gadchiroli). The road network consists of National Highways, State Highways and Major District Roads. The rail network consists of both broad gauge (Electrified and Non Electrified) double track as well as single track lines.

Nearest Airport is in Nagpur. Nagpur has connectivity through airways for transport and trade to major airports within the country and to international destinations.

Following three National Highway pass through the district:

- National Highway No.6 (Dhule-Kolkata): The NH-6, passes through the following places in the district: Bhandara, Lakhani and Sakoli. It enters the district from Kharabi (Taluka Bhandara) and exits from Shendurwafa (Tal. Sakoli).

Following are the three main railway routes passing through the district:

- Mumbai-Hawada Rail route: It enroutes the Bhandara Road Jn., Tumsar Road Jn.
- Gondia- Chandrapur (Chandafort) Rail route: It enroutes Saundad station (Dist. Gondia) (5 Km from Sendurwafa tal. Sakoli.)

- Nagbhid-Nagpur Rail route: It enroutes Pauni Road Jn.

2.16 HAZARD STUDY

2.16.1 Earthquake

25 August 1957 - Lalburra-Tikari area, Madhya Pradesh, Ms 5.5 (2).

22.000 N, 80.000 E, OT=21:04:50 UTC (2).

The district of Balaghat in Madhya Pradesh and Bhandara in Maharashtra were affected. 25 fatalities are reported for this event. The epicentre of this earthquake was north of the town of Waraseoni in Madhya Pradesh and the town of Gondia in Maharashtra.

25 July 2015- 3.9 on Richter scale

Gondia as its epicentre. It occurred at 8.06 pm. it was recorded at 21.4 degrees north and 79.9 degrees east and was at a depth of 10 km. The tremors lasted only 2-3 seconds,



Institutional Arrangements for Disaster Management Authority

3. Institutional Arrangements

The institutional mechanism for disaster management at the district level will be as follow:-

- 1) District Disaster Management Authority
- 2) District Disaster Management Advisory Committee
- 3) District Disaster Management Committee
- 4) Taluka Disaster Management Committee
- 5) Village level Disaster Management Committee
- 6) Crisis Management Group/Incident Command System
- 7) Setting up of Emergency Operation Centre and its operation
- 8) Establishment of Site operation center
- 9) Modalities and procedures
- 10 Linkages with the Sub Plans

3.1 District Disaster Management Authority

This authority has been constituted under section 25 (1) of the Disaster Management Act 2005 under the chairmanship of District Collector i.e. Deputy Commissioner with the following officers as its members: -

Table 13 – Showing the DDMA Member Names

Sr. no.	Designation of the officers	Position
1	District Collector	Chairperson
2	Residential Deputy Collector	Chief Executive Officer
3	The Chief Fire Officer	Member
4	The District Agriculture Officer	Member
5	The District Health officer	Member
6	The Commissioner of Police	Member
7	The Executive Engineer, P.W. Department	Member
8	The District Animal Husbandry Officer	Member
9	The Local Radio Station Director, A.I.R	Member

3.2 Power and Function of District Authority

As per section 30 of the Disaster management Act 2005, this authority has been vested with the following

powers and functions:-

- 1) It shall act as the planning, coordinating and implementing body in the district for disaster management and take all measures for disaster management in the district as per the guidelines in the National/state Disaster management plans
- 2) To prepare the District Disaster Management Plan of the district and its periodic review and update.
- 3) To identify the areas vulnerable to the different hazards in the district and measures for its prevention, mitigation thereof by the different departments and the local authorities at the district level.
- 4) Give direction to the different departments and the local authorities to take measures for prevention and mitigation of the disasters in the district.
- 5) Monitor the implementation of the disaster management plans prepared by the departments at the district level.
- 6) Lays down guidelines at the district level to be followed by the departments for integration of measures in their developmental plans for prevention and mitigation of the disasters.
- 7) Review the state of capabilities for responding to the disasters and give direction to the departments for their up gradation as may be necessary.
- 8) Organize and coordinate the specialized training programs for different level officers, employees and voluntary rescue workers in the district along with the community training programs.
- 9) Set up maintain and review the mechanism for early warnings and dissemination of the information to the general public.
- 10) To ensure that departments prepare their response plans in accordance with the district response plan.
- 11) Examine the construction in any area in the district and if it is of the opinion that the standards for prevention, mitigation are not being complied with may direct the concerned authority to take such actions being necessary to secure such compliances.
- 12) Identify buildings and places which could in the event of disaster can be used as shelter/relief camps and make arrangements for sanitation and water supply in such places.
- 13) Ensure the communication systems are in order and disaster management drills are carried out periodically.

3.3 District Disaster Management Advisory Committee

As per section 28 of the District Disaster Management Act 2005, an advisory committee may be constituted by DDMA for efficient discharge of the functions.

3.4 Taluka Disaster Management Committee

This committee shall be constituted at every Taluka under the Chairmanship of Tahsildar and the following members: -

- 1) Tehsildar
 - 2) Block Development Officer
 - 3) Block Medical Officer
 - 4) Executive Engineers PWD, IPH, Electricity
 - 5) Forest Officer
-

- 6) Fire officer
All other Taluka Officers

Non Official Members

- 1) Chairman /Vice chairman Panchayat Samiti
- 2) All members of Panchayat Samiti
- 3) Selected NGO/Volunteers /CBO in the sub division.

This Committee will prepare the taluka disaster management Plans and response plans in accordance with the District Disaster management plans and identify the hazards encountered by the people in past and send the data so collected to the District Disaster Management Authority for further updation in the disaster plan.

3.5 Village Disaster Management Committee

This committee will function at the village levels and will be headed by Sarpanch Gram Panchayat with all the village/Panchayat officers and members its members and the secretary Gram Panchayat as member Secretary. This will prepare the panchayat wise disaster management plans in accordance with the District Disaster Management Plan.

Prevention and Mitigation Measures

4. Understanding Preventive and Mitigation

Culture of prevention refers to the action that needs to be taken at all levels to save lives before a disaster strikes. Prevention refers to the activities and measures that are taken to avoid existing and new disaster risks. While certain disaster risks cannot really completely eliminated, prevention measures aim at reducing vulnerability and exposure. The key elements to prevention and mitigation are preventive planning and integration of disaster risk reduction measures in developmental planning. Disaster Prevention & Mitigation measures are guards of hazard impact. They stand against the intensity of the hazard impact and reduce the risk involved. The report states that the major responders in disaster situations, the state governments are responsible for organizing an effective disaster response mechanism as well as preparedness and mitigation measures. The first step towards this is the strengthening of the organizational structure of disaster management at various levels and revising/ updating codes, manuals and disaster plans.

The importance of physical as well as socio-economic vulnerability is emphasized. The prevailing social and economic conditions and its affect on human activities affect the capacities of people to deal with the physical components of vulnerability. Thus the prevention and mitigation measures undertaken by the various levels of governance need to take into account both these aspects simultaneously. Policies that do not take into account both these aspects often fail to protect the populations they were created for. A good example of this are resettlement projects that do not take into account the traditional livelihood options of the people and fails to explore its viability in the new area, or introduce alternate options.

Without a through vulnerability assessment it is impossible to create a preparedness and mitigation plan. The following steps were stated as imperative for the same –

- Identification of hazard prone areas.
- Preparation of vulnerability profiles that map physical as well as socioeconomic hazards.
- Vulnerability and risk assessment of existing buildings and the initiation of retrofitting activities.
- The creation and implementation of technical guidelines for hazard resistant construction of buildings through techno-legal regimes.
-

This is an important aspect of prevention and mitigation activities as unplanned and inadequate developmental activity is one of the major causes of increased losses during disasters. Unchecked urbanization increases risks as communities live in high-density areas with poorly built and maintained infrastructure. Unplanned and unscientific urbanization, poor land use patterns and deforestation are discussed in the report as a major cause for losses of human life and infrastructure in the aftermath of a disaster.

The report explores the disasters that India is vulnerable to in detail and divides it into geophysical regions based on topographic and climactic characteristics that make them susceptible to different types of disasters. In addition it looks at overarching issues of global warming and climate change, which it states will supersede all local environmental issues as it has the ability to completely change the face of the earth. It has been statistically proven that the Himalayan glaciers are shrinking steadily which means that

entire water systems of the country will be affected. It is predicted that in the next 50 to 60 years the glaciers will stop producing the water levels that we witness and depend on. This will drastically cut down the water available downstream and adversely affect agricultural economies, which will cause tremendous social upheaval in areas already suffering from poverty.

Due to rapid population growth and urbanization in disaster prone areas, more and more people are vulnerable to disasters. Natural occurrence such as floods, earthquakes, cyclones etc. cannot be avoided completely as it is a part of the environment we live in, however it's impact can be reduced and its worst effects prevented. A natural hazard turns into a disaster when it affects people and causes economic damage, i.e. when it hits a community and disrupts it's normal functioning.

An emphasis has been made on the need to link disaster mitigation measures with developmental plans, effective communication systems, use of latest information technology, insurance, extensive public awareness and education campaigns. This can be done only through the strengthening of institutional mechanisms, international cooperation, and the involvement of the private sector.

The report looks at diversification of land systems as a strategy for providing insurance against risks caused by unexpected weather and erosion, while ensuring sustainable production of the land on a long term basis. It also looks at agro forestry, a technique of growing food crops in association with woody perennials, to optimize the use of natural resources and minimizing the need for inputs derived from nonrenewable resources. A form of multiple units land management, agro forestry has the potential to ensure stability and sustainability in production and provide ecological and economic security. The method can control soil degradation, desertification, floods, droughts, reduce pollution of groundwater, increase biodiversity in farming systems, check deforestation, reduced pressure on forests through on farm supply of fuel wood, fodder and other forest products.

The following were other brief guidelines for prevention and mitigation of disasters –

- Take a proactive approach by emphasizing means to prepare for and prevent disasters thus reducing its effects on human life.
 - Examine the relation between environmental degradation and vulnerability to disasters, and their combined effects on both natural and manmade habitats that will assist in creating long term prevention and mitigation plans.
 - Utilize remote sensing data while conduction risks analysis and mapping.
 - Adopt as a point of policy retrofitting of buildings and structures as a component of disaster management and earmark funding for the purpose.
 - Create a knowledge base by linking with disaster research and education institutions to create a space for collaborative strategic thinking that can allow continuous revision of disaster prevention and mitigation plans.
 - Initiate research that will collate local traditional disaster knowledge. This knowledge should be studied and examined alongside disaster information and scientific knowledge to create better prevention and mitigation plans.
 - Record data about disaster events in a structured and systematic manner so that current measures and plans can be evaluated for effectiveness and amended as needed.
 - Apply meteorological, climatological and hydrological knowledge in the area of disaster management that will assist in the assessment of risk, land-use planning and the designing of structures that greatly contribute to disaster mitigation.
 - Take into account the cascading nature of disasters to create more effective prevention and mitigation strategies.
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- Identify and strengthen existing centers of excellence in order to improve disaster prevention, reduction and mitigation capabilities.
- Create a culture of prevention by introducing measures for intensive training for building up of human resources to improve disaster awareness and capabilities.
- Initiate public disaster awareness and training programs that cater to the needs vulnerable groups like women, children, elderly and disabled to build up society's resilience towards disasters.
- Community mobilization in disaster situation is extremely important. Panchayats and Urban Local Bodies should be involved in activities towards community level coordinated action, disaster mitigation education etc.

4. 1 Investing in DRR- Structural Measures

Undertaking necessary structural measures is one of the major thematic areas for action for disaster risk reduction and enhancing resilience. These consist of various physical infrastructure and facilities required to help communities cope with disasters. The implementation of these measures is essential to enhance disaster preparedness. For instance, for earthquakes, bolting down appliances and securing shelves costs several hundred dollars in order to save several thousand dollars in damage averted. That presumes that the entire building will stand up in an earthquake because it has been engineered with seismic safety measures.

4.2. Investing in DRR- Non- Structural Measures

The most cost-effective forms of DRR investment tend to be non-structural approaches—such as land use planning, warning systems, and household-level changes—but these are often backed by structural measures, making full separation difficult. Sets of appropriate laws, mechanisms, and techno-legal regimes are crucial components in strengthening the disaster risk governance to manage disaster risk. These non-structural measures comprising of laws, norms, rules, guidelines, and techno-legal regime (e.g., building codes) framework and empowers the authorities to mainstream disaster risk reduction and disaster resilience into development activities. The district administration governments have to set up necessary institutional support for enforcement, monitoring, and compliance.

4.4 Earthquake

An earthquake is a violent and sudden shaking of the earth's crust due to collusion or breaking or moving away of tectonic plates at the top of which the whole of human civilization is perched. The joining of the tectonic plates is known as fault-lines and where the disturbances weaken the surface of the plate almost to the breaking point is known as sub-surface fault lines. The earthquake is caused by the release of energy through these fault lines and sub-surface fault lines. The intensity of this energy ranges from 0 to 10 and is measured on Richter scale.

The typical impact of the tremor known as earthquake varies from its intensity to intensity and the distance of the area from its epicentre. It ranges from shaking of structures to the changing of very landscape. Its typical impact is in the form of physical damage, destruction of infrastructure and loss of property. Physical damages may be in terms of damages or destruction of structures or damages or

destruction by fire or floods due to dam failures caused by earthquake. Casualties will be due to damage or destruction of structures etc. It will be much higher in areas nearer to the epicentre and densely populated area with weak buildings traditionally constructed with earth, rubble, bricks etc; urban settlements in poorly constructed apartments and in proximity of high rise buildings.

4.4.1 Prevention & Mitigations Measures

In case of Earthquake as a hazard no prevention measures are there to be taken. However, mitigation measures for Earthquake impact reduction are there to be taken. They consist of structural and non-structural measures.

Structural Measures: The prime structural mitigation measures that are expected to considerably reduce the impact of earthquake are:

- Conduct micro-zonation study and create seismic map in earthquake prone location.
- Identify the vulnerable structure
- Adopt the building code and suggestion given by the micro- zonation study and Properly designed, engineered and constructed structures — residential, service or infrastructure — built on well tested soil for adapting to suitable adjustments in design.
- Retrofitting in old structures so that short-comings in construction could be externally strengthened to a considerable extent to withstand the convulsions caused by Earthquake.

Non-Structural Measures:

For getting the structural measures implemented with due earnestness, honesty of purpose and sense of compulsion host of non-structural measures in the form of policies guidelines and training have to be provided.

- Policy decisions about construction of structures with due approval from specified authorities have to be taken. The building codes etc have to be suitably formulated/amended and appropriately detailed and legal implications properly stated.
- Guidelines both for earthquake-resistant constructions as well as for retrofitting have to be formulated with specifications about site selection, foundation, construction, materials and workmanship making involvement of specialist architects, trained engineer and masons mandatory.
- The guidelines have to be formulated for the concerned authorities about land use planning, monitoring of construction work and controlling of settlements in hazard prone areas to avoid fatalities and loss of property.

4.4.2. Mitigation Strategy

The desired implementation of mitigation measures requires a well thought strategy. Implementation of mitigation measures, therefore, has to be multi-pronged: adoption wise attractive and cost wise comfortable.

The Strategy for mitigation measures for the typical effects of earthquake involves.

- Training of A, B, C, D, E, F, G, H and M; Architects, Builders. Contractors, Designers, Engineers, Financers, Government functionaries and masons.
- Awareness generation among the house owners about what details to look for or insist upon about the building, household fittings and equipment, in the houses they own or intend to purchase.
- Computer based information dissemination about the area-wise nature of soil, the kind of construction appropriate in the area, the certifications about the house/flat one is about to buy.
- The empanelment of specialist architects, trained engineers and masons by urban bodies and works departments for building earthquake resistant structures.
- The Certification of commercial buildings by Fire Dept and urban regulatory bodies both at the planning and completion stages.

But, all these put together shall not be sufficient to make mitigation measures people-centred and motivating enough to observe norms. It can, however, be done through

- Awareness among the stakeholders about the need to build/rebuild earth quake resistant houses/structures and keeping safe neighbourhood.
- Capacity building of Architects/Engineers/Builders and even masons for construction of earth quake resistant houses/structures.
- Formulation of suitable building bye laws in urban areas and enforcement thereof.

4.5 Flood

Floods are temporary inundations of land with water caused by rains, overflowing of rivers, discharges released from large reservoirs, cyclones, tsunamis, melting of glaciers and sea tides. It may come gradually and take hours and days together to recede or may even happen suddenly due to heavy rains, breach in embankments, failure of dams, cloud bursts, storm surge etc. Except for flash floods, there is usually a reasonable warning period.

In district like- Bhandara, floods are caused by either overflowing of rivers due to excessive rains in its catchment or excessive discharge released from reservoirs. As chance would have it, out of the four causes & consequences of floods—excessive rains, excessive discharge, excessive erosion, siltation and breach in embankments—only two of them can control and manage. The rest of the two are beyond the control of the administration. The district can however control excessive erosion, siltation and breach in embankments.

Normally, floods are quantified and analyzed on the basis of depth of water and duration for which floodwater stays. Velocity of water causes erosion of river banks and— or destroy and damage habitations and other structures. Rate of rising of water level and timing of floods vis-a-vis agricultural activities determine damages resulting from floods.

The damages caused by floods consist of the flooding of land leading to-

- Crop damage, collapsing of mud houses, buildings, endangering human lives,
- Livestock and other public and private property.
- People, standing crop and livestock are liable to perish by drowning.
- Utilities such as sewerage, water supply, communication lines, road network and power supply get damaged, disrupted or destroyed; clean drinking water becomes scarce.
- Food shortage is caused due to loss of harvest & spoiling of stored grains.

- The agriculture gets affected due to deposition of coarse sand layers over the ground or onset of salinity or water logging for considerably long period.

On the whole, floods damage houses/ human settlements/crops/infrastructure, endanger human and cattle lives, fragment families, destroy wealth, jeopardize livelihood base and causes migration. It literally wipes out the socio-economic development achieved so far in the state and drives it to rewrite everything and begin from the beginning: response, relief, restoration, rehabilitation, reconstruction, and redevelopment are needed on a very large scale. All precious investment is reduced to almost naught. All precious efforts made before go largely waste.

4.5.1 Flood Mitigation Measures

The flood mitigation measures may again be structural or non-structural. Mapping of flood prone areas is a primary step involved in reducing the risk of the region. Historical records give the indication of flood inundation areas and the period of occurrence and the extent of the coverage. The basic map is combined with other maps and data to form a complete image of the flood-plain. Warning can be issued looking into the earlier marked heights of the water levels in case of potential threat. In the coastal areas, the tide levels and land characteristics will determine areas liable to inundation. Flood hazard mapping will give the proper indication of water flow during floods.

The structural mitigation measures

- The revival and maintenance of traditional practices of dam, reservoir and ponds system for diverting and storing flood water and making use of the same for multipurpose activities including irrigation, restoration of water tables etc. For this, larger involvement of senior citizens from the local areas will be required who have better understanding and knowledge about the system.
- The conversion of rivulets and tributaries into reservoirs for storing flood water for a desired period and for later use. For this, major river-based GIS mapping would be required. Besides the bed of the rivulets and tributaries would have to be properly structured and meticulously maintained.
- Using base flow and flood flows of the perennial rivers to generate hydroelectricity by putting generating units of 5 MW, 10 MW or even 20 MW may be planned. This will help both better river management as well as water conservation for productive utilization. As it is, we take care of and maintain anything which is productively utilized. Thus, if we start generating power, the rivers will in the process get maintained and managed.
- Attempt to modify Dams and Reservoirs, Embankment, Drainage Improvements, Channel Improvements, Diversion of Flood Waters and Using Natural Detention Basin.
- Storing Flood Water in reservoirs may help in reducing flood intensity, but the sedimentation caused by the stored flood water may subsequently reduce the capacity of the reservoir. As such, smaller reservoirs are often better choice than larger ones. For, then desilting of small reservoir becomes possible and can be undertaken periodically by the beneficiaries themselves.
- Channel Alterations help in reducing the gushing of flood water and these should again be done with provisions for regular maintenance of the slopes in the channel, removing of debris and other obstructions, using natural vegetation for strengthening the sides of the channels and for using it as a source of promoting fisheries etc.
- Watershed Management measures reduce overland runoffs from agricultural lands to streams or other water bodies by improving infiltration of rainfall into the soil, minimizing run-off and

reducing the sedimentation that can clog stream channel or storage reservoirs. The measures to avoid it include maintaining trees, shrubbery and vegetative cover, slope stabilization etc.

Non- Structural Measures :

- Attempts to modify susceptibility of Flood. Flood plain zoning: It aims to regulate the developments in the flood plains, so that it is compatible with 'Flood Risk'. It recognises the basic fact that the flood plains are essentially the domain of the river, and as such all developmental activities must be compatible with the flood risk involved.
- Flood forecasting : Involves observing and collecting hydrological and meteorological data, transmission and then processing the data with a view to work out the likely level to be achieved at a particular site, i.e. to give advance warning. Stay in touch with IMD and CWC. Establish infrastructure for flood warning and dissemination.

4.5.2 Measures to be adopted at District Level

Following measures should be taken at District level by the collector on whom the implementation of DDMP rests. Action plan of relevant line departments should be put into order.

- Convening a meeting of District Level Disaster Management Committee before the onset of monsoon in the month of April/early May.
- Arrangement for functioning of control room. Specific charge should be given at Taluka level to listen to weather bulletins from radio and television to monitor the warning relevant to the Taluka.
- A joint inspection team at Taluka level will inspect river embankments in the month of March and April. A summary report will be sent to the Sub-Division and District accordingly.
- When monsoon breaks, District will send the daily/ weekly report regularly from the report received from village and gram panchayat levels and to the Sub-Divisional Officer. Dissemination of weather report and flood bulletins to lower level.
- Installation of temporary police wireless stations and temporary telephones in flood prone areas. Identification of the owners of country mechanised boats with address and contact numbers.

4.6 Fire

Fires are the accidents which occur most frequently. It has whose diverse causes that require a range of intervention methods and techniques adapted to the conditions and needs of each incident. The fire risk can arise either from industrial processes, forest fire, accidents in storage godowns or closely built timber framed buildings

Depending on the type of fire (nature of the material ablaze), meteorological conditions (wind) and the effectiveness of the intervention, material damage can be limited to a small area, or affect wide areas like forests or agricultural fires, hydrocarbons, gas or other highly flammable products, storage or piping installations, and rail or marine transport equipment. Fires are an important disaster to focus on as they can arise in response to other disasters like earthquakes or landslides. As fire disasters can be primary or secondary focus has to be on ensuring that fire services are able to respond despite disturbances caused by another disaster that has just occurred.

As a part of mitigation strategy, efforts should be made to

- Make fire fighting services available to rural areas outside the local municipal limits.
- Assist municipal authorities that don't have fire brigades to establish such a service.
- Encourage agricultural marketing committees and cooperatives in rural areas to establish their fire services.
- Evolve methods of coordination between municipal fire services and industrial safety departments.
- Undertake community education and preparedness for fire fighting in areas where fire services will not easily be available.
- In industrial towns, fire services should be equipped with protective clothing and fire fighting devices including masks, gloves etc. for dealing with chemicals and toxic materials.
- Special burns wards should be established in every civil hospital and in the hospitals near the industrial estates.
- Equipping fire services with communication facilities like wireless etc. and wherever such facilities exist, these should be upgraded.
- Computerized data management system should be introduced to keep the record of all fires including frequency, extent, fatality, economic losses etc.
- The roles and responsibilities of district administration, police, fire services and medical services should be clearly laid down.

4.7 Epidemics

An epidemic is the rapid spread of infectious disease to a large number of people in a given population within a short period of time, usually two weeks or less. An epidemic can be the consequence of other disasters like storms, floods, droughts etc. Strengthening surveillance programmes and warning systems go a long way in controlling epidemics.

Steps towards mitigating the risks from epidemic include the following –

- Identification of areas endemic to certain epidemics must be routinely updated to access field requirements
 - Identification of appropriate locations for testing laboratories
 - Ensuring continuous flow of field data from both government establishments and private medical personnel.
 - Collating and analysing the data at regular intervals to assess epidemiological monitoring requirements.
 - Creating awareness among the general population to encourage preventive measures that can help in controlling epidemics.
 - Quality monitoring of piped drinking water supply and water.
 - Vector Control programmes as a part of overall community sanitation activities which include surveillance of water bodies and canal distribution network for control of diseases like malaria.
 - Promotion of personal and community latrines
 - Introduction of sewage, drainage and solid waste management systems
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- Promoting and strengthening community hospitals with adequate network of para professionals to improve the capacity of the Public Health Department (PHD) for surveillance and control of epidemics.
- Establishing testing laboratories at appropriate locations in different divisions within the districts to reduce the time taken for diagnosis and subsequent warning.

4.8 Industrial and Chemical Accidents

Industrial and chemical accidents refer to incidents originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

- Major accidents involving chemical substances have local effects, but in some circumstances they can affect whole regions because of factors like the weather conditions during the time of the accident. Prevention of such incidents must be the priority, but a positive result can only be assured if there are strict guidelines for using and handling of dangerous chemicals.
- When an accident involving chemical substances that could endanger life or the environment occurs in a chemical works or installation, those in charge of it should implement the safety measures which will minimise its consequences.
- They should immediately inform the relevant local authorities of the accident who will be responsible for informing the public and deciding upon the instructions to be followed by them.
- The co-ordinated use of the civil and military means required to deal with the disaster should be ensured.
- All industrial concentrations should be encouraged management of industrial accidents.
- Industries involved in the production or transportation of inflammable, hazardous and toxic materials should have a mandatory responsibility for preparing an off-site plan and communicating the same to the District Collector. Simulation exercises should be undertaken in the adjoining communities.
- Poison centers should be established in every civil hospital and in the hospitals near the industrial estates with facilities for detoxification.
- All transport of hazardous and toxic materials should be communicated to the RTO.
- All pipelines carrying hazardous and toxic materials should be equipped with devices to check any leakage or metal fatigue.
- Small-scale industries releasing toxic wastewater should be encouraged to set up common effluent treatment facility.
- A common format for chemical data sheets should be devised which should be used to collect information from all industries in the district and the same should be available with fire brigade and police.

4.9 Mitigation Measures/ Activities and Responsibility of line departments at various stages of Disaster Cycle of Various Hazards

4.9.1 Flood

Task	Activities	Responsibility
Development of techno- legal regime/ regulations	❖ Prohibition of development in wetlands, flood zone and low lying areas ❖ Encourage for flood proofing structures in flood prone areas ❖ Build new water and sewage systems and utility lines ❖ Prescribing standards for different flood prone zones on flood plains ❖ Enactment and enforcement of laws regulating development activities in flood plain ❖ Specific building by-laws for flood plains	❖ Revenue Dept. ❖ Irrigation Dept. ❖ . Panchayat and Rural Housing ❖ Local Governments ❖ PWD

Safe dwelling in flood hazard areas

Task	Activities	Responsibility
Arrangement of safe dwelling in flood hazard areas	❖ Development of flood hazard map ❖ Study of past history on floods occurred and estimated loss and damage ❖ Asses the vulnerability of risk elements ❖ Build houses in safer zones	❖ Revenue Dept. ❖ Irrigation Dept. ❖ UD Dept. Panchayat and Rural housing ❖ Local Governments ❖ PWD

Development and Redevelopment Policies

Task	Activities	Responsibility
Development and redevelopment of flood preventive policies	❖ Develop long term flood policies to protect natural resources, property and lives. ❖ Legislative and regulatory requirements	❖ Revenue Dept. ❖ Irrigation Dept. ❖ UD Dept. ❖ Panchayat & Rural Housing ❖ Local Governments ❖ PWD

Modifying floods

Task	Activities	Responsibility
Modifying flood by construction works	❖ Construction of dams and reservoirs, dikes, levees, and floodwalls, channel alterations, high flow diversions, storm water management, coastline protection works and watershed management. ❖ Development of catchment area of the flood plain • Forestation and vegetation • Land sloping and small check dam construction	❖ Revenue Dept. ❖ Irrigation Dept. ❖ UD Dept. Panchayat & Rural Housing ❖ Local Governments ❖ PWD

Flood Forecasting and Warning System

Task	Activities	Responsibility
Updating of flood forecasting and warning system	❖ Strengthening and up gradation of existing flood forecasting system ❖ Stay in touch with IMD and CWC ❖ Establish infrastructure for flood warning and dissemination ❖ Ensure proper communication between district authority and SEOC.	❖ DDMA Authority ❖ Irrigation Dept. ❖ CWC ❖ IMD

Non-structural Measures

Task	Activities	Responsibility
Capacity Building	❖ Prepare departmental flood contingency plan ❖ Establish rain gauge recording station with trained manpower in the state ❖ Train the flood rescue teams and ensure they have functional rescue materials.	❖ Revenue Dept. ❖ DDMA Authority ❖ Irrigation Dept. ❖ Line Dept.
	❖ Conduct demos/ mock drills in flood prone areas time to	

	time and ensure that rescue teams are properly trained and equipped ❖ Organize trainings for various stakeholders involved in flood mitigation and management ❖ Organize mock drills on flood rescue	
Awareness Generation	❖ Undertake public awareness activities in flood affected areas and let people know what to do and what not to do after, before and during flood. ❖ Design and develop the IEC materials in local language and ensure their storage and distribution among people. ❖ Motivate all families in flood prone areas to prepare the family kit of emergency materials	❖ Revenue Dept. ❖ DDMA Authority ❖ Irrigation Dept. ❖ Information Dept. ❖ Line Dept.

4.9.2 Earthquake

Structural measures

Zoning and Building codes

Task	Activities	Responsibility
Zoning and Building codes	❖ Conduct micro-zonation study and prepare seismic map in earthquake prone locations ❖ Identify the Vulnerable structures ❖ Adapt building code and suggestions given by micro zonation study and do construction works accordingly	❖ Revenue Dept. ❖ DDMA ❖ UD Dept. ❖ PWD Dept. ❖ Gram Panchayats ❖ Local Urban Bodies ❖ Housing Dept.

Development of safe siting and Earthquake Resistant Structure

Task	Activities	Responsibility
Safe siting in earthquake areas.	❖ Select rock or stiff soil for building construction ❖ Avoid constructing the capital-intensive infrastructure, hazardous facilities and important buildings in Seismic fault areas	❖ Revenue Dept. ❖ PWD Dept.
Develop earthquake resistant structures	❖ Adopt earthquake resistant structure in all construction works ❖ Incorporate the earthquake resistant design in all houses build by government departments and private agencies	❖ Gram Panchayats ❖ Local Urban Bodies ❖ Housing Dept.

Retrofitting of weak structures

Task	Activities	Responsibility
Retrofitting the weak structures	❖ Develop a database of existing private and govt. building in the state ❖ Identify the buildings need retrofitting ❖ Prepare a project/scheme for retrofitting	❖ Revenue Dept. ❖ PWD Dept. ❖ Gram Panchayats ❖ Local Urban bodies ❖ Housing Dept.
Avoid use of very weak/ risk structures	❖ Identify the very weak/ old structures ❖ Put notice not to use and vacate	

Instrumentation for monitoring of seismic activity

Task	Activities	Responsibility
Regular monitoring of seismic activities	❖ Set up seismic recording stations in seismic prone areas with modern equipment's ❖ Ensure regular study and research work in this field by technical groups ❖ Ensure dissemination of data and information to all concerned	❖ Science and technology Dept. ❖ Local urban bodies

Non-structural measures

Task	Activities	Responsibility
Capacity Building	❖ Strengthening of Techno- legal regime ❖ Organize trainings on earthquake resistant structures for engineers, architects, masons and other working in construction industry. ❖ Prepare departmental earthquake contingency plan, action plan and SOP ❖ Carry out structural safety audit of all critical Infrastructures and key resources ❖ Motivate disaster insurance of buildings ❖ Improvement of emergency response	❖ Education & technical Education Dept. ❖ Revenue Dept. ❖ DDMA ❖ Line Dept.
Awareness Activities	❖ Organize school programs, public awareness campaigns on earthquake safety. ❖ Organize Drop. Cover Hold demo in Schools ❖ Develop IEC Materials and distribute	❖ Information Dept. ❖ DDMA

4.9.3 Fire

Structural Measures

Task	Activities	Responsibility
Develop fire infrastructure and other fire facilities	❖ Extend coverage of fire and emergency services to rural areas ❖ Involve the new stakeholders ❖ Strengthen coordination between municipalities and industrial safety department ❖ Equip fire stations with modern fire engines and other equipment's ❖ Provide fire proof devices to fire fighters ❖ Insurance coverage for fire staff ❖ Make provision for special fire burn ward in the hospital	❖ Fire and emergency services dept. ❖ Industrial safety department ❖ Urban local bodies ❖ Health Dept.
	❖ Ensure that all fire stations are connected to effective communication system	

Non-structural measures

Task	Activities	Responsibility
Capacity Building	❖ Impart fire management training to fire staff and strengthen their working skill. ❖ Organize regular demo for fire brigade to familiar them with fire equipment's ❖ Conduct mock drills to check up the departmental preparedness	❖ Urban Development Disaster Management Unit

Awareness Generation	❖ Organize awareness programs on fire safety in Schools, Colleges and offices. ❖ Disseminate fire safety tips among public through print and electronic media ❖ Develop IEC materials on dos and don'ts for public distribution	
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4.9.4 Industrial and Chemical Accidents

Structural measures

Task	Activities	Responsibility
Industrial safety measures	❖ Set up Emergency response Centre (ERC) ❖ Strengthen Mutual Aid Response Group (MARG) ❖ Form and strengthen the crisis Groups at District and local levels. ❖ Industries not to be allowed in Hazard prone areas ❖ Develop on-site and off-site plans ❖ Set up toxic water treatment facility ❖ Set up leakage checkup devices ❖ Purchase, store and keep functional all necessary industrial safety equipment's. ❖ Make Provision for poison ward in Civil hospital	❖ Industrial Dept. ❖ MIDC ❖ District Authorities ❖ Local Authorities

Techno – legal regime	❖ Implement the Acts and Rules related to industrial safety firmly. ❖ Ensure structural safety inspection/ audit inspection/audit by competent authority.	❖ Industry Dept. ❖ MIDC ❖ Local Authority
Strengthening EOC and warning systems	❖ Establish/ strengthen EOCs at all level ❖ Set up on site and off – site warning dissemination system	❖ Nodal Authority ❖ MIDC ❖ Dist. Collector ❖ Municipal Commissioner

Non-Structural Measures

Task	Activities	Responsibility
Emergency Planning	❖ Prepare/ update emergency onsite and offsite plan ❖ Regular monitoring of safety activities in all the factories/ industries	❖ Nodal Authority: MIDC ❖ Dist. Collector ❖ Municipal Commissioner
Organize Capacity Building	❖ Organize industrial safety trainings for officers and staff working in the factories ❖ Set up an on –site and off –site monitoring team to check up all safety measures ❖ Conduct mock drills in regular interval ❖ Encourage disaster insurance	❖ Nodal Authority: MIDC ❖ Dist. Collector ❖ Municipal Commissioner
Awareness Activities	❖ Organize community awareness programs for the communities residing near the factories and let people know what to do what not to do in	❖ Nodal Authority: MIDC ❖ Dist. Collector ❖ Municipal Commissioner ❖ DDMA

	case of industrial disaster ❖ Develop IEC materials on local language and distribute them in schools and local communities ❖ Organize School level awareness activities and ensure students participation in large number	
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4.9.5 Epidemics

Structural Measures

Task	Activities	Responsibility
Surveillance and warning	❖ Identify the epidemic prone areas ❖ Establish mechanism for regular monitoring of such locations ❖ Set up testing laboratories with trained manpower if required ❖ Collect data and disseminate to concerned authorities	❖ Public health Dept. ❖ Local Govt. Bodies ❖ Municipal Authorities
Preventive and promotive Measures	❖ Ensure clean drinking water, personal toilets, and proper sanitation facilities in epidemic prone areas ❖ Ensure safe drainage and proper waste management system	❖ Public health Dept. ❖ Local Govt. Bodies ❖ Municipal Authorities
Strengthening Institutional infrastructure	❖ Organize Capacity building trainings for health staff ❖ Establish testing labs with modern equipments and trained manpower	❖ Public Health Dept. ❖ Local Govt. Bodies ❖ Municipal Authorities

Non-structural Measures

Task	Activities	Responsibility
Capacity Building activities	❖ Identify the primary stakeholders of current epidemic ❖ Organize epidemic management trainings for all stake holders ❖ Provide necessary safety devices to health staff who manage and work in epidemic areas	❖ Health Dept.
Awareness Programme	❖ Organize public campaigns to aware them on what to do and what not to do to control the epidemic ❖ Use both electronic and print media to disseminate the safety measures and the actions government taken to check the epidemic	❖ Health Dept.

4.9.6. Road Accidents**Structural Measures**

Task	Activities	Responsibility
Strengthening Intuitional capability	❖ Make provisions for special enforcement wing ❖ Set up traffic posts and trauma care centers on Highways ❖ Set up hotline and speed monitoring technology ❖ Keep equipments for removal of accident Vehicles ❖ Fix a lead agency for monitoring ❖ Make provision of special route for hazardous Vehicles	❖ Transport Dept.
Strengthening Road Infrastructure	❖ Avoid parking at any point on National and state highways	❖ Transport Dept.

	❖ Make special provision for parking with food, water, fuel and other facilities ❖ Show excavation locations with barricades ❖ Put road dividers, speed breakers, information sign boards and men at railway crossings ❖ Keep machines for removal of debris in emergency	
Improving Regulations	❖ Insurance regulation ❖ Strictly use protective materials by two wheeler drivers ❖ Special rules for school buses ❖ Training for drivers carrying hazardous materials ❖ Use blinking lights for Stationary Vehicles	❖ Transport Dept.

Non – Structural Measures

Task	Activities	Responsibility
Capacity Building	❖ Organize capacity building training to all stakeholders involved in road transport, and traffic management. ❖ Strengthen the management skill of traffic police and RTO staff organizing mock drills in regular interval	
Awareness Generation	❖ Create Public awareness on road safety, traffic rule, and noise pollution control. ❖ Disseminate the transport rules and regulation among public and the consequences of its violation	❖ Transport Dept. ❖ Local Governments

Chapter -5

PREPAREDNESS**5.1 Identification of Stakeholders Involved in Disaster Response**

Community is the first responders in case of most of the disasters. This shows the importance of VDMP as well as Village Task Force and their training. Local people who can do search and rescue operations should be identified and given training. But not every levels of disasters can be managed by village task force. Highly trained professionals are needed for response. It includes swimmers, divers etc. They can be identified at Taluka level and given training at village level.

Response and evacuation of disabled population is very important as they are highly vulnerable. Training can be given for the rescue workers for rescuing them or evacuating them during emergency. Fire brigade are adequately trained in this and carry people using different cradle carry method, firemen carry method, blanket carry method etc. The Taluka level rescue workers should be trained in it.

Formation of teams

For different activities in Rescue and relief activities different teams should be formed so that the activities can be carried out easily during the time of disasters.

5.2 Forecasting and early warning

Early warning helps to plan the course of rescue and relief operations, helps to move the population to safe shelters and also helps to disseminate the knowledge to the public so that mortality rates can be reduced. Early warning system is not available for every hazard. But for most of the hazards early warning can be issued. It includes heavy rain, flood, landslides, tsunami etc. At district level DDMA can receive the early warning from nodal agencies or from other sources and can plan the rescue and relief operations. There are nodal agencies that can give warning for different disasters.

Table 13 – Showing the Nodal Agency for Early Warning

Sl. No	Hazards	Nodal agencies
1	Cyclones, Floods, Drought	India Meteorological Department
2	Floods	Central Water Commission of the Ministry of Water Resources
3	Landslides	Geological Survey of India

After receiving early warning, the information should be disseminated to various departments for preparedness as well as to the public for safety. It is the responsibility of DDMA and TDMA. The information from nodal agencies or from SDMA should be disseminated to TDMA, VDMA, Panchayat office, line department officials and to public based on the ground situation.

The warning can be disseminated through various means such as

1. Telephone
2. Fax
3. VHF
4. Police Wireless
5. Internet (e-mail)
6. Websites
7. Radio/TV network
8. Mobile Phones (SMS/WhatsApp)

5.3 Search and Rescue

Search and Rescue operations are an important part of relief activities to save the life of victims. Experts are needed for search and rescue operations. Search and Rescue operations are usually carried out by Fire and Safety brigade, Police, NDRF, SDRF and HomeGuards etc. Also volunteers can also be used for rescue operations if sufficient experts are not available. Training should be given to SAR team and mock drills and exercises should be done regularly.

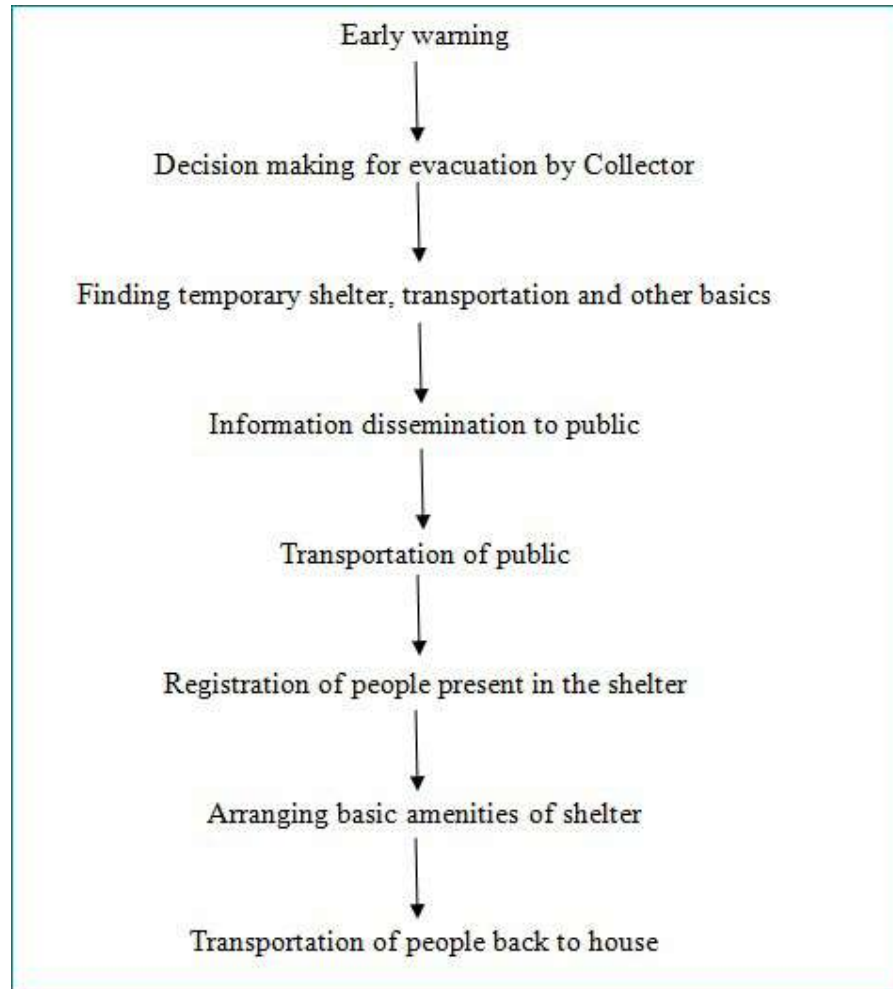
Preparedness for Search and Rescue will be done based on the type of disaster in the region. In flood, swimmers and divers are more needed. While in building collapse debris removal and tracking the people trapped in the debris is more important.

As part of preparedness, the Search and Rescue teams should be formed in district and Taluka level and training should be given. The team comprises of

1. Fire fighters
2. Police men
3. Home Guards
4. Swimmers
5. Medical professionals.

5.4 Evacuation

Evacuation can be done for those disasters where early warning is available and the level and efficiency of the evacuation will be based on the time availability after forecasting the disaster. Evacuation needs proper planning and preparation or that itself can become hazardous. Evacuation can be of two types. It can be after a hazard where the survivors in a hazardous situation can be evacuated or it can be after an early warning where time period for evacuation will be there.



For the process of evacuation, temporary shelters should be identified outside the vulnerable location, mostly in schools or barren land (in case of earthquakes). The safety and security of the temporary shelters should be monitored. In case of vulnerable people like physically disabled, special attention should be given to their needs. Basic amenities such as water, food, sanitation, medical attention etc should be addressed. In case of winters special care should be given. Evacuation procedure will not be completed until relocating the people to safe permanent location or their own place.

5.5 Damage and Loss Assessment

Damage and loss assessment should be done immediately after rescue operations. It helps to understand the extent of damage in the region. Data regarding the following details should be collected, including the extent of damage such as partial or complete.

Table – Showing the Format for Damage Data Collection

Type	Number	Remarks
Number of affected population		
Number of affected families		
Loss of life		

Injured		
Missing		
No of house fully damaged		
No. of house partially damaged		
Crops fully damaged (acre)		
Crops partially damaged (acre)		
Fully damaged educational institutions		
Partially damaged educational institutions		
No of water sources damaged/not functioning		
No of latrine damaged		
Loss of livestock's (no.)		
Embankment Fully damaged(km)		
Embankment partially damaged (km)		

5.6 Activation of IRS in the district

The District Collector automatically becomes the head or the Chairperson of the DDMA, and hence he is appointed as the Responsible Officer of the district. Some of the responsibilities may be passed on to the Additional District Collector for management and supervision of any incident that occurs in the district, as he is the Chief Executive Officer of the District. The District Emergency Operation Centre and the Incident Commander will make him aware of all the developments and progresses of responses activities in the district.

5.7 Protocol for seeking help from other agencies

The line departments and their head will perform different roles and responsibilities based on the nature and kind of disaster. These responsibilities of the line departments shall be clearly defined based on different types of disasters in the DDMP, which will be further approved by the State Government.

Army, Air Force & Central Paramilitary Forces

The Chairman of the DDMA will report to the State Home Department which will further ask for military help to the Central Home Ministry, who will take the subject with the concerned departments for the requisition of Army, Air force and Central Paramilitary Forces.

National Disaster Response Force

The DDMA can immediately make arrangements for requisition the NDRF team or battalion directly, if there are cases of sudden onset of disasters in areas, where early warning systems may not be present. The DDMA will maintain a close association with the NDRF Commander in Chief of the NDRF located nearest to the district (Bhandara), for the rapid deployment of the team in case of threatening disastrous situations.

State Disaster Response Force

The DDMA will write to the State Disaster Management Authority who will consult further with concerned ministries for requisition of SDRF, if it exists in the State.

5.8 Mechanisms for checking and certification of logistics, equipments and stores

The DDMA will write to the concerned Logistic Section Chief (LSC) in the Revenue Department, to further carry out the responsibility of checking and making certifications of logistics, equipments and stores.

Operational check-up of Warning Systems and EOC

The DDMA will conduct operational check-ups of warning systems, EOC and also the equipments available at the EOC, periodically. The pre-monsoon preparedness meeting also leads to checking of warning equipments.

Seasonal inspection of facilities and critical infrastructure

The DDMA shall coordinate along with the Public Work Departments, to conduct a seasonal inspection of facilities and critical infrastructures like bridges and Highways, especially before the onset of monsoons.

Command and coordination

The head or the Chairperson will coordinate meetings regularly with all the departments and stakeholders and even include various NGO's and groups for effective management and preparedness of summer seasons and monsoons.

5.9 NGO and other stakeholders

The NGO which are working in development sector as well as disaster management sector can be used for different purposes such as Post Disaster Need Assessment. The NGO workers or volunteers should be

trained regarding their work during L0 phase of disasters and during the issue of warning, NGO officials can be communicated and can be used. Also in case of temporary shelter preparation, water and sanitation etc can be managed by NGO with the support and monitoring of government officials.

5.10 Seasonal preparedness

The DDMA can make seasonal preparedness by:

- **Identifying Risks:** Listing out various risks from hazards like floods, fire to the infrastructures and facilities. This will decrease the geographical susceptibility of the structure. Identifying vulnerability of the objects and structures are also an important process of the preparedness. Hence this identification process will focus on the prevention and mitigation of any damages that can take place in the future.
- **Identifying Resources:** The DDMA shall identify resources available in the district, for assistance in a disastrous situation and sources which can lower the damage and the risks.
- **Decreasing Risks:** Once the list of risks and vulnerabilities are prepared and specified, then the DDMA shall conduct and formulate a program making arrangement of activities that can decrease the risks. This can be done with the help and association of various line departments.

Preparedness

IDRN: India Disaster Resources Network

DDMO: District Disaster Management Authority.

SDMD: State Disaster Management Department

DDMD: District Disaster Management Department

DDMA: District Disaster Management Authority

5.11 Community Preparedness

Community preparedness plays a crucial part in disaster management. Community is one seem to be one of the exposed entity in any disaster risk. The two main elements to be explored in the community preparedness are community based and people centric. Community based disaster management is believed to have direct involvement of community in every phases of disaster. It is vital that community members themselves are aware and self reliant in getting the knowledge and information of the risks and vulnerabilities of the area. The core activities where community people could get involved are

Risk Knowledge	• Knowledge about historical hazards. • Identification of hazards and disaster prone areas. • What are the pattern and frequency of disaster.
Dissemination and communication	• Develop community based early warning system. • Dissemination of information to vulnerable communities • Dissemination of information to person with disability.

Monitoring	- Parameters for the development of early warning. - Parameters for structural development and implementation.
Response Capabilities	- Take all the prevention, mitigation and preparedness measures. - Capacity building and awareness programs. - Provide support to conduct post disaster assessment studies.

5.12 Sensitization of community about the needs of person with disability

People with disability are some of the most likely impacted groups during any disaster with high risk of death, injury, additional impairment. Various initiatives have been taken to deal with the group and make things accessible to them. Among them one of the initiatives is sensitization of communities about the needs of disabled people. Even in disaster risk reduction measures disability- inclusion is one of the important point. Some of the following measures are to be taken for person with disability in community preparedness.

Task	Activity
Identification	- Identification of person with disability in community with the kind of disability. - Making the area of stay and work in the village.
Awareness and dissemination of Information	- Awareness programs related to disasters and vulnerabilities in their area. - Capacity building training with on rescue and emergency exits - Conducting mock drills including people with disability.
Monitoring	- Basic provisions for person with disability in Safe shelter with light, toilet, sanitation. - Accessibility of the safe shelter through ramps for them. - Ensuring safety evacuation doors for them.

5.1 3Knowledge Management, networking and sharing

Knowledge management is all about getting right knowledge, in right place and at the right time. Preparedness is to develop, support and enhance the organizational knowledge process of knowledge creation, storage, retrieval, transfer and application. The management focuses on capturing, organizing and converting organizational knowledge into common database, for further effective retrieval of relevant contents through advanced searches from the data base. At the lower end organizations focuses on learning, sharing and collaborating through physical interactions, workshops, documentation of experiences or sharing through web portals. The networking comprises of all the SDMD, DDMD, and administrative training institutes.

Task	Activity	Responsibility
Knowledge Management	- Disaster management activities carried out at various levels. - Documentation and dissemination of information to line departments. - Training and awareness programs - Government, community and private organization resource mapping. - Recording of best practices, lessons learnt, work experience and sharing with stakeholders in meetings, workshops and seminars.	- Revenue Department - DDMA - Technical Department.

5.14 Uploading of information on resources on IDRN

IDRN is a web based common information system for managing the inventory of equipments, skilled human resources and critical supplies for emergency response. It manages the district level resource database throughout the nation. The primary focus is to enable the decision makers to find answers on availability of equipments and human resources required to combat any emergency situation. This database also enables the organization to assess the level of preparedness for specific vulnerabilities. Total 266 technical items are listed in the resource inventory. The districts have been given the username and password through which they can perform data entry and data updation on IDRN for resources available in the district. The IDRN network has functionality of generating multiple query options based on specific equipment, skilled human resources and supplies with their location and contact details. Every year the resource inventory has been updated at the district level by DDMOs. Whereas NIC provide its technical assistance by updating it in website.

5.15 Media management/ Information dissemination

Mass media and communication system plays vital role in predicting and dissemination of information in advance. The communication system has significantly developed to a great extent in predicting and disseminating information about the disaster, there has been an impact on how public learns of and perceives the impact of disasters. Both the electronic and printing media has been linked to the disaster preparedness in awareness programs, warning dissemination, and evacuation, alerts government officials and in coordination with various stakeholders. Communication virtually links all the hazards mitigation process. The capabilities of communication, data gathering and data management technology have leaped forward in parallel with the increase knowledge about the origin and behaviour of natural hazards. The advancement in mass and telecommunication with technology had major contribution in forecasting and dissemination of information.

5.16 Medical Preparedness and mass casualty management

For medical preparedness, the details of all the hospitals available in the district should be made available in the DDMA or Control room. In preparedness phase, the hospital authorities, management, doctors and other staffs should be trained in emergency management. Details of medical equipments and manpower

available in each region should be made available and in case of emergency, the transportation of injured people should be made accordingly. During emergency, first aid for injured and triage in case of heavy causality is the duty of medical professional in the Taluka or district level. Based on the need for critical care facilities, Surgical Services, Transfusion Services etc victims should be allotted to different hospitals as per the available resources.

Chapter- 6

Response and Recovery**6.1 District Information Office****Actions on receipt of Early Warning**

- To monitor the situation and direct the officers of all levels in the department, for high level preparedness to ensure the safety of buildings of the department and other assets.
- To appoint one nodal officer to coordinate with the emergency control room of the disaster management department and provide support and regular help to district magistrate and other subdivision officers.
- To give information to relevant offices and people about daily weather and also issuing a press bulletin.
- Support in dissemination of Early Warning information once approved by DDMA through the means of telecommunications, i.e. electronic messages to the society.
- Establish coordination with flood information center at the district level before the seasonal floods.
- The nodal officer for disaster management in the department shall be responsible for coordination with EOC, ESF nodal and support agencies and other departments. Appoint additional staff to support him as required for the situation.
- If EOC at district level declares it as an emergency situation and Unified Response is activated, disseminate the information to all staff, key stakeholders etc.
- Call for a coordination meeting of key officer to take stock of the situation, impact of disaster on department capacity, immediate actions for response like need and damage assessments, coordination with DDMA and Incident response system.
- Develop periodic situation report and share with EOC and DDMA.
- Organise initial assessment of damages and immediate, short term and long term needs as per the format enclosed and share it with EOC and other key stakeholders.
- In consultation with EOC/DDMA and support agencies, plan response actions as per immediate, short term and long term needs.

During emergency response

- Coordinate with respective disaster management committee for monitoring situation and ensure community participation in monitoring and surveillance activities.
 - To disseminate the information and orders available from the DDMA.
 - To be in coordination with district administration and provide the right information to media if any disaster or calamity occurs during the event. Also, to spread authorized information, collected from the concerned official department, among people through news, messages, SMS, Social Media and FM Channels. To make people aware of the truth.
 - To frequently provide all the details regarding news being published by various newspapers and channels to the district administration. And, to publish official clarifications of the administration as per the necessity.
-

- DIO also ensures adequate directions to local cable channels and newspapers for not publishing any kind of news or information that can cause communal or religious discord among people.
- To give reliable information about the needs of the relief material in the areas and motivating the general public for their support.
- To ensure the damage and loss assessment of the department equipments and resource material, finances, etc. and recouped it as soon as possible.

6.2 Health Department

Activities on Receipt of Warning

- Appoint one person as “NODAL OFFICER” from the department to coordinate with DDMA and other local bodies.
- Review and update precautionary measures and procedures, and review with staff, the precautions that have been taken to protect equipment and the post disaster procedures to be followed.
- Stock emergency medical equipment which may be required after a disaster.
- Determine type of injuries/illnesses expected and drugs and other medical items required, and accordingly ensure that extra supplies of medical items be obtained quickly.
- Provide information to all hospital staff about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.
- Equipment supplies such as candles, matches, lanterns and extra clothing should be provided for the comfort of the patients.
- Surgical packs should be assembled and sterilized. A large enough number should be sterilized to last four to five days. The sterilized surgical packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable instruments, such as surgical tools, ophthalmoscopes, portable sterilizers, CGS, dental equipments, etc., should be packed in protective coverings and store rooms considered to be the most damage-proof.
- Protect all immovable equipment, such as x-ray machines, by covering them with tarpaulins or polythene.
- Check the emergency electrical generator to ensure that it is operational and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one.
- If surgery is to be performed following the disaster, arrange for emergency supplies of anaesthetic gases.
- Check stocks of equipments and drugs which are likely to be most needed after the disaster. These can be categorized generally as: Drug used in treatment of cuts and fractures, such as tetanus toxoid, analgesics and antibiotics. Drugs used for the treatment of diarrhoea, water-borne diseases and flu (including oral rehydrating supplies). Drugs required treating burns and fighting infections. Drugs needed for detoxification including breathing equipments.
- Assess the level of medical supplies in stock, including: Fissure materials, Surgical dressings, Splints, Plaster rolls, Disposable needles and syringes, local antiseptics, prepare an area of the hospital for receiving a large number of casualties.
- Develop emergency admission procedures (with adequate record keeping). Orient field staff with standards of services, procedures including tagging. Hospital administrators should establish work

schedules to ensure that adequate staff is available for in-patient needs. Organize in-house emergency medical teams to ensure that adequate staff is available at all times to handle emergency casualties. Set up teams of doctors, nurses and dressers for visiting disaster sites.

- DHO to prepare and circulate in vulnerable areas, a list of precautions to be taken by the public before, during and after the disaster to ensure that they maintain normal health under adverse conditions.
- Plan methods for quick transportation of seriously injured and sick person from disaster areas to specialties hospitals for effective treatment.
- After receiving the first flood warning, alert Dist. Medical Health Officer (DHO) to plan and keep in readiness mobile hospitals, emergency field medical teams, Para medical teams, surgery facilities, first aid kits etc. with sufficient equipment's and medicines at Dist. Hospitals and PHCs. They should be in a position to move to the affected areas at short notice.
- Plan for establishment of field medical centres, mobile clinics, emergency operation centres and trauma counselling centres at vulnerable areas on short notice.
- Plan for stocking sufficient quantities of blood of different groups at nearby Blood banks. Update the list of Govt. /private doctors and supporting staff whose services can be utilized during emergencies. Instruct them to be in readiness to move at short notice.
- Direct the officers of all levels in the department for high level preparedness and provide support and help to district magistrate, sub division officers, and other local bodies.
- Support in dissemination of Early Warning information once approved by DDMA and appoint a departmental person as a nodal person to coordinate with the EOC.
- Ensure that important contacts numbers, transport means, first aid box, essential drug kits, delivery kits and medical equipment and supplies, stretcher etc. are available in sufficient quantity.

During emergency response

- If EOC at district level declares it as an emergency situation and Unified Response is activated, disseminate the information to all staff, key stakeholders etc.
- DHO will be in regular touch with District Collector and Control room to know the severity of situation and extend medical services accordingly in the affected areas. A medical control room at district and division levels shall be established with help lines.
- Call for a coordination meeting of key officer to take stock of the situation, impact of disaster on department capacity, immediate actions for response like need and damage assessments, coordination with ESF and Incident response system /EOC.
- Develop periodic situation report and share with EOC and DDMA.
- Organize initial assessment of damages and immediate, short term and long term needs as per the format enclosed and share it with EOC and other key stakeholders
- Where ever necessary seriously injured and sick persons are shifted to Dist./State/Referral hospitals for specialist services. If roads are blocked, a method should be established to request helicopter transport.
- Provide first aid and medical assistance for injured and sick people. Special care should be taken for the aged and disabled people, children and pregnant women.
- DHO will move maximum number of medical and Para medical teams, ambulances and mobile hospitals with adequate equipment's, medicines etc. to the affected area and provide medical

assistance round the clock to the people. Each team should be allotted specific place in the disaster area and specified relief centres.

- DHO should take all measures to ensure that replenishments are made continuously. DHO will requisition the services of medical teams from unaffected Districts for use in disaster affected areas. DHO will liaise with State for providing additional specialists teams and equipment's from State headquarters and other States.
- The provision of medical services should be coordinated by the CMO with district control room. Procedures should be clarified between Peripheral hospitals, Private hospitals, Blood banks, General hospitals and Health services established in transit camps, relief camps & affected villages.
- Maintain check posts and surveillance at Transport depots and all entry and exit points from the affected area, especially during the threat/ existence of an epidemic.
- An injury and disease monitoring system should be developed to ensure that a full picture of health risks is maintained.
- Monitoring should be carried out for epidemics, water and food quality and disposal of waste in transit and relief camps, feeding canters and affected villages.
- Plan for emergency accommodations for auxiliary staff from outside the area.
- Information formats and monitoring checklists should be used for programme monitoring and development and for reporting to Emergency Operation Center. This is in addition to the existing reporting system in the department.
- Seek security arrangements from district police authorities to keep curious persons from entering the hospital area and to protect staff from hostile actions
- Establishment of a public information center with a means of communication to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential & limitations in disaster situations.
- Ensure to provide psychological first aid to people in acute distress and implement preventive, responsive and remedial measures to reduce the risk of sexual violence.

Post Disaster Activities

- Ensure that DHO and other medical authorities at District and Block levels are in constant touch with Control rooms, know the latest situation and expand medical facilities accordingly. Ensure continuation of educating people on precautions to be taken for maintaining hygiene and health in adverse conditions.
 - DHO to continue provision of medical facilities in the affected areas and relief camps till the people return to their places. Ensure adequate measures to continue for preventing break of epidemics by using disinfectants and chlorination.
 - DHO will obtain information on the medical relief provided in disaster areas, quantities of medicines used, the quality of services provide by medical and Paramedical staff, the adequacy of medical facilities available in vulnerable areas and forward to State for future action.
 - Maintain a record of persons treated with full details and particulars for reference at a later date. Update and send plans for additional requirement of facilities, infrastructure to be created in vulnerable areas. Prepare a document on the event and send to State authorities for reference in future.
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- Ensure continuation of educating people on precautions to be taken for maintaining hygiene and health in adverse conditions. DHO to continue provision of medical facilities at the affected areas and relief camps till the people return to their places.
- Ensure adequate measures to continue for preventing break of epidemics by using disinfectants and chlorination. DHO will obtain information on the medical relief provided at disaster areas, quantities of medicines used, the quality of services provide by medical and Para medical staff, the adequacy of medical facilities available at vulnerable areas and forward to State for future action.
- Vector borne like malaria, filarial, dengue, chikungunia, Japanese encephalitis, sprinkling of bleaching power and lime on the drains and roads to prevent gastro enteritis with the help of Sanitation team.
- During the natural calamities the immune states of the children will reduce naturally. Hence there is need of Post disasters immunization like Polio, Measles and Vitamin- A.

6.3 Animal Husbandry Department

Actions on receipt of early warning

- To immediately contact the District Control Room and will assist in the work.
- To ensure that the staff is on duty at the headquarters
- To assign the work to be done to the subordinate officers and staff and send them to their sites.
- To receive instructions from the district liaison officer and do the needful.
- To ensure the availability of resources included in the DDMP and will make necessary arrangements to obtain those during emergency.
- To consult the Liaison Officer to prevent the probable epidemic among the cattle and also for the safety measures.
- To make groups having vehicles for emergency work and will assign the areas to them.
- To set up a temporary control room for the exchange of information for emergency work and will appoint a nodal officer.
- Ensure that flood warnings and precautions are properly received by the vulnerable communities and prepare them to face the disaster.
- Cattle rearing community at vulnerable places will be advised not to go for heavy animals, since shifting them during disaster period would be difficult. Move cattle, sheep, goats, pigs etc. to safer cattle yards from vulnerable areas and provide fodder and water.
- Ensure that boats and other equipment's of fishermen are moved to safer places and secured in association with fisheries department. Staff meant for emergency duties will be sent to their respective places of work and will be ready to undertake rescue and relief measures.
- Chalk out a strategy to deal with drought situation so as to ensure continuous supply of fodder and water to the animals.

During disaster response

- Blocks and Villages will arrange for shifting fishermen staying at low lying areas and near to dams to safer places and relief camps. Ensure that boats and other equipment's of fishermen are moved to safer places and secured.
-

- Arrange for providing medical help to distressed animals. Ensure sufficient quantities of medicines and vaccines are stored at places nearer to the vulnerable villages. Arrange for visits of veterinary doctors to affected villages.
- To maintain record keeping and maintenance of regular flow of information.
- Coordination with villagers to search and rescue trapped animals.

Post Disaster Activities

- Ensure that control rooms and flood-warning centres at Blocks will continue sending messages to the affected villages.
- Issuing death certificates against insured dead animals.
- Distribution of disinfectants where animals were buried.
- Provide sufficient food/fodder/water for animals kept at safe yards. Coordinate for veterinary help to distressed animals. Ensure supply of medicines and vaccines at places nearer to the vulnerable villages.
- Maintain record keeping.

6.4 Agricultural Department

Actions on receipt of early warning

- To appoint one nodal officer from the department to coordinate with the emergency control room of the disaster management and other local bodies.
- Ensure that regular feedback is provided by Blocks indicating seriousness of disaster, level of distress, position of standing crop and likely losses.
- Assign the work to his subordinate officers and staff the work to be done regarding agriculture under DDMP and send them to their sites.
- Receive instruction from the district liaison officer and take necessary action.
- Ensure the availability of resources included in the DDMP and will make due arrangement to get those during emergency.
- Make groups having vehicles for emergency work and will assign the areas to them.
- Set up a temporary Control Room for the dissemination of information for emergency work.
- Prepare initial damage assessment report and share it with DDMA.

During disaster response

- Coordinate with Blocks and Villages to get feedback on seriousness of disaster, level of distress, relief provided, steps taken for saving maximum standing crop, extent of flooded agricultural lands and estimated loss of crop.
 - Move and position the staff meant for disaster management duties at their pre-decided places. They should move in villages and advise farmers on precautions to be taken for protecting the standing crop.
 - The nodal officer should ensure that suitable instructions are issued to their field officers including their duties and function before, during and after disasters.
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- Inspect the sub-ordinate offices, other centers and sub-centers under his control, which are damage prone.

Post Disaster Activities

- Village level team should visit the vulnerable cropped area and give suitable technical advices received from DAO.
- Ensure that adequate and timely relief/credit is made available to farmers for purchase of agricultural inputs through Govt. /private and easy loans through banks.
- Seeds, fertilizers and pesticides should be provided at subsidized rates. Ensure all relief measures, credit facilities and inputs are made available continuously to farmers till their next crop is harvested.
- Develop database village wise crop wise, irrigation, source wise, insurance details, credit facilities etc., with an objective of forecast of damages due to disasters.
- Fodder should be supplied in sufficient quantities at low prices.
- The enumeration team while enumerating the crop loss, should also record the names of the tenant farmers, along with the owners name. They should also record extent cultivated by tenant farmer.

6.5 MSEDCL

Actions on receipt of early warning

- To monitor the situation and direct the officers of all levels in the department, for high level preparedness to ensure the safety of buildings of department and other assets.
 - To appoint one nodal officer from the department to coordinate with the emergency control room of the disaster management department and provide support and regular help to district magistrate and other sub division officers.
 - Support in dissemination of Early Warning information once approved by DDMA through the means of telecommunications i.e. electronic messages to the society.
 - Establish coordination with flood information centre at the district level before the seasonal floods.
 - To ensure that trees and branches have been cleared which have fallen on electrical lines.
 - If EOC at district level declares it as an emergency situation and response is activated, disseminate the information to all staff, key stakeholders etc.
 - Call for a coordination meeting of key officer to take stock of the situation, impact of disaster on department capacity, immediate actions for response like coordination with ESF and Incident response system /EOC/DDMA.
 - To give wide publicity that household should arrange lanterns and battery light for use in case of power cut-off during emergency times. Develop periodic situation report and share with EOC and DDMA.
 - Assist the state authorities to make arrangements for standby generators in the following public service offices from the time of receipt of alert warning-
 1. Hospitals
 2. Water Supply Stations
 3. Collectorate
 4. Police stations
-

5. Telecommunications buildings

- Fill departmental vehicles with fuel and park them in a protected area.
- Check emergency tool kits, assembling any additional equipment needed.
- Immediately undertake inspection from the time of receipt of-
 1. High tension wires
 2. Towers
 3. Substations
 4. Transformers
 5. Insulators
 6. Poles and
 7. Other equipments
- Organise initial assessment for damages and immediate, short term and long term needs as per the format enclosed and share it with EOC and other key stakeholders.
- In consultation with EOC/DDMA and support agencies, plan response actions as per immediate, short term and long term needs.

During disaster response

- Restoration of power lines on priority to hospitals, water supply, control room, railway station and other life line structures.
- Presence of engineers in the affected area.
- Live wires on the ground should be removed immediately.
- Damaged electrical poles should be immediately replaced/ repaired and if fallen on road should be removed.
- Support with search and rescue, relief programs etc. by connecting with nodal agencies for different essential support functions.

6.6 Public Works Department

Actions on receipt of early warning

- Establish communication with DDMA, District Magistrate and other local administration.
 - To instruct all officials to keep manpower and materials prepared for protection and repair of public works.
 - Dispatch extra vehicles to be stationed at strategic posts along routes likely to be affected.
 - Move heavy equipments such as front end loaders, to areas likely to be damaged.
 - Inspect all roads, road bridges by a bridge engineer, including underwater inspection of foundation and piers. A full check should be made on all concrete and steel works.
 - Secure works under construction ropes, sandbags and cover with tarpaulins if necessary.
-

- If people are evacuating the area, the evacuation routes should be checked and assisted.
- Establish a priority listing of roads which will be opened first, the most important being roads to hospitals and main trunk routes. Give priority attention to urgent repair works in disaster affected areas.
- Identify locations for setting up transit and relief camps, feeding centers and quantity of construction materials required and inform the DCR accordingly.
- Emergency tool kits must be made available and should include
Crosscut saws
 1. Crosscut saws
 2. Axes
 3. Power chain saw
 4. Sharpening Files
 5. Chains and tightening wrenches
 6. Pulley block with chain and rope

During disaster response

- All works teams should be issued two-way communication link. Provide a work team carrying emergency tool kits, depending on the nature of the disaster, essential equipments such as Towing vehicles, Earth moving equipments, Cranes etc.
 - Adequate road signs should be installed to guide and assist the drivers.
 - Begin clearing roads. Assemble casual laborers to work with experienced staff and divide into work gangs.
 - Mobilize community assistance for road clearing by contacting community organizations. Undertake repair of all paved and unpaved road surfaces including edge metal ling, pothole patching and any failure of surface, foundations in the affected areas and keep monitoring their conditions.
 - Undertake construction of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
 - Undertake clearing of ditches, grass cutting, burning, removal of debris and the cutting of dangerous trees along the roadside in the affected area through maintenance engineer's staff.
 - Undertake repair of all paved and unpaved road surfaces including edge metalling, potholes patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.
 - Undertake construction of temporary roads to serve as access to temporary transit and relief camps and medical facilities for disaster victims.
 - As per the decision of the district control room, undertake construction of relief camps, feeding centres, medical facilities, cattle camps.
-

- An up-to-date report of all damages and repairs should be kept in the district office report book and communicate the same to the district control room.
- If possible, review of the extent of damage (by helicopter) should be arranged for the field Officer-in-Charge, in order to dispatch most efficiently road clearing crews, and determine the equipments needed. As per the decisions of the State/District Emergency Operations Center. Undertake construction of temporary structures required, for organizing relief work and construction of relief camps, feeding centers, medical facilities, cattle camps and SOC/s.
- Provide assistance to damage assessment team for survey of damage to buildings and infrastructure.
- Zonation of affected areas and estimate the total loss to buildings.

Post Disaster Activities

- To analyse the damage assessment and ensure the departmental resources like equipments, construction material, building resource material, finances etc. used for disaster response purpose are accounted and recouped as soon as possible.

6.7 BSNL

Vulnerable and critical network components

- According to hazard profile of the area, TSPs will identify vulnerability of their respective telecom infrastructure and accordingly prepare plan for emergency situations. All the vulnerable critical network components should have sufficient redundancy including transmission links and power backups in terms of battery storage capacity and diesel / fuel availability.
- Low power consumption equipment should be preferred at all vulnerable / critical locations.

Actions on receipt of Early Warning

- To monitor the situation and direct the officers of all levels in the department, for high level preparedness to ensure the safety of buildings of department and other assets.
 - To appoint one nodal officer from the department to coordinate with the emergency control room of the disaster management department and provide support and regular help to district magistrate and other sub division officers.
 - Support in dissemination of Early Warning information once approved by DDMA through the means of telecommunications, i.e. electronic messages to the society.
 - Establish coordination with flood information center at the district level before the seasonal floods.
 - If EOC at district level declares it as an emergency situation and Unified Response is activated, disseminate the information to all staff, key stakeholders etc.
 - Call for a coordination meeting of key officer to take stock of the situation, impact of disaster on department capacity, immediate actions for response like need and damage assessments, coordination with ESF and Incident response system/EOC.
 - Develop periodic situation report and share with EOC and DDMA.
-

- Organise initial assessment of damages and immediate, short term and long term needs as per the format enclosed and share it with EOC and other key stakeholders.
- In consultation with DDMA/EOC and ESF nodal and support agencies, plan response actions as per immediate, short term and long term needs.

During disaster response

- Coordinate with the respective disaster management committee for monitoring situation and ensure community participation in monitoring and surveillance activities.
- Provide setup for the web-conferencing or audio conferencing for the district administration.
- Immediately restore the communication system in the affected area.
- Ensuring that the affected communities are able to contact their relatives in distant places.
- To conduct the damage and loss assessment like equipments and resource material, finances, etc. and recover and recouped its after disaster.
- Keep a vigil also on the areas not affected by the disaster.

Post Disaster Activities

- Check if all the necessary life saving measures is in place and there is no further risk to life property and environment due to infrastructure of BSNL. Give status report to EOC/ DDMA.
- Ensure that the maintenance of communication system etc. has been owned by private companies, community level committees and adequate monitoring mechanisms are in place.
- To conduct the damage and loss assessment and submit the report to DDMA.

6.8 Forest Department

Actions on receipt of Early Warning

- To immediately contact the district control room and will assist in the work.
- To ensure that the staff at the headquarter is on duty.
- To assign the work to be done by the subordinate officers and staff regarding transportation under DDMP and to send them to their sites.
 - To arrange for wireless, telephones, manpower, forest guard in advance to disseminate information of the disaster in the damage prone areas and will play a key role with the district administration to warn the public.
 - To make advance arrangement for fuel wood and bamboos, gravels for priority areas.

During Disaster Response:

- To follow the instructions of District Disaster Management Authority.
 - To carry out the duty assigned for search and rescue work.
 - To engage the resources and manpower available to manage the disaster.
-

- To prepare a primary report of damage for the affected areas.
- To take actions to provide electricity, water and sanitation to the temporary shelters in the forest areas.
- To send task forces with vehicles, tree cutters, ropes, flood light, generator in case of closure of roads due to felling of trees.
- Open the forest land for free grazing when flood waters enter villages, and there is not enough fodder available.
- Allow the transportation of fodder from forest areas, when the fodder is not freely available.
- Provide wooden poles and bamboo for relief and reconstruction at subsidized rate. Provide these materials to all the technical departments, which need them.

6.9 Incident Response System

Introduction

The emergency response plan is a first attempt to follow a multi-hazard approach to bring out all the disasters on a single platform and incorporates the '*culture of quick response*'. Under the plan, common elements responsible for quick response have been identified and a set of responsible activities has been articulated. It provides a framework to the primary and secondary agencies and departments, which can outline their own activities for disaster response. The plan will also include specific disaster action plans along with modal scenarios in detail to conduct practice drills at district administration level.

Operational Direction and Coordination

Most of the disasters are to be managed at the state and district level. The Centre plays a supporting role in providing resources and assistance. It will mobilize support in terms of various emergency teams, support personnel, specialized equipments and operating facilities depending upon the scale of the disaster. Active assistance would be provided only after the declaration of national emergency level.

In case disaster may be managed at the district level, district emergency operation system would be activated where state and national level authorities would be on guard in case of assistance needed. Incident commander (IC) of the district would activate the emergency support functions and Incident Response System and similarly according to the guidance disaster management teams and quick response teams would respond.

If disaster may not be managed with district level and required active participation of state resources, State EOC would activate and Divisional Commissioner would take over the IC system.

Operational –Coordination Structure

Each organization generally has a framework for direction of its operation and coordination between its different units. Disaster Management generally requires partnership between organizations and stakeholders. An effective and early response requires mobilization of manpower, equipments and materials belonging to different organizations which may not be working together during normal times. Therefore a framework needs to be prescribed as a part of emergency planning for operational

directions and coordination during response phase. This plan recognizes role of Deputy Commissioner in providing overall operational direction and coordination for all the response functions. With the help of District Disaster Management Committee (DDMC) and District Emergency Operation Centre, Deputy Commissioner will formulate following coordination structure for response plan.

Trigger Mechanism

As soon as Emergency Operation centre would get the information about any emergency, the staff on duty in EOC will pass the information the DC and seek for his instruction for further actions. If the information pertains to the occurrence of a disaster in any part of the district, the staff on duty will also try to inform DDMA members, Emergency Support Functions-team leaders, major hospitals and State Disaster Management Authority etc. The staff on duty will also be responsible to reclaim information related to type, magnitude and location of the disaster and also inform it to responsible authorities. The EOC in-charge will also inform all the details to Divisional Commissioner and State EOC. All the desk officers/team leaders and Incident Response Team members will also be informed to immediately report at District EOC. Incident Response team and Desk officials would respond as per their standard operating procedures and directions of IncidentCommander(IC).

Activation of Incident Response System

The emphasis in Disaster Management has shifted from relief centric approach to proactive regime, and as such a well-coordinated response with clockwork precision becomes one of the most important goals. Incident Response System has been developed in this regard.

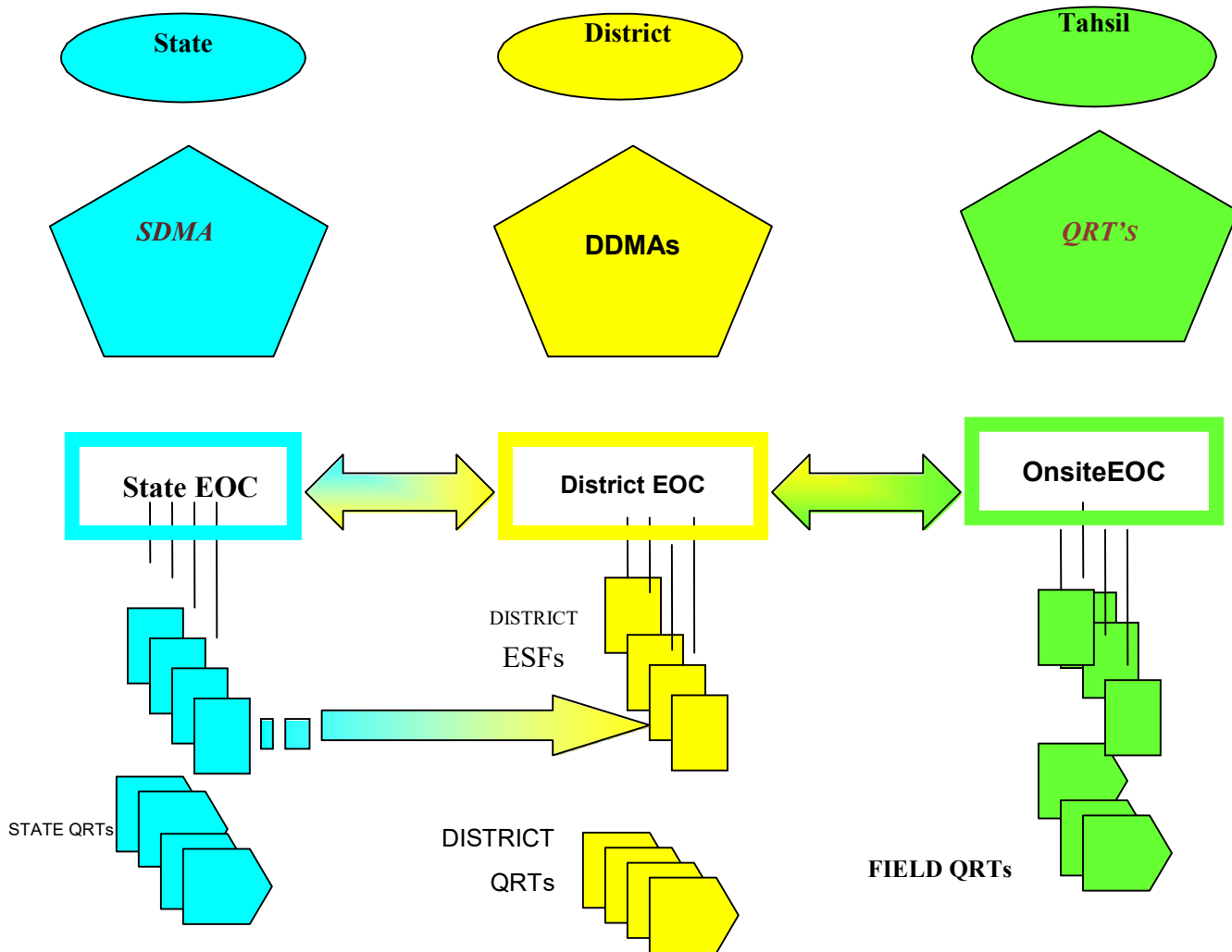


Figure 17- Various Response Levels for Disaster Management

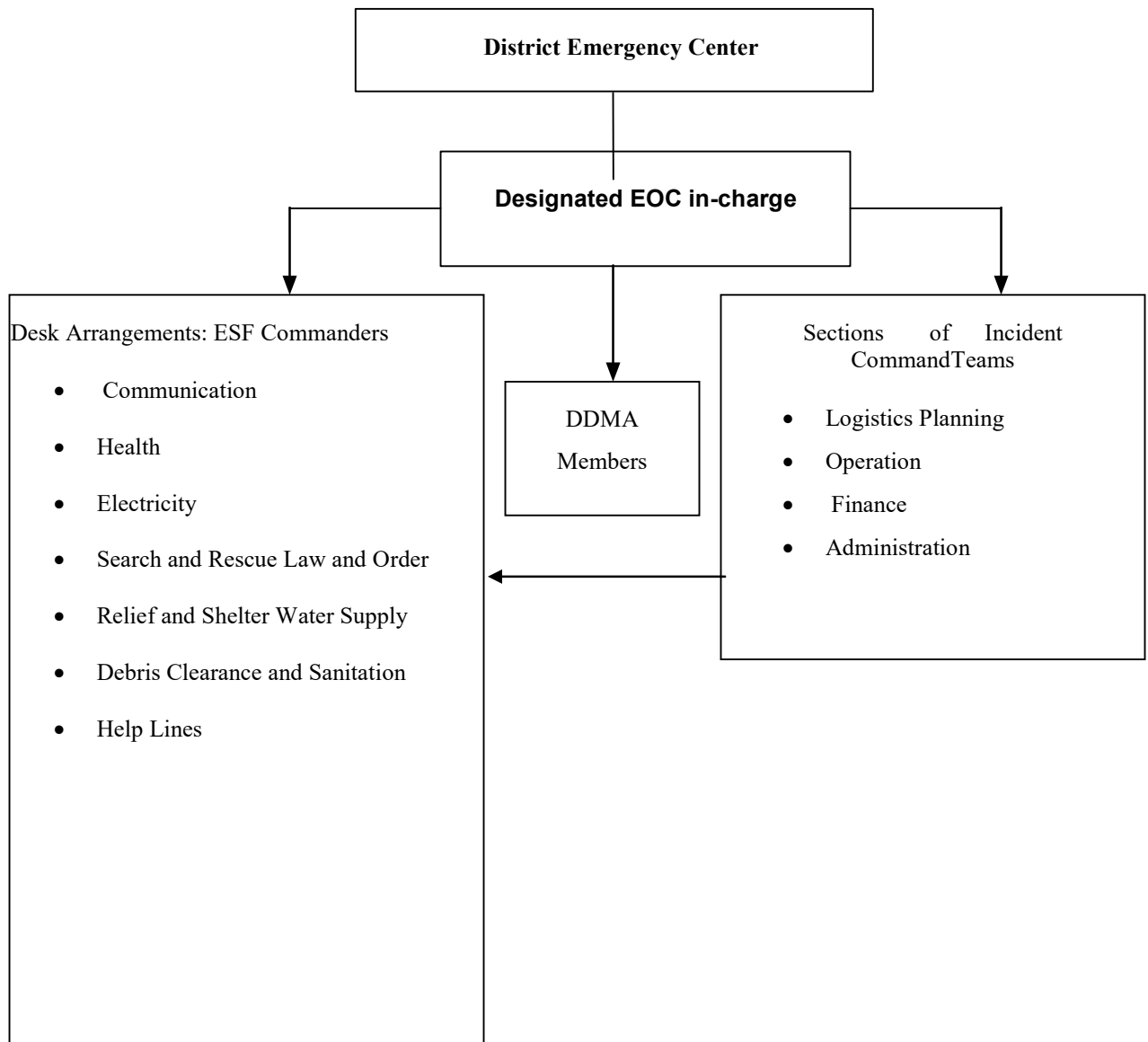


Figure 18- Trigger mechanism for District EOC

Incidence Response System

During emergency period DC would be designated as Incident Commandant and shall take up following immediate actions

1. IC will designate IRS members according to the rank requirement and assign responsibilities under four sections of logistics, planning, finance and administration.
2. IC will also direct to the EOC in-charge (District Disaster Management Officer) to inform all the DDMA members about the incident and ICP (Incident Commandant Post)
3. IC will direct ADM to coordinate with the team leader of Emergency Support Functions (ESFs)
4. EOC/PCR will also pass the information to the DDMA members about the location of ICP.
5. Direct EOC in-charge to pass the information to the State apex body/Unified commander.

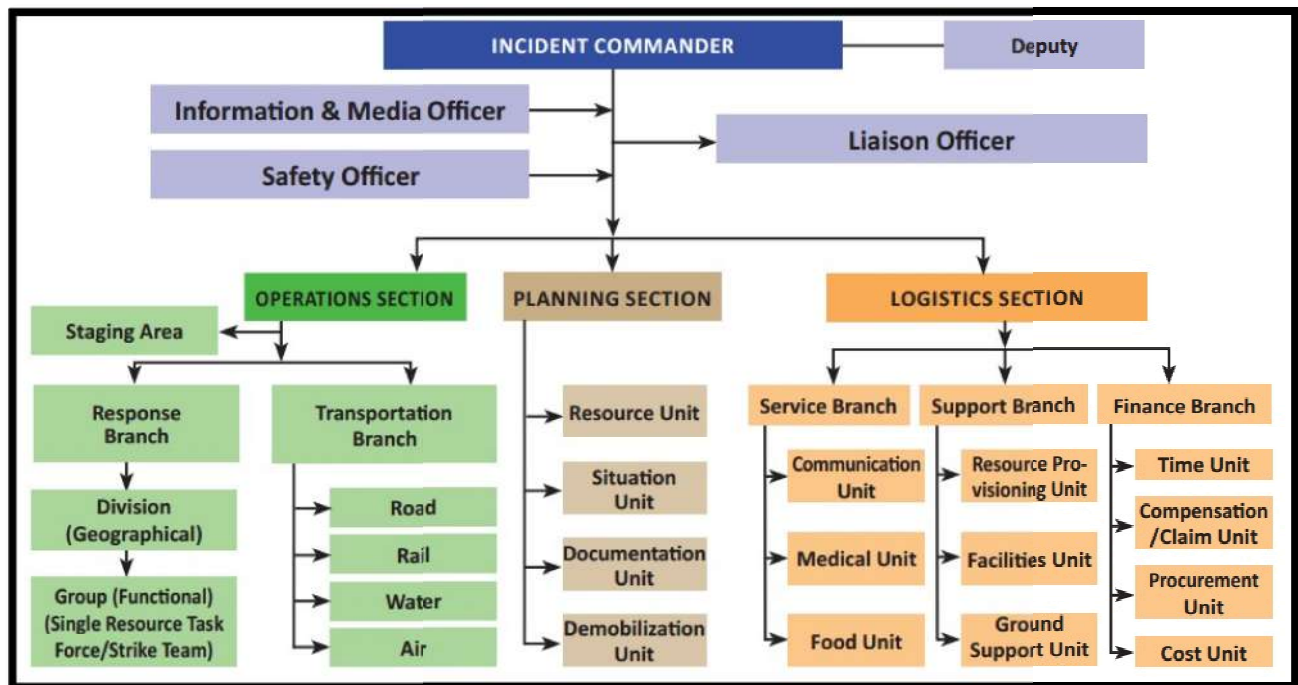


Figure 19-Structure of Incident Response Team

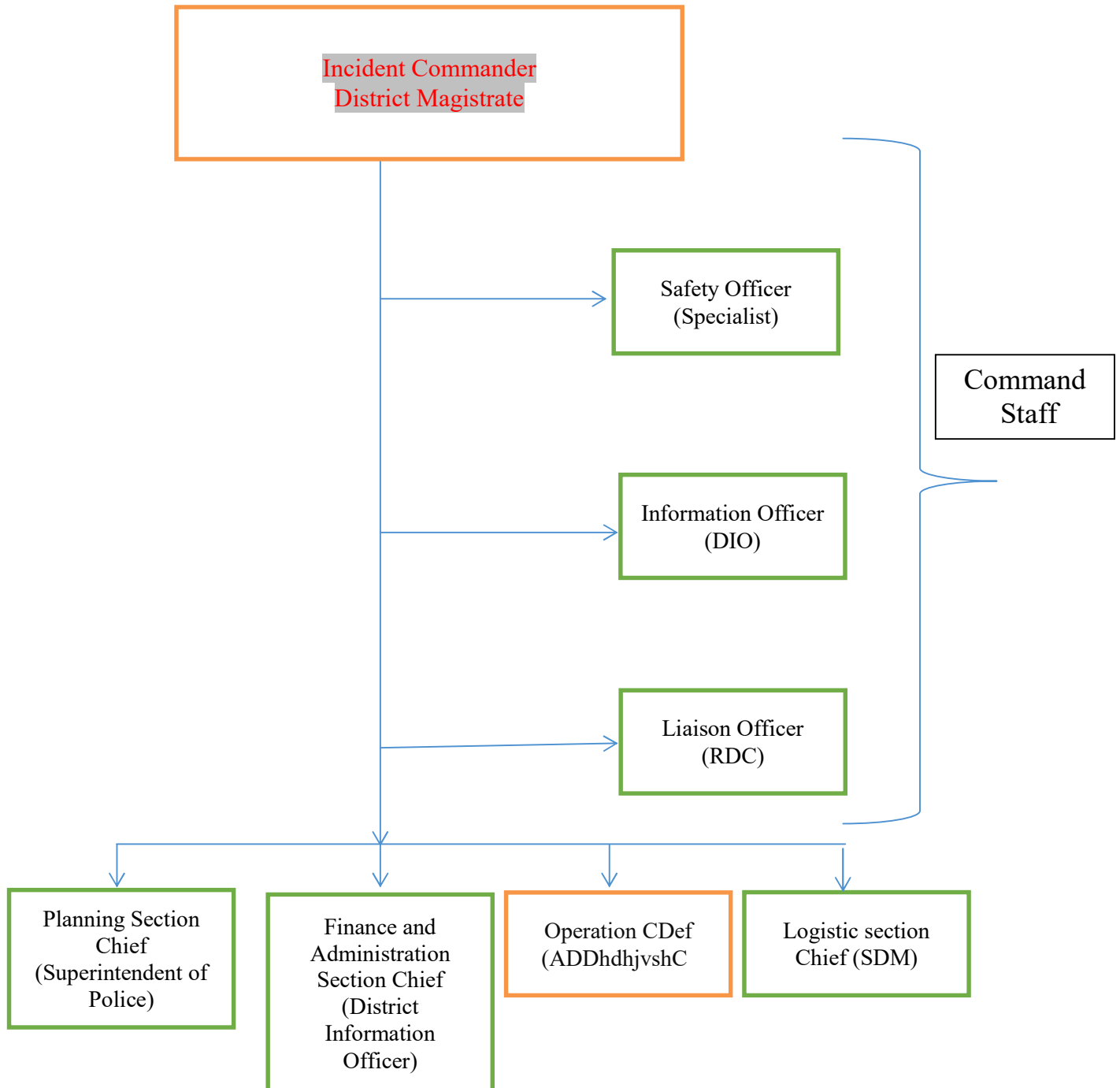


Figure 20- Incident Response System

Table 16: Rank for District level Incident Response Team

S.N	IRS Position	Suggested rank and position for District level
1.	Responsible Officer	District Magistrate
2.	Incident Commander	District Magistrate
3.	Liaison Officer	RDC
4.	Information and Media Officer	District Information Officer
5.	Safety Officer	Specialist from DDMA/NDMA
6.	Operations Section Chief	Additional District Magistrate
7.	Staging Area Manager	Area Tehsildar
8.	Response Branch Director	Fire Officer
9.	Transportation Branch Director	Motor Licensing Officer
10.	Planning Section Chief	Superintendent of Police
11.	Situation Unit Leader	Respective Tehsildar
12.	Resource Unit Leader	Area Tehsildar
13.	Documentation Unit Leader	DPO
14.	Demobilization Unit Leader	Area Tehsildar
15.	Technical Specialist	Specialist from NDMA/DDMA
16.	Logistic Section Chief	Area SDM
17.	Service Branch Director	SDM(Election)
18.	Support Branch Director	Tehsildar 1
19.	Communication Unit Leader	SDM (Election)
20.	Food Unit Leader	Tehsildar 1
21.	Facilities Unit Leader	Tehsildar 2
22.	Ground Support Unit Leader	Tehsildar 2
23.	Medical Unit Leader	District medical officer(DMO)
24.	Finance Branch Director	Account Officer
25.	Time Unit Leader	SDM(Election)
26.	Cost Unit Leader	Accounts Officer, O/o-Dy. Commissioner

Responsibilities under Incident Response System

Incident Commander

- Incident Commander (IC) shall rush to the Emergency Operation Center (EOC) where technical experts and section chiefs shall join him. He shall remain in the contact of EOC to know the updated status of incident.
- In consultation to technical experts Incident Command Post (ICP) shall be selected near incident site. Site selection shall be on the basis of the wind prevailing directions and probability of secondary hazards etc.
- Obtain updates of the incident situation from ICP and establish a link for continuous communication through dedicated telephone lines with speaker phones, set of walkie-talkies, computer link etc. with the help of coordinator
- Supervise the overall management of each function through respective members of DDMA and expediting response when ever required
- Identify the hazardous and threatened areas based on map and information received ICP
- Take a decisions on requirement and priorities of evacuation and organize the resources to execute the same
- Based on the inputs from the first responders, and experts available at ICP, identify the additional resources requirement and initiate mobilization with the help of section chiefs.
- Coordinate with the other district authorities and state authority
- After making required arrangement, IC shall visit incident site to supervise the situation
- He shall also take decisions in demobilizing the resources after the incident

Following three officers will support Incident Commander along with Operation, logistic, planning and finance section chiefs.

Safety Officer

1. Recommend measures for assuring safety of responders and to assess or anticipate hazardous and unsafe situations and review it regularly;
2. Ask for assistants and assign responsibilities as required;
3. Participate in planning meetings for preparation of IAP (Incident Action Plan);
4. Review the IAP for safety implications;
5. Obtain details of accidents that have occurred within the incident area if required or as directed by IC and inform the appropriate authorities;
6. Review and approve the Site Safety Plan, as and when required;

Liaison Officer

1. Maintain a list of concerned line departments, agencies (CBOs, NGOs) and their representatives at various locations.
-

2. Carry liaison with all concerned agencies including NDRF and Armed forces and line department of Government.
3. Monitor Operations to identify current and potential inter-agency problems.
4. Participate in planning meetings and provide information on response by participating agencies.
5. Ask for personnel support if required.
6. Keep IC informed about arrival of all Government and Non – government agencies and their resources.
7. Help in organizing briefing sessions of all Government and Non-governmental agencies with IC.

Information Officer

1. Prepare and release information about the incident to the media agencies and others with the approval of IC.
2. Jot down decision taken and directions issued in case of sudden disasters when Incident Response Team has not been fully activated.
3. Ask for additional personal support depending on the scale of incident and workload.
4. Monitor and review various media reports regarding the incident that may be useful for incident planning.
5. Organize Incident Action Plan meeting as directed by the Incident Commander.
6. Coordinate with IMD to collect weather information and disseminate it to all concerned.

Operation Chief: Additional District Magistrate

Most preferred rank for the operation chief is Additional District Magistrate. Following are the duties designated for Operation Chief:

- Responsible for the management of all operations directly applicable to the primary mission. He will activate the emergency support functions and will coordinate with the team leaders of ESFs.
 - Activates and supervises organization elements in accordance with the Incident Action Plan (IAP) and directs its execution.
 - Determine need and request additional resources.
 - Review suggested list of resources to be rebased and initiate recommendation for release of resources.
 - Make expedient changes to IAP as necessary.
 - Report Information about special activities, events or occurrences to Incident Commander.
 - Maintain Unit / Activity details.
-

Emergency Support Functions

ESFs shall be activated under Operation Chief. On the receipt of information Team Leaders (TLs) would take up following actions

- On the receipt of information about the off-site emergency Team Leaders (TLs) will activate their own Emergency Support Functions(ESFs)
- TLs will join IC and Operation Chief (ADM) in EOC to ensure coordination and to provide assistance
- TLs would also move to the site for better operational control
- TLs will call the nodal officers of supporting agencies and immediately deploy the quick response teams (QRTs) from the location of nearest to the incident site
- They further reinforce their teams by deploying additional resources from surrounding areas so the effective first respond can be rendered at site
- A high alert would be notified to move additional resources and manpower to the incident site
- According to the feedback report additional TLs will take decision of movement of more team and manpower. In some of cases TLs may need to mobilize resources from nearby districts or states. In such cases chiefs will organize this through respective headquarters

Planning Section Chief

Planning section chief shall be responsible for performing following duties:

- Collection, evaluation, dissemination and use of information about the development of incident and status of resources. Information is required to understand the current situation and to prepare alternative strategies and control operations
 - Supervise preparation of Incident Action Plan(IAP)
 - Provide input to Incident Commander and Operation Chief in preparation of IAP
 - Reassign out of service personnel already on site to other positions as appropriate
 - Determine need for any specialized resources in support of the incident
 - Establish information requirements and reporting schedules for Planning Section Unit (e.g. Resources, Situation Unit).
 - Compile and display incident status information
 - Facilitate the preparation and implementation of Incident Demobilization Plan.
 - Incorporate Plans (e.g. Traffic, Medical, Site Safety, and Communication) into IAP.
 - Maintain Unit / Activity details.
-

Resource Unit Leader

Responsible for maintaining the status of assigned resources (Primary and support) at an incident. This is achieved by overseeing the check-in of all resources, maintaining a status keeping system indicating current location and status of all resources and maintenance of a master list of all resources e.g. by key supervisory personnel, primary and support resources etc.

- Establish check-in function at incident locations.
- Prepare Organization Assignment List & Organization chart.
- Maintain & post the current status and location of all resources
- Maintain master list of all resources checked in at the incident.

Check-in/Status Recorder:

Needed at each check-in location to ensure that all resources assigned to an incident are accounted for:

- Prepare check-in form, resource status boards and status display board.
- Establish communications with the communications Centre and Ground Support unit.
- Post signs so that arriving resources can easily find the check in locations
- Record check-in information on check-in lists
- Transmit check-in information to Resources Unit on regular pre-arranged schedule/ as per need.
- Receive, record and maintain status information for single resources, strike teams, task forces, overhead personnel
- Maintain file of check-in lists.

Situation Unit Leader

- Begin collection and analysis of incident data as soon as possible.
- Prepare post or disseminate resource and situation status information as required, including special requests.
- Prepare incident status summary
- Provide photographic services and maps if required.

Display Processor (*Draftsman-Computer trained*): Responsible for display of incident status information obtained for field observers, resource status reports, aerial photographs, etc.

- Determine:-
 1. Location of work assignment
 2. Numbers, types and locations of displays required
 3. Priorities
 4. Map requirements for incident
 5. Time limits for completion
 6. Field observer assignments & communication means
 - 7.
-

Field Observers

Responsible to collect situation information from personal observations at the incident & give it to situation team leader.

- Determine:-
 - Location of assignment
 - Type of information required
 - Priorities
 - Time limit for completion
 - Method of communication
 - Method of transportation
- Obtain copy of IAP for the operation period
- Obtain necessary equipment & supplies for his use.
- Collect data like
 - Perimeter of location of hot spots etc.
 - Be prepared to identify all facilities location (e.g. division boundaries)
 - Report information to SITL

Demobilization Leader

- Responsible for developing incident DMOBP lan
- Review incident resource records to determine the likely size and extent of DMOB effort ▪ addl. Personnel, work space and supplies needed
- Coordination DMOB with agency representatives
- Monitor ongoing operation section resource needs
- Identify surplus resources and probable release time
- Develop incident check out for all units

Documentation Leader: District Planning Leader and Tehsildar

- Arranging for complete documentation of proceedings at the incident site
- Maintaining record of what happened and what actions were taken
 - i. Recovering response costs and damages

- ii. Setting the record straight where there are charges of negligence or mismanagement resulting from the incident.
- iii. Reviewing the efficiency and effectiveness of response actions
- iv. Preparing for future incident response
- v. Videotaping of the entire combat the rescue operations

Technical Coordinators

Two to Four experts in geo-sciences, fire safety, flood rescue, industrial safety and health shall be nominated as technical experts. Major issues shall be addressed by them are:

- **Formulation of response objectives and strategy**

TC shall assess the incident before taking actions and formulate realistic response objectives. The assessment shall be based upon following points:

- Pre-incident plans
- Information related to material involved, container involved, vehicle and structure involved and atmospheric conditions affecting the incident
- Environmental monitoring and sampling data (if available)
- Public protective actions to be initiated
- Resource requirements (trained manpower, specialized protective gear and other equipments)
- Hazards posed to the nearby areas

On the bases of above-mentioned points they will formulate a defensive strategy to protect the public and environment from the immediate spill or discharge area.

Identification of Hazard Zone

Technical experts shall be able to determine real time contaminant concentrations at various distances downwind. They shall be responsible to estimate downwind concentrations and feeding the information to the Team leaders of various ESFs for further response. To estimate the hazard zone in a particular emergency scenario, the technical coordinator shall place the transparency of the vulnerability template with its x-axis along the prevalent wind direction and start point on the source of release on the scaled map.

Establishment of Hazard Control Zones at Incident Site

Technical expert should determine the zones varying according to the severity of hazard. For example Hot Zone, Warm Zone and Cold Zone. According to the zones local commandant post and rescue operations should take place.

Suppression of Hazardous Gas or Vapour Releases

Technical experts should also identify response measures to any other probability of outburst due hazardous gas and vapour release directly in the atmosphere from the ruptured and punctured containers or from the evaporating and boiling pools of liquid that have been formed due to chemical spill.

Logistic Section Chief

Responsible to provide facilities, services and materials for effective management of disaster. Participates in development and implementation of Incident Action Plan (IAP) and activates & supervise Logistic section.

- Assign work locations & tasks to section personnel
 - Participate in preparation of IAP
 - Identify service and support requirements for planned and expected operations
 - Coordinate and process requests for additional resources
 - Provide input to / review communication plan, Traffic plan, medical plan etc
 - Prepare service and support elements of IAP
 - Recommend release of unit resources as per DDMP.
 - Maintain Unit/ Activity details.
-

Following are the team members who will assist him in the process under service and support branch.

✓ **Communication Unit Leader:**

- Prepare & implement incident wireless communication plan
- Ensure that incident communication centre & Message centre are established
- Establish appropriate communication distribution/ maintenance locations within base/camps
- Ensure communication systems are installed and tested
- Ensure equipment accountability system is established
- Ensure personal portable wireless sets from cache is distributed as for incident wireless communication plan
- Provide technical information require don:
 - a. Adequacy of communication system currently in operation
 - b. Geographic limitation on communication system
 - c. Equipment capabilities /limitations
 - d. Number and types of equipments available
 - e. Anticipated problems in the use of communication equipments
 - f. Ensure equipments are tested and repaired
 - g. Recover equipments from released units.
 - h. Responsible to receive and transmit wireless and telephone messages among to between personnel to provide dispatch services at the incident
 - i. Set up message centre location as required
 - j. Receive and transmit messages within and external to incident
 - k. Maintain files of general messages
 - l. Maintain a record of unusual incident occurrences.

✓ **Medical Unit Leader:**

Responsible for

- Development of medical response plan
- Respond to requests for medical side and transportation for injured & ill incident personnel medical supplies.

✓ **Supply Unit Leader:**

Primarily responsible for ordering personnel, equipment & supplies receiving and storing all supplies for the incident maintaining an inventory of supplies servicing non-expendable supplies to equipment.

- Determine the type & amount of supplies enroute
- Order, receive, distribute and store supplies & equipment
- Receive and respond to requests for personnel, supplies and equipment
- Maintain inventory of supplies & equipment.
- Service reusable equipment

✓ **Ordering Manager:**

- Obtain necessary order forms
 - Establish ordering procedure
-

- Establish name and telephone number of personnel receiving orders
 - Get names of incident personnel who leave ordering authority
 - Check on what has been already ordered
 - Orders when possible
 - Place orders in a timely manner
 - Keep time and location for delivery of supplies
 - Keep receiving and distribution manager informed of orders placed
- ✓ ***Receiving & Distribution Manager:***
- Organize physical layout of supply area
 - Establish procedures for operating supply area
 - Set up a system for receiving and distribution of supplies and equipment
 - Develop security requirement of supply area
- ✓ ***Facilities unit leader:***
- Primarily responsible for the layout and activation of incident facilities e.g. base, camps, ICP.
 - Provides rest and sanitation facilities for incident personnel
 - Manage base and camp operations (to provide security and general maintenance)
- ✓ ***Ground support unit leader:***
- Support out of service resources.
 - Transportation of personnel, supplies, food & equipment.
 - Fueling, service, maintenance and repair of vehicles and other ground support equipment.
 - Implementing traffic plan for the incident
- ✓ ***Food Unit Leader:***
- Responsible for supply needs for the entire incident including camps, staging areas.
- Determine food & water requirements
 - Determine method of feeding to best fit each facility or situation
 - Obtain necessary equipment & supplies and establish working facilities
 - Order sufficient food & potable water from the supply unit
 - Maintain an inventory of food, water
 - Maintain food service areas & ensure that all appropriate health & safety measures are being followed.

Emergency Support Functions

Emergency Support Functions (ESFs) are the essentials of Emergency Management comprising of various coordinating agencies, which manage and coordinate specific kinds of assistance common to all

disasters types. The plan establishes an organized set-up to conduct ESF operations for any of the Natural and Manmade Disasters. It outlines an implementing framework of sharing resources and co-ordinating, preparedness, Mitigation, response and recovery as per the requirement. The Plan has structured the activities of concerned agencies i.e. primary/nodal and support agencies into an organized manner according to their capabilities, skills, resources and authorities across the state and district government. It also attempts to unify efforts of state departments so that they are involved in emergency management comprehensively to reduce the effects of any emergency or disaster within the state. Refer table 6.2 for the list of ESFs and primary and secondary agencies involved.

Organization Setup of the ESF at District Level

The Revenue Department of the district, which may be renamed as ‘Department of Revenue and Disaster Management’, as directed by the Ministry of Home Affairs, is the prime coordinating agency for disaster risk management efforts. However there will be other agencies involved in-charge of different ESFs. Each ESF is headed by a lead organization and assisted by supporting organizations for coordinating the delivery of resources and services to the disaster-affected area.

These ESFs form an integral part of the EOC and each ESF should coordinate its activities from the allocated EOC. Extension teams and quick response teams (QRTs) would be required to follow their response procedures at the affected site. Nodal officers of all the ESFs would constitute Incident Management Team. Nodal officer would also nominate names for the QRT members who will accomplish disaster management related work at the field level. Similarly supporting agencies would also nominate their nodal officers and QRT members who will assist to the primary officers during response phase. Additional names should also be proposed to backstop the requisite positions.

Nodal and Supporting agencies comprising of QRTs shall be trained to carry out their functions at the response site. The success of ESF will be of critical importance and would reflect in the lives saved in the golden hour. All ESFs have to assist the Incident Commander i.e. Deputy Commissioner at State level as per their assigned duties described in the SOP’s and to be followed during emergency within the District/State.

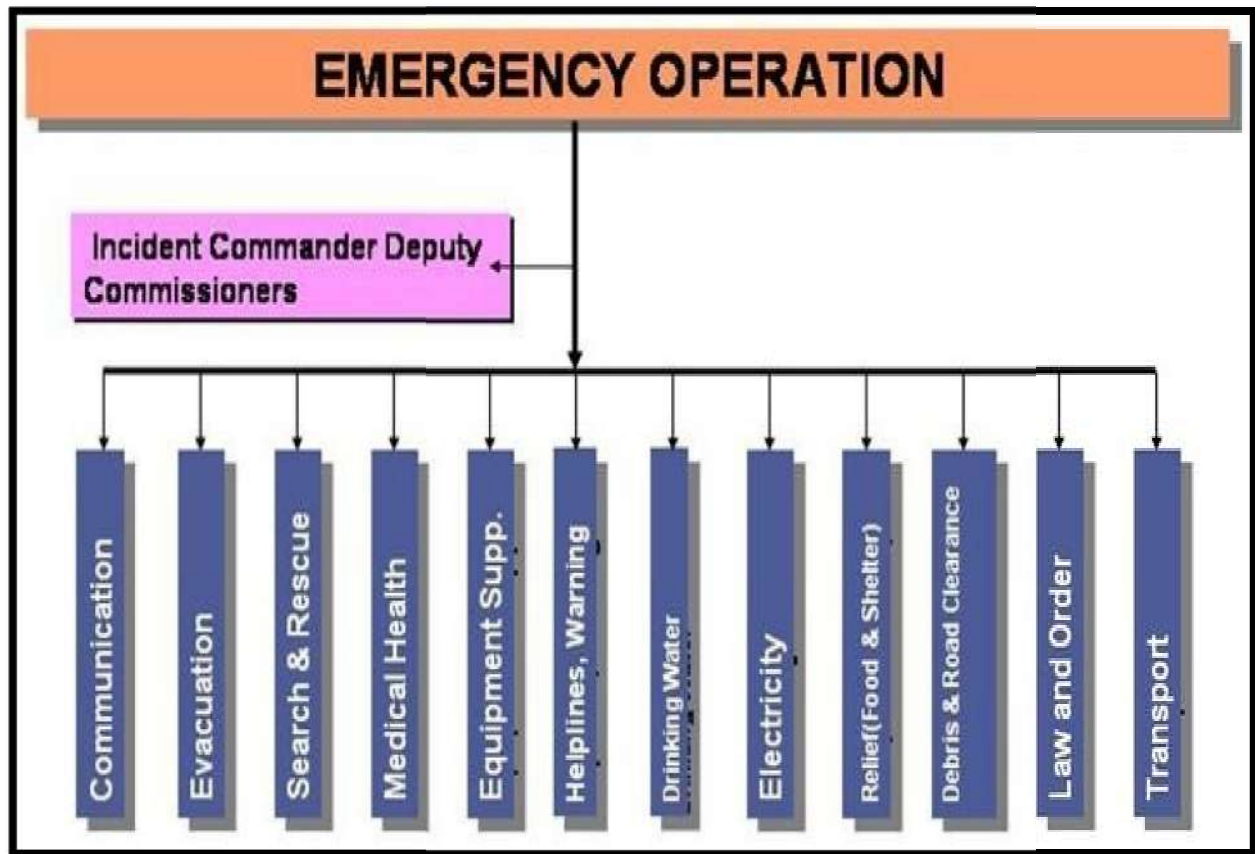
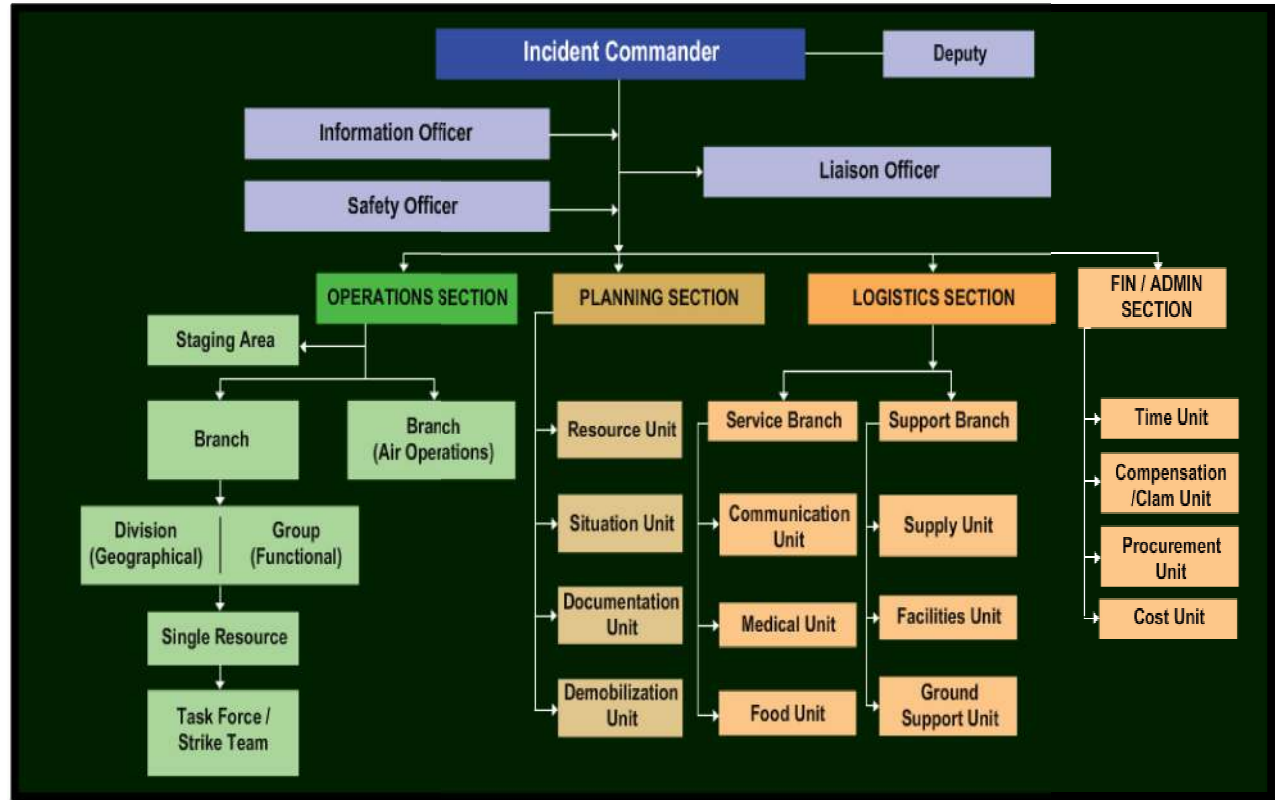


Figure 22 Emergency Support Function



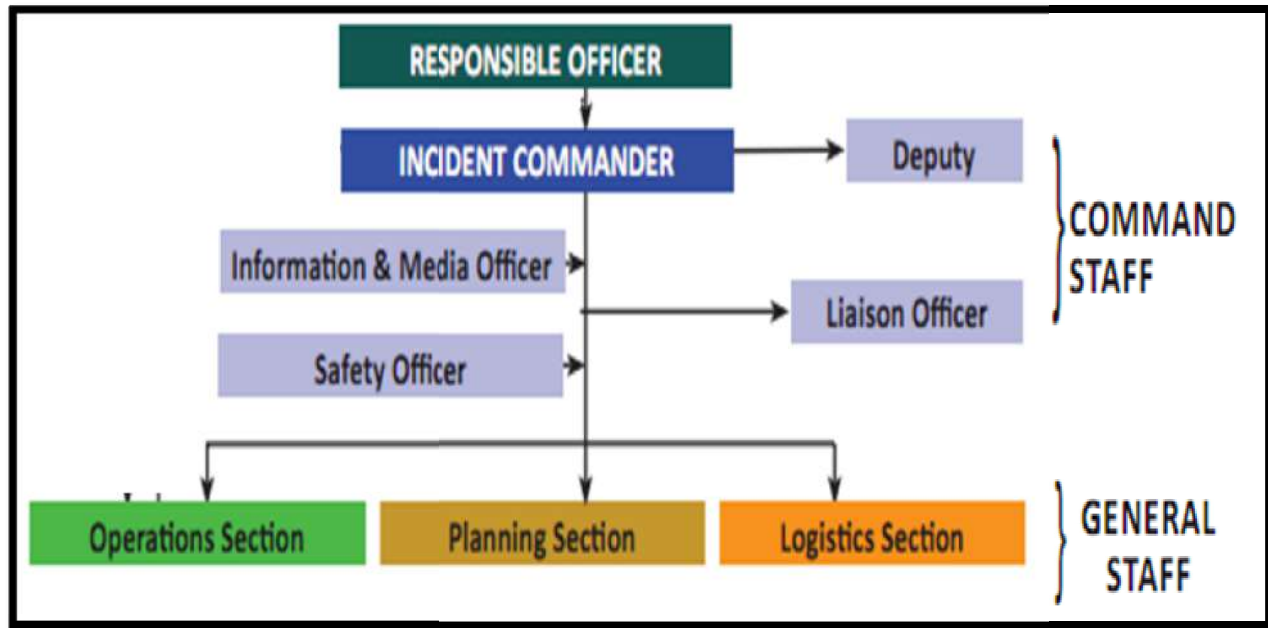
RESPONSIBLE OFFICER = PRIMARILY RESPONSIBLE FOR EFFECTIVE RESPONSE

COMMANDER = OVERALL INCHARGE OF THE INCIDENT RESPONSE TEAM AND ITS EFFECTIVE FUNCTIONING

OPERATIONS = DIRECT AND SUPERVISE ALL TACTICAL ACTIONS

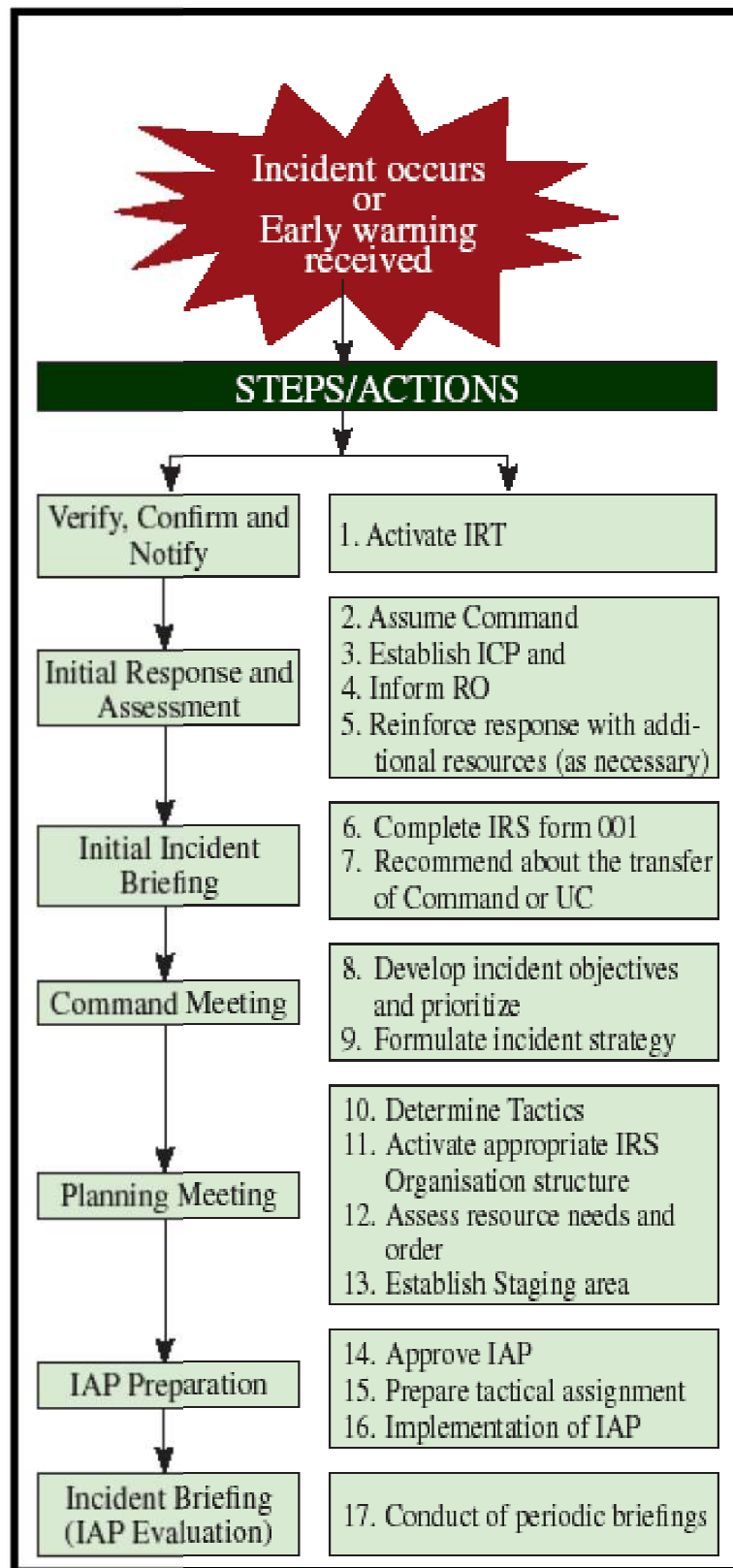
PLANNING = COLLECT/ANALYZE DATA, WORKOUT NEED OF REQUIRED RESOURCES AND PREPARE ACTION PLAN

LOGISTICS & FINANCE = PROVIDE LOGISTICS SUPPORT, PROCUREMENT AND COST ACCOUNTING

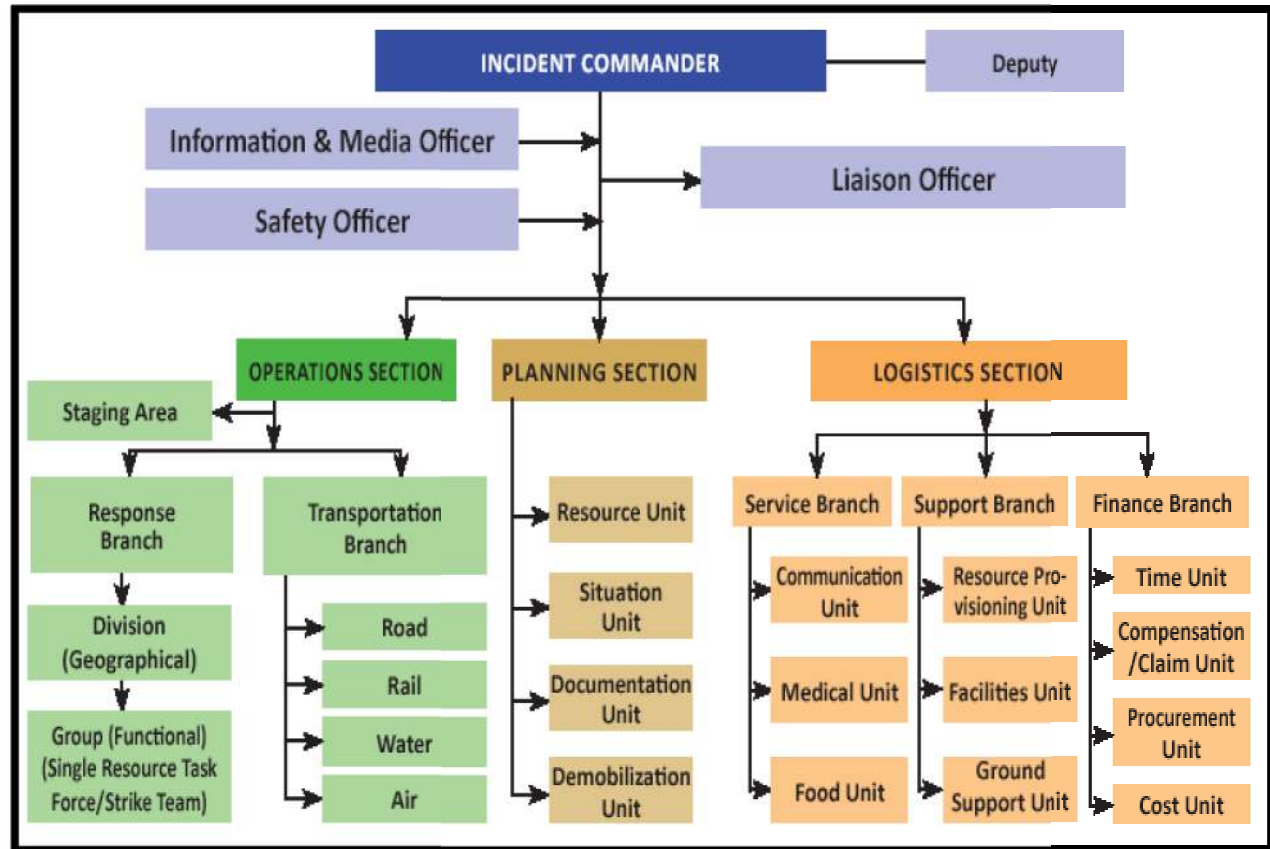
PRIMARY MANAGEMENT FUNCTIONS**Features of IRS**

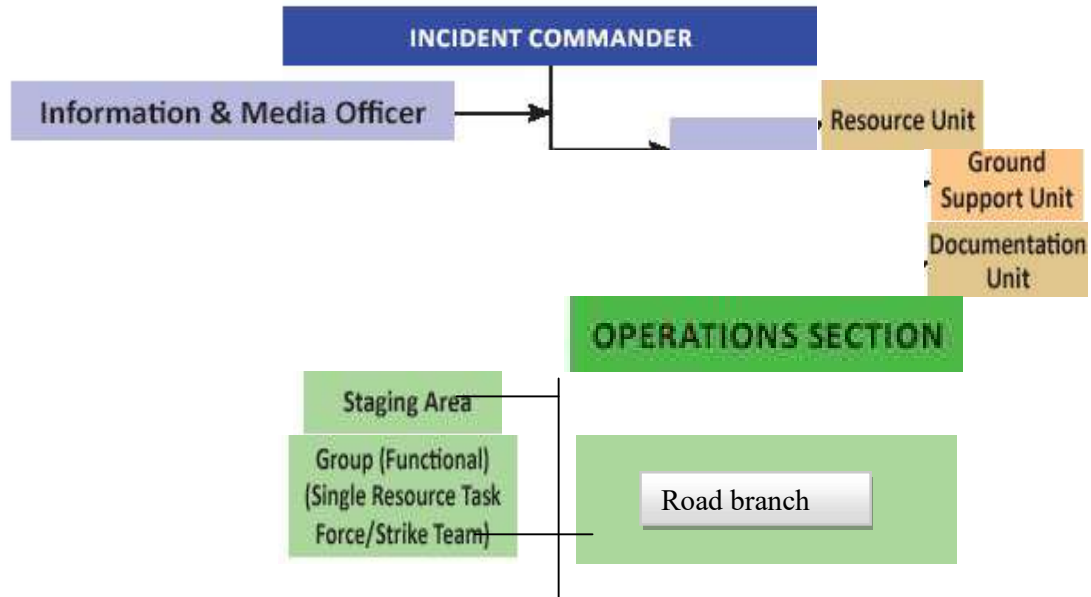
1. Management by objectives & Incident Action Plan
2. Flexibility
3. Span of control
4. Multi Tasking
5. Accountability
6. Resource Management
7. Common Terminology
8. Unity of command and chain of command
9. Transfer of Command
10. Unified Command
11. Medical Plan
12. Communication Plan
13. Demobilization Plan

MANAGEMENT BY OBJECTIVES & INCIDENT ACTION PLAN



IRT FOR BIG INCIDENT



IRT FOR SMALL INCIDENT**Forms and formats**

1. **Incident Briefing forms**
2. **Unit Log**
3. **Organization Assignment List**
4. **Incident Check-in & Deployment List**

Unified Command

Unified Command is a system that allows all agencies with jurisdictional responsibility for the incident, either geographical or functional, to manage an incident by establishing a common set of objectives and strategies under one commander without losing or abdicating agency authority, responsibility or accountability.

Area Command

Area Command is an expansion of the Incident Response function, primarily designed to manage a very large number of incidents that has multiple IRTs assigned or area being isolated because of geographical reasons.

It is established for overseeing response and to ensure that conflicts, jurisdictional or otherwise, do not arise amongst deployed responding teams.

Transfer of Command

- The Transfer of Command in any incident may take place for the following reasons:
- When an incident becomes overwhelming for the IC and IRT;
- More qualified and experienced senior officers arrive at the scene;
- The incident situation changes over time, where a jurisdictional or agency change in command is operationally required; and
- Normal turnover of personnel in the case of long or extended incidents

IRS standard symbols

Incident Command post

Staging Area

Base

Camp

Relief Camp

Heli Base

Heli Pad



INCIDENT COMMAND POST

The ICP is the location at which the primary command functions and coordination are performed. The IC will be located at the ICP. There will only be one ICP. This also applies to situations with multi-agencies or multi jurisdictional incidents operating under a single or Unified command. Normally ICP is not relocated.

Staging Area

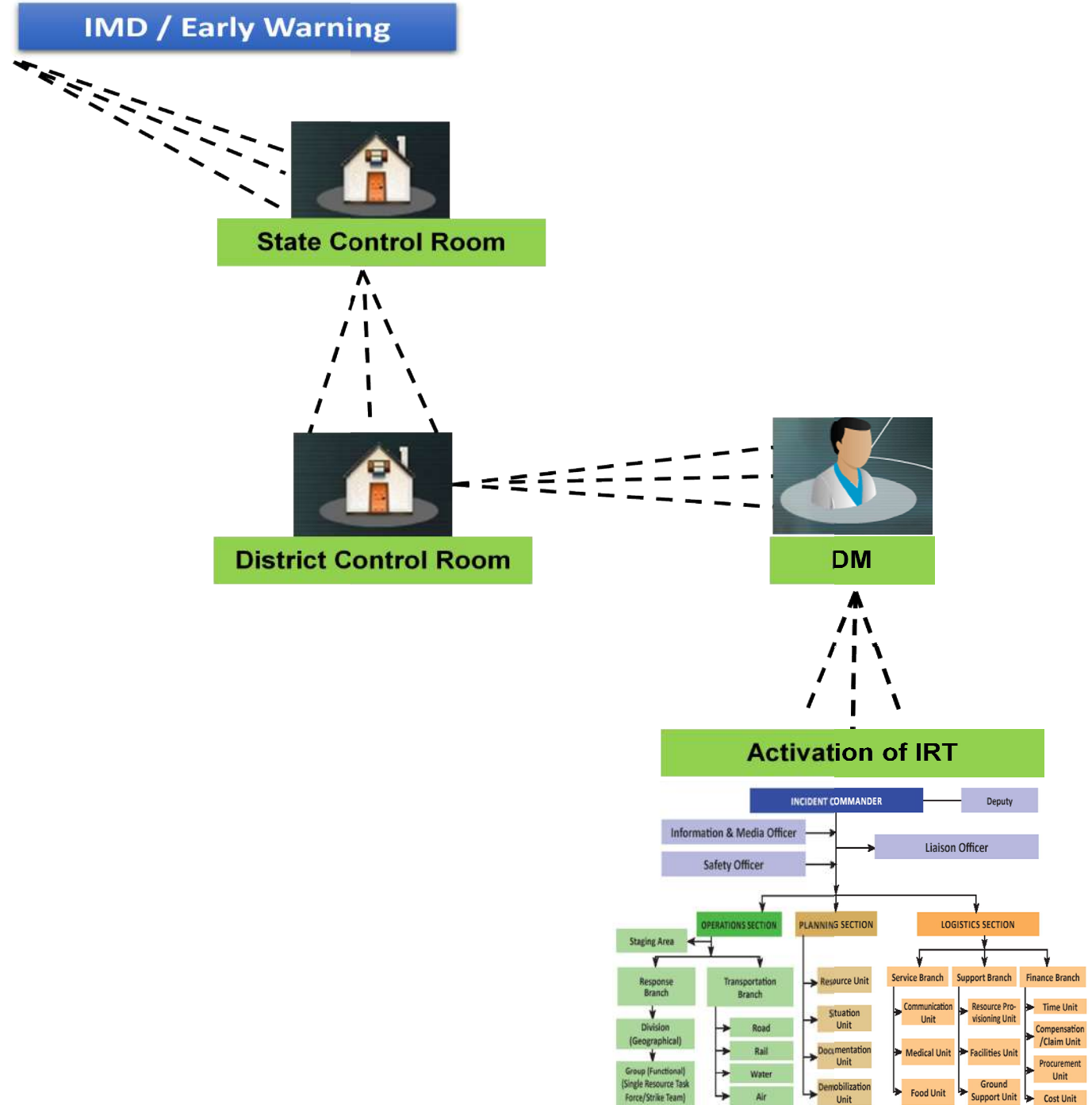
The Staging Area is an area where resources are collected and kept ready for deployment for field operations. These may include things like food, vehicles and other materials and equipment.

The SA will be established at a suitable area near the affected site for immediate, effective and quick deployment of resources.

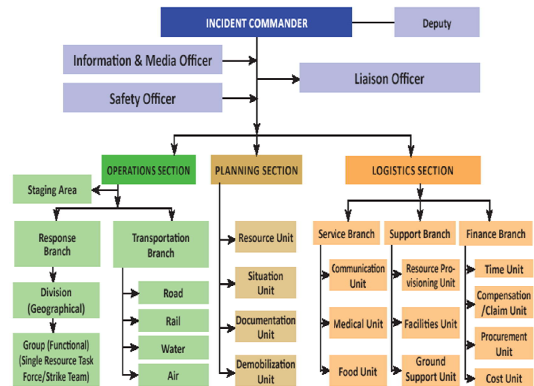
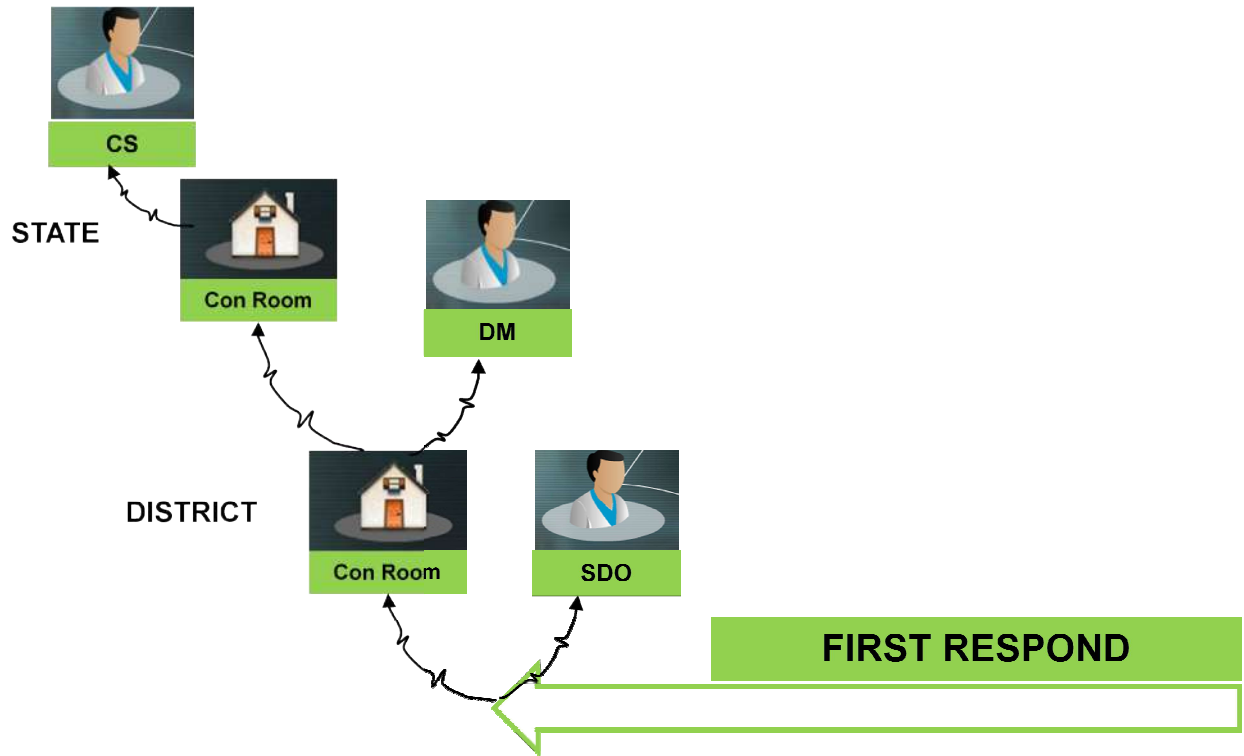
Camps

When incidents are widespread and faraway from the base, camps may have to be opened at different locations. Camps are temporary locations to provide services to incident personnel. Camps may be moved – from one place to another. All Base activities may be performed at Camps. Camps should be designated by names or number and should have prominent banners /signage.

TRIGGERING MECHANISM WITH EARLY WARNING



TRIGGERING MECHANISM WITHOUT EARLY WARNING



EOC Operations

The operation of the EOC will be at L0 level of maintenance pursuing the following activities:

Regular Functions of EOC during Normal Times

1. Updating and Maintenance duties of the EOC
2. Managing Inventories and reviewing existing logistic facilities
3. Keeping updated with other hazard, weather and terror events across the world.
4. Tracking and documenting new forms of disaster response measures and technology used around the world. Innovating these in the context of the state of Jammu and Kashmir.
5. Capacity Building including dry exercises and other preparedness and training exercises.
6. To ensure the continuous operation of the regular Public Safety facilities at all times.
7. The EOC is normally staffed twenty-four hours a day during seasons of extreme weather events and therefore it can quickly be activated for any emergency. When a major emergency occurs, or is imminent, it will be the responsibility of the Emergency Coordinator to set up and staff an appropriate Emergency Operations Center (EOC). The EOC is usually activated at the orders by Chief Secretary at the State level or the collector in the district level respectively. The activation of EOC should normally occur when the Government proclaims a State of Emergency affecting the area due to weather, hazardous materials, terrorism, etc. It also depends upon the severity and nature of the hazard event. It should be noted that the activation of EOC should be followed by the issuance of warning by nodal technical agencies. When the situation returns to normal, automatically the response operations cease and the EOC staff strength also reduced automatically. The deactivation of EOC takes place upon the receipt of Chief Secretary's order.
8. In case of extreme disasters such as chemical disasters, bomb blasts and terrorist attacks, national security and control takes precedence. The Ministry of Home has to establish special measures to ensure the security of the nation by sealing and evacuating strategic government and national institutions well within 3-4 hours of the occurrence. National borders, air and sea space also have to be protected and if need be, sealed off. The designated officers of the Home Guards at the EOC will provide security to the EOC entrance points. In addition to EOC staff, the authorized individuals are allowed by the Home Guards to enter the EOC.

EOC Levels of Operation

The EOC activation at various levels depends on the level of disaster. The National/state/district EOCs are activated in the L3, L2 and L1 levels of disasters respectively.

EOC Levels of Operation

Level	Nature of EOC Operation
Level 1 (L1)	Normal: Situation is monitored by EOC in charge
Level 2 (L2)	Watch: When an event / disaster may occur, notification is made to agencies and support staff who would need to take action as part of their responsibilities.
Level 3 (L3)	Partial Activation: Limited activation of EOC when an event / disaster is very
	probable or following an event which doesn't require full activation. All primary or lead staff will be notified and will staff the EOC.
Level 4 (L4)	Full Scale Activation: All primary and support agencies are notified. All EOC Support personnel will staff the EOC.

Immediate Tasks on EOC Activation

The Chief Secretary will initiate the activation of the emergency services of the EOC as established.

Immediate Tasks upon EOC activation

1.	The Chief Secretary will determine what staff he/she deems necessary to effectively operate the EOC apart from the prescribed staff. The Personnel from various departments and agencies are called to work in the EOC.
2.	Orders are faxed from the crisis management committee to related ministries and departments for additional resources.
3.	The emergency operation taskforces are asked to send report on the situation and their immediate resource requirements to the EOC within 4-8 hours of activation.
4.	The EOC produces a situation report summarizing these reports.
5.	Records will be maintained in the emergency control room.

EOC Tasks during emergency phase as suggested by HPC

Time	Task
First 24 hours of the emergency	1. Establishing Control rooms at the airport with information desks at the arrival, departure and assembly points. 2. Set up General Information Desk at airport EOC. 3. Establish and activate emergency phone lines and helplines immediately within few hours of the disaster. 4. Set up separate desks for each ESF and international aid /NGO. 5. Set up desks for donations (cash and material). 6. Establish contact with the affected State EOC. 7. Set up EOC at neighboring States.

	8. Establish contact with NRSA/ISRO/Defence for aerial and satellite imageries of the affected area. 9. Provide information and standard operating procedures for civilian population such as media, researchers, volunteers, field workers, etc. through: ○ Organize/coordinate aerial surveys for rescue operations ○ Establish contact with the disaster site which will have Incident Command Systems placed at the disaster site based on the scale of the disaster ○ Deploy Incident Commanders in consultation with the Center at strategic incident commands.
Next 48 Hours	EOCs at the State and the central levels will be jointly involved in the following: 1. Set up information desks at critical locations 2. Identify and channelise different categories of workers under the following at the information desks and provide identification tags for the following: - Media - Researchers - NGO/International Agency - Field workers/Volunteers - Government officials 3. Place situation reports at bulletin boards outside information desks and E O C. 4. Direct Central and international agencies to priority areas (worst affected areas). 5. Identify locations for international and other NGO agencies to set up their site offices for the uniform distribution of aid in all parts of the affected area. 6. Communicate with the District Magistrate and the SRC for local information through: - Information flow chart of Information and Arrival Centre at airport. - Material/Manpower flow chart of Information and Arrival Centre at airport. - Information flow chart of EOC at Centre. - Information flow chart of desk for ESF. - Information flow chart of NGOs. - Information flow chart of media. - Information flow chart of researchers.

EOC Communication

The Telecommunication Task Force Leader of the EOC shall ensure immediate restoration of disrupted communication facility or infrastructure to ensure uninterrupted communication for effective disaster management operations. The task force will also ensure that the communication shall be brief and simple, and no chaotic situations arise. Telephones or Hot Lines shall be used wherever possible to avoid congestion of radio communication. All task force members shall communicate only through their allotted frequency channel to avoid congestion in the particular channel. The personnel who use radios should be acquainted with the operation of the equipment, various channels, code words, length of speech, etc. The EOC has an important role in issuing early warning.

EOC Information Center Management

The principal role of information center in the EOC constitutes collection of data, analysis and dissemination of information to relevant organization. Upon the activation of EOC, this center coordinates the flow of information with respect to activities associated with relief operations. During normal times, it maintains a systematic database of the resources available, important phone numbers, name and addresses of important government officials, EOC emergency staff members, trained officials and first responders, international aid agencies and NGOs. The EOC-information center does damage assessment of the affected areas, collect all related information of government schemes for smooth management, monitors different disaster mitigation programmes, coordinate with different organizations, also conducts evaluation of the programmes and immediately takes up.

Preliminary Steps to Set Up an Emergency Operations Center

While setting up of an EOC, the following aspects should be given due consideration:

- **Number of people involved:** The number of people at an EOC should be limited to the people directly involved in the EOC operations.
- **Presence of decision makers and operations staff:** All key individuals involved in decision making and executing them needs to be present at the EOC, as and when policy decisions are being taken.
- **Communications and other equipment:** The EOC should have sufficient physical space and support equipment to enable staff to operate effectively. An EOC requires the best available communications and other equipment to operate efficiently. However, the lack of equipment should not be used as an excuse for not setting-up an EOC. Runners can work in the place of radios, paper and pens in the place of computers and printers, and chalk boards in the place of white boards.
- **Information Resources:** The EOC should contain maps and documentation on other relevant

resources needed to respond to a disaster.

- **Alternate sites:** There should always be an alternate site for the EOC in case it has to be abandoned.
- **Knowledge of the EOC location:** Only those who need to know where the EOC is located should be told its exact location.

EOC Basic Requirements

- **Site or Location of the EOC:** The Emergency operation center (EOC) should be established near the office of key government functionaries and is ideal to be positioned away from the disaster scene. As per the recommendations of the HPC, a network of EOCs is to be set up in national, state capitals and headquarters of disaster prone or vulnerable districts.
- **EOC Space Requirements:** Table 17 suggests the space required for specific functions of the EOC.

Table 17 EOC Space Requirements

Functions	Space Requirement
Policy Makers	A separate room from the main EOC area, often designed also as a conference room.
Media Information Provision	Separated from the main EOC area.
Communication and Data Processing	Designed separately from the main EOC as a Radio Room. It should include computer servers and similar equipment's.

Incident Commander	Separate cabin for the Incident Commander
Task Forces	Space for up to 15 Task Forces. Each task force should be provided separate desks, which is able to host atleast 3-4 persons at a desk at a time.
Logistics Coordination	Desks and space to host five persons
Administrative Personnel	Desks and space to host five persons
Finance Personnel	Desks and space to host five persons
Restrooms and Toilets	Restrooms and toilets for personnel at EOC

While designing EOCs, specific attention should also be given to aspects related to the electrical/data circuit layout, security considerations, lighting considerations, projection displays, visual aids, equipment, communication considerations, UPS/backup power considerations, and functional considerations with a view toward avoiding potential pitfalls in design, construction, and equipment functionality.

Back up Control Room

In case of rare incidents or disasters, the EOC building may be severely damaged and cease to function. In that case a backup EOC or a temporary set up can be used for coordination and

control of emergency operation. The HPC has emphasized on setting up of Back up EOCs at all levels right from National level to district levels. In the context of Jammu and Kashmir, it is advisable to have two EOCs at the State level, one positioned at Srinagar while the second state level EOC is set up at Jammu. This will also be in tune with the state's administrative structure and will help coordinate the activities when the administration moves from Srinagar to Jammu or vice versa.

Chapter- 7

Mainstreaming of Disaster Management

India is growing at the rapid pace, be it urbanization or Industrial expansion. Maharashtra being one of the largest contributors in GDP is growing day by day with some of its largest cities population and Industrial area got almost getting doubled in decade. As the new developments such as urbanization, population and industries increases, it creates a new range of risk for the communities and social environment. There are many examples driven for economic growth and social improvement generating new disaster risks. Rapid and unplanned urbanization is an example. The growth of informal settlements and inner city slums, fuelled by internal migration from smaller urban settlements or the countryside, has led to the growth of unstable living environments. At the same time Industrial developments within the urban cities and town has led threats to the human population from fire, biological, radiation and nuclear hazards related risk for communities . This has led the government to integrate disasters risk reduction measures with development. The DM act mandates us to take measures for prevention/mitigation of disasters and to ensure that appropriate preparedness measures for integration of disaster management into development plans and projects are taken and further allocation of funds for prevention, mitigation, preparedness for disaster and capacity building are also made available. Since disaster management is not a function of DM department alone but of all departments hence mitigation concern must be addressed by the respective departments in all aspects of developmental plans and project.

7.1 Concept of Disaster and Development

Disaster and Development goes parallel to each other. Development and disaster have both positive and negative correlation. Development can increase the vulnerability of people and assets if DRR measures are ignored. One of crucial example is building a skyscraper without soil testing and land use planning. At the same time if the developmental activities will be done taking into consideration of various hazards in districts can reduce the physical exposure to hazards for example flood protection measures at the affected sites , earthquake resistant structure. Developments can reduce vulnerability if proper measures are taken into consideration while if ignored can set wiping out and setting back years of efforts on development. On the other hand it provides opportunities in the form of sustainable recovery.

7.2 Development Planning in Disaster Risk Reduction

Natural Disaster and human induced disaster is increasing day by day, looking at the frequency of various disaster in the district, disaster risk management should be put on the fore front of the development planning. The development plans and policies should comply with sustainable developments goals agenda, where the development programmes and project need to be review with the potential of every project to reduce the vulnerability and associated hazards. At the same time disaster preparedness and responsive measure should be designed along side of development plans which should focus on the reducing the vulnerability accumulated due to past developmental processes.

7.3 Legal Mandate

The Disaster Management Act, 2005 mandates District Disaster Management authority ““lay down guidelines to be followed by the departments of the Government of the State and on the same line at different departments in district for the purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore” and to “review the development plans of the different departments of the State and ensure that prevention and mitigation measures are integrated therein”. Under Section 38 (2) (e) of the Act the State Government is to ensure that the integration of measures for prevention of disaster or mitigation have been incorporated by the departments of the Government of the State in their development plans and projects. The State Government is further to ensure integration of measures to reduce or mitigate the vulnerability of different parts of the State to different disasters in the state development plan {38 (2) (f)}.

The Act also prescribes for preparation of District Plan and for incorporation of measures suggesting as to how mitigation shall be integrated into development plans and projects. The Act states that the DMPs shall prescribe “the manner in which the mitigation measures shall be integrated with the development plans and projects”. The DMPs of departments at State and district level shall also have provisions for prevention of disaster and mitigation of its effects or both in the development plans and programmes as provided for in the State DMP and as is assigned to the department or agency concerned.

7.4 Environmental Regulations

Environmental and social surrounding is being severely affected by increased infrastructural development and Industrial development in the district. Environmental hazards create serious implication for the human beings and living creature. According to Environmental Protection act 1986, 2 (a) environments include water, air and Land and the interlinking between and among the air, water. Land, human being and other creatures , plant and micro organism and property. It mandates concern concerned departments such as Central Pollution Control Board and directed it as per the DM act as it supersedes environmental protection act am mandates to lay down standard measures for quality of air, water or soil for various areas and purposes. It mandates to allow maximum limits of concentration of various environmental pollutants including the procedures and safeguards for the handling of hazardous substances. Prohibition and restrictions on the handling of hazardous substances in different areas, prohibition and restriction on the location of industries and the carrying on process and operations in different areas. It mandates to takes procedures and safeguards for the prevention of accidents which may cause environmental pollution and for providing for remedial measures for such accidents, noise for differ. No person carrying on any industry, operation or process shall discharge any environmental pollutants in excess of standards

prescribed by the section (7) environmental protection act, 1986. District Disaster Management Authority in co-ordination with concern department should implement the project related for the control of the environmental pollution and should take necessary measures to curb the pollution to past activities. MIDC and Industrials sites to be audited every year with extent of effluents and pollutants discharge by the different Industries and the concern department should check the nature of impact made by the effluents on the communities and environments. The developmental projects need to be made as per guidelines of environment and need to be sanctioned by National Green Tribunal. Necessary arrangements to be made as per the environments act for the treatment of affluent and procedural safeguards to be made compulsory as per section (8) of Environmental protection act, 1986.

7.7 Mainstreaming in Construction Practices

Urban Planning, PWD and town planning departments of the district is mandated to work as per the National Building Code, 2005. It is instrument to provide guidelines for regulating the building construction activities across the country. It serves as a Model Code for adoption by all agencies involved in building construction works to be done by Public Works Departments, other government construction departments, local bodies or private construction agencies. The Code mainly contains administrative regulations, development control rules and general building requirements; fire safety requirements; stipulations regarding materials, structural design and construction (including safety) and building and plumbing services. Under this the concern department should follow the measures in order to strengthen the building falling under different zones, the building areas which are closer to the back waters of dams and in the low lying areas of the need to be shifted and all the construction need to be made and sanctioned as per the guidelines of the National Building Code, 2005.

7.8 Approaches for Mainstreaming

There are three suggested approaches of mainstreaming disaster management into the development process and disaster management plans-

1. Structural Measures

- Re-enforcing building permit process
- Fire safety (in the residential as well as market area)
- Structural evaluation of public infrastructure (Govt, Buildings, bridges, roads)
- Reigning forcing and creation of sewage system in order to reduce Urban flooding.

2. Non Structural Measures

- Situation analysis- figuring out the hotspots and vulnerable population in the city as well as district periphery by all the departments
- Improving access to information about disaster risk reduction at district and local level
- Strengthening capacities of communities at city level through awareness about various programme in normal times and at the time of disasters.
- Zonation of the various hazard, like likelihoodness of its occurrence, cyclicity and population which may affected due to various hazards.
- Training and awareness programmes need to be provided to the government official

3. Disaster mitigation Projects

- Drought Prone Area Development Plan: Programmes like drought Prone Area Developments need to be inducted into the villages of the district which are concurrently falling under the drought prone category.
- Flood Risk Mitigation scheme: Programmes like flood risk mitigation scheme need to be introduced in the villages concurrently coming under the flood red zone in the District and other regions. The Scheme covers activities like a) Pilot Projects for development of model Multi-Purpose Flood Shelters and b) Development of River Basin specific Flood Early Warning System and Digital Elevation Maps for preparation of Inundation Models for giving early warning to the villagers for evacuation in case of flood.

Based on the suggested approaches the specific action would involve:-

- Adopting a Sectoral approach and identification of Key sectors for main streaming. Within each sector, key programmes/projects would have to be identified and .This has to be followed by indentifying the entry points within the programmes/projects for integration.
- DRR measures should also be involved at the policy and planning level be it national, state and district level and the process of integration of DRR should be clear at all levels
- It would also need a close coordination with State Planning Commission and Finance Department for promoting DRR into all development programmes and involve working with different departments to mainstream DRR into the Departmental Plans and policies.

- Advocacy would have to be done for allocation of dedicated budget for DRR within the Departmental plans.
- Further appropriate guidelines for different sectors would have to be developed and for it to be effective and sustainable it has DRR would have to be ultimately integrated to the development plans of various departments at the district and sub-district levels.

All the flagship programmes of government of Maharashtra and Central government funded programmes and projects should be initially integrated at the planning level with the Disaster reduction measures. This process of integration and implementation should be clear at all the levels of administration, government officials need to be trained and guided specifically for the steps to be taken in all the developmental programmes initiated by the different department of the government. Some of the programmes of government initiated by the government of Maharashtra and centrally funded are given below.

7.9 Integrating DRR in departments

Integrating DRR with the development plays a vital role, thus each department must have their own role in formulating and implementing the DM plan. SEC shall ensure the mainstreaming of DRR in the developmental agenda of all existing and new developmental programmes and projects that shall incorporate disaster resilient specification in designs and construction. And accordingly the inspection and monitoring of these structural implementations should be done to ensure the safety and enhancing the disaster reduction. Risk and impact assessment projects should be followed to ensure the better environmental policies and to mitigate the disasters.

7.10 Approaches in Developmental Schemes

Pradhan Mantri Awas Yojana

- Construction of eco friendly houses for financially weaker section of the society.
- Conversion of kutcha houses into pucca or semi pucca houses.
- Use of flexi fund to incorporate risk reduction features.
- Coordinate with the other governmental schemes like Nirmal Bharat Abhiyan and rural water programme to ensure necessary amenities.

Deendayal Upadhyay Swamyam Yojan

- Educational Scheme for tribal students.
- Upliftment of education in the rural areas.
- Flexi- fund for the education of children between 6years to 14years.

Punjabrao Deshmukh Scheme

- Residential assistance for the students

- Financial help the tribals of the state
- Coordinate with the other governmental health schemes like ICDS, NRHM

Sarva Shiksha Abhayan

- Upliftment of education
- Free education for the single girl child till class 12.
- 10 percent *of flexi- fund in planning the activities undertaken to strengthen DRR and CCA.*

Mahatma Jyotiba Phule Jan Arogya Yojana (MJPYAY)

- Provide medical assistance to weaker section
- Provide free medicines according to the cards available to them.

Health Insurance (Rajiv Gandhi Jeevandayee Arogyee Yojana Bal Thackeray Upgath Vima Yojana.

- Financial assistance for the treatment of the accident victims.

Krishi Gurukul Yojana

- Educate farmers with the new technique agriculture and floriculture.
- Promote climate resilient farming.

Pandit Deen Dayal Upadhyay Krishi Margadarshak Yojana

- Empower farmers in the overall growth of agriculture
- Promotes for soil fertility tests
- Promotes study on change in weather pattern

Palakmantri Earth Moving Machine Kharedi Yojana and Palakmantri Panand Rashte Yojana

- provide training to the rural youth for employment and their livelihood.
- Aims to promote rural economy
- Link them with different governmental projects accordingly.
- provides loans from the nationalized banks to buy machinery.

Mahatma Gandhi National Rural Employment Guarantee Act

- Promote employment to the weaker section of the society.
- Strengthen the list of developmental activities according to DRR and CCA
- Enhance the number of working days in case of disasters like droughts

Pradhan Mantri Gram Sadak Yojana

- Identify habitations that tends to get cut off during heavy rains as a part of village HRVA to priorities build confectioning roads to such habitats
- National drinking water program.

National health Mission

- Should promote to increase the social developmental indicators
- Community level health worker should be trained in DRR and CCA.
- Hazard resistant structures should be adopted in construction of new hospitals.

Integrated Watershed Management Programme

- Undertaken DRR project in drought prone areas.
- Ensure clean drinking water in the area.

National Rural Drinking Water Programme

- Access to drinking water in the rural areas
 - Undertaken project to ensure connectivity of wells in the villages
- Total Sanitation Campaign