

Munger District Disaster Management Plan (DDMP)

(September 2022)



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CHAPTER – 1

INTRODUCTION

1.1 Background

Bihar is a multi-hazard prone State exposed to a range of natural disasters including earthquakes, floods, cyclonic storms/hail storms, drought, lightning, fire, extreme cold, heatwaves, etc. The vagaries of nature are such that State faces the paradox of floods and drought at the same time in some of the districts. Munger District is also one of them, mainly prone to flood and drought but also vulnerable to earthquakes, etc. This District Disaster Management Plan of Munger aims at addressing the multi-hazard nature of the disaster management challenges in the district. Under the DM Act 2005, Section 31, it is mandatory on the part of the District Disaster Management Authority (DDMA) to adopt a continuous & integrated DDMP and to take the measures for its implementation for disaster preparedness, response, capacity building, prevention, and mitigation.

So far, Bihar is the only state in India, which has come out with a clear DRR Roadmap and specific action plans on the lines of the Sendai Framework for Disaster Risk Reduction (SFDRR). The key commitments of the Bihar DRR Roadmap are mainstreaming DRR to strengthen the emergency preparedness and response, capacity development of communities & key stakeholders and the target is the reduction in lives lost, affected people due to disasters, and decrease in economic loss. The DDMP of Munger seeks to achieve the targets and commitments of Bihar DRR Roadmap across its different chapters.

1.2 Objectives

The overall aim is to prepare and finalize the multi-hazard district disaster management plan (DDMP) of Munger District. Following are the main objectives of this DDMP:

- i. To identify the areas vulnerable to major types of hazards in the district.
- ii. To adopt proactive measures at the district level by all the govt. departments to prevent disaster and mitigate its effects.
- iii. To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- iv. To enhance the disaster resilience of the people in the district by way of capacity⁵

- building.
- v. Reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
 - vi. Manage future development to mitigate the effect of natural hazards in the district.
 - vii. To set up an Emergency Operations Centre at the District level to function effectively in search, rescue, response.
 - viii. To develop the standardized mechanism to respond to a disaster sit to manage the disaster efficiently.
 - ix. To set up an early warning system to prepare the community to deal with the disaster and response situation communication system based upon fail-proof proven technology.
 - x. To prepare a response plan based upon the guidelines issued in the State Disaster Management Plan to provide prompt relief, rescue, and search support in the disaster-affected areas.
 - xi. To adopt a disaster-resistant construction mechanism in the district by way of using Information, Education, and Communication for making the community aware of the need of disaster-resistant future development.
 - xii. To make use of media in disaster management.
 - xiii. Rehabilitation plan of the affected people and reconstruction measures to be taken by different govt. departments at the district level and local authority.

1.3 Scope

It is well known that the Central and State Governments provide financial and logistic support in case of a serious disaster and also lay down policies and guidelines for disaster risk reduction. However, the responsibility of implementing government's initiatives in all phases of disaster management and providing linkage with the community as also responding to a disaster efficiently and promptly primarily rests with the District Administration/ District Disaster Management Authority (DDMA). The DM planning has therefore to be decentralized so that the district has the authority, responsibility, accountability as also capacity to take adequate prevention and mitigation measures and respond to a disaster promptly and effectively.

As per the scope of DDMP, there will be involvement of all key line departments including revenue, police, health, fire safety, rural development, public works department, education,

public distribution system, women & child development, transport, PRIs & their functionaries, animal husbandry, agriculture, home guards, ULBs, NGOs, CBOs, NYKS, NSS, Private Sector, and communities at the District and Sub District level, as the active participants in the preparation of multi-hazard DDMP. The DDMP will capture natural and manmade hazards applicable in the administrative boundary of the Munger District.

1.4 Plan Development Methodology

The methodology adopted for the Development of District Disaster Management Plan of Munger included the following: a comprehensive review of available secondary data; brainstorming during BSDMA workshops; a collection of primary data using structured and semi-structured questionnaires and its analysis; and interaction and consultation with the concerned stakeholders. The interactions were held with all the key Departments, nodal agencies, officials, and local communities. Based on the primary and secondary data analysis and the resultant resource mapping, the detailed Hazard Vulnerability Capacity Risk Assessment (HVCRA) was carried out, taking into account the ongoing development programs and the possible mainstreaming strategies. The draft DDMP has been prepared on the lines of DM Act 2005, NDMA's DDMP framework, and DRR Roadmap of Bihar. It has also been modified, as per BSDMA's prescribed template.

1.5 DDMP Implementation Strategy

The strategy adopted to develop and implement the DDMP started with the review of National DM Act 2005, National Framework for District Disaster Management Plan 2014, State Disaster Management Plan, Policy and DRR Roadmap, followed by interaction with key stakeholders including Line Departments, Nodal Officials, PRIs, CBOs, NGOs, Private sector & representatives of the local community. The perspective for undertaking DDMP, including capacity assessment and strategy development, has been one of inclusive, equitable, safe, and sustainable disaster management on the ground. Synergy and linkages have been maintained with relevant provisions while preparing response and risk reduction plans. Moreover, Emergency Support Functions (ESFs), Emergency Operations Centers

(EOCs), mainstreaming of development programs, prevention, mitigation measures, and cross-cutting issues have been covered extensively.

At the District level, the District Magistrate has been designated as Responsible Officer (RO) and the other line departments at District Head Quarter are responsible to deal with all the phases of disaster management within the District. The role of other stakeholders has been explained in DDMP.

1.6 Plan Updating and Review

As per DM Act Section 31(4) District Plan (DDMP) will be reviewed and updated annually. The purpose of updating is to determine the adequacy of resources, coordination amongst agencies, etc. DDMA will review the implementation of the plan and issue instructions to concerned departments.

CHAPTER – 2

DISTRICT PROFILE

This chapter provides an overview of the Munger district in terms of its geography, demography, natural resources, critical infrastructure, and other important information depicted in the segments explained below.

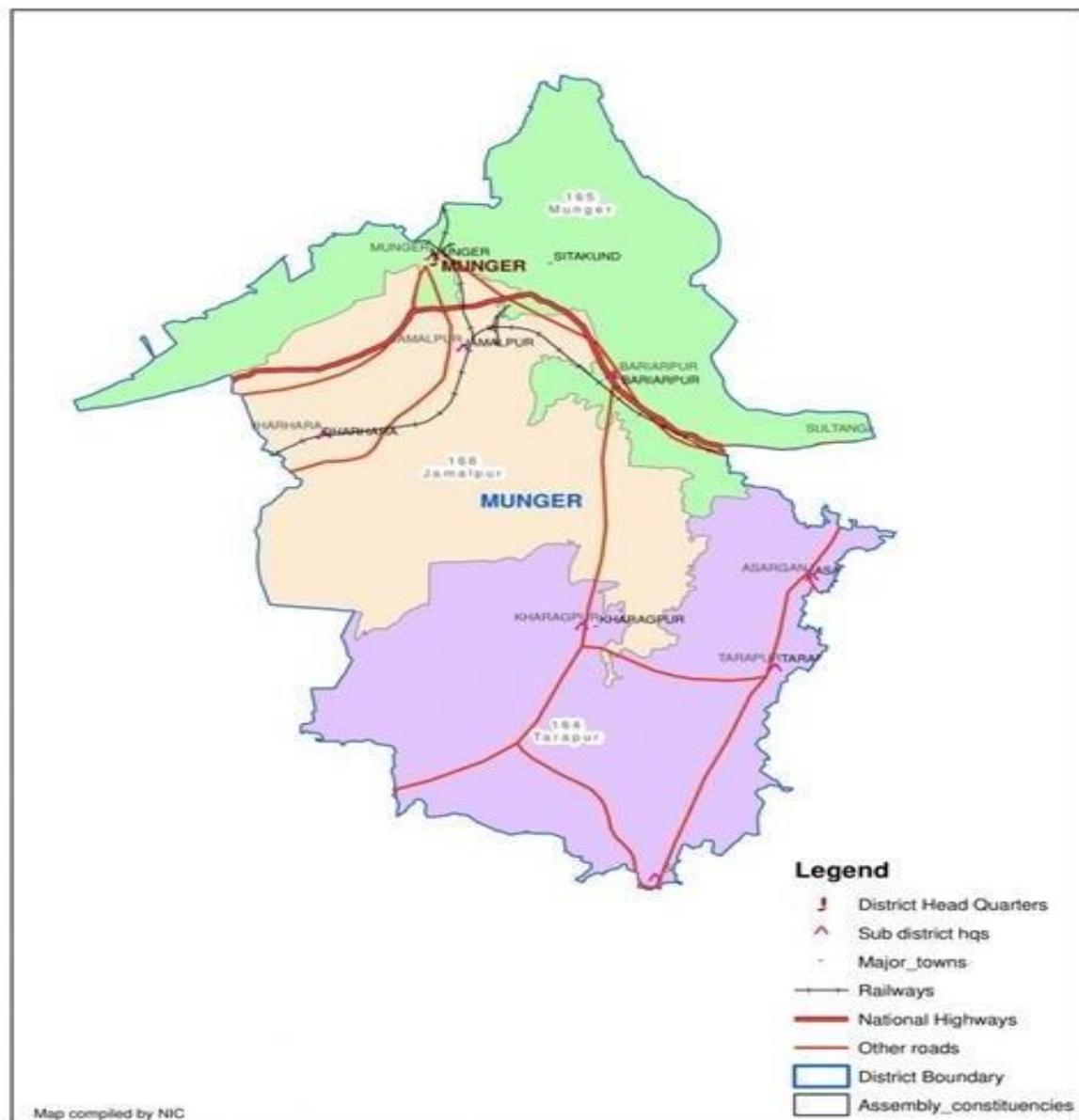


Figure 1: Location

2.1 Geographical location and features

Munger district is located in the southern part of Bihar and its headquarters is located on the southern bank of river Ganges. Munger district occupies an area of 1,419 square kilometers (548 sq. mi) and it accounts for 3.3% of the area of Bihar. It lies between 24°20' N to 25°30' N latitude and 85°37' E to 87°30' E longitude. The average height from the sea level is 30 to 65 m. It is bordered by the river Ganga from the north with Lakhisarai and Begusarai districts (on the opposite banks of river Ganga) lying on the northwest and southwest side respectively.

2.2 Weather and Climate Profile

The district has hot summers and moderate winters. Summers starts from the middle of March and last till July. The monsoon usually breaks in the second half of June and lasts till September. And the winter is usually during October to February.

Table 1: Munger Average Temperature

Data Source: Climate Weather Profile (<https://en.climate-data.org/asia/india/bihar/munger>)

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	17.3	20.1	25.5	30.3	32	31.2	29.4	29.2	28.8	27	22.1	18.4
Min. Temperature (°C)	10.6	12.9	17.9	22.9	25.8	26.7	26.3	26.2	25.6	22.4	15.3	11.4
Max. Temperature (°C)	24	27.3	33.1	37.7	38.3	35.8	32.6	32.3	32.1	31.6	28.9	25.4
Avg. Temperature (°F)	63.1	68.2	77.9	86.5	89.6	88.2	84.9	84.6	83.8	80.6	71.8	65.1
Min. Temperature (°F)	51.1	55.2	64.2	73.2	78.4	80.1	79.3	79.2	78.1	72.3	59.5	52.5
Max. Temperature (°F)	75.2	81.1	91.6	99.9	100.9	96.4	90.7	90.1	89.8	88.9	84.0	77.7
Precipitation / Rainfall (mm)	20	5	9	13	39	173	254	250	209	85	4	1

2.3 Cultural, Historical, and Social Perspective

Munger District was formed in 1832 out of Bhagalpur. The existence of Munger as a separate executive center dates back to the year 1812. In 1832 it was made a revenue-receiving center and Madhepura, Begusarai, Jamui, Sheikhpura, Khagaria, and Lakhisarai Districts were carved out of this district.

Munger District has got an extremely rejuvenating social and cultural landscape with diversity and richness. The feeling of cultural ambiance can be witnessed in the spiritual atmosphere of Munger where Hindus, Muslims, Jains, Buddhists, and the followers of

several other religions live together in harmony. Its location on the banks of the sacred river Ganges makes this city religiously important. People celebrate their religious and social festivals with keenness. The celebrations of Holi, Diwali, Eid, and various other festivals are common and great occasions to showcase love, affection, religion, harmony, and humanity. People take part in the festivals irrespective of their religious faiths. One of the most famous festivals which people celebrate in this region is Chhatth puja besides many other religious festivals held every year. Munger is world-famous as the home of the Bihar School of **Yoga (Yoga Ashram)**. The founder, Satyananda Saraswati, is from Munger and set up his education center here in 1963. Later on, an institute of Yogic studies was created in 1994. The center is known globally and has attracted students from all over the world since it first began teaching.

2.4 Demographic Profile

A brief description of the demographic profile of Munger is shown in table 2.

Table 2: Demographic profile of Munger

Description	2011
Actual Population	1,367,765
Male	729,041
Female	638,724
Population Growth	20.21%
Area Sq. Km	1,419
Density/km ²	964
Proportion to Bihar Population	1.31%
Sex Ratio (Per 1000)	876
Child Sex Ratio (0-6 Age)	922
Average Literacy	70.46
Male Literacy	77.74
Female Literacy	62.08
Total Child Population (0-6 Age)	229,860
Male Population (0-6 Age)	119,611
Female Population (0-6 Age)	110,249
Child Proportion (0-6 Age)	16.81%

Source: District Census Handbook Munger, 2011

2.5 Administrative Structure

Munger district has 3 Sub Divisions, 9 Revenue Circles, 7 towns -04 census towns, and 03 statutory towns- Munger (Nagar Nigam), Jamalpur (Nagar Parishad), and Kharagpur (Nagar Panchayat), 02 Municipalities, and 09 Blocks with 103 panchayats constituting 858 villages. Of which 534 are inhabited and 324 are uninhabited. There are 15 police stations in the district and 2 MLA constituencies (Munger and Jamalpur).

Table 3: Administrative structure of Munger

Sub Divisions	Blocks and Anchal
Kharagpur	Kharagpur, Tetia Bambar
Munger Sadar-	Sadar, Jamalpur, Bariarpur, Dharahra
Tarapur-	Tarapur, Asarganj, Sangrampur

2.6 Natural Resources

Munger is an important trading center for fruits, vegetables, readymade garments, and textiles. Since the land in the district is fertile, agriculture plays a major role in the economic growth of the region. One can also find agro-based industries in the region. The city has India's oldest tobacco manufacturing unit called the Raj enterprise founded in 1905, it was later taken over by ITC Limited. Munger is famous for the manufacture of guns, which has taken place there for over 200 years.

CHAPTER - 3

HAZARD, RISK, VULNERABILITY & CAPACITY ASSESSMENT (HRVCA)

3.1 HRVCA

Hazard, Risk, Vulnerability, and Capacity Assessment (HRVCA) is the most important aspect of the Munger District Disaster Management Plan as the entire planning process is based on its outcome. As the quality of action planning is critically dependent on the accuracy in identifying the frequency, magnitude, and projected impact of hazard and associated vulnerabilities, the plan places a special emphasis on proper HRVCA for the plan.

In Munger, hazard and risk assessment covered identification of the types of hazards, history of hazards, the area, people, and assessing the risk-proneness of the people, properties, and infrastructure due to their vulnerability characteristics. Vulnerability assessment entailed an assessment of the various dimensions of vulnerability including natural, socio-economic, and environmental in particular. The Vulnerability Atlas of BMTPC has also been referred for this purpose. After identifying the existing hazards and potential vulnerabilities; the capacity assessment was carried out, which covered the existing resource inventory, capacity analysis, preparedness measures in terms of a network of communication systems, public distribution systems, storage facilities, transportation facilities, medical facilities, fire stations, safe shelters and their capacity, presence of community-based organizations/volunteers, etc. which enhances the emergency response, recovery and overall resilience of the district.

3.2 Hazard and Risk Assessment

Hazards and risks are intimately inter-linked and are mediated by existing vulnerabilities and capacities. A hazard risk turns into a disaster once vulnerabilities are more than the capacities to be adversely impacted by a disaster. The multi-dimensional risk of hazards is invariably there in Munger because of multiple vulnerabilities of different nature. This plan seeks to ensure that the hazards do not turn into disasters due to inadequate prevention, mitigation and preparedness measures. Even when a disaster strikes, its impact can be mitigated through prompt and effective response, relief, rehabilitation, and recovery

measures. The risk of hazards getting converted into disasters has to be mitigated by reducing vulnerability; mitigation measures to reduce the level of hazards and simultaneously enhancing capacities including the capacity of the community through awareness generation and training, besides improving their means of livelihood and skill development, particularly of women.

Table 4: Seasonality Calendar of Munger

Hazards Vs Months	January	February	March	April	May	June	July	August	September	October	November	December
Flood							High	High	High			
Lightning				High	High	High	High	High	High	High	High	
Earth Quake	High	High	High	High	High	High	High	High	High	High	High	High
Drought					Medium	Medium	Medium					
Road Accidents	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Heat Wave				Medium	Medium	Medium						
Fire	High	High	High	High	High	High	High	High	High	High	High	High
Epidemics						Medium	Medium	Medium	Medium			
Drowning	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium

 **High**  **Medium**  **Low**

3.3 Main Applicable Hazards in Munger District:

Following are the main hazards applicable in Munger District:

3.3.1 Earthquake

Munger District falls in Seismic Zone IV which is the High Damage Risk Zone (MSK VIII) and has a high potential of earthquake risk. In this regard, it is also important to know about previous earthquakes incidents noted in the region. The 1934 earthquake with epicenter at Nepal-India border and intensity of 8.3 on Richter scale, had affected several districts including Munger. Bijay Chowk and the town area were majorly affected. More than 10,500 persons lost their lives in Bihar. Bhatgaon in Nepal and Munger in Bihar were completely ruined. Large part of Patna and

Kathmandu in Nepal and Motihari, Muzaffarpur and Darbhanga in Bihar were also destroyed along with innumerable villages in between.

It is possible that a major earthquake may not occur in the next 100 years but it is also a fact that it may occur any time in this or next year or next decade. Since no early warning is possible in the case of earthquake as in the case of other disasters, the Munger district administration has to be always prepared to deal with the severity of the impact of earthquakes, keeping in view the worst case scenario.

Mitigation measures: Building Bye-Laws to be followed and it should be checked regularly for the compliance, and ward level building assessment could be done. More measures (preparedness, prevention and mitigation have been given in chapter 5)

Table 5: Shows the records of earthquakes in Bihar

Date	Location	Intensity	No. of affected Population	Affected Area
4 th June 1764	India- Nepal Boundary	6.0	Not Available (NA)	NA
23 rd August 1833	Nepal Boundary	7.7	NA	NA
23 rd May 1866	Nepal Boundary	7.0	NA	NA
23 rd May 1866	Jharkhand- Bihar Boundary	5.5	NA	NA
30 th Sept 1868	Hazaribagh	5.7	NA	NA
7 th Oct 1920	Bihar- Uttar Pradesh Boundary	5.5	NA	NA
15 th Jan 1934	India- Nepal Boundary	8.4	10500	Munger, Patna, Gaya, Shahabad, Saran. Mujjafarpur, Darbhanga, Bhagalpur
11 th Jan 1962	India- Nepal Boundary	6.0	-	Munger & Purnea
21 st Aug 1988	India- Nepal Boundary	6.7	1000	Madhubani and Darbhanga
18 th Sept 2011	Sikkim- Nepal Boundary	5.7	-	NA
25 th , 26 th , April 2015	India- Nepal Boundary	6.6	60	Patna and the area adjacent to Nepal Border
15 th Dec 2015	Bihar-Jharkhand border	4.2	-	NA
21 st June 2017	Bihar	4.5	-	NA
8 th march 2020	4.4 km west of Purnia	4.5	-	NA
28 th May 2020	35 km east of Patna	4.8	-	NA

Source: Open source (google.com)

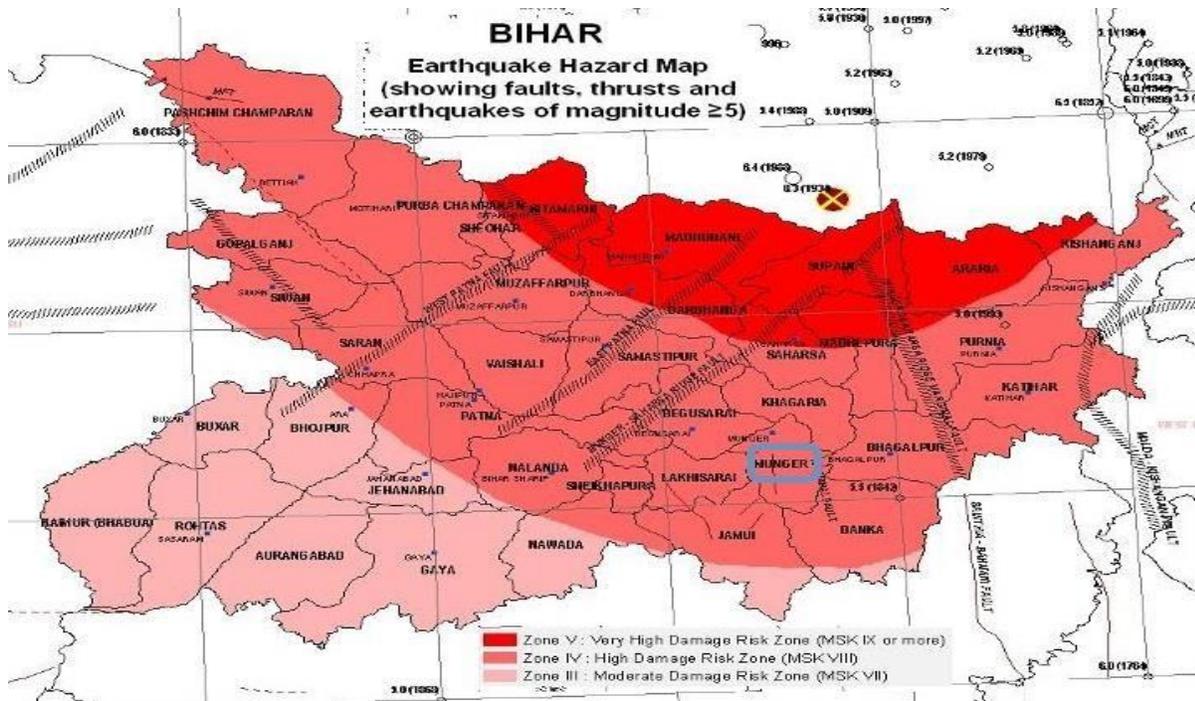


Figure 2: Earthquake Hazard Map

Building Hazard: There are several old buildings (Non-Heritage category) that are in critical condition due to lack of repair and maintenance, which are prone to fire, earthquake, and lightning. Presently, some of the old buildings house official departments and urban services such as Minor Irrigation departments, Sanskrit Vidyalaya, RTO building, Munger bus depot, NH building, Zilla school (Science Department building) and Menispur High school these are susceptible to fire, earthquake and lightning.

There are congested roads in Munger which can be problematic in case of any hazard like Earthquake, fire etc. Congestion of roads and buildings are due to encroachment and the narrowness of the road. Refugee colony, Purabsarai, Gulzar pokhar chauraha etc are some of the critical roads and in case of fire, portable fire pump, hose pipe and fire extinguishers or small vehicle can be used but that will also take time due to congestion and encroachment.

3.3.2 Drought

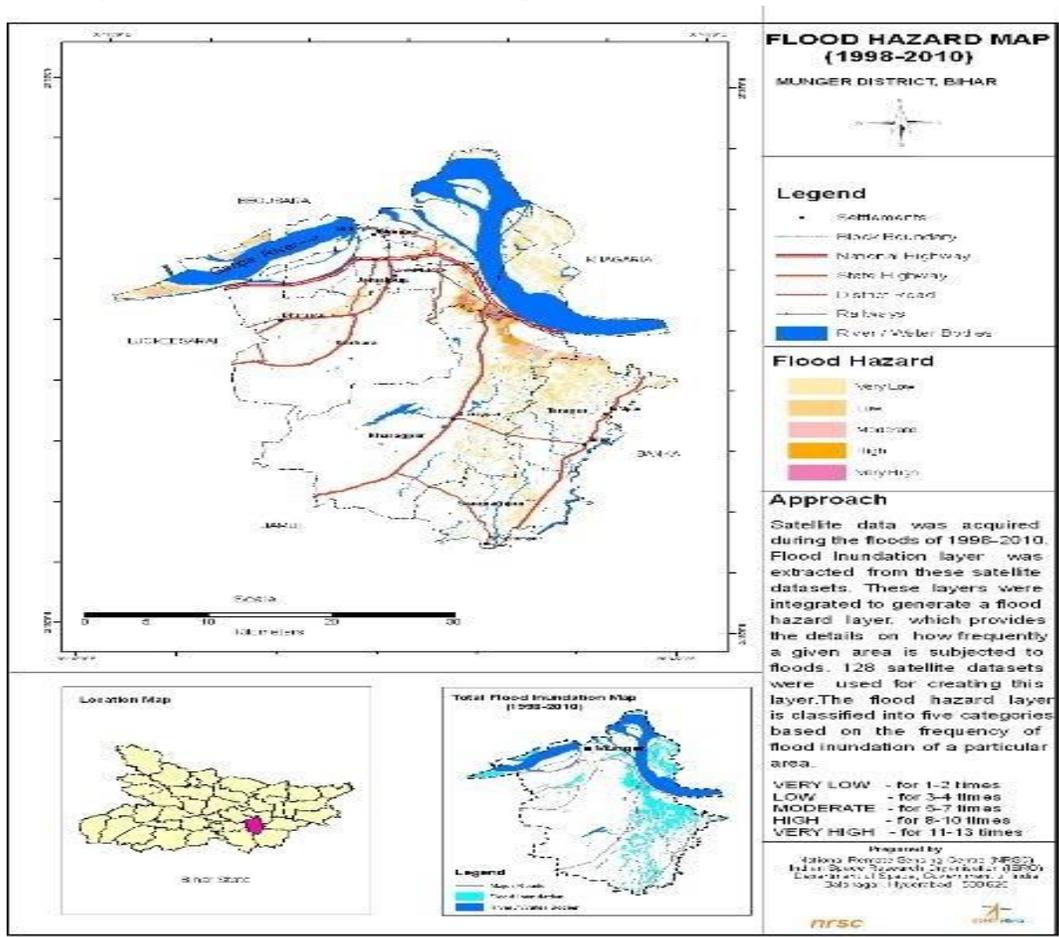
The drought situation is quite common in Munger district. Since 2001, drought has occurred in Munger during 2004, 2009, and 2010. In the year 2018 three blocks – Kharagpur, Dharahra, and Tetiabambar were declared as Drought-affected in the Munger District. While the precise figures of economic losses during these years are not available, there are reports that the farming community did

suffer losses and some people migrated temporarily out of their respective villages in search of alternative livelihood options. Crop insurance is not very prevalent in the villages in the district with the result that there is no compensation, except marginal compensation provided by State Govt. The crop failure, taken together with socio-economic vulnerabilities and overall poverty in the district has a multiplier impact on the community; more so when prices of commodities rise sharply during drought years. One of the reasons for this slow onset disaster not getting adequate attention could be the lack of reported death incidents due to drought conditions in-district during these years. However, there is enough evidence to suggest that overall economic losses due to droughts in the district have been quite substantial. In some cases, the state government has extended subsidies to the affected households to cover the economic losses due to droughts, on the basis of damage assessment carried out for the purpose.

3.3.3 Floods

Disaster Management department of Bihar vide letter no. 3813 dated 5th August 2022 declared Munger as 29th flood prone district of Bihar. During 2013, 2016, 2019 and 2021 the district saw water levels in the Ganga rising to adversely affected six out of the 9 blocks in the District. The district administration makes elaborate preparations every year for any eventuality in case floodwaters enter the district. The district administration holds regular meetings to discuss the progress of arrangements made by different line departments under the strict vigil of the District Magistrate himself. Munger district usually faces floods during the monsoon season in July to September due to the raise in Ganga water Level to 39.33 meters.

Figure 3: Flood Prone Area in Munger



The Munger District flood hazard map (Source NRSC) as above, has depicted the flood-prone area (may be seen in the Satellite-based flood inundation map).

3.3.4 Lightning

There are reported cases of death due to lightning strikes every year from different blocks of the district. In recent three years, 30 deaths are reported in the blocks of Kharagpur, Tetia Bambar, Dharahara, and Sangrampur. The table below shows the lightning-affected blocks due and a number of deaths in the past 4 years.

Mitigation measures: Wall painting at the vulnerable areas, ward level lightning conductor audit, lightning arrester to be made compulsory for old and ongoing construction of buildings. More measures (preparedness, prevention and mitigation have been given in chapter 5)

Table 6: Lightning in Munger District (Loss of Human Lives)

S.N.	Block	Year/ Number of deaths due to Lightning			
		2019	2020	2021	2022(till july)
1.	Sadar	-	-	1	-
2.	Jamalpur	-	-	1	-
3.	Dharahra	2	2	1	-
4.	Bariyarpur	1	-	-	4
5.	Asarganj	-	1	-	2
6.	Kharagpur	4	3	4	1
7.	Tarapur	-	-	-	-
8.	Sangrampur	1	-	1	2
9	TetiaBambar	1	-	2	-
Total		11	06	13	9

Source: District Emergency Operation Centre Munger, 2022

3.3.5 Drowning

Drowning has been one of the major disasters recorded in the district due to human negligence especially during the festivals like Chhat. Accidental drowning is prominent due to the presence of rivers and ponds in the blocks. The incident of drowning is reported by the Circle Officer. Table 7 below shows the records of drowning (Ponds/ Lakes/ Rivers) cases in Munger over last four years during 2019-2022.

Table 7: Drowning Incidents in Munger District in last 3 Years

S.N.	Block	Year/ Number of deaths due to Drowning			
		2019	2020	2021	2022 (till july)
1.	Sadar	19	4	16	10
2.	Jamalpur	5	2	6	-
3.	Dharahra	4	-	5	1
4.	Bariyarpur	6	13	8	3
5.	Asarganj	3	3	6	1
6.	Kharagpur	1	3	9	4
7.	Tarapur	2	1	6	-
8.	Sangrampur	1	1	2	-
9	TetiaBambar	5	5	7	-
Total		46	32	65	19

Source: District Emergency Operation Centre Munger, 2022

3.3.6 Road Accidents

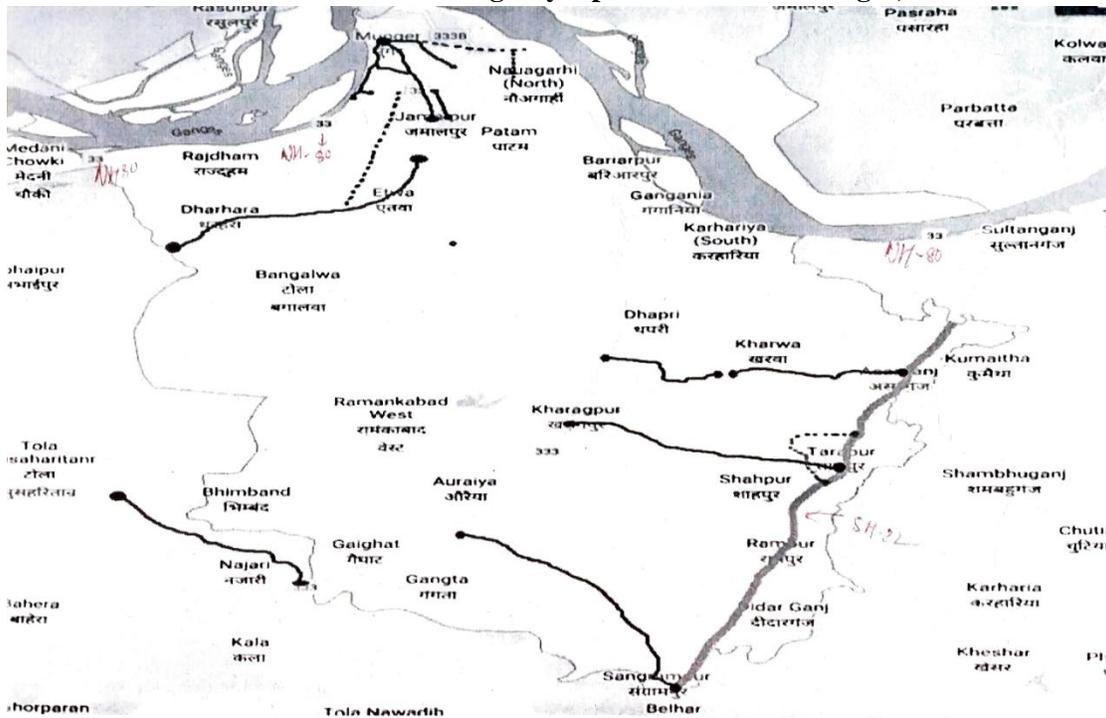
There have been incidences of minor road accidents in the district including a few fatal cases. The main reasons are the proximity of main roads to residential areas, lack of awareness about road regulations among drivers, and drunken driving. It was mentioned that after the imposition of prohibition in the state, the incidence of road accidents has dropped. However, it is too early to substantiate it through

statistical data. Transport Department has identified 53 Black Spots in the district with the police station and hospitals near them that have been annexed in the annexure. Police station and hospital details have been added in annexure at table 10. Table 8 below shows the history of road accidents in different blocks of Munger for the past 4 years. 50 Deaths were reported in the year 2019, 17 were reported in 2020, 32 were reported in 2021 and 43 are reported in 2022 till now.

Table 8: Road Accidents in Munger in last 4 years

S.N.	Block	Year/ Number of deaths due to Road Accident			
		2019	2020	2021	2022(till july)
1.	Sadar	6	2	6	7
2.	Jamalpur	12	-	6	7
3.	Dharahra	7	3	3	6
4.	Bariyarpur	2	2	1	-
5.	Asarganj	2	2	2	5
6.	Kharagpur	12	3	8	14
7.	Tarapur	4	2	3	12
8.	Sangrampur	4	1	2	4
9.	TetiaBambar	1	2	1	3
Total		50	17	32	43

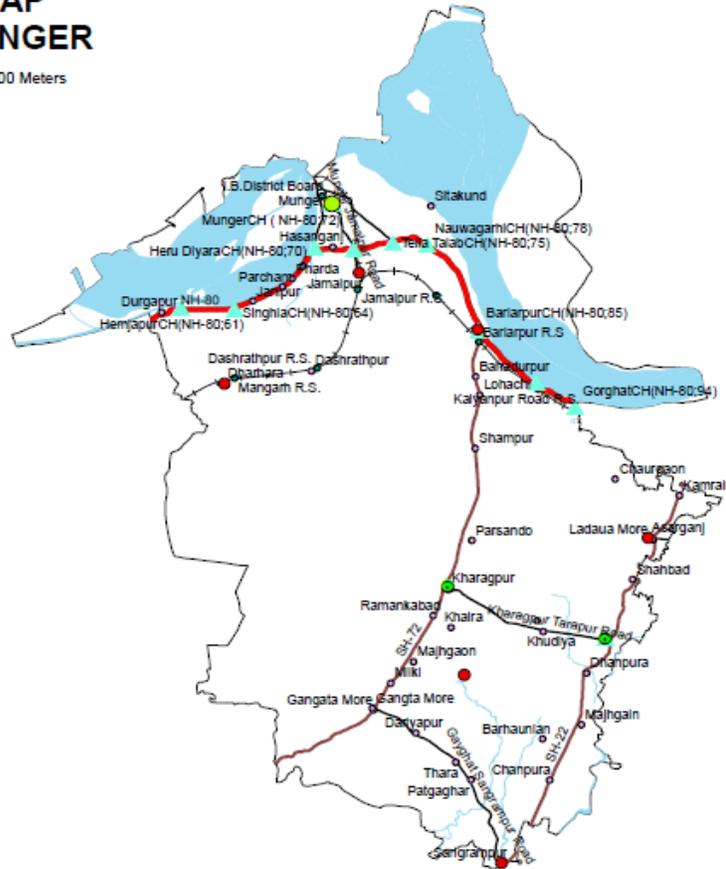
Source: District Emergency Operation Centre Munger, 2022



Source: Road construction department, Munger

**ROAD MAP
DISTRICT - MUNGER**

0 8,000 16,000 Meters



Legend

- District_HQ
- Sub_DivisionHQ
- Block_HQ
- Settlements
- Settlement
- ▲ Chainage
- Bridge
- NH
- SH
- MDR
- Railway
- Boundary
- River

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ROAD CONSTRUCTION DEPARTMENT
GOVERNMENT OF BIHAR

Source: Road construction department, Munger

3.3.7 Fire

There has been no major fire incident in the Munger district during the last decade. However, incidents of isolated outbreaks of fire do take place once in a while. The number of fire incidents reported in 2019, 2020, 2021 and 2022 in Kharagpur, Sadar, and Sangrampur blocks respectively.

The main cause of fire in the district is electric shot circuit, hidden firework manufacturing and the storages of fireworks in houses and godowns. Kachha houses those have flammable roof materials are more prone to sudden fire. The news published on 7th March 2022 in Munger newspaper claiming that the locations Gandhi chowk, Gulzar pokhar, and Ajad chowk in Munger could also experience firework related blasts and explosions, same way the neighboring Bhagalpur city reported such firework related blast accident claiming 14 human lives and causing collapse of 4 nearby buildings.

In the year 2022, from January onwards 24 cases of fire reported, one person lost his life. Apart from this 7 animals also died and structural damage of 2 kachha houses and 35 huts were reported. In the year 2022 fire incidents damaged crops in area of 14.27 hectare.

Table-9; Incidents of outbreak of fire in Munger in the last 3 years:

S.N	Date of incident	Reason of fire incident	Location	Human Death	Animal deaths	Houses damaged
1	24.3.2020	During cooking food	Lalji tola	0	3 goats	20 houses
2	8.4.2020	Short circuit	Dharera	0	3 animals	0
3	14.11.2020	Puja	Bata Chowk, Sadar	0	0	5 shops
4	14.4.2021	During cooking food	Munger	1 injured	0	6 houses
5	17.12.2021	Wire short circuit	Ramdhan Mandal tola	0	7 goats	3 houses
6	14.3.2022	Short circuit	Khadia	0	3 goats	0
7	15.3.2022	Short circuit	Sitakund	0	4 goats	0
8	25.4.2022	Short circuit	Sundarpur chand tola	0	3 cow injured and 11 goats died	0

Source: Munger District Fire Station office

Munger doesn't have adequate Fire inventory to cope up with the need at the district level at the time of Emergency. Problems faced by the fire department are the lack of manpower, old vehicles and route of fire tender which is congested because of the encroachment on the road and the traffic jam. Fire department have 7 small vehicles of 400 litres each, portable pump and hose pipe of size up to 200 meters that can be easily accessible in the city area or the congested area. Fire department conducts around 20 mock drills in a month for preparedness.

Table 10: Inventory with Fire department

S.N.	Inventory	Type and Capacity
1	Big Vehicle	1 truck – 5000 Litres
2	Medium vehicle	1 truck – 2000 Litres
3	Small Vehicle	7 Small vehicle – 400 Litres each
4	Firefighter	14
5	Drivers	10

6	Fire officer	1
7	Sahayak Officer	1
8	Water Sources	Tube wells, ponds - 5, Elevated water storage
9	Hydrant	2

Source: Munger District Fire Station office

3.3.8 Other Disasters including Epidemic

There have been 2 deaths recorded due to **heatwaves** in the Dharahra block in the years 2019 and 2021. 1 death was recorded due to **cyclone** Yash in block Dharahra in 2021 and 2 deaths in 2022 till now in Munger. **Hailstorm** affected Tetia Bambar Block causing 1 death in the year 2019.

During **cold waves** mainly in the month of December and January, the district records show the wood burnt daily and the assistance provided by the district administration.

Epidemics: viral, bacterial, parasitic, fungal infections affecting lakhs of people and paralyzing the lives and livelihoods of the people. India is currently facing the Novel Coronavirus disease (COVID-19) pandemic which was initially noticed in a seafood market in Wuhan city in Hubei Province of China in mid-December, 2019. COVID 19 has now spread to 214 countries including India and the State of Bihar. In Bihar, there are 726045 covid cases so far as per the Bihar Health Department. Districts with a migrant population, in particular, are impacted the most by the spread of Covid-19. In Munger 15111 cases are reported, out of which, the death of 158 covid patients is reported (Bihar Health Department).

3.3.9 Climate change impact in Munger (Bihar)

Available evidence shows that there is high probability of increase in the frequency and intensity of climate related natural hazards due to climate change and hence increase in potential threat due to climate change related natural disasters in India, and Munger is no exception to this. It is highly vulnerable to hydro-meteorological natural disasters, with being highly flood-prone, and also drought prone. Munger is potentially more sensitive and vulnerable to the climate change

The Bihar State Action Plan on Climate Change identifies measures that promote development objectives while also yielding co-benefits for addressing climate change effectively. A State Action Plan for Climate Change has an objective to ensure better health to the people of the state, coping with uncertain impacts of Climate change. The State Action Plan for Climate Change covers the implications of climate change on key sectors in the state. Strategies to address them have been worked out with the primary objective to draw specific guidance, in terms of understanding of

impacts of climate change as well as vulnerability of these sectors to climate change in the state. We need to focus on the issues and should implement the available recommendations on BAPCC (Bihar State Action Plan on Climate Change). Below is the link to access BAPCC.

<https://moef.gov.in/wp-content/uploads/2017/08/Bihar-State-Action-Plan-on-Climate-Change-2.pdf>

Climate change adaptation and mitigation measures are as follows:

- 3R initiatives (Reducing waste, Re-using and Recycling resources)
- Rain water harvesting should be adopted.
- Ground level water conservation.
- Shifting to Solar and green energy.
- Installing modern lightning conductor
- Installing commercial and industrial air purifier
- Converting stubble to organic compost (bio-fertilizer) instead of burning and increasing pollution
- Reducing coal dependency and shifting to other source of energy for electricity production.
- Proper disposal of hospital waste by using incinerator, washing plant etc.
- Biomedical waste must be properly managed and disposed of.
- Building public awareness by organising safe air and save water and safe water campaigns
- Tracking, monitoring polluting vehicles and enforcing State pollution control rules
- Promoting and encouraging use of LED light to save energy and save cost
- Explore various Central /State schemes such as AMRUT, SMART city Mission, Jal Jungle Zameen Mission and other relevant schemes for financing these initiatives.
- Afforestation and conservation of forests

Mitigating climate change is about reducing the release of greenhouse gas emissions that are warming our planet. **Mitigation strategies include retrofitting buildings to make them more energy efficient; adopting renewable energy sources like solar, wind and small hydro; helping cities develop more sustainable transport such as bus rapid transit, electric vehicles, and biofuels; and promoting more sustainable uses of land and forests.**

JAL JEEVAN HARIYALI Scheme component of Government of Bihar are as follows:

1. De-encroachment by marking public water harvesting structures
2. Public water harvesting structures viz. Rejuvenation of Ponds / Puddles / Dharns / Pines.
3. Identification and restoration of public wells.
4. Construction of blotting / recharge / other water harvesting structures along the banks of public wells / wells.
5. Construction of check dams and other water harvesting structures in small rivers / nallahs and in water harvesting areas of hilly areas
6. Creation of new water sources and carrying water from surplus (analyzed) river water areas to areas with water scarcity
7. Construction of roof structure and Rain water harvesting in buildings.
8. Nursery Creation and Intensive Plantation

9. Use of alternative crops, drip irrigation, organic farming and other new techniques
10. Promoting the use of solar energy and saving energy
11. Jal Jeevan Haryali Awareness Campaign

3.4 Vulnerability Assessment

Based on the HRVCA carried out in Munger district, it has been observed that the district is vulnerable to the following disasters- earthquake, flood, drought, lightning, drowning, fire incidents, outbreak of diseases, road Accidents, and others. Table 11 shows the records of deaths and number of injured in the Munger District during 2015 to 2021 due to natural hazards.

Table 11: Past Records of Deaths and Number of injured in the past 7 years.

S. N.	Year	Road Accident No. of Deaths /Injured	Drowning No. of Deaths /Injured	Lightning No. of Deaths /Injured	Others No. of Deaths / Injured	Total
1	2015	9	2	21	2 Deaths, 4 Injured (Earthquake)	34 Deaths, 4 Injured
2	2016	0	12	8	1 Death (Snake Bite)	21 Death
3	2017	5	10	9	1 Death (Boat Capsize) 2 Deaths (Cylinder Explosion) 3 Deaths (Fire Incident) 2 Deaths (Cyclone)	32 Death
4	2018	13	39	18 (D) 1 (Injured)	4 Animals live Lost (Lightning)	70 Death, 1 Injured
5	2019	50	46	9	2 Animals Live Lost (Lightning) 1 Death (Heat Wave), 2 Deaths (Fire), 2 Live Lost (Wall collapse due to strong wind)	110 Death
6	2020	17	32	6	-	55 Death
7	2021	32	65	10	1 Death (Heat Wave) 1Death (Cyclone Yas) 3 Animal Live Lost (Cyclone Yas)	112 Death

Source: District Emergency Operation Centre Munger, 2021

In urban areas, the main disasters which may occur are earthquake, water logging, road accidents and instances of lightning. The overall risk varies from block to block and even village to village.

Table 12: Hazard and Vulnerability Profile of District Munger

Hazard	Vulnerability					Remarks
	VH	H	M	L	N	
Earthquake	VH					The district falls in Seismic Zone IV and therefore the risk of earthquake is high. The district faced an earthquake in 2015, but it did not result in any major loss of life or property. This has given rise to a feeling of complacency to the community and the administrative machinery which considerably increases the risk, in case a major earthquake occurs.
Flood		H				Three blocks in the district namely Sadar, Jamalpur and Bariyarpur are prone to flooding.
Drought			M			Drought is almost a recurring phenomenon in all the blocks, which results in loss of crops occasionally. Water level during summer is low to very low, from 40 feet to 400 feet, depending on the area. People migrate from villages in search of livelihood. Economic losses keep a fair segment of

					population, farmers and landless labourers, very poor. Besides, there is invariably shortage of drinking water.
Lightning		H			There are reported cases of death due to lightening strikes every year from different blocks of the district. Examples of loss of life and property was reported from Bhadaunia Gram Panchayat of Sangrampur block.
Fire Incidents		H			Recurrent household fire events reported from almost all blocks of the district. Causes were mentioned as careless use of household lighting equipments and “kachha” dwellings with flammable roofs. The fire arms manufacturing industry also needs to be looked at in terms of providing it with proper fire protection cover.
Outbreak of diseases/ Epidemic/Pandemic			M		The threat of outbreak of diseases/ epidemics is high mainly due to lack of awareness about sanitation and hygiene. There have been instances of cholera, brain fever etc; and the outbreak of present Novel Coronavirus disease (COVID-19) has been a huge medical emergency challenge for Munger Health Administration. The problem of open defecation in slum population of urban areas and some parts of rural areas is major cause. Poverty, migration, and lack of adequate health care facilities are yet other contributing factors.
Road Accidents			M		There have been incidences of road accidents in the district including few fatal cases. The main reasons are proximity of main roads to residential areas , lack of awareness about road regulations among drivers and drunken driving. It was mentioned that after the imposition of prohibition in the state, the incidence of road accidents has dropped.

VH: Very High; H: High; M: Medium; L: Low; N: Negligible

Vulnerabilities are of different types, which have a multiplier effect to enhance the total vulnerability such as:

- Physical Vulnerability
- Economic Vulnerability
- Social Vulnerability
- Structural/ Non-structural Vulnerability
- Environmental Vulnerability.

The risks from earthquakes, droughts and floods are significant in Munger. Flooding is usually confined to three blocks namely Sadar, Bariyarpur and Jamalpur for which seasonal preparations are done almost every year. Also, the people are poor which enhances their vulnerability, particularly due to economic losses caused by recurrent drought like conditions, which forces almost 50% of the population to migrate from their villages. The social disparities augmented by rigid caste distinctions contribute further to their vulnerability.

In recent years construction and development has taken place in the district, especially in last 10-15 years. As for *pucca* constructions, although the revised building bye laws are in place, its compliance regime is a big challenge and contributes significantly to structural vulnerability to seismic risks. The threat is spreading to villages also where *pucca* constructions are coming up, without any efficient building bylaw compliance regime. It may however be added that houses constructed under IAY are earthquake resilient since this aspect has been taken care of in IAY designs.

Climate change pattern is contributing to environmental vulnerability, which is further accentuated due to inadequate sanitation and hygiene, particularly the practice of open defecation, which results in outbreak of diseases, more so in the aftermath of floods and water logging. However this aspect is now being addressed very seriously by district administration. Cumulative impact of these vulnerabilities increases the health risks very significantly. The impact of climate change can be assessed on the basis of empirical evidence where certain areas face floods and droughts alternately. Such incidences are on the rise specially during the last 10-15 years, probably due to impact of climate change.

The limited technical awareness at the local level is contributing further towards non-structural vulnerability. The distribution of houses and buildings have been captured in the BMTPC table on the next page, also highlights the existence of structural vulnerability in Munger, especially the high percentage of weak mud houses (33% above), indicates the high level of damage risk, especially in this earthquake prone zone.

3.5 Capacity Assessment

3.5.1 Capacity Assessment for Rural Areas

The capacity assessment of 9 villages, one each in representative GPs in the 9 blocks, was carried out as a part of micro level HRVCA. The data has been summarized in the Table below:

Table 13: Capacity Assessment of Selected villages in Munger District

Capacity	Block: Munger Sadar ; GP- Kalyan Tola; Village -Rahia	Block: Bariyarpur; GP - Karharia East; Village- Murala Mushahri	Block: H. Kharagpur , G.P- Teliyadh, Village- Paharpur	Block: Tetia Bambar ; GP- Tetia; Village - Champachak	Block: Jamalpur; GP- Itahari ; Village- Vijaynagar	Block : Dhara ha; G.P- Aurabagicha; Village: Shaka ul	Block: Tarapur; GP Padhwara; Village - Maheshpur	Block: Asarganj; GP Chourgao n; Village: Chourgao n	Block Sangrampur: GP /Village Bhadaunia
Distance from District HQ	12 KMs	10 KMs	40KMs	50KMs	10 KMs	30 km	60 KMs	50 KMs	105 KMs
Village Population	500	350	8000	1800	4000	1500	1200	3000	5000
Schools	Nil , Nearest 1.5Kms away	1 Primary school	9 schools	1 primary school	1 Primary School	1 Primary school	1 Prim ary school	3 Schools (2 primary 1 Middle school)	5(2 high school, 2 Primary 1 Middle
Anganwadi	Nil	Nil- Sevika visits from Ghorghat	9	2	3	Nil	1	4	3
Primary Health Centre	Nil	In Bariyarpur 12kms away	1 Health sub center	2KMs away	Nil	Nil	Nil	1 Sub center	1 Sub center

Irrigation and water resource (Sarkari Chapakal)	7 Govt. Hand pumps	7 Govt . Hand pumps	1% of farms have boring wells, Drinking water-people have private hand pumps with bottled water available @Rs 30/20lts	2 Govt Handpumps, private hand pumps, Private boring wells for 30% of land, rest is rain fed	10 Hand-pumps	6 wells	50 Handpumps, 10% farmers have bore wells	5 Govt and 80private handpumps. Irrigation is mostly rain fed and the Ganga flows 4 KMs from the village so acts as a source of water.	Private hand pumps in most houses, <u>RO water</u> from a nearby plant for drinking purposes Badhua dam canal plus boring wells present.
Connectivity with road/roadways	Absent	Absent	Connected with permanent road	Connected to the block but roads get damaged after flood every year	4 km from the block	Connected from the block	Connected from the block	Connected from the block. Roads are in bad condition	Connected from the block
PDS Shop	1- which is 3Kms away	Nil- closest in Ghorghat	1	2KMs away	1	2 Kms away- Dharm pur	Nil	1	2
Toilets	Open defecation- 100%	Open defecation- 100%- (Nil)	Open defecation	Open defecation	Open defecation	Open defecation	Open defecation	Open defecation	50% have toilets. OD very common

Community Center	No	1	10	1	1	1	3	2	4
Tractor	No	Info. not available	10	4	Info. not available	1	1	3	8
Market	Munger Sadar	Ghorghat 4 kms	Info. not available	Tetia about 2 kms away	Info. not available				
Police Station	Munger Sadar	Bariyarpur	6kms	2 KMs away	Info. not available	Info. not available	5 kms away	8 kms away	9 KMs

Despite the fact that most Gram Panchayats in the Blocks have significantly large populations (2000-5000), the capacities available were found to be minimal. For post-disaster health epidemic emergencies and global pandemic such as COVID-19, capacities like quarantine centres, Ventilators, PPE kits etc and veterinarian hospital, Banks, nearby markets or hospitals (at least one in each block) are not available. While some basic infrastructure is in place, it needs to be developed significantly. Lack of adequate capacity tends to enhance risk.

A major handicap observed was that there was no significant awareness about the do's and don'ts of main disasters, epidemic or pandemic; training has not been imparted to community; Task Forces looking into training and rescue have not been constituted. Mock drills are held occasionally in schools for earthquakes, but is not taken seriously by the community since earthquakes are not perceived as a major risk, whereas the risk is very real.

3.5.2 Urban Risk Vulnerability Assessment

For urban areas HRVCA was carried out in one hospital (Sadar Hospital), two schools (Rajkiya Madhya Vidyalaya, Vasudevpur and Shri Ram Lakhan Singh Yadav High School, Mohuli Shankarpur) and in the Nagar Nigam, Munger. The risks to urban areas in Munger are slightly different from rural areas. These are primarily to earthquakes, particularly from structural and non-structural safety; fires; road accidents; and epidemics/pandemics.

Table 13: Vulnerability Assessment of Urban area in Munger

Hazard	Vulnerability					Remarks
	VH	H	M	L	N	
Earthquake		H				The district falls in Seismic Zone IV and therefore the risk of earthquake is high. Both structural and non-structural vulnerability are a major issues specially in the event of large

					scale non compliance to building bylaws.
Fire Incidents			M		Fire incidents occur occasionally due to short circuits, fire incidents in slum areas due to use of firewood, festivals etc. Also susceptible are the numerous factories in the district in case there is an industrial fire. Fire Department is not well equipped or prepared to meet large scale emergencies.
Road Accidents			M		There have been incidences of minor road accidents in the district including some fatal cases. The main reasons are proximity of main roads, lack of awareness about road regulations among drivers and drunken driving. It has been mentioned that after the imposition of prohibition in the state, the incidents of road accidents have dropped considerably.
Epidemics			M		There have been incidents of seasonal disease outbreaks specially close to the monsoon months but the Health Department was not in a position to give any actual data on management of epidemics. Epidemic like COVID-19 can also be transmitted through migrant population.

3.5.3 Capacity Assessment for Urban Areas

Table 14: Capacity Assessment of selected places in District Munger

Capacity	Nagar Nigam	Rajkiya Madhya Vidyalaya, Vasudevpur	Shri Ram Lakhan Singh Yadav High School, Mohuli Shankarpur	Sadar Hospital	Remarks
Building Bye Laws Amended	Yes; in 2014	Yes; in 2014	Yes in 2014	Yes; in 2014	These were amended in 2014 but the compliance regime is quite weak
Structural safety issue addressed?	Not fully	Not fully	No	Not at all. most of the buildings are weak structures at high risk	This will be major issue in case of earthquake. Specially the case of the district hospital which is at high risk due to weak structures.

Mock drills carried out?	No	Occasionally	Never	Fire drills occasionally	
Are Fire Services adequate?	No	No	Missing totally	inadequate	Fire Services Department is short of both manpower and equipment
Drainage System	Inadequate	Adequate	Inadequate	Inadequate	Water logging occurs due to inadequate egress of water
Awareness	No	Through Mock Drills for earthquake	No awareness	Staff are aware of the risks. No satisfactory mitigation measures taken	
Training	No	Yes	Absolutely nothing	Fire drills have taken place.	There are no Task Forces at ward level

Urban Risk Mitigation has not been paid adequate attention. This aspect needs to be looked into carefully at the level of Nagar Nigam. There is limited awareness about the role of local authority under the Disaster management Act, 2005. Therefore, the risk gets multiplied.

3.6 Capacities of Departments at District level

Interactions were held with key district level departments, to assess support being provided to community in case of major hazards and the capacities available to deal with it. These are briefly indicated below:

Agriculture Department

Drought is one of the major hazards applicable in the district; it is a recurring phenomenon in some parts of the district. The agriculture department, District of Munger comes up with an emergency crop plan on a regular basis. This covers the entire spectrum of activities which may be undertaken in case of delayed arrival of monsoons and alternate crop arrangements which are to be made in case of floods in the district.

The plan has detailed guidelines as to the course of action most desirable for different eventualities like the delayed arrival of monsoons including the quantum of such a delay. The chief crops have been highlighted as Corn, Jwar, Urad, Arhar and Vegetables in addition to Paddy.

Block wise projections have also been suggested in the crop plans in case the monsoon gets detailed. It also covers the detailed budget allocated for different crops grown in the district. The department makes arrangements to provide seeds for alternate crops. Based on damage assessment, subsidy is given to affected farmers.

Alternate means of livelihood are provided, under MNREGA, to drought affected population. However there is need for the long term measures under implementation or proposed to mitigate the impact of drought.

Health Department

There is one District Hospital also called the "Sadar Hospital" along with 9 Primary Health Centers and 16 Additional PHCs. The PHCs are distributed so that there is one in every Block of the District. The office of Civil Surgeon maintains a record and is responsible for availability of emergency medicine in post flood situations. Although preventive measures like arrangements for emergency medicines are made before floods and in its aftermath, no other specific measures could be identified in order to deal with other disaster situations which may occur in the district.

It is a fact that there are private doctors at block/ village level but no data could be made available. Further it also came to know that ambulance service "108" was available up to village level however the timely availability of such facility up to village level needs to be checked. Further, there are several schemes for health sector but these are required to be tested and verified on the ground at regular interval.

The contact list of PHCs, medical institutes, dedicated medical officers/ teams, have been formed in all the blocks of District Munger, to deal with any disaster like situation such as flood, drought or epidemics etc. For biological disasters such as pandemic like COVID-19 list of quarantine centres and dedicated hospitals may be pre-identified with necessary medical facilities. The details have been provided in annexure (including Nodal person, designations, contact numbers block wise etc) covered in the end.

Education Department

Despite spreading awareness by the Dept., it has been observed that Disaster Management has yet to be further embedded and mainstreamed in various streams of education sector, mainly from structural and nonstructural safety point of view. The structural safety of schools has yet to be certified and verified by concerned agencies and the non-structural measures are also required to be periodically checked and inspected regularly.

However, during the interaction with schools, it was brought out that disaster specific information is being provided as part of the school curriculum, e.g. earthquake and lightning protection³⁴ as a

part of the class 8th Science syllabus.

Besides, mock drills are held occasionally for earthquake. Thrust is required to cover the other potential hazards, keeping in view of the local vulnerabilities.

Rural Development Department

The District Administration is currently running the several flagship programmes for rural development such as Seven Nishchayas (including infrastructure, connectivity, communication, WASH, skill development, inclusion) Jeevika, MGNREGA, IAY, ICDS, SSA, Immunization etc. However, each initiative/ programme is being run as a stand-alone programme and therefore the need is need to mainstream the DRR comprehensively in these programmes and provide the lateral support from one programme to other for Disaster Risk Reduction (DRR).

Urban Development Department

A City Development Plan for Munger has been prepared and is in place. This plan is apparently conscious of the need to address some key issues such as improvement in drainage system, solid waste management, aggressive implementation of techno legal regime, reducing road accidents etc. However, the department was not adequately aware of role assigned to local authorities under the Disaster management Act, 2005.

A Roadmap for addressing the major issues is required to be prepared for the local authorities, on the lines of DM Act 2005, NDMA Guidelines and DRR Framework.

Fire Services Department

There are some incidents of outbreak of fire. However, it may be difficult to put them in different categories. The strength of the fire services is not adequate. It requires to be augmented both in terms of human resources and equipments. The existing equipments too are not in a good condition.

Across the blocks on the basis of pre-determined norms. The department is required to provide the training to community or school children about immediate action to be taken in case of outbreak of fire. It has been felt that this should be included in the functions of the department in order to provide additional strength and resources. Department should be fully equipped with dedicated rescue teams for responding to disaster situation although saving people from fires is one of their functions and it is being discharged

whenever there is outbreak of fire and people are trapped in it.

Further it has been observed that there is need for the dedicated Disaster Management Plan or Standard Operating Procedures for the department. The condition of the fire vehicles in the district also needs better maintenance with sufficient number of skilled operators for effective operation of the same. This is very crucial especially in case of Munger as it is home to a number of industrial units and factories and therefore the threat of a major industrial fire cannot be ruled out.

Police Department

The Department perceives its role in disaster management, especially during & post disaster situation. During disasters, police is required to ensure maintenance of law and order, search and rescue, rescue of livestock, distribution of relief materials etc.

There is no specific SOP or Action Plan for the actions to be taken during disasters. It has come to know that few personnel have received the disaster management training. Further, the Department is required to be trained in the Incident Response System (IRS). The coordination with other line departments is also very vital for the Police, to effectively address any emergency situation.

Transport Department

The main role of Transport department is to provide safe transport for taking the personnel from disaster sites to safer place and also transport the relief materials to the needy one during disaster. The efforts are being made to collect the latest status of available transport vehicles in Munger district including bus, truck, tractor etc.

The department perceives its role in post-disaster situation mainly, which came out after the interaction during the earlier interface with the department. There is no standard operating procedure laid down for the

department with reference to disaster management. Department is required to maintain sufficient inventory of vehicles, manpower etc. In response to a question that what alternate arrangements are made to transport relief material to places which have become inaccessible during a disaster, it was mentioned that transportation is possible only if routes are clear. This shows that there is need to train and rehearse the deptt staff to deal with any disaster situation.

Food and Supplies Department

The main role of department is to provide food grain and other items to the people during disaster. In Munger District there are total 18 storage godowns, spreading in TPDH (14) and CDR (4) godowns so far, with total storage capacity of 22,900 MT in Munger District.

The details of Munger storage godowns have been enclosed in separate annexure in the end. However there is a network of PDS for distribution purpose at sub district level, but as a matter of fact the department has no specific standard operating procedure to function in a disaster situation. And the department doesn't have any dedicated captive transport facility; they largely depend on the Transport Department or local transport for this purpose. As for the additional supplies in case of a major disaster, usually there is dependence on the supplies from state and central government. No specific training has been provided to Department personnel to meet additional requirement in disaster. They primarily depend on their past experience and directions of District Administration.

Energy Department

The department has a very significant role in case of a disaster; this needs to be realized to the department. In case of failure of electricity, they should have the alternate system to provide electric supply at disaster site or relief camps. The staff from the department needs to be imparted DM training in disaster. There should be a well coordination mechanism in place for coordinating response with other district level departments.

Telecommunication

The role of Telecommunication is primarily in dissemination of warnings in the disaster situation. At present it is being done through SMS to persons designated for this purpose. As an additional role, it can also help in generating awareness through SMSs/ mobile phones since these are available with almost each household in the district. It has been suggested that the dissemination of warnings or any other information at any stage of disaster can be easily made directly to people through general SMSs and, if necessary, recorded phone calls. It has been observed that the resources of Telecom service providers can be utilized better and more efficiently.

Disaster Management Division (coordination with line depts. resource mgt. planning & response)

DM Division (DMD) is the core department to coordinate and manage the disasters, caused by hazards. The department is assisted by concerned line departments/agencies to fulfill assigned responsibilities. Pre, during and post action plans in coordination with line departments, including disaster preparedness, mitigation, conducting relief, rescue & rehabilitation work are main activities of DM Department.

DM Division has identified all the key hazard prone areas block wise and the available resources at district/ sub district level. All these details have been documented in separate Annexures. Apart from it, dedicated trained persons have been identified and the respective task forces have been formed at the District level. The selected community representatives have also been trained to deal with any type of disaster. However there is a long way to go to adequately address the applicable hazards & associated risks. The detailed list is enclosed as separate Annexure in the end.

Animal Husbandry & Fisheries Deptt (providing veterinary health care, animal shelter, relief etc)

The Department of Animal Husbandry and Fisheries have important role to play in providing the veterinary health care, animal shelter, relief measures required for animals and poultry in State, and to take it forward to Munger District and Sub District level. Dept. is expected to provide preventive and curative health care to livestock by keeping a check on disease outbreaks, rendering preventive vaccinations, deworming and treatment of the ailing animals. So far, the department has identified, developed and maintained 18 Animal Shelters for take the disaster relief measures to livestock during natural calamities. The list of Animal Shelters is also annexed.

Coping capacities contribute to the reduction of disaster risks. Capacity assessment is the process by which the capacity of a group, organization, or society is reviewed against desired goals, where existing capacities are identified for maintenance or strengthening and capacity gaps are identified for further action.

Table 15: Capacities of Departments at District level

S. No.	Resources	Description
1.	Canal	Enough in numbers- 33
2.	Communication	BSNL/Telecom, Mobile & Internet
3.	T.V/ Radio Stations	Enough cable connections in the district
4.	Electric Extension Grid	2- Munger and Tarapur
5.	Road Connectivity	NH 80, NH 333, and NH 333B
6.	Railway	Kiul- Jamalpur- Bhagalpur (98km) Jamalpur-Munger- Begusarai (46 km)
7.	Agriculture	9- Block Agriculture Officers, Agriculture Coordinators, and consultants
8.	Education Department	550 Primary School 139 Secondary School 470 Middle High School 22 University 1 International University 3 Technical Training Institution 5502 Total number of teachers
9.	State Disaster Response Force	Nearest available in Bhagalpur 38

10.	Helipad	2 (Not functional)
11.	Nearest regional IMD Centre	Patna
12.	District EOC	EOC in Disaster Management Dept. Munger
13.	Firefighting	2 Big Vehicle, 3 Medium Vehicle, and 2 Small Vehicle, 1200 GrihRakshawahini, 53 Firefighters
14.	Trained Human Resource	70 Search and Rescue Team 10 Motorboat Drivers 60 Boat Owners 27 Divers
15.	Health Facilities	172 Doctors 280 Staff, 571 Nurses 1 District hospital 3 Referral Hospital 6 PHC, APHC-21 17 Ambulance
16.	Relief / Safe Shelters	89 Safe Shelters 27 Trained Personnel
17.	Search & Rescue	Search & Rescue by NDRF & SDRF- Bhagalpur
18.	Veterinary Doctors Team and Animal Shelters	6 Teams, 19 Safe Animal Shelters
20.	Tent Shop	Present in all blocks
21.	Child Development Institution	1598 Anganwadi Centres 1581 Anganwadi workers 1473 Anganwadi helpers

Source: District Emergency Operation Centre Munger, 2021

3.7 Overall Analysis

The hazard, risk, vulnerability, and capacity analysis in Munger brought out that vulnerability is more due to poverty, social and economic disparities, structural and non-structural gaps, inadequate compliance with techno legal regime, gender inequity, and lack of adequate education. The capacity at different levels is inadequate to some extent. There is a need for further capacity enhancement at the different levels such as government departments, urban local bodies, urban institutions, rural bodies including the community. NGOs and SHGs are at present not playing a significant role to enhance capacity. Therefore, vulnerability is more and capacity is minimal.

Since disaster risk is directly proportional to vulnerability and inversely proportional to capacity, disaster risk has enhanced considerably in the district. As a result, in case of any major disaster, the impact of enhanced risk is going to be enormous. Recent droughts in the district have already proved this fact. The droughts on the one hand enhanced the economic losses in terms of loss of agriculture productivity, loss of livelihood migration, degradation

of forest and land. It is also being learned by the district administration that by taking appropriate mitigation and capacity-building measures the existing vulnerabilities can be effectively reduced.

In some parts of the district, waterlogging becomes a problem, both in urban and rural areas due to kutchra roads and lack of adequate drainage system. However, it is more of an inconvenience than a disaster.

Fire incidents occur due to short circuits, overloading, use of firewood, etc. The Fire Department lacks adequate manpower as also fire engines and other equipment. In the city areas, the small lanes and dense population create yet another impediment.

Lightning cases occur sometimes during the rainy season. It results in number of deaths almost every year. Basic precautions to be taken in such cases of lightning need to be popularized in the community. At present, awareness is being created among school children by adding elementary precautions in the Text Books.

Snake bites also occur sometimes, mostly during rainy seasons when the snakes in hibernation come out over the ground. It is more dangerous for women since they go for open defecation when it is still slightly dark. The community uses its traditional practices in such cases. However, primary health centers/sub-centers also keep anti-venom medicines/injections. Besides, the majority of snakes found in the district are not poisonous but in such cases too, sudden shock sometimes results in serious ailments or even death, particularly among the elderly and children.

From the chemical industrial disaster management point of view, ITC is the only major industry in Munger. Here the storage of HSD (Diesel) is quite high but all the potential risks are being taken care of by the ITC group. The onsite and offsite emergency DM planning is aligned with MSIHC Rules 1989 and EP Act 1986.

Overall the district administration has taken significant proactive measures to deal with disaster situations, including flood control measures, earthquake awareness, and drought mitigation steps in selected domains. However, still there is a long way to go.

The NGOs, which are active in the district, include Red Cross and Nehru Yuva Kendra (NYK). Red Cross is particularly very vibrant and gets actively involved in disaster relief, response, and awareness generation activities in the district. Besides, the Bihar School of Yoga provides volunteers to assist the district administration in case of any disaster.

However, there is a strong felt need to accord the official recognition to the civil society volunteers as valid disaster managers duly recognized by the local administration.

Table 16: Capacities of Early warning system

Flood	IMD information
Lightning	Number of arrestors – 2 in court area
Automatic Rain gauge	101 in all Panchayats

Source: District Emergency Operation Centre, Munger 2022

CHAPTER - 4

INSTITUTIONAL ARRANGEMENT

The Disaster Management Act 2005 provides for an effective institutional mechanism at the District level for drawing up and monitoring the implementation of the disaster management plan for prevention and mitigating effects of disasters and for taking a holistic, coordinated prompt response to any disaster situation. The institutional mechanism for disaster management in Munger District is discussed in the present chapter.

4.1 District Disaster Management Authority

As per Section 25 of the Disaster Management Act 2005, every State Government shall establish a District Disaster Management Authority in each district. The District Authority shall consist of the Chairperson and such number of other members, not exceeding seven, as may be prescribed by the State Government, and unless the rules otherwise provide, it shall consist of the following, namely:-

- a) The Collector or District Magistrate or Deputy Commissioner as the case may be, of the district who shall be Chairperson, *ex officio*;
- b) The elected representative of the local authority who shall be the co-Chairperson, *ex officio*;
- c) The Chief Executive Officer of the District Authority, *ex officio*;
- d) The Superintendent of Police, *ex officio*;
- e) The Chief Medical Officer of the district, *ex officio*;
- f) Not exceeding two other district-level officers, to be appointed by the State Government.

The State Government, through its Order dated 18 June 2008 has appointed the following two district level officers, in addition to the above five, as members of the District Authority in terms of clause (f) of sub-section (2) of Section 25 of the Act:

1. Additional District Magistrate, *ex officio*; and
2. Senior most Engineer in the district, *ex officio*.

A District Disaster Management Authority with the above-mentioned members has been constituted for Munger district vide order dated 18 June 2008. There is however a need to hold regular meetings of DDMA to discuss long-term mitigation measures and formulate schemes and plans for implementation. A major limitation is that DDMA does not have an exclusive member-secretary or secretariat. However, in the district, there are still gaps that need to be bridged. For instance, there are no dedicated District Training Centres exclusively for disaster management at the moment. The training Centres of other sectors have not taken Disaster Management (DM) on board to the extent required. Training at district and sub-district levels can be provided through a chain of Master Trainers and Trainers. The constraint is that in the absence of State HR Plans and Training Needs Analysis, no significant proactive action has been taken to develop a comprehensive plan for training different stakeholders at the district and sub-district levels.

4.2 Coordination at Block Level

At the block the Circle Officer the co ordinating officer for any kind of disaster related work. Some small groups of people are trained in coordination and know-how to tackle disaster situations. People are yet to be capacitated on urban risks in the district, specifically on earthquake risks. Though some initial DM programs have been conducted by the state government and NDRF at the block level, there is a long way to go in terms of local level coordination. Further, there is a need for dedicated officers and subject matter experts, who can sustain the disaster management capacity building agenda and its institutionalization on the ground.

4.3 GP Level

At the block the Circle Officer the co ordinating officer for any kind of disaster. There is a need for institutionalizing disaster management through the formation of DM Committees. However, the villagers need to go through capacity-building training against different disasters to which they are vulnerable.

4.4 PRIs Level

It has been observed that there is a need to institutionalize DM and build the capacities of PRIs to handle any emergency. BSDMA has recently developed specific disaster management training modules for all PRIs. The exclusive DM training programs have been organized by BSDMA for PRIs, including Mukhiyas and Sarpanch. And for smooth local

self-governance and institutionalization purposes, the master trainers need to be adequately trained at the block, panchayat, and community levels. This will certainly help to take forward the disaster management culture beyond the block office and to the vulnerable GPs and communities therein.

4.5 NGOs, CBOs Level

The NGOs and CBOs have a very important role to play in disaster management, as they are very close to the community. The DM training could be imparted to the NGOs, CBOs and cascaded down to the community through a chain of master trainers and trainers.

However, in Munger, adequate initiatives have yet to be taken up. In villages of Munger District, the need was felt to involve women in First Aid training in the community. Besides, if the children learn these things in school, they would come and share with other family members at home. As per this Plan, to begin with, the local NGOs, CBOs will be identified and exposed to training programs inclusive of all social problems along with inputs related to disaster management, health, and hygiene so that they could adopt an integrated approach to disaster management on the ground affecting vulnerable communities.

4.6 District Emergency Operations Center (EOC)

The District EOC is located at Munger DM/DC office. However, there is a need to make the EOC more effective. It is yet to be fully equipped and needs to be further upgraded. The trained and experienced manpower is also required to be deputed in full capacity at the District EOC.

It is expected that the District EOC will be fully activated during disasters. The activation would come into effect either on the occurrence of the disaster or on receipt of the warning. On the receipt of a warning or alert from any such agency which is competent to issue such a warning, or any other agencies of the occurrence of a disaster, all community preparedness measures including counter disaster measures will be put into operation. The District Magistrate will assume the role of the Chief of Operations for Disaster Management.

The disaster/emergency would be communicated to DM, SP, CMO, SDM, Commandant Home Guard, Fire Officer immediately on phone. A written report about the disaster/ event would be sent in writing to the DM.

The occurrence of disaster shall be immediately communicated to all the first responders.

such as police, fire, health, DM, SDM, and other stakeholders such as NGOs, trained SAR volunteers through SMS gateway for which specific provision of group mobile directory would be made. The directory would be grouped according to the disaster-specific response groups. All the messages received in and sent out of the EOC will be entered into the message register. The occurrence of disaster would essentially mean the following activities have to be undertaken:

a) Expand the Emergency Operations Centre to include Branch arrangements with responsibilities for specific tasks depending on the nature of the disaster and the extent of its impact.

b) Establish an ongoing VSAT, wireless communication, and hotline contact with the Divisional Commissioner, and Collector/s of the affected district/s.

EOC will continue to operate as long as the need for emergency relief and operations continues. Besides the above, the DEOC would also do the following functions: -

a) Assimilation and dissemination of information.

b) Liaise between the Disaster site and State Head Quarter.

c) Monitor and coordinate the actions and responses of different departments and agencies.

d) Coordinate relief and rehabilitations operations

e) Hold press briefings.

CHAPTER - 5

PREVENTION, MITIGATION, AND PREPAREDNESS MEASURES

In order to achieve set milestones of disaster risk reduction, it is necessary to reduce the vulnerability of the community and improve its capacity. Besides community, the capacity of all other stakeholders also has to be built in order to enable them to discharge their functions before, during and after disasters in a manner that gives optimum results. In this process, it is crucial to understand disaster prevention, mitigation & preparedness measures. The key components, which fall within the ambit of prevention, mitigation and preparedness measures, are as follows.

5.1 Techno Legal Measures

Techno legal regime has a very important role to play in disaster prevention using safe construction. Further, it also helps in mitigating risks and enhances the preparedness for potential disaster risks. The Government of Bihar has further updated Building Bye-Laws in 2014. Even before this, the Bye-Laws in force took care of risks due to disasters. The CPWD and State PWDs invariably follow the Building Bye-laws and relevant provisions of the National Building Code. However, the same cannot be said for private constructions since the implementation mechanism is not up to the required standards and engineers/ architects/ contractors/ masons are also not adequately trained in the construction of disaster-resistant buildings. Munger is not an exception to this problem.

PRI bodies such as Nagar Parishad and Nagar Panchayat play a critical role pre, during and post disaster. Their support and participation is vital for eliciting support and engaging the community disaster management planning and recovery processes. In Munger, the District Administration elicits the support of the district PRI bodies in emergency response particularly during flood and waterlogging and evacuation of affected community at the Municipal Ward level. Further, the inputs of the Nagar Parishad would ensure whether the DM plan is in accordance with Building Bye-Laws, 2014.

Interactions with the Nagar Parishad and Nagar Panchayat revealed that there is still a greater scope for interaction and engagement of these PRI bodies with the District Administration for effective disaster management planning process at the district level. **District Emergency response facility cum training center of SDRF is being in process of setup in Munger vide letter no. 1258 dated 12.8.22.**

Further non-structural measures are equally important to mitigate the impact of disasters such as in schools/colleges, the heavy equipment should be fixed on work tables, trophies/ heavy items should not be kept over almirahs from which these can fall easily particularly in case of earthquakes, chemicals should be stored safely, people should keep their precious goods, money, medicines and important documents in a waterproof package so that these can be taken by them in case of evacuation without any time loss.

The following key measures, therefore, need to be taken:

- (i) As for new constructions, implementation modalities as per building bye-laws may be firmed up and these constructions may be inspected at laying of foundation level, construction up to plinth level, superstructure level, and before the issue of completion certificate to ensure that these are disaster resistant.
- (ii) For existing constructions, public awareness may be created to have the buildings inspected by private certified engineers/ architects to ensure that buildings are disaster resistant.
- (iii) As for public buildings, particularly key administrative buildings, schools, hospitals, places where a large number of people congregate including religious places and other lifeline buildings, Rapid Visual Screening (RVS) may be conducted to ascertain the level of vulnerability followed by detailed evaluation for retrofitting or reconstruction based on the age of the structure/building and its related risk assessment.
- (iv) Adequate training may be imparted to engineers, architects, and masons for disaster resistant constructions.
- (v) Engineers/ architects in the private sector may be certified to make maps/ plans initially and ensure that disaster resistant features are incorporated during constructions.
- (vi) With *pucca* constructions gradually coming up in rural areas, a techno legal regime for such constructions may be introduced.

- (vii) Awareness may be generated among the community and public assets to take necessary non-structural measures.

5.2 Early Warning Systems (EWS);

Roadmap for Disaster Risk Reduction, 2015-30 of the Government of Bihar, brought out in March 2016 identifies improvement in existing early warning systems as a key action area. The milestone set for this purpose states that “an effective Early Warning System (EWS) is established, wherein all villages and cities in Bihar have systems for early warning information reception, dissemination and taking up immediate good enough pertinent action.”

At present, although the District EOC exists in Munger District, it is not fully equipped. Arrangements are indeed made during monsoon season to disseminate early warnings to the villages, which are likely to receive heavy rainfall and are going to get flooded; the dissemination is through conventional means using phone lines. The last mile connectivity of dissemination of warnings to the community is still a problem. There are no EOCs at the Panchayat level. The Telecom Department appreciates this gap and has suggested that mobile phones could be used to disseminate warnings directly to the community through SMS. However, the challenge is that the warnings have to be in simple user-friendly language and reasonably accurate, so as to help the concerned communities receive and respond to these messages as required.

5.3 Functions of Line Departments to deal with Disasters

5.3.1 Earthquake

S.N.	Department / Division Name	Prevention	Reduction / Mitigation	Response/Recovery
1	District Administration / District Disaster Management Authority	Ensure to include all the prescribed standards of disaster management related to Prevention, Mitigation, Response, and Preparedness at all GP level schemes	Adaptation and mitigation programmes in District Disaster Management, and earthquake zone wise monitoring of constructions. Block and GP level risk reduction monitoring and	Analysis and risk assessment of civil construction and structures Distribution of the responsibilities to various participants after analysis Initiative to prepare earthquake-related village disaster management plan

			<p>review.</p> <p>Initiatives to incorporate the technology of earthquake-resistant structures in the plans to be executed by the Gram Panchayats.</p> <p>Village-level capacity building, training works of Panchayati Raj representatives, training of volunteers for the tasks prescribed in the disaster management plan (village-level) of the people of the line department.</p>	<p>To ensure the formation of various teams related to village level disaster management</p> <p>Practicing earthquake preparedness mock drills</p>
2	Building Construction	<p>Ensuring compliance with the provisions of Bihar State Building Code for earthquake resistant building construction</p>	<p>Retrofitting of identified dilapidated buildings after rapid visual screening</p> <p>Rapid visual screening and assessment of the earthquake-resistant capacity of all pre-constructed buildings especially government, hospitals, schools, and administrative office buildings</p>	<p>Rapid visual screening and assessment of the earthquake-resistant capacity of all pre-constructed buildings especially government, hospitals, schools, and administrative office buildings</p> <p>Promotion of earthquake-resistant building construction techniques and training of all engineers, masons, and bar binders working in the district</p>
3	Civic Bodies	<p>Passing the map in compliance with the provisions of the Building Act</p> <p>Identifying dilapidated buildings and banning their residential use</p> <p>Keeping in view the seismic zones-iv, registrations under RERA Act has to be allowed before construction of</p>	<p>Retrofitting of identified dilapidated buildings</p>	<p>Keeping heavy vehicles like bulldozers, dumpers cranes, etc. available by proper repair and maintenance to deal with any unavoidable situation/circumstances</p>

		Buildings		
4	Health Department (Civil Surgeons and their subordinate hospitals and offices)		<p>Identification of nearby trauma centers, orthopedic clinics, M.R.I., X-ray, and surgical centers to ensure proper medical treatment of the injured persons during an earthquake</p> <p>Hospital Disaster Management plan Preparation</p> <p>Retrofitting work of hospitals</p>	<p>Preparation of District level Standard Operating Procedure for Earthquake-prone areas</p> <p>Keeping ambulances ready</p> <p>Keeping the primary doctors, ASHA workers active and ready for any unavoidable circumstances</p> <p>Keeping adequate stock of essential lifesaving medicines and other aids in hospitals</p>
5	Fire Department		<p>Search and Rescue Staff Training</p> <p>Ensuring no fire breakout at rescue site</p>	<p>Always keep a trained workforce ready along with firefighting equipment and vehicles to deal with fire during earthquakes.</p>
6	NDRF / SDRF / Red Cross / Civil Defense		<p>Capacity building of community and to be self-reliant and prepared for search and rescue</p>	
7	Education Department	<p>To ensure earthquake-resistant construction of school buildings to be constructed by Bihar State Educational Infrastructure Development Corporation Limited and other institutions.</p>	<p>Ensure active participation in mukhyamantri School Safety program.</p> <p>Organize earthquake safety week every year in schools</p> <p>Ensure to prepare school disaster management plan</p>	<p>Marking the school playground for setting up relief camps and deputation of teachers for the education of refugee children in these camps.</p> <p>Making knowledge of prohibitive obligations through public awareness</p> <p>Conducting mock drills in every school from time to time to protect oneself during an earthquake</p>

				Formation of earthquake disaster response teams like first aid team, relief and shelter surveillance team, emergency alarm team, evacuation team, search and rescue team, etc. in each school and their regular training.
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5.3.2 Drought

S.N.	Department / Division Name	Prevention	Reduction / Mitigation	Response/Recovery
1	District Administration / District Disaster Management Authority		<p>Formation of Drought Task Force.</p> <p>Forecast Weather report to all the line departments/ community.</p> <p>Aware farmers regarding Fasal Bima Yojana.</p>	<p>Aware the community regarding climate change and its risk and impact</p> <p>Demarcate drought-prone region</p>
2	Agriculture Department	<p>Promote Drip Irrigation</p> <p>Promote irrigation of crop which requires less water</p> <p>Install Check Dams to maintain groundwater quality and promote the use of manure.</p>	<p>Protect crops from pests. Promote crops meant for fodders.</p> <p>Organize awareness programs regarding the mitigation of drought-like situations.</p> <p>Promote programs launched by the Govt. and make the community aware of them.</p>	<p>Adopt irrigation of crops that require less water during a less rainfall year.</p> <p>Aware the community regarding prevention. Reduction and response recovery of drought.</p> <p>Aware of the community with campaign, use of social media programs, TV/Radio, and Hoardings.</p> <p>Awareness campaign regarding environmental safety and drought prevention.</p>
3	Panchayati Raj Department	Recycle of water	Ensure employment opportunities	<p>Maintenance of Rivers/ Ponds & Lakes</p> <p>Store food grains in all the packs.</p>

4	Water Resources	Maintenance of canals and other initiatives were taken to ensure its workability.	Preparation of Emergency Crop Plan in terms of dealing with drought-situations.	Proper mechanism of irrigation facility in the district. Maintenance of irrigation system and proper functioning of irrigation plan.
5	Veterinary	Ensure Vaccination of animals on time	Store enough fodders for animals in the shelter.	Ensure vaccination of animals to deal with weather-related epidemics.
6	Energy		Regulate supply of energy	Ensure and make enough arrangements for electricity during drought.
7	Weather Department			Forecast Weather reports to all the lined departments and the community.

5.3.3 Drowning

S.N.	Department / Division Name	Prevention	Reduction / Mitigation	Response/Recovery
1	District Administration / District Disaster Management Authority	Install Danger signed boards in Ghats	Prohibit boating to endangered locations Prohibit children from going to dangerous spots Train children, elders Implementation of Safe Swim Programme by BSDMA	Construction of Ghats Siege the ponds Training of the communities Keep Boats, bamboo and Trained Divers ready
2	Transport Department	Ensure road safety according to Bihar Aadarsh Ghat	Designing of Boats, Maintenance & Marking Load line. Check BSDMA Website for safe boating guidelines.	Registration of Boats Numbering of Boats Training boat owners
3	Police		Regular Surveillance of Ghats	
4	Village level Community			Siege all the water bodies- Ponds, Lakes & Rivers. Construction of Ghats

5	Health Department			Ambulance and Doctors in Primary Health Centers
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5.3.4 Road/ Rail Accidents

S.N.	Department / Division Name	Prevention	Reduction / Mitigation	Response/Recovery
1	District Administration / District Disaster Management Authority	Awareness Programmes	<p>Identification of Black Spots</p> <p>Organize Road Safety Program (9-15 Jan) every Year. Ensure participation of School kids, children from NCC.</p> <p>Establish Driving Training Centres</p>	<p>Formation of District Level Road Safety Committee and ensure regular meetings.</p> <p>Promote Community Policing</p> <p>Publish guidelines before any festivals regarding road safety.</p>
2	Transport Department	<p>Strict implantation of motor vehicle act 1988</p> <p>Follow Strict licensing mechanism.</p> <p>Ensure no under-age drivers.</p>	Organize awareness programme.	First Aid Box in every Private and Government Vehicle.
3	Police	Ensure Traffic Rules regulation		<p>Ensure Road Safety guidelines issued by Transport Department, Government of Bihar.</p> <p>Traffic regulation at crossroads/ T Points. *‘One way’ and ‘No entry’ regulation.</p> <p>Ensure emergency vehicle.</p>

4	Health Department		<p>Depute paramedics Teams to take victims to the hospital on time.</p> <p>Detailed information of Trauma Centre, Referral Hospital</p>	<p>Formulation of Quick Response Team</p> <p>Training of community regarding First-Aid</p> <p>Depute teams near Black Spots.</p> <p>Avail Medicines, bandages, and stature in the hospital in the right quantity.</p> <p>Detailed info of blood bank, MRI, X-Ray Centre, Blood Donor, Specialist.</p>
5	Education Department		<p>Celebrate Road Safety Programme</p> <p>Create awareness amongst students</p>	

5.3.5 Floods

S.N.	Department	Preparedness	Prevention	Mitigation
1.	DDMA	<p>To review/follow-up with departments about the flood preparedness/repair/maintenance activities and compile data for flood response</p> <p>Repair of rain gauge at block headquarters</p> <p>Sending rainfall data to SDM and DM</p> <p>Identification of flood vulnerable panchayats</p> <p>Ensure availability of government and private boats</p> <p>Ensure availability of Generators, Tents and pump set</p> <p>Ensure sufficient storage of food storage houses</p>	<p>Strengthening and sensitization of Zonal Flood Committees.</p> <p>Removal of encroachment along the riverbanks/tributaries</p>	<p>Recognizing the importance of human resource development and capacity building for effective disaster mitigation.</p> <p>Strengthening and Upgradation of the existing flood forecastingsystem</p>

		<p>Ensure sufficient storage of polythene</p> <p>Formation of panchayat wise search and rescue team</p> <p>Identification of safe shelter for community</p>		
2.	Animal and Fisheries Resources	<p>Establish and practice protocols for Early Warning approval and dissemination.</p> <p>Check animal vaccination before seasonal disasters such as floods.</p> <p>Build awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p> <p>Check supply of life-saving vaccines in advance and store them safely.</p> <p>Identification of safe place in Panchayat with help of community and field staff of the department.</p>	<p>Preparation of emergency animal evacuation plan</p> <p>Development of flood safe ponds and restoration of ponds in vulnerable areas</p>	<p>Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work.</p> <p>Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work.</p> <p>Bring awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p>

3.	Bharat Sanchar Nigam Limited	<p>Standby arrangements for temporary electric supply or generators Establish Mass</p> <p>Messaging services and inform the society on the weather forecast and early warning Sending alert messages during emergencies.</p> <p>Location of equipment, wires at safe places to rectify the technical problems in time.</p> <p>Monitoring and safeguarding the line department's telecom infrastructure in flood vulnerable locations/areas</p>	<p>Strengthening early warning and dissemination system area wise and disaster wise</p>	<p>Establish an emergency restoration mechanism and a contingency fund for emergencies</p> <p>Prepare an action plan for the emergency electric supply</p>
4.	Education Department	<p>Open space for emergency construction of sheds etc. shall be left to the extent possible.</p>	<p>Selection of site for the construction of school building shall be done with the level of flooding water in mind.</p>	<p>Conduct Safety audits including school safety, electrical safety, and food safety</p> <p>Awareness generation and developing School DM Plans. Implementation of Safe Saturday programmer in all schools.</p>
5.	Electricity Department	<p>Establish and practice protocols for Early Warning approval and dissemination.</p> <p>Identification and assessment of power generating units at the panchayat level block level and district level.</p> <p>To promote the schemes on non-conventional energy sources.</p> <p>Location of such units away from the water logging areas.</p> <p>Installation of biogas units or windmills at safe places in the villages.</p>	<p>Installation of high-raised polls and good-quality wires in vulnerable areas.</p>	<p>Establish underground wire installation in new developing areas</p>

		The department must identify the power units, which are located in disaster-prone areas, arrange proper route connectivity for relief, emergency logistics, and provide alternate connectivity to reduce damage.		
6.	Fire and Emergency services	<p>Assess the vulnerable points in the infrastructure, especially in fire and hazardous prone industries, and take measures like timely repairs, etc.</p> <p>Maintenance of firefighting equipment etc. and installation of fire alarm and water pumps like hydraulics, sprinklers, etc.</p> <p>Scope the budget for the maintenance of firefighting equipment and structural measures etc. under different categories.</p> <p>Protect the life and property from firebreak and other disasters.</p> <p>Promotion of fire safety standards</p>	Based on recent or past emergencies the department should frame an outline of the future action plans including disaster risk reduction preventive measurements.	<p>Organize awareness campaigns regarding safety measures for incidents.</p> <p>Conduct regular drills.</p> <p>Enhance firefighting capabilities</p>
7.	Health Department	<p>Prepare and implement inter-sectoral District Health Plan including drinking water, sanitation & hygiene, and nutrition.</p> <p>Define standards/ benchmarks to measure the department's performance on risk reduction activities and emergency response capacities.</p> <p>Build awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p>	There should be an arrangement of proper mess for the preparation of food from health & safety point of view	<p>Provision of functional isolation wards in all tertiary hospitals.</p> <p>Provision of a machine that could diagnose all the rare pathogen and their Characteristics including bioterrorism agents.</p>

		Ensure sufficient preparedness is there for emergency response.		
8.	Civil Defense	Organizing sensitization programmes and disaster management training in District	Establish the District-based training center for training of civil defense volunteers	Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work
9.	Water Resources Department	<p>Assess the vulnerable points in the infrastructure, especially the river embankments, and take measures like timely repairs</p> <p>Maintenance of sluice gates etc. and construction of channels for distributing river waters to ponds.</p> <p>Scope the budget for the maintenance of embankments, sluice gates, lock gates, etc. under different categories.</p> <p>Build awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p> <p>Periodically inspect the embankments for cracks, holes, and other potential wear and tear.</p>	<p>Emergency floodways and river diversions</p> <p>Construction of flood protection walls, flood diverting channels, etc.</p> <p>Construction of barrages on the banks of rivers.</p>	Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work
10.	Public Health Engineering Department	<p>Floods in this district need to be taken care of at the same time we also need to look at poverty and illiteracy, which is prevailing in this District.</p> <p>Establish and practice protocols for Early Warning approval and dissemination.</p> <p>Establish mechanisms for the</p>	<p>Improvement of drinking water supply system and sanitation structures.</p> <p>Strengthening the public health institutes, surveillance system, and</p>	<p>Improvement of design for water sources and water supply protective structures.</p> <p>Ensure water supply Channel improvement.</p> <p>Ensure flood proofing.</p>

		<p>delivery of safe drinking water, halogen tablets, and bleaching powder in the relief camps/shelters in disaster probable areas.</p> <p>Establish a contingency fund in the department. The Department must try to construct hazard-specific sanitation so that the available services can be utilized properly.</p>	epidemiology department.	
11.	Building Construction Department (PWD)	Identify the areas, which get water inundated, flood-affected most of the time. There is a need to make build the infrastructures that would improve access to these areas easy especially during disasters, like Floods.	Strict implementation of work regulations. Strict adherence to fire safety standards in all buildings.	Carry out structural safety inspection/audit
12.	District Rural Development Agency (DRDA)	<p>The use of flood-resistant techniques/ structures in the construction of roads, community center, rural building, etc.</p> <p>Guidance and helping the DM committees in developing the disaster management plan.</p> <p>Capacity building of community in the rural areas regarding DRR.</p> <p>Allocation of separate funds for disaster management, so that the essential reconstruction work can be started early after an emergency.</p> <p>Define standards/ benchmarks to measure the department's performance on risk reduction activities and emergency response capacities.</p> <p>Ensure that food supplies are safe from any adulteration, secure from damage, and poisoning.</p>	Restriction of construction near/along the waterway Mainstreaming MGNREGA with DRR in vulnerable areas	Spatial planning (flood risk-adapted land use); building regulation and improvement of building flood resistance (wet-proofing and dry-proofing)

13.	Food and Consumer Protection	<p>Coordination with Supply Department to ensure that all safety measures are in place for proper storage, transportation, and distribution of supplies.</p> <p>Build awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p> <p>Coordinate with the Supply Department to ensure enough food and other necessary supplies are available in disaster-prone areas.</p> <p>Ensure availability of at least one spacious go down in each block to keep enough food and necessary supplies.</p>	Systematically plan to deal with the food requirements well in advance to avoid situations at the district, sub-district level	Procure ration in advance at various micro-zones in sufficient quantity before the onset of monsoon.
14.	Municipal Corporation	<p>Maintain proper solid water management</p> <p>Maintain and clean proper Drainage System</p> <p>Provide clean drinking water</p>	<p>Removal of encroachment along the riverbanks and tributaries</p> <p>Establish infrastructure for flood warning and dissemination</p>	Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work
15.	Water Resources Department	<p>Assess the vulnerable points in the infrastructure, especially the river embankments, and take measures like timely repairs</p> <p>Maintenance of sluice gates etc. and construction of channels for distributing river waters to Ponds</p> <p>Scope the budget for the maintenance of embankments, sluice gates, lock gates, etc. under different categories.</p>	<p>Emergency floodways and river diversions</p> <p>Construction of flood protection walls, flood diverting channels, etc.</p> <p>Construction of barrages on the banks of rivers.</p>	Awareness generation and capacity building training of key line department officials on various aspects of disaster and incorporation of disaster resilience work in the routine work

	<p>Build awareness among the departmental staff, communities, and the key stakeholders engaged with the department on potential disaster risks and measures to reduce the risk.</p> <p>Periodically inspect the embankments for cracks, holes, and other potential wear and tear..</p>		
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5.3.6 Epidemic (COVID 19)

Department	Preparedness	Prevention	Mitigation
DDMA	<p>Issue alert on spread of epidemic on Short / Medium / Long range duration and disseminate information received from NDMA/BSDMA and Ministry of Health & Family Welfare to the public at large</p> <p>Disseminating public awareness messages on how to protect against the COVID-19 through print, electronic and social media and Information, Education and Communication (IEC) materials such as pamphlets, posters and advertisements and Television Commercials (TVCs) on Do's and Don'ts and treatment measures for of COVID-19 related illnesses</p> <p>Avoid spread of fake news, advisories, rumors and unnecessary information through proper media management.</p>	<p>Social Distancing measures, use of masks and other safety measures should be popularized and people should be perused and strictly followed.</p> <p>Washing hands time and again and maintaining overall hygiene and cleanliness strictly followed.</p> <p>Promote advisories on travel, hygiene, avoiding crowd contact; quarantine of people, arriving from countries notified by MoHFW, use of personal protective equipment (masks, hand sanitizers usage); isolation of patients.</p> <p>Build awareness among the departmental staff, communities and schools on potential disaster risks and measures to reduce the risk.</p>	<p>Establish Early Warning System and Inter-Agency Coordination to alert residents on COVID-19.</p> <p>Who will do what, when, and how is made clear to individuals and units of key departments, especially for health?</p> <p>Hold coordination meetings with credible NGOs and other civil society organisations, in order to see that the community cooperation is enhanced.</p> <p>DDMAs/District Collectors to proactively anticipate emerging criticalities in the district and evaluate their preparedness plans accordingly to address the gaps and revitalize the mitigation strategies.</p> <p>DDMA/DM in tandem with SDMA/Relief Commissioner</p> <p>coordinate with the local industries/corporate, under CSR activities, to mobilize emergency health relief and other relevant medical logistics. DDMA would ensure that the NDMA guidelines are followed so far as temporary shelters for</p>

			migrant workforce returning from different state and maintaining physical distance of at least one meter between two persons and COVID-19 infected persons not considered as stigma.
Public Health Department	<p>Integrated Disease Surveillance System (IDSP) will be operationalized at the district level</p> <p>Active surveillance in containment zone with contact tracing within and outside the containment zone.</p> <p>Expanding laboratory capacity for testing all suspect samples, close contacts, ILI and SARI</p> <p>Establishing surge capacities for isolating all suspect / confirmed cases for clinical management.</p> <p>Implementing social distancing measures.</p> <p>Intensive risk communication</p>	<p>Circulate public hygiene and awareness etiquette as well as Do's and Don'ts on social media outreach platforms</p> <p>Conduct tabletop discussions and exercises on isolation, Quarantine, infection control, confinement measures;</p> <p>Mass screening mechanism, home isolation; amalgamation of Public Health and Law Enforcement drills, risk communication, surge capacity -and networking.</p> <p>Psychosocial care helpline and SOP for panic prevention needs to be in place with help of expert agencies</p>	<p>District IDSP units will be trained to acquire the capabilities of using standard case definition, regular data collection and analyzing data to detect early warning signs and take actions to mitigate any community outbreak.</p> <p>Surveillance at airports, ports and border crossings will be strengthened with appropriate controls.</p> <p>Rapid Response Team (RRT) will be trained under IDSP to undertake mapping of cases and contacts so as to delineate the containment and buffer zones.</p> <p>Identify and enhance capacities of isolation facilities in all districts</p> <p>Adequate segregation mechanism for international or patients from other states arriving or under treatment from these countries needs to be in place. Special care for the needs of the elderly is needed</p>

5.3.7 Lightning

Department	Preparedness	Prevention	Mitigation
DDMA	<p>Issue alert of Lightning and disseminate information received from IMD, app Damini to the public at large.</p> <p>Emergency operation center at district level to be made functional for broadcasting early warning of thunderstorms /lightning.</p> <p>Disaster experts will ensure the above works by coordinating with the Additional District Magistrate</p>	<p>Emergency operation center at district level to be made functional for broadcasting early warning of thunderstorms / lightning.</p> <p>Provide information regarding Damini app to all officers/personnel up to district, block, tehsil and village level and compulsorily download Damini app.</p> <p>Make the villagers aware of what to do and not to do at the time of thunderstorm / lightning through the accountant, village development officer and village headman and to be widely publicized.</p>	<p>Establish Early Warning System and Inter-Agency Coordination to alert residents on thunderstorm/ lightning</p> <p>Provide training of early warning broadcasting to the personnel working in Emergency Operation Center.</p> <p>DDMAs/District Collectors to proactively anticipate emerging criticalities in the district and evaluate their preparedness plans accordingly to address the gaps and revitalize the mitigation strategies.</p>

5.3.8 Fire

S.N.	Department	Preparedness	Prevention	Mitigation
1.	DDMA	<p>To equip the emergency operations center with modern communication resources.</p> <p>To analyze the risk and causes related to fire and prepare a check list related to the responsibilities of the concerned stakeholder.</p> <p>On the basis of this check list, assess the villages and take action by declaring it as a fire disaster prone village.</p>	<p>To run awareness campaign for prevention of fire, broadcast suggestions/advice from district level through Doordarshan and Radio and ensure compliance of vide letter no. 1042 dated 02.03.2016, Headquarter of Bihar Home Rakshavahini, Patna.</p> <p>To analyze the risk and causes related to</p>	<p>Preparation of Fire Control Rooms and ensuring proper mechanism for early warning at village level through Tehsildar, Sarpanch, Patwari etc.</p> <p>Ensure proper mechanism for early warning at village level through</p> <p>Ensure proper functioning of DEOC with fully functional resources and</p>

		<p>Capacity building related to fire related techniques and preventive measures –</p> <p>To organize activities like celebrating fire safety week regularly by Panchayat representatives, village level personnel of various departments, volunteers and representatives of NGOs.</p> <p>Creating a time bound program related to fire safety.</p>	<p>fire and prepare a check list related to the responsibilities of the concerned stakeholder.</p> <p>On the basis of this check list, assess the villages and take action by declaring it as a fire disaster prone village.</p>	<p>availability of fire safety equipment.</p> <p>Compliance of Bihar Fire Rules 2014.</p> <p>Ensuring compliance of fire safety directives in the National Building Code 2005.</p> <p>To give wide publicity regarding preventive action.</p>
2.	fire services	<p>To make public the telephone and mobile numbers of the fire stations established at the district, sub-division and police stations.</p> <p>Keep your fire fighting vehicle fully stocked with the necessary materials and always have trained firefighters ready.</p> <p>To keep up-to-date road maps of fire prone areas, to be fully acquainted with them and to observe them regularly.</p> <p>To ensure availability of latest fire fighting equipments.</p>	<p>Permission to be constructed in multi-storey buildings and offices on the basis of a map with full fire fighting arrangements.</p> <p>Preparation of fire fighting plan of important buildings in the district and testing it from time to time through mock drills.</p> <p>Organize regular training of firefighters.</p> <p>To do public awareness work for the prevention of fire for the people.</p>	
3.	Education Department	<p>Organizing fire safety week in all schools.</p> <p>To do other work of community awareness.</p>		<p>To make arrangements for fire safety in school buildings.</p> <p>School Safety Capacity building at the institutional level should be promoted by carrying out various</p>

				activities under the program (SSP).
4.	Animal Husbandry	To make the villagers aware to keep the pet animals safe from fire. Proper storage of medicines etc. for the animals affected by fire.		
5.	RTO	Provision of training to drivers, conductors and employees in first aid and basic life saving techniques. To ensure adequate stock of first aid kits and maintenance of fire extinguishers in all vehicles and depots in the district.	Identify vehicles for fire rescue operations and prepare for quick deployment of vehicles for various purposes like large scale evacuation, transport of response teams, relief items, victims etc.	Create a database of private fire extinguisher vehicles available with schools, colleges and other private agencies, so that it can be used for the purpose of evacuation, if necessary
6.	Health	Training arrangements for Mobile Medical Groups, Psychological First Aid Groups, Psycho-Social Care Groups and Paramedics Quick Response Medical Groups (QRMTs). Various activities related to capacity building and training measures By completing thus increasing capacity building at the institutional level.	Damage and need assessment training and formation of groups in the department. Arrange for timely procurement of portable equipment for field and hospital diagnostics etc. Ensuring the training of members.	Ensure availability of portable supplies including adequate space for storage of medicines, availability of stock of medicines, survival equipment and portable oxygen cylinders, portable X-ray machines, portable ultrasound machines, triage tags, etc
7.	Police	Conduct training for police personnel to deal with various situations for capacity building in the district. Deployment of trained city soldiers under District Disaster Management.	To develop a mechanism for early warning of various threats by police stations and police. Prepare the deployment plan of Home Guard and other volunteers to protect the property of the affected community.	Train police personnel and employees of PCR vans in first aid and basic life saving techniques.
8.	Civil defence and municipal	Training for volunteers in search and rescue (SAR), first aid, traffic management, dead body management, evacuation,	Make arrangements for procurement of search and rescue equipment through appropriate channels of district administration.	Disseminate information through books, magazines, radio, television, film shows, newspapers,

		shelter and camp management, public care and crowd management.		documentary films, meetings etc.
9.	Building Construction Department	Discouraging the use and storage of highly inflammable materials in building construction.	To make necessary corrections from time to time in safety related instructions by taking lessons from fire incidents.	Compliance of Bihar Fire Rules 2014. Compliance with fire safety directives in the National Building Code 2005. Permitting the construction of various types of hospitals, banks, blood banks and sensitive office buildings on the basis of a fire proof map.
10.	Panchayati Raj departments	There must be space between the construction of village buildings/huts so that it can be easily accessed in case of fire. To maintain water sources like ponds, ahars, pines, pools, wells etc. in the villages, keep them ready by getting them flown. To conduct public awareness work related to fire. Listing the availability of fire fighting materials like water sources, pumping sets, hose pipes, nozzles, long ladders etc. at the village level.	To focus on the use of fire fighting techniques in the construction of rural buildings/huts. Soil coating on the lower part of the huts and the place where the lamp is kept. Change in cooking times to prevent fires in the summer months. To make sure the availability of water for public works and to sensitize the villagers on other things by the Panchayat.	To make encroachment free by widening the access path of Ahar Pond, Peen. Incorporate the technology of building a fire-cum-house in the future plan of your Panchayat. Compliance with standard operating procedure for fire.

5.3.9 Heat wave / Cold wave / Lightning

S.N	Department Name	Preparedness	Prevention	Mitigation
1	DDMA	(a) Heat Wave Taking cognizance of the announcement of weather forecast. To conduct awareness campaigns to use cotton	(a) heat-wave Provision of drinking water at places like market/railway station/bus stand etc. Wide publicity of the following suggestion-	a) heat-wave Fixing of summer working hours in schools/colleges and government/non-government establishments.

		<p>clothes as much as possible and to eat hot and fresh food.</p> <p>(b) cold wave To arrange a bonfire.</p> <p>To arrange warm clothes for protection from winter.</p> <p>To make people aware of the effects and measures and provisions of cold wave.</p> <p>To arrange shelter for the patients.</p> <p>(c) Lightning To publicize suggestions related to do's and don'ts to avoid thunderstorm.</p>	<p>If it is necessary to go out, then never go out on an empty stomach.</p> <p>Come out after drinking water and covering your head completely.</p> <p>Always protect yourself from hot air. Carry drinking water and avoid dehydration.</p> <p>(b) cold wave Keeping the body warm from external sources, consuming sunlight when the sun shines.</p> <p>To make arrangements for lighting bonfires for people without homes, sleeping in public places and people belonging to weaker sections near night shelter, gig halt, rickshaw halt, railway station, bus stand etc.</p> <p>To provide blankets for laying and covering the houseless and weaker sections of the people who are resting the night under the open sky.</p> <p>(c) Lightning Avoid taking shelter under tall trees, electric poles, towers, etc., in weather prone to thunderstorms.</p> <p>Advising to refrain from using mobile or electrical equipment in view of the possibility of freezing.</p> <p>Refusing to connect metal wires between the window and door of the house and the tree.</p> <p>Advised to stay out of river/canal/pond in cold weather prone.</p>	<p>To change the opening and closing times of the children's schools.</p> <p>Instructing to keep the school closed in case of severe heat wave.</p> <p>To determine the summer work period in MNREGA work and other construction works.</p> <p>(b) cold wave To change the opening and closing times of the children's schools.</p> <p>Instructing to keep the school closed in case of severe cold wave.</p> <p>(c) Lightning Installation of lightning conductors in tall buildings.</p>
2	Health Department	<p>a) Heat-wave Quantity needed for the treatment of heat-heat-borne diseases such as heat rash (heat boils),</p>	<p>(a) heat-wave To issue necessary advisories from time to time for the community to avoid heatstroke.</p>	<p>67</p>

		<p>convulsions (heat cramps), fainting (heat rash), heat exhaustion, heatstroke, dehydration In medicine storage.</p> <p>(b) cold wave Cold wave disease like numbness in human limbs, temporary discoloration of skin to bluish white, frost rash - due to touch of cold metal/storage of medicine in required quantity for the treatment of chill burn /hypothermia.</p>	<p>(b) cold wave To issue necessary advisories from time to time to avoid cold wave for the community.</p>	
3	Animal husbandry	To store animal related medicines.	Dissemination of appropriate advice to livestock / poultry farms/ dairy farms for measures to prevent heat-wave and cold wave.	

CHAPTER - 6

CAPACITY BUILDING THROUGH TRAINING AND AWARENESS GENERATION

Appropriate and need-based capacity building will be the key to effective disaster risk reduction (DRR) in the district. The approach for capacity building has to focus on informed capacity analysis with short-term, medium-term, and long-term capacity goals with a multi-layer initiative. Training is an important instrument for capacity building, which should leverage upon the local capacity of the district to facilitate various training programs for different groups of functionaries and stakeholders at various levels within the district. These training programs should focus both on response and mitigation-centric approaches to build upon the existing capacity of the district.

6.1 Awareness Generation

In Munger, although there is awareness about the disasters which occur in the district among the district and block level officers and employees, the awareness about the role their respective departments have to play, is less than the desired level. Disaster management is still perceived primarily as a stand-alone function of the Disaster Management Division (DMD). Except District Magistrate and Officer in charge of the Disaster Management Division and a few senior district level officers, the other stakeholders have yet to be adequately aware of the functions entrusted to District Disaster Management Authority and the Local Authorities under the Disaster Management Act, 2005. At present, there is no department-wise Disaster Management Plans in the district.

At the GP level also, the awareness about disasters needs to be enhanced, particularly in view of the local traditional practices and experiences. There is an obvious need to improve the level of awareness amongst government officers and employees at the district and sub-district levels.

However, BSDMA has conducted various awareness programs such as Mukhyamantri School Safety Program (MSSP), Safe Saturday, Guidelines for Safe Chhath Pooja, Office Safety, Flood Safety, Earthquake safety advisory for Lightning, fire, road safety heat action planning, etc. Further NDRF and SDRF have also extended support in awareness generation by conducting drills. The BSDMA has also initiated action to improve public awareness by

extending financial and technical assistance to districts, including Munger, for the conduct of mock drills, particularly for earthquakes in schools.

The basic precautions to be taken for disaster risk reduction have been incorporated in the school syllabus for class VIII (Science). However, it has to be further strengthened by taking it down to the community level covering all stakeholders through different modes including **person-to-person contacts, by involving village-level officers, NGOs, and SHGs in rural areas and ward-level officials and voluntary organizations/ NYKS/ NSS in Munger District. Various SOPs, Dos, and DON'T'S are issued and are available on the BSDMA Website.**

6.2 Institutional Capacity Building

The capacity building of DDMA, its officials, BAS officers, all BDOs, COs, and other concerned persons of District administration and line departments have to be undertaken on priority and in the right earnest. The institutional capacity building covers not only the disaster management training of officials of various departments policymakers, police, fire services, SDRF, and the other professionals including Doctors, Engineers, Architects, Masons, Nurses Teachers, etc, but also entails the re-engineering of systems and processes including disaster management protocols at the organizational level. Further, it also indicates the Management of Animals in Emergencies (for Veterinarians), Disaster Management training needs of Anganwadi/ ANM Sevikas, Kisan Salah Kars, and other front-line workers. Information is available on BSDMA Website.

Retraining of the officials is also required to be carried out as per the scheduled requirements of disaster management. Being the Nodal entity for Disaster Management, mainly it is the responsibility of the District Administration/ Revenue Department to oversee training and capacity building of all concerned.

6.3 Community Capacity Building

The community capacity building exclusively covers the community-based disaster risk management aspects. It also extensively covers the disaster preparedness and training of vulnerable people (persons with disability, women & children, etc.). The local NGOs/ CBOs, PRIs also including Mukhiyas, Sarpanch, Youth organizations, Mahila Mandals, Divers, Boatmen are the main pillars of Community Capacity Building. BSDMA has come out with specific training modules for these stakeholders for disaster risk reduction and

management. The list of trained persons is given in Annexures.

In Munger, there are people in the community who can provide immediate assistance for the treatment of snakebites which can help in the survival of the victim till s/he can receive proper medical attention by way of anti-venom injection. Few elderly persons can also judge which snakes are poisonous. Similarly, in case of drowning, there are people who keep the divers alert at specific strategic places, which helps the community to function as first responders. It would be desirable to document such traditional practices, certify such practices and develop them further. The elderly in the village can also train others in the village how to assess and make use of such practices.

6.4 Training Methods and Approaches

Apart from the traditional approach to training with a focus on classroom training, there is a need to promote and focus on hands-on practical training aimed at enhancing behavioral skills related to assigned roles and responsibilities of the functionaries and personnel being trained. Methods related to this would include- Observation and study tours (OSTs), Games and simulation exercises, Drills including mock drills, Field Assignments, Case studies, and Role plays.

6.5 Training Calendar

Before the development of a training calendar, it would be desirable to develop a Human Resource and Capacity Development Plan (HR & CD Plan) for the Munger district, quantifying the number of personnel to be trained at different levels in each sector and trainees from different stakeholders. The training calendar has to be prepared and followed based on identified training needs during capacity analysis. This will also entail the following:

- Development of specific Training Modules for each group of trainees
- Development of Training Materials with audio/ video aids
- Development of Master Trainers and other downstream trainers
- Institutional Structure in the district for imparting training
- Modalities for selection of trainees
- Monitoring and evaluation of training courses and making necessary changes in the training modules

Table 11: People to Be Trained

S.N.	Indicative List of District Officers/Personnel to be Trained
1.	The district magistrate and ADM in charge of disaster management
2.	Department Heads of key departments at district level e.g. Health, Education, Water and sanitation, Police, Fire Services, Rural Development, Urban Development, PRI Department, Civil Defense, Home Guards, etc.
3.	Block Development Officers and circle officers
4.	Village level officers
5.	Elected members and officials of Zila Parishad, Nagar Parishad, and Gram Panchayats
6.	Non-Government Organisations and Self Help Groups
7.	Members of Task Forces at village level
8.	Teachers and Students at senior secondary and college level
9.	Doctors paramedics and hospital administrators
10.	Representatives of urban local bodies such as engineers and architects, officers concerned with providing basic civic services
11.	Refresher Training Programs

1. List of Masons / engineers / architect/ swimmers/ community volunteers

Details with the link to access list of masons, engineers, architects, swimmers, community volunteers has been shared in annexure. Following is the weblink of the important DM and DRR trainings conducted by BSDMA for key stakeholders at district level <http://bsdma.org/Training-Workshops.aspx?id=1>

Table: list of masons trained on earthquake

S.N.	Name of Mason (Shri/Md.)	Father's Name (Shri/Md.)	Name of Village	Age	Experience	Qualification	Mobile No.
1	Kalikant Mandal	Jago Mandal	Mahadevpur	52	22	9th	8228963715
2	Md. Imtiyaj	Md. Majjo	Churmba	48	22	9th	9234377914
3	Nawal Tati	Bhairav Tati	Mahadevpur	55	25	8th	7282842721
4	Md. Nijam	Md. Abul Hasan	Bakarpur	50	20	10th	6203700254
5	Md. Ijaj	Md. Salam	Bakarpur	30	13	10th	7808595648

Table: list of engineers trained on earthquake

Sr. no.	Name (Er.)	Designation	Department	Place of Posting	Mobile No.
1	Ajit Kumar	EE	PHED	Munger	9852553386
2	Sandeep Kumar	AE	PHED	Jamalpur	8544428746
3	Amarjeet Kumar Nishad	Tech. Ass.	PHED	Sangrampur	9097791936
4	Chandra Shekhar Singh	JE	PHED	Bariyarpur	8789579340
5	Rahul Kumar	JE	PHED	Munger	8797643675

CHAPTER- 7

RESPONSE PLANNING

Effective response planning requires realistic identification of the likely response functions, assignment of specific tasks to individual response agencies, identification of equipment, supplies, and personnel required by the responsible agencies for performing the assigned tasks. A response plan essentially outlines the strategy and resources needed for search and rescue, evacuation, etc. The response plan is supplemented by relief management planning activities, including relief needs, transportation routes, coordination with local police, District, State, national & international relief teams, transport vehicles, alternative communication in case of a regular communication failure. There is a need for a response structure to activate the Disaster Management Plan (DDMP) once a disaster strikes.

In Munger, District Magistrate shall be the focal point (acting as a Responsible Officer) for directing, supervision, and monitoring the DDMP. The DM shall function with the assistance of the District Emergency Operation Centre (DEOC) to be activated to its full capacity at the time of disaster and which shall be the nodal center for disaster management. All information regarding disaster situations shall at once be communicated to the District Emergency Operation Centre (DEOC). The DEOC would work as per the EOC manual.

The DEOC would function through Emergency Support Functions (ESFs). The response for search and rescue, medical, arrangements for logistics, communication, temporary shelter, etc. would be as per the ESF plan prepared for the district. The primary agency responsible for a particular ESF would act as a coordinator and seek necessary assistance from the secondary agency. If the assistance of the secondary agencies involves the requisitioning from the District Magistrate's office, the primary agency would place a request to this effect with the DEOC.

7.1 EMERGENCY SUPPORT FUNCTIONS

7.1.1 Emergency Support Functions (ESFs) Plan at District Level

In the aftermath of a natural disaster wherein, District Administration's overall coordination is needed, the command, control, and coordination will be carried out under the ESF Plan. District EOC shall activate the ESF and the concerned Department/Agency of each ESF shall identify requirements in consultation with their counterparts in affected districts,

mobilize and deploy resources to the affected areas of the district. The District EOC shall maintain a close link with the State EOC.

ESFs shall be responsible for the following:

1. The designated authorities for each ESF shall constitute quick response teams and assign specific tasks to each of the members.
2. The designated authorities for each of the ESF shall identify and earmark the resources i.e. manpower and materials to be mobilized during the crisis.
3. An inventory of all the resources with details shall be maintained by each of the designated authorities for each of the ESF.
4. The designated authority for each of the ESF will also enter into pre-contracts for the supply of resources, both goods, and services to meet the emergency requirements.
5. The designated authority for each of the ESF will be delegated with adequate administrative, legal and financial powers for undertaking the tasks assigned to them.

7.2 Powers and Functions of DDMA in the event of a disaster:

According to Section 34 of Disaster Management Act 2005, to assist, protect, or provide relief to the community, in response to any threatening disaster situation or disaster, the District Authority may-

- (a) Give directions for the release and use of resources available with any Department of the Government and the local authority in the district;
- (b) Control and restrict vehicular traffic to, from and within, the vulnerable or affected area;
- (c) Control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area;
- (d) Remove debris, conduct search, and carry out rescue operations;
- (e) Provide shelter, food, drinking water and essential provisions, healthcare and services;
- (f) Establish emergency communication systems in the affected area;
- (g) Make arrangements for the disposal of the unclaimed dead bodies;
- (h) Recommend to any Department of the Government of the State or any authority or body under that Government at the district level to take such measures as are necessary for its opinion;
- (i) Require experts and consultants in the relevant fields to advise and assist as it may deem necessary;
- (j) Procure exclusive or preferential use of amenities from any authority or person;

- (k) Construct temporary bridges or other necessary structures and demolish structures that may be hazardous to the public or aggravate the effects of the disaster;
- (l) Ensure that the non-governmental organizations carry out their activities in an equitable and non-discriminatory manner;
- (m) Take such other steps as may be required or warranted to be taken in such a situation.

7.2.1 Activities at District Emergency Operations Center

The District Collector would be assisted to perform the roles assigned to her/him and DDMA by the District Emergency Operation Centre (Control Room). The DEOC would perform the following functions:

- i. District control room would be the nerve Centre for the disaster management;
- ii. To monitor, coordinate and implement the actions for disaster management;
- iii. Activate the ESF in the event of a disaster and coordinate the actions of various departments/agencies;
- iv. Ensure that all warning, communication systems, and instruments are in working conditions;
- v. Receive information on a routine basis from the district departments on the vulnerability of the various places and villages (parts of the districts);
- vi. Receive reports on the preparedness of the district level departments and the resources at their disposal to arrange and meet their requirements;
- vii. Upgrade the Disaster Management Action according to the changing scenario;
- viii. Maintain a web-based inventory of all resources through the India Disaster Resource Network (IDRN);
- ix. Provide information to Relief Commissioner' Office of disaster/emergencies/accidents taking place in the district regularly and maintain a database of disasters and losses caused by them;
- x. Monitor preparedness measures and training activities;
- xi. Providing information at the district level, local level, and disaster-prone areas through appropriate media;
- xii. Brief the media of the situations and prepare day to day reports during the disasters;

- xiii. To report the actual scenario and the action taken by the District Administration;
- xiv. Maintain a database of trained personnel and volunteers who could be contacted at anytime;
- xv. Liaise with on-site operation Centre, State EOC, and other emergency services.

The Assistant Commissioner /ADM shall be the Nodal Officer for Disaster Management and would be in charge of the DEOC. The design, layout, equipment, and operation of the DEOC would be as per the EOC Manual prepared at the State level.

7.2.2 Role of Branch Officers/ Nodal Officers

Branch offices would be activated only on the occurrence of a major disaster and it would provide for division of tasks, information gathering, and record-keeping, and accountability of the Branch officer to the Responsible Officer for specific functions. Each branch should have a Branch Officer of the rank of Deputy Secretary or Joint Secretary at the State Level and Head of Office of the concerned department at the District level assigned.

- i) The Branch/Nodal Officers for Operations, Services, Logistics, Communication and Information Management, Resource Branches will be from the Revenue Department
- ii) For Health Branch, the officer will be from the Public Health Department
- iii) For Infrastructure Branch, the officer will be from the Public Works Department.

All Branch/Nodal Officers will work under the overall supervision and administrative control of the Responsible Officer. All the decisions taken in the DEOC during an emergency have to be approved by the Responsible Officer.

Besides the above the DEOC would also do the following functions:

- a) Assimilation and dissemination of information.
- b) Liaise between the Disaster site and State Head Quarter.
- c) Monitor, coordinate, and implement the DDMP.
- d) Coordinate actions and responses of different departments and agencies.
- e) Coordinate relief and rehabilitations operations
- f) Hold press briefings.

7.3 Primary and Secondary Agencies

The designated primary agency, acting as the State agency shall be assisted by one or more support agencies (secondary agencies) and shall be responsible for managing the activities of the ESF assisting the district in the rescue and relief activities, and ensuring that the mission is accomplished. The primary and secondary agencies have the authority to execute response operations to directly support the needs of the affected areas.

Table: 12 Agency for Each Emergency Support Functions and Roles to be performed

1. Communication		
Primary Agency: Telecom	Secondary Agency: Police Units and Armed forces in the area	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas.</p>	<p>Make available police wireless networks at the affected locations.</p> <p>Coordinate with other networks available such as HAM radios etc.</p> <p>Units of armed forces can provide communication networks at the request of a competent authority.</p>	<p>Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas. Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas.</p>
2. Public Health		
Primary Agency : Dept. of Health and Family Welfare	Secondary Agency : Department of Ayurveda/AYUSH	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

<p>To coordinate direct and integrate state-level response. Direct activation of medical personnel, supplies, and equipment.</p> <p>Coordinate the evacuation of patients.</p> <p>To prepare and keep ready mobile hospitals and stocks.</p> <p>To network with private health service providers</p> <p>To provide for mass decontamination.</p> <p>Check stocks of equipment and drugs.</p>	<p>To perform the same functions as assigned to the primary agency;</p> <p>Provide manpower to the primary agency wherever available and needed;</p> <p>Make available its resources to the primary agency wherever needed and available.</p>	<p>Provide a systematic approach to patient care; Perform medical evaluation and treatment as needed;</p> <p>Maintain patient tracking system to keep a record of all patients treated; Mobilization of the private health services providers for emergency response.</p> <p>In the event of CNBR disaster to provide for mass decontamination of the affected population;</p> <p>Maintain a record of death and arrange for their post mortem.</p>
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3. Sanitation/Sewerage Disposal

Primary Agency : Urban Development and Rural Development	Secondary Agency : Irrigation and Public Health	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Arrange for proposal disposal of waste in their respective areas;</p> <p>Arrange adequate material and manpower to maintain cleanliness and hygiene.</p>	<p>Repair the sewer leakages immediately.</p> <p>Provide bleaching powder to the primary agencies to check & maintain sanitation.</p>	<p>Ensure cleanliness and hygiene in their respective areas;</p> <p>To arrange for the disposal of unclaimed bodies and keeping record thereof;</p> <p>Hygiene Promotion with the availability of mobile toilets</p> <p>To dispose of the carcass.</p>

4. Power

Primary Agency : BSPHCL	Secondary Agency : SBPDCL	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

Provide and coordinate State support until the local authorities are prepared to handle all power-related problems; Identify requirements of external equipment required such as DG sets etc.;	Arrange for and to provide alternative sources of lighting and heating to the affected populations and for the relief camps.	
Assess damage for national assistance.		
5. Transport		
Primary Agency : Department of Transport	Secondary Agency : BSRTC, Civil Aviation	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Overall coordination of the requirement of transport; Make an Inventory of Vehicles available For various purposes; Coordinate and implement emergency-related response and recovery functions, search and rescue and damage assessment.	Make available its fleet for SAR, transportation of supplies, victims, etc.;; Act as stocking place for fuel or emergency operations; Making available cranes to the District Administration; To coordinate for helicopter Services etc. required for transportation of injured, SAR team, relief, and emergency Supplies.	Coordinate arrangement of vehicles for transportation of relief supplies from helipads/airports to the designated places; Coordinate arrangement of vehicles for transportation of SAR related activities.
6. Search and Rescue		
Primary Agency : Civil Defence, Home Guards, Fire and Emergency Services (Commandant HG)	Secondary Agency : SDRF, Armed, and Paramilitary forces, Police, Red Cross, VOs, Volunteers	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Establish, maintain and manage state search and rescue response system; Coordinate Search and rescue logistics during field operations;	108 and Red Cross to make available ambulances as per Requirement. SDRF and Volunteers to assist the primary agency in SAR; Armed and Paramilitary forces to	Discharge all ambulatory patients for first aid which has the least danger to health and others transported to safer areas.
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Provide status reports of SAR updates throughout the Affected areas.	assist civil authorities on demand; Police to arrange for the transportation on and post-mortem of the dead.	
7. Public Works & Engineering		
Primary Agency : BIHAR PWD	Secondary Agency : CPWD, National Highways Authority of India, MES, BRO	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Emergency clearing of debris to enable reconnaissance- clearing of roads; , Assemble casual labor; Provide a team carrying emergency tool kits, depending on the nature of the disaster, essential equipment such as- towing vehicles, earthmoving equipment, cranes etc. Construct temporary roads; Keep national and other main highways clear from disaster effects such as debris etc.;; Networking with private services providers for supply of earthmoving equipment etc.	Making machinery and manpower available to the PWD and keeping national highways and other facilities in functional State.	Establish a priority list of roads that will be opened first; Constructing major temporary shelters; Connecting locations of transit/relief camps; Adequate road signs should be installed to guide and assist the relief work; Clearing the roads connecting helipads and airports; Restoring the helipads and making them functional; Rope in the services of private service providers and secondary services if the department is unable to bear the load of Work.
8. Information and Communication		
Primary Agency : District Collectorate(AC/ADM)	Secondary Agency : Department of IT/NIC (DIO, NIC)	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

<p>Operate a Disaster Welfare Information (DWI) System to collect, receive, and report and status of victims and assist family reunification;</p> <p>Enable local authorities to establish contact with the state authorities;</p> <p>Coordinate planning procedures between the district, the state, and the Centre; Provide ready formats for all reporting procedures as a standby.</p>	<p>Render necessary assistance in terms of resources, expertise to the primary agency in performing the assigned task.</p>	<p>Documentation of response/ relief and recovery measures;</p> <p>Situation reports are prepared and completed every 3-4 hours.</p>
<p>9. Relief Supplies</p>		
<p>Primary Agency : Collectorate(AC/ADM)</p>	<p>Secondary Agency: Department of Food and Civil Supplies</p>	<p>Activities for Response</p>
<p>Responsibility of Primary Agency</p>	<p>Responsibility of Secondary Agency</p>	
<p>To collect, process and disseminate information about an actual or potential disaster situation to facilitate the overall activities of all responders in assisting in an affected area in consultation;</p> <p>Coordinate activities involved with the emergency provisions-temporary shelters; emergency mass feeding;</p> <p>To coordinate bulk distribution of emergency supplies;</p> <p>To provide Logistically and resource support to local entities;</p>	<p>To assist the primary agency in arranging and supplying relief supplies;</p> <p>To assist the primary agency in running the Relief camps.</p>	<p>Support to local administration</p> <p>Allocate and specify the type of requirements depending on need;</p> <p>Organize donation (material) for easy distribution before entering the Disaster site.</p>

<p>In some instances, services also may be provided to disaster workers;</p> <p>To coordinate damage assessment and post-disaster needs assessment.</p>		
10. Food and Supplies		
Primary Agency : Department of Food and Public Distribution	Secondary Agency: Co-operatives Department	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Requirement of food and clothing for affected population;</p> <p>Control the quality and quantity of food, clothing, and basic medicines; Ensure the timely distribution of food and clothing to the people; Ensure that all food that is distributed is fit for human consumption</p>	<p>Ensuring the distribution of food supplies to the affected population through the PDS network etc.</p>	<p>Make Emergency food And clothing supplies available to the population;</p> <p>Ensure the Provision of specific nutrients and supplementary diet for the lactating, pregnant women, and Infants</p>
11. Drinking water		
Primary Agency : PHED	Secondary Agency: Department of Urban Development	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Procurement of clean drinking water;</p> <p>Transportation of water with minimum wastage;</p> <p>Special care for Women with Infants and pregnantwomen;</p> <p>Ensure that sewer pipes and drainage are kept separate from drinking</p>	<p>To assist the primary agency wherever ULB is associated in the distribution of potable water.</p>	<p>Support to local Administration;</p> <p>Water purification installation with halogen Tablets etc.</p>

water Facilities.		
12. Shelter		
Primary Agency : Collectorate	Secondary Agency: PWD and Panchayat Raj Dept.	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Provide adequate and appropriate shelter to all populations;</p> <p>Quick assessment and identifying the area for the establishment of the relief camps;</p> <p>Identification of public buildings as possible shelters;</p> <p>Identifying the population which can be provided with support in their place and need not be shifted reallocated;</p> <p>Locate relief camps close to open traffic and transport links.</p>	<p>PWD would assist the primary agency in establishing temporary shelters of larger dimensions;</p> <p>Department of Panchayati Raj through local Panchayats would assist the primary agency in establishing shelters of smaller dimensions.</p>	<p>Support to local administration;</p> <p>Locate adequate relief camps based on a survey of damaged houses;</p> <p>Develop alternative arrangements for the population living in structures that might be affected even after the disaster.</p>
13. Media		
Primary Agency: Information and public relations dept.	Secondary Agency: Local DD and AIR	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>To Provide and collect reliable information on the status of the disaster and disaster victims for effective coordination of relief work at the state level;</p> <p>Not to intrude on the privacy of individuals and families while collecting information;</p>	<p>To assist the primary agency in the discharge of its role.</p>	<p>Use and place geographical information to guide people towards relief operation;</p> <p>Use appropriate means of disseminating information to victims of the affected area;</p> <p>Curb the spread of rumors; Disseminate Instructions to all stakeholders.</p>

Coordinate with DOCs at the airport and railways for required information for international and national relief workers;		
14. Helplines		
Primary Agency : Collectorate	Secondary Agency: Department of Public Relations	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>To receive distress calls from the affected people and coordinate with the control room.</p> <p>To facilitate the optimization of donations received in kind ;</p> <p>Coordinate, collect, process, report, and display essential elements of information and facilitate support for planning efforts in response operations;</p> <p>Co-ordinate pre-planned and event-specific aerial reconnaissance operations to assess the overall disaster situation;</p>	<p>To assist the primary agency in performing its job effectively and provide its manpower and resources For the purpose.</p>	<p>One of the most critical needs will be having a simplified way of identifying and tracking victims and providing assistance;</p> <p>Identify locations for setting up transit and relief camps, feeding centres.</p> <p>Setting up of the Helplines at the nodal points in the state, and providing the people the information about the Numbers.</p>
15. Animal Care		
Primary Agency : Department of Animal Husbandry	Secondary Agency: Department Of Panchayati Raj	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Treatment of animals; Provision of vaccination; Disposal of Dead Animals.	To assist the primary agency in performing Its role.	To arrange for timely care and treatment of animals in distress;

		Removal of dead animals to avoid outbreak Of epidemics.
16. Law and order		
Primary Agency : Police	Secondary Agency: Home Guards (Commandant Home Guards)	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Having sound communication and security plan in place to coordinate law and order issues; Training to security personnel in handling disaster situations and issues related to them.	To assist the primary agency by making available Manpower.	To maintain law and order; To take measure against looting and rioting; To ensure the safety and security of relief workers and material; To take specific Measures for the protection of weaker and vulnerable sections of the society; To provide safety and security at relief camps and temporary Shelters.
17. Removal of trees and fuelwood		
Primary Agency : Environment and Forest Department	Secondary Agency: Forest Corporation	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Removal of fallen trees; To provide fuelwood for the relief camps and public; Have adequate storage of fuelwood and arrange distribution thereof; To provide fuelwood for Cremation.	To support and supplement the efforts of the primary Agency.	Arrange for timely removal of trees obstructing the movement of traffic; Arrangement of fuelwood for the relief camps and for the general public; Provide fuelwood for mass cremation etc.
1. Communication		
Primary Agency: Telecom	Secondary Agency: Police Units and Armed forces in the area	Activities for Response

Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas.</p>	<p>Make available police wireless networks at the affected locations.</p> <p>Coordinate with other networks available such as HAM radios etc.</p> <p>Units of armed forces can provide communication networks at the request of a competent authority.</p>	<p>Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas. Coordination of national action to ensure telecommunication support to the state and district.</p> <p>Coordinate the requirement of temporary telecommunications in the affected areas.</p>
2. Public Health		
Primary Agency : Dept. of Health and Family Welfare	Secondary Agency : Department of Ayurveda/AYUSH	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>To coordinate direct and integrate state-level response.</p> <p>Direct activation of medical personnel, supplies, and equipment.</p> <p>Coordinate the evacuation of patients.</p> <p>To prepare and keep ready mobile hospitals and stocks.</p> <p>To network with private health service providers</p> <p>To provide for mass decontamination.</p> <p>Check stocks of equipment and drugs.</p>	<p>To perform the same functions as assigned to the primary agency;</p> <p>Provide manpower to the primary agency wherever available and needed;</p> <p>Make available its resources to the primary agency wherever needed and available.</p>	<p>Provide a systematic approach to patient care;</p> <p>Perform medical evaluation and treatment as needed;</p> <p>Maintain patient tracking system to keep a record of all patients treated;</p> <p>Mobilization of the private health services providers for emergency response.</p> <p>In the event of CNBR disaster to provide for mass decontamination of the affected population;</p> <p>Maintain a record of death and arrange for their post mortem.</p>
3. Sanitation/Sewerage Disposal		
Primary Agency : Urban Development and Rural Development	Secondary Agency : Irrigation and Public Health	Activities for Response
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Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Arrange for proposal disposal of waste in their respective areas;</p> <p>Arrange adequate material and manpower to maintain cleanliness and hygiene.</p>	<p>Repair the sewer leakages immediately.</p> <p>Provide bleaching powder to the primary agencies to check & maintain sanitation.</p>	<p>Ensure cleanliness and hygiene in their respective areas;</p> <p>To arrange for the disposal of unclaimed bodies and keeping record thereof;</p> <p>Hygiene Promotion with the availability of mobile toilets</p> <p>To dispose of the carcass.</p>
4. Power		
Primary Agency : BSPHCL	Secondary Agency : SBPDCL	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Provide and coordinate State support until the local authorities are prepared to handle all power-related problems;</p> <p>Identify requirements of external equipment required such as DG sets etc.;</p> <p>Assess damage for national assistance.</p>	<p>Arrange for and to provide alternative sources of lighting and heating to the affected populations and for the relief camps.</p>	
5. Transport		
Primary Agency : Department of Transport	Secondary Agency : BSRTC, Civil Aviation	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

Overall coordination of the requirement of transport; Make an Inventory of Vehicles available For various purposes; Coordinate and implement emergency-related response and recovery functions, search and rescue and damage assessment.	Make available its fleet for SAR, transportation of supplies, victims, etc.; Act as stocking place for fuel or emergency operations; Making available cranes to the District Administration; To coordinate for helicopter Services etc. required for transportation of injured, SAR team, relief, and emergency Supplies.	Coordinate arrangement of vehicles for transportation of relief supplies from helipads/airports to the designated places; Coordinate arrangement of vehicles for transportation of SAR related activities.
6. Search and Rescue		
Primary Agency : Civil Defence, Home Guards, Fire and Emergency Services (Commandant HG)	Secondary Agency : SDRF, Armed, and Paramilitary forces, Police, Red Cross, VOs, Volunteers	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Establish, maintain and manage state search and rescue response system;	108 and Red Cross to make available ambulances as per Requirement.	Discharge all ambulatory patients for first aid which has
Coordinate Search and rescue logistics during field operations; Provide status reports of SAR updates throughout the Affected areas.	SDRF and Volunteers to assist the primary agency in SAR; Armed and Paramilitary forces to assist civil authorities on demand; Police to arrange for the transportation on and post-mortem of the dead.	the least danger to health and others transported to safer areas.
7. Public Works & Engineering		
Primary Agency : BIHAR PWD	Secondary Agency : CPWD, National Highways Authority of India, MES, BRO	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

<p>Emergency clearing of debris to enable reconnaissance-clearing of roads; , Assemble casual labor;</p> <p>Provide a team carrying emergency tool kits, depending on the nature of the disaster, essential equipment such as-towing vehicles, earthmoving equipment, cranes etc.</p> <p>Construct temporary roads;</p> <p>Keep national and other main highways clear from disaster effects such as debris etc.;</p> <p>Networking with private services providers for supply of earthmoving equipment etc.</p>	<p>Making machinery and manpower available to the PWD and keeping national highways and other facilities in functional State.</p>	<p>Establish a priority list of roads that will be opened first;</p> <p>Constructing major temporary shelters;</p> <p>Connecting locations of transit/relief camps;</p> <p>Adequate road signs should be installed to guide and assist the relief work;</p> <p>Clearing the roads connecting helipads and airports;</p> <p>Restoring the helipads and making them functional;</p> <p>Rope in the services of private service providers and secondary services if the department is unable to bear the load of Work.</p>
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8. Information and Communication

Primary Agency : District Collectorate(AC/ADM)	Secondary Agency : Department of IT/NIC (DIO, NIC)	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Operate a Disaster Welfare Information (DWI) System to collect, receive, and report and status of victims and assist family reunification;</p> <p>Enable local authorities to establish contact with the state authorities;</p> <p>Coordinate planning procedures between the district, the state, and the Centre; Provide ready formats for all reporting procedures as a standby.</p>	<p>Render necessary assistance in terms of resources, expertise to the primary agency in performing the assigned task.</p>	<p>Documentation of response/relief and recovery measures;</p> <p>Situation reports are prepared and completed every 3-4 hours.</p>

9. Relief Supplies		
Primary Agency : Collectorate(AC/ADM)	Secondary Agency: Department of Food and Civil Supplies	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>To collect, process and disseminate information about an actual or potential disaster situation to facilitate the overall activities of all responders in assisting in an affected area in consultation;</p> <p>Coordinate activities involved with the emergency provisions-temporary shelters; emergency mass feeding;</p> <p>To coordinate bulk distribution of emergency supplies;</p> <p>To provide Logistically and resource support to local entities;</p> <p>In some instances, services also may be provided to disaster workers;</p> <p>To coordinate damage assessment and post-disaster needs assessment.</p>	<p>To assist the primary agency in arranging and supplying relief supplies;</p> <p>To assist the primary agency in running the Relief camps.</p>	<p>Support to local administration Allocate and specify the type of requirements depending on need;</p> <p>Organize donation (material) for easy distribution before entering the Disaster site.</p>
10. Food and Supplies		
Primary Agency : Department of Food and Public Distribution	Secondary Agency: Co- operatives Department	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

Requirement of food and clothing for affected population; Control the quality and quantity of food, clothing, and basic medicines; Ensure the timely distribution of food and clothing to the people; Ensure that all food that is distributed is fit for human consumption	Ensuring the distribution of food supplies to the affected population through the PDS network etc.	Make Emergency food And clothing supplies available to the population; Ensure the Provision of specific nutrients and supplementary diet for the lactating, pregnant women, and Infants
11. Drinking water		
Primary Agency : PHED	Secondary Agency: Department of Urban Development	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
Procurement of clean drinking water; Transportation of water with minimum wastage; Special care for Women with Infants and pregnant women; Ensure that sewer pipes and drainage are kept separate from drinking water Facilities.	To assist the primary agency wherever ULB is associated in the distribution of potable water.	Support to local Administration; Water purification installation with halogen Tablets etc.
12. Shelter		
Primary Agency : Collectorate	Secondary Agency: PWD and Panchayat Raj Dept.	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

<p>Provide adequate and appropriate shelter to all populations;</p> <p>Quick assessment and identifying the area for the establishment of the relief camps;</p> <p>Identification of public buildings as possible shelters;</p> <p>Identifying the population which can be provided with support in their place and need not be shifted reallocated;</p> <p>Locate relief camps close to open traffic and transport links.</p>	<p>PWD would assist the primary agency in establishing temporary shelters of larger dimensions;</p> <p>Department of Panchayati Raj through local Panchayats would assist the primary agency in establishing shelters of smaller dimensions.</p>	<p>Support to local administration;</p> <p>Locate adequate relief camps based on a survey of damaged houses;</p> <p>Develop alternative arrangements for the population living in structures that might be affected even after the disaster.</p>
13. Media		
<p>Primary Agency: Information and public relations dept.</p>	<p>Secondary Agency: Local DD and AIR</p>	<p>Activities for Response</p>
<p>Responsibility of Primary Agency</p>	<p>Responsibility of Secondary Agency</p>	
<p>To Provide and collect reliable information on the status of the disaster and disaster victims for effective coordination of relief work at the state level;</p> <p>Not to intrude on the privacy of individuals and families while collecting information;</p> <p>Coordinate with DOCs at the airport and railways for required information for international and national relief workers;</p>	<p>To assist the primary agency in the discharge of its role.</p>	<p>Use and place geographical information to guide people towards relief operation;</p> <p>Use appropriate means of disseminating information to victims of the affected area;</p> <p>Curb the spread of rumors; Disseminate Instructions to all stakeholders.</p>
14. Helplines		

Primary Agency : Collectorate	Secondary Agency: Department of Public Relations	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>To receive distress calls from the affected people and coordinate with the control room.</p> <p>To facilitate the optimization of donations received in kind ;</p> <p>Coordinate, collect, process, report, and display essential elements of information and facilitate support for planning efforts in response operations;</p> <p>Co-ordinate pre-planned and event-specific aerial reconnaissance operations to assess the overall disaster situation;</p>	<p>To assist the primary agency in performing its job effectively and provide its manpower and resources For the purpose.</p>	<p>One of the most critical needs will be having a simplified way of identifying and tracking victims and providing assistance;</p> <p>Identify locations for setting up transit and relief camps, feeding centres.</p> <p>Setting up of the Helplines at the nodal points in the state, and providing the people the information about the Numbers.</p>
15. Animal Care		
Primary Agency : Department of Animal Husbandry	Secondary Agency: Department of Panchayati Raj	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	
<p>Treatment of animals; Provision of vaccination; Disposal of Dead Animals.</p>	<p>To assist the primary agency in performing Its role.</p>	<p>To arrange for timely care and treatment of animals in distress;</p> <p>Removal of dead animals to avoid outbreak Of epidemics.</p>
16. Law and order		
Primary Agency : Police	Secondary Agency: Home Guards (Commandant Home Guards)	Activities for Response
Responsibility of Primary Agency	Responsibility of Secondary Agency	

<p>Having sound communication and security plan in place to coordinate law and order issues;</p> <p>Training to security personnel in handling disaster situations and issues related to them.</p>	<p>To assist the primary agency by making available Manpower.</p>	<p>To maintain law and order;</p> <p>To take measure against looting and rioting;</p> <p>To ensure the safety and security of relief workers and material;</p> <p>To take specific Measures for the protection of weaker and vulnerable sections of the society;</p> <p>To provide safety and security at relief camps and temporary Shelters.</p>
17. Removal of trees and fuelwood		
<p>Primary Agency : Environment and Forest Department</p>	<p>Secondary Agency: Forest Corporation</p>	<p>Activities for Response</p>
<p>Responsibility of Primary Agency</p>	<p>Responsibility of Secondary Agency</p>	
<p>Removal of fallen trees;</p> <p>To provide fuelwood for the relief camps and public;</p> <p>Have adequate storage of fuelwood and arrange distribution thereof;</p> <p>To provide fuelwood for Cremation.</p>	<p>To support and supplement the efforts of the primary Agency.</p>	<p>Arrange for timely removal of trees obstructing the movement of traffic;</p> <p>Arrangement of fuelwood for the relief camps and for the general public;</p> <p>Provide fuelwood for mass cremation etc.</p>

CHAPTER - 8

REHABILITATION, RECONSTRUCTION, AND RECOVERY

In the recovery phase, both reconstruction and rehabilitation activities are carried out on a priority basis. The post-disaster phase is more important to reconstruct the basic facilities and rehabilitate the victims properly. Rehabilitation and reconstruction are primarily carried out by the local bodies (Gram Panchayats, District, Talukas, Municipal Corporations, Municipalities, etc.) and different Government departments and boards. The contribution of both government, as well as affected people, is significant to deal with all the issues properly. The immediate and long term recovery plan includes the following broad activities:

Table 13: Immediate and Long Term recovery plan Activities

Damage assessment	Disposal of debris and deadbodies	Disbursement of assistance for houses	Formulation of assistance packages
Cases of non-starters	rejected cases, non-occupancy of houses	Town planning and development plans	Reconstruction as Housing Replacement Policy
Awareness and capacity building	Housing insurance	Grievance redresses	

8.1 Sector-specific approach and processes for Reconstruction, Rehabilitation, and Recovery

Table 14: Sectors specific approach and processes for Reconstruction, Rehabilitation and Recovery

Sector	Approach	Process
Public assets: <ul style="list-style-type: none"> • Roads and bridges • Public buildings like hospitals and schools 	<p>Multi-hazard resistant construction to be followed while reconstruction of public assets. For example</p> <p>Hazard resistant buildings to be made with the help of certified engineers.</p> <p>Use of non-shrinking mortar •</p> <p>Evacuation plans to be made for the public buildings.</p> <p>Non-structural mitigation measures to be taken into consideration Risk sensitive development will be ensured in each of the reconstruction Programmed.</p>	<p>Detailed damages and needs assessment: Multi-sectoral/multidisciplinary teams are to be made which can do detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi-departmental participation:</p> <p>Specific recovery plans through the consultative processes of different line departments are to be made.</p> <p>Arrange for funds from Central government, state government, and multilateral agencies.</p>

	<p>For example: Earthquake zone mapping to be implemented, detailed geological survey of the land to be used for reconstruction.</p> <p>Recommendations from the PDNA report to be considered.</p>	<p>Multi-sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by DDMA.</p>
<p>Utilities</p> <ul style="list-style-type: none"> • Water Supply • Electricity • Communication 	<p>Multi-hazard-resistant construction to be followed.</p> <p>For example: Water pipelines, communication equipment used can be of such material which can resist the impact of certain hazards Risk sensitive development will be ensured</p> <p>Recommendations from the PDNA report to be considered.</p>	<p>Detailed damages and needs assessment: Multi-sectoral / multidisciplinary teams are to be made which can do detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi-departmental participation: Specific recovery plans through the consultative processes of different line departments are to be made.</p> <p>Arrange for funds from the Central government, state government, and multi-lateral.</p> <p>Multi-sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by DDMA.</p>
<p>Housing</p>	<p>Multi-hazard resistant construction to be followed. Risk sensitive development will be ensured.</p> <p>Owner driven approach will be preferred.</p> <p>For example: National and State schemes like Pradhan Mantri Awas Yojna (rural/urban) and Mukhya Mantri Awas Yojna can be included in the construction of the individual houses.</p>	<p>Detailed damages and needs assessment: Multi-sectoral/multidisciplinary teams are to be made which can do detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi-departmental participation: Specific recovery plans through the consultative processes of different line departments are to be made.</p> <p>Arrange for funds from Central government, state government, and multi-lateral.</p> <p>Multi-sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>

<p>Economic restoration • Agriculture</p>	<p>Multi-sectoral assessment</p> <p>Assess direct and indirect losses.</p> <p>Develop sectoral strategies for the sectors that affected the poorest. Risk sensitive development will be ensured</p> <p>Owner driven approach will be preferred.</p> <p>Provision of single window insurance claim system</p> <p>Promote insurance facility for all sectors through government and private institutions</p>	<p>Detailed damages and needs assessment: Multi-sectoral/multidisciplinary teams are to be made which can do detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi-departmental participation: Specific recovery plans through the consultative processes of different line departments are to be made.</p> <p>Arrange for funds from Central government, state government, and multi-lateral</p> <p>Multi-sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>
<p>Livelihood restoration</p>		<p>Detailed damages and needs assessment: Multi-sectoral/multidisciplinary teams are to be made which can do detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi-departmental participation: Specific recovery plans through the consultative processes of different line departments are to be made.</p> <p>Arrange for funds from Central government, state government, and multi-lateral. Multi-sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>
<p>Psychosocial restoration</p>	<p>Provisions like training from institutes like NIMHANS, Mental hospitals, and other specialized institutes.</p> <p>Spiritual leaders can help the community to cope with the trauma</p>	<p>Arrange for funds from the Central government, state government, multilateral.</p>

8.2 Relief and Recovery coordination to be done by DDMA

The rehabilitation period extends over weeks and months after the disaster. The focus is to enable the area to start functioning again as before or in fact better, following the Build Back Better (BBB) approach. This involves debris removal, restoration of public services, and provision of temporary housing. Reconstruction is much longer-term activity. This phase involves permanent rebuilding, improved infrastructure, and better disaster planning. Both rehabilitation and reconstruction phases demand good management. Diversion of national and international aid prudently, prioritization of activities, proper coordination, and monitoring as well as prevention of corruption and abuse of scarce funds become priorities.

After a detailed damage and loss assessment, the restoration, reconstruction, and recovery programme may be outlined and implemented as per the requirements.

8.3 Restoration, Reconstruction and Recovery Programme

- Communication agencies should start setting up and restoring the telecommunication services by way of towers and cables etc. Work should be done with prioritizing the services for government departments and the agencies providing emergency support. Schools and the Education sector should also be connected with telecom services.
- Water Supply agency, primarily Municipality should restore water supply pipes. Care has to be taken to ensure no contamination.
- Power Supply agencies would set up cables and power. Restoration of power supply should be done. The department may be required to take help from other agencies.
- Trauma counseling agencies, volunteer organizations, and NGOs have an active role to play in getting the people out of the shocked state. Medical services would also be required in a long term for certain serious cases of injury.
- Transport services should resume as soon as road and debris clearance has been done effectively. Routes may be required to be changed in case the roads have been damaged.
- The most important agency involved in disaster recovery is the Relief- (food and shelter) agency. Once damage assessment has been done, rehabilitation would begin. Food supply may be required for a few days after the disaster.

CHAPTER -9

BUDGET AND FINANCIAL RESOURCES

This chapter focuses on the available financial resources, provisions, and allocations made at the district level in preparing and executing the district disaster management plan. As mandated under Section 48 of DM Act 2005, the District Disaster Response Fund and District Disaster Mitigation Fund are to be established and maintained by the District Authority to ensure smooth funding at the district level concerning disaster management and risk reduction.

9.1 State Disaster Response Fund

The Fund covers the disaster response, relief, and rehabilitation part. The State Disaster Response Fund (SDRF) and Chief Minister's Relief Funds are also available to meet any emergency requirement, at the district level.

9.2 State Disaster Mitigation Fund

It will cover the disaster mitigation and preparedness activities. The necessary financial requirements would be made a part of their annual budgetary allocations and ongoing development programmes capturing the disaster mitigation and preparedness measures. For Example MGNREGA, Sarva Shiksha Abhiyaan (SSA), Smart Cities, Pradhan Mantri Awaas Yojana, National Health Mission, MP, and MLA LAD Schemes, etc. have to be aligned and provisioned for disaster mitigation and preparedness activities in the district.

9.3 Schemes and programmes supporting DRR:

9.3.1 National Schemes for Disaster Risk Reduction

Following are a few national schemes that can be useful for the Munger district in strengthening the concerned departments for disaster risk reduction.

Table 15: National Schemes for Disaster Risk Reduction

S. N.	Name of the schemes	Actions	DRR	Activities for DRR
1.	Member of Parliament Local Area Development Scheme (MPLADS)	<p>Each MP has the choice to suggest to the District Collector for, works to the tune of Rs.5 Crores per annum to be taken up in his/her constituency.</p> <p>The Rajya Sabha Member of Parliament can recommend works in one or more districts in the State from where he/she has been elected.</p>	<p>Mitigation and prevention through creation of durable community assets based on the locally felt needs</p> <p>As per Para 2.8 of the guidelines on MPLADS, Hon'ble MPs can recommend up to a maximum of Rs. 1 crore for rehabilitation work for the affected areas anywhere in the country in the event of a calamity of severe nature.</p>	<p>Construction of flood control embankments</p> <p>Construction of common shelters for wind cyclones, Floods, and handicapped</p> <p>Purchase of motorboats for flood and cyclone-prone areas</p> <p>Fire tenders for a Government organization</p> <p>Retrofitting of essential lifeline buildings, viz Govt. hospitals, Govt. Schools and public buildings to be used as shelters in an emergency.</p> <p>Strengthen Early Warning Systems for effective disaster mitigation.</p> <p>Construction of roads, approach roads, link roads, Pathways.</p> <p>Drinking water facility</p>
2.	Pradhan Mantri Awas Yojna (PMAY)	Provides financial assistance to rural poor for constructing their houses themselves	<p>Providing disaster resistant housing in areas prone to natural calamities</p> <p>To reduce the risk of vulnerable populations in a Pre-disaster situation</p>	Construction of disaster-resistant houses
3.	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	Legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manualwork	<p>To minimize the economic vulnerability of the people Pre-disaster situation</p> <p>Useful for livelihood generation in Post-disaster situation</p>	<p>Construction of river embankments</p> <p>Construction of roads in remote areas</p> <p>Construction of multi-hazard shelters</p>

4.	Swarnjayanti Gram Swarojgar Yojna (SGSY)	Bring the assisted poor families above the poverty line by organizing them into Self Help Groups through the process of social mobilization, their training and capacity building, and provision of income-generating assets through a mix of bank credit and government subsidy.	To minimize the economic vulnerability of the people Pre-disaster situation Useful for livelihood generation in Post-disaster situation	Creation of SHGs
5.	Pradhan Mantri Gram Sadak Yojna (PMGSY)	Good all-weather road connectivity to unconnected villages	Useful in pre as well as post-disaster situations for road connectivity	Construction of roads in remote areas
6.	National Health Mission (NHM) (NRHM and NUHM)	To provide accessible, affordable, and quality health care to the urban and rural population, especially the vulnerable groups.	One of the most important components in Pre as well as post-disaster situations to provide universal access to health care facilities	Rapid Action Force for Emergency Medical Response Emergency ambulances Preparedness for Mobile Field Hospitals
7.	Scheme for Animal Health Care in the State	Schemes under the Department of Animal Husbandry	To control Animal epidemics	Vaccination drives
8.	JNURM	To improve the quality of life and infrastructure in the cities	To develop and strengthen urban infrastructure to minimize urban risk	Development of river embankments Construction of roads Storm water drainage
9.	Rashtriya Swasthya Bima Yojna	To provide health insurance coverage for Below Poverty Line (BPL) families.	Insurance and Risk Transfer	Disaster Insurance
10.	Pradhan Mantri Awas Yojna (PMAY)	To enable better living and drive economic growth stressing the need for people-centric urban planning and development.	Minimizing risk by constructing Disaster Resistant housing in Urban areas	Construction of disaster-resistant houses

11.	Pradhan Mantri Suraksha Bima Yojna (PMSBY)	An accidental Death and Disability insurance scheme	Insurance and Risk Transfer	Insurance
12.	The Pradhan Mantri Jeevan Jyoti Bima Yojna (PMJJBY)	A term life insurance policy will provide life insurance coverage on the death of the policyholder.	Insurance and Risk Transfer	Insurance

9.3.2 State Schemes for Disaster Risk Reduction

Various schemes are going on in the state of Bihar, which can be useful for the Munger district in strengthening the concerned departments in disaster risk reduction.

Table 16: State Schemes for Disaster Risk Reduction

S.N.	Name of the Schemes	Actions	DRR	Activities for DRR
1.	Mukhya Mantri Seven Nischay Scheme	Ensure piped drinking water, youth and women empowerment, electrification, road and drainage, and toilet to household	Capacity building and awareness generation of youth and disaster-resistant infrastructure development	Capacity building and awareness generation
2.	Mukhya Mantri Gram Sadak Yojna (MMGSY)	Good all-weather road connectivity to unconnected villages	Useful in pre as well as post-disaster situations for road connectivity	Construction of all-weather roads in remote areas
3.	Mukhya Mantri Nihshakt jan Swarojgar Yojna	The scheme extends loans for self-employment to persons with disabilities.	Livelihood generation for most vulnerable group	Livelihood generation
4.	Flood Protection Works	Construction and repair of the river and canal embankments, Providing storm water drainage system	Important in flood-prone areas to minimize flood risk	Construction and strengthening of the river and canal embankments Anti-Erosion work Village protection work

5.	Foot and Mouth Disease Control Programme	To prevent, control and contain Foot and Mouth Disease	To prevent animal epidemics during and after a disaster	Organize HS BQ (Haemorrhagic Septicaemia and Black Quarter Combined) vaccination drives
6.	Samarthya Scheme	The scheme aims at physical, social, economic, and psychological rehabilitation of Persons with disabilities.	Provision of aids and appliances such as tricycles, hearing aid, calipers, etc.	Providing aids and appliances such as tricycles, hearing aid, calipers, etc. to vulnerable and disaster-affected population.
7.	Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP Scheme)	To assist the needy disabled persons in procuring durable, sophisticated, and scientifically manufactured, modern, standard aids and appliances that can promote their physical, social and psychological rehabilitation, by reducing the effects of disabilities and enhancing their economic potential.	Provision of assistance to the needy disabled persons in procuring durable, sophisticated and scientifically manufactured, modern, standard aids and appliances	Providing assistance to the needy disabled persons in procuring durable, sophisticated and scientifically manufactured, modern, standard aids and appliances
8.	Janani Evam Bal Suraksha Yojana	Reduce maternal and neonatal mortality by promoting institutional deliveries	To provide better health care facilities	Provide assistance to disaster-affected families
9.	National Vector-borne Disease Control Programme	Prevention and control of vector-borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis, and Chikungunya	To prevent an epidemic	Organize community awareness Programmes and vaccination drives

9.4 Disaster Risk Insurance

It is one of the options being used very commonly, by the concerned agencies to address the financial component for disaster management purposes. The hazardous area should be announced, notified, and publicly displayed so that people would be motivated not to settle in those areas and insurance be mandatory in disaster-prone areas. Premiums can be changed

based on risk proneness. The mitigation, preparedness, and response to disasters are important steps in disaster risk management. But given the nature of the calamity to possibly overwhelm any preparedness measures, risk insurance becomes a potent mechanism to account for residual risk. Two major schemes available towards risk insurance are:

1. **Pradhan Mantri Suraksha Bima Yojana** – a personal accident insurance scheme that offers protection against death or disability due to accidents available at a premium of Rs. 12/- per annum with total coverage of Rs.2,00,000/-
2. **Pradhan Mantri Jeevan Jyoti Bima Yojana** – Life insurance scheme at a premium of Rs. 330/- per annum with total coverage of Rs.2,00,000/-

9.5 Other Financing Options

Other financing options for restoration of infrastructure / livelihoods, the opportunities of CSR investments also to be explored by DDMA for increasing district resilience. Apart from it, the Central Government Plan and Non-Plan Schemes are also to be explored at the District level for Disaster Risk Reduction (DRR), Disaster Management initiatives, and allied work.

CHAPTER - 10

MONITORING, EVALUATION, AND UPDATION OF DDMP

10.1 Monitoring/ checking through Drill

For monitoring and checking the actual preparedness and execution of Munger DDMP on the ground, periodic simulation exercises, mock drills will be conducted. The regular monitoring and drills help in the identification of gaps (if any), and checking, whether all the personnel involved in the execution of DDMP are trained and updated on the latest skills necessary in line with the plan (DDMP) at the incident/ disaster site.

10.2 Plan Evaluation

The purpose of evaluation of DDMP is to determine the adequacy of resources, coordination between various agencies, community participation, partnership with NGOs and other entities. The efficacy of the plan is required to be checked comprehensively, especially after a major disaster.

10.3 Plan Update

The District Plan shall be reviewed and updated annually, as per the **DM Act 2005, Section 31(4)**. Apart from it, the plan will be updated also when shortcomings are observed in organizational structures; technological changes, response mechanisms following reports on periodic exercises. The District Disaster Management Plan is an ongoing document and DDMA Munger along with all the line departments, nodal officials will update it every year taking into consideration the following Framework;

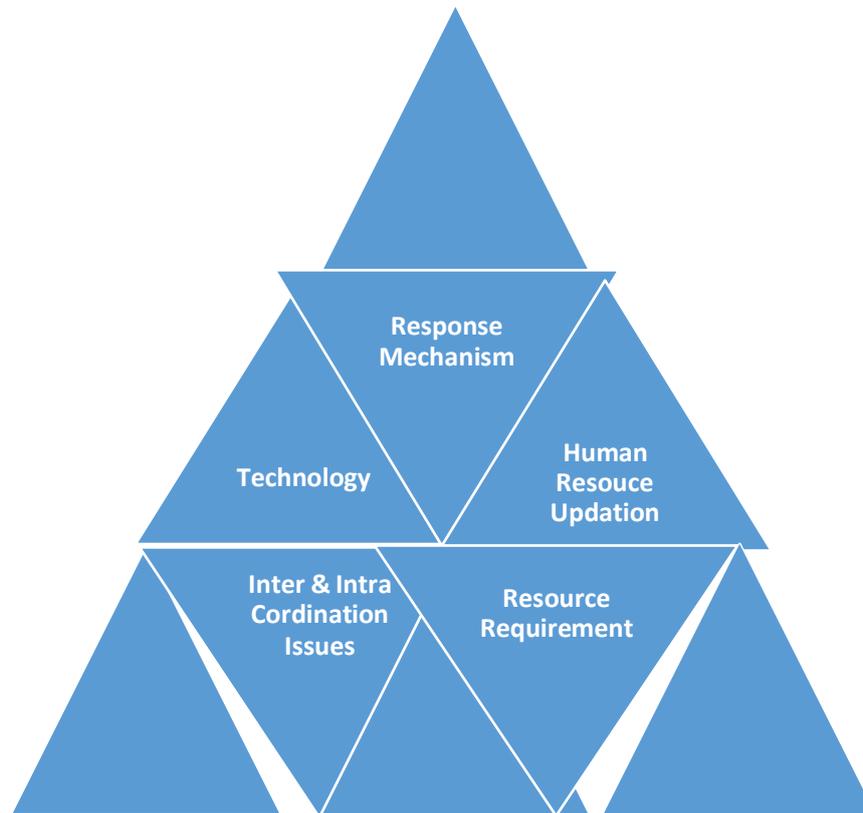


Figure 4: Framework in updating the plan

An annual review meeting for the DDMP update will be organized by DM Munger. All the concerned departments and agencies would participate and give recommendations on specific issues. All concerned stakeholders, SDRF & other District level agencies, NGOs, and communality level representatives will also be involved, apart from the nodal officers.

The updated DDMP will be kept at the District Emergency Operations Centre (DEOC). Copy of the same will also be shared with Bihar State Disaster Management Authority. The DDMP document with contact details will also be made available on the Munger District website. It will be called the DDMP E-Plan.