



DISTRICT DISASTER MANAGEMENT PLAN - MADHUBANI

VOLUME - 1

DRR PLAN (Including Capacity Building & Mitigation)



DISTRICT DISASTER MANAGEMENT AUTHORITY
Madhubani Bihar



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Published by:

District Disaster Management Authority
Madhubani, Bihar

June, 2013

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This plan is developed by the District Disaster Management Authority, Madhubani with active support from NDMA, BSDMA, Sphere India, Bihar-State Inter Agency Group, Madhubani District Inter Agency Group, EFICOR, Tearfund, and other key agencies in the year 2012.

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सत्यमेव जयते



Member
National Disaster Management Authority
Government of India

FOREWORD

The formulation of various National guidelines is an important part of the mandate given to the National Disaster Management Authority (NDMA). The National Disaster Management Act, 2005 also mandates authorities at different level to develop a comprehensive disaster management plan at each level.

NDMA's guiding principles for the preparation of the Plan at state and district level has been to draft the Plan in a participatory approach with the preparatory process essentially strengthening the communities, elected local bodies and administration's response and preparedness. NDMA envisages an ideal Disaster Management Plan that ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimize damage.

Therefore, I appreciate the efforts of Bihar State Disaster Management Authority and Madhubani District Disaster Management Authority in partnership with Sphere India, EFICOR and Tearfund for executing our envisioning and guiding principles and developing this model District Disaster Management Plan (DDMP) for Madhubani. I would also like to appreciate the guidance of members of National, State and District Advisory in this endeavor.

I am extremely pleased with the deep involvement, support and cooperation of various stakeholders from community, line departments and other important groups in the preparation of the DDMP Madhubani. I am hopeful that the Madhubani District Disaster Management Plan and its process guidelines would inspire other Districts to follow the multistakeholder participatory approach.

New Delhi
June 2012

T. Nanda Kumar
Member, NDMA



Vice Chairman
Bihar State Disaster Management Authority
Government of Bihar

PREFACE

National Disaster management Act, 2005 mandates for development of comprehensive and holistic District Disaster Management Plan (DDMP) to negate the impact of disasters on the communities, to facilitate timely and effective response to the disasters, and to facilitate holistic disaster management through integration of mitigation, preparedness and DRR measures into development.

India has different geographical characteristics and hazard scenarios in different regions which becomes more complex due to varied socio-economical settings. For each scenario, the Plan would be different to effectively deal with the complexities of the region. Therefore, Bihar State Disaster Management Authority always advocated that for different scenarios and contexts model DDMPs should be made which would serve as guidance for similarly vulnerable Districts.

BSDMA along with National Disaster Management Authority, Sphere India, Tear Fund, EFICOR and other like minded organizations came together to draft model DDMPs for varied hazard scenarios. As a first step, National Advisory Body was set to conceptualize our ideas and decide on Districts for piloting of model DDMPs.

The District of Madhubani was chosen for the first pilot to demonstrate a systematic, dynamic and practical DDMP due to its multi hazard profile of recurrence of floods, Drought, Earth Quake (Zone-V), Fire incidents, Heat waves, Cold waves and High Winds and the prevalence of socio-economic vulnerabilities. Once the district was finalized, a State level Advisory Body at Patna, Bihar and District Advisory Body at Madhubani, Bihar was set up to guide and take forward the process.

I am very pleased that the implementing partners Sphere India, EFICOR, Tearfund, Bihar Inter Agency Group and Inter Agency Group (IAG)-Madhubani have been very meticulous in their approach and have followed every step of the process guideline developed by the Advisory Bodies.

I am elated by this Madhubani District Disaster Management Plan as it has been developed in a consultative manner with constant inputs and feedbacks from all the stakeholders. This Plan has moved beyond the reactive relief based approach and has a concise plan of actions for 53 different stakeholders at District level for disaster risk reduction, emergency response and recovery. The Plan also lays out the coordination structures at varied levels along with defined level for response as per the impact of the incident.

I hope that this plan will be widely used by all the stakeholders in Madhubani encouraging us to make participatory multi-stakeholder plan for other districts of Bihar as well.

Patna

June 2012

Anil Sinha

Vice-Chairman, BSDMA

ACKNOWLEDGMENTS

At the outset, I must express my sincere thanks to all the Members of the National, State and District Advisory Bodies for their invaluable contribution and whole-hearted cooperation to guide the process of developing Model District Disaster Management Plan for Madhubani. But for conceptualization, active guidance as well as high standard of the technical inputs and feedbacks from them, it would have not been possible to bring out this much needed Plan for holistic management of disasters in Madhubani.

I would like to express my gratitude to Shri. T. Nanda Kumar, Honorable Member, NDMA for his guidance, critical review, inputs and motivating all those involved with the Plan. My gratitude and sincere thanks are also to Shri. Anil Sinha, Vice-Chairman, BSDMA for choosing Madhubani as the pilot for model DDMP and his constant guidance to the DDMA and the executing team.

I would like to appreciate the efforts of Sphere India, Tearfund, EFICOR, Inter agency Group Bihar and Inter Agency Group Madhubani for the execution of ideas and benchmarks set by the Advisory Bodies. I would like to place on record that I was extremely pleased by the sincerity of executing team for its effort to involve all the stakeholders and developing local capacities.

I would also like to thank the members of Inter Agency Group Madhubani for its enthusiasm in taking forward the development of Plan and establishing local coordination mechanisms. From District Disaster Management Authority, I would like to thank Mr. A.K. Gupta – ADM Revenue and In-Charge – Disaster Management, Mr. Raman Prasad Clerk Disaster Management and other staff of DDMA for all the effort and time that they have constantly extended for the development of this Plan.

Finally, I must place on record my gratitude and appreciation to all the individuals of various stakeholders group who have participated in various consultations and discussions and have given their inputs, comments and feedbacks as this Plan would not have been possible without your ideas and knowledge and experience sharing. I anticipate that this Plan developed through you would be widely implemented by you all.

I sincerely hope that the DDMP for Madhubani would be widely implemented and constantly revised by all the stakeholders collaboratively and contribute in achieving a disaster resilient Madhubani.

Madhubani

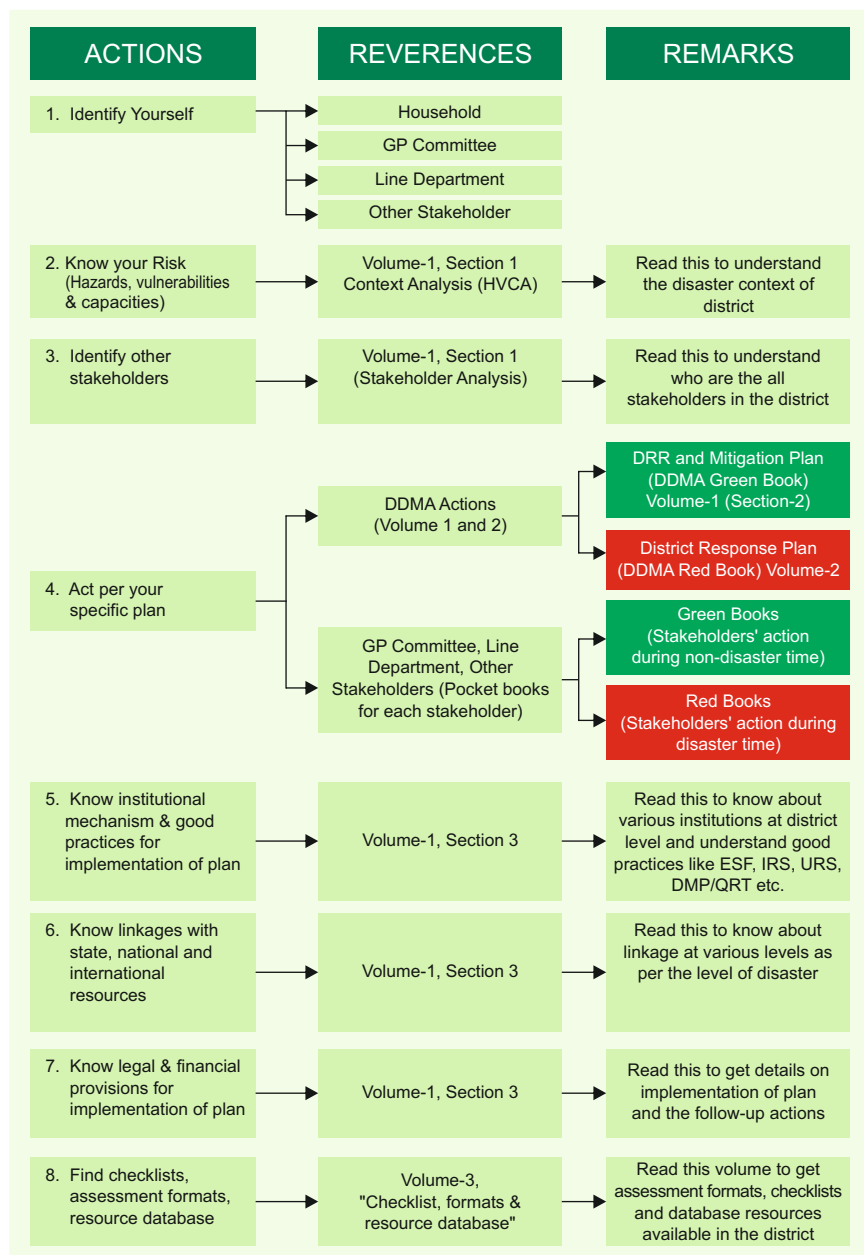
June 2013

Lokesh Kumar

District Magistrate cum Chairman-DDMA, Madhubani

Plan developed on	:	June 2013
Next review and updation due in	:	April 2014
Database updation schedule	:	Every April and October month (every six month)
Mock drill schedule	:	May month of every year (pre-monsoon)

HOW TO USE PLAN



Madhubani DDMP is divided into the following main volumes:

1. **Volume-1: DRR AND MITIGATION PLAN:** This volume (also referred as Green Book) enlists the specific actions to be taken during non-disaster time for DRR and mitigation measures. This includes mainstreaming of DRR into development; capacity building; Functional continuity actions; and Emergency Preparedness. This also enlists various structural and non-structural as well as hazard specific mitigation measures and strategies.

This volume also gives details of context of Madhubani which includes general situation; Hazard, Vulnerability & Capacity Analysis; Problem Analysis; Micro analysis of villages' vulnerability; DDMP development Strategy; and Stakeholders analysis. This particular section is specifically useful to you if you are new to the district and like to understand the general situation, history, and broader context of the district.

It also covers details of the various institutions at district level & their roles / responsibilities in disaster management. This also gives information on good practices like ESF, IRS, URS, DMT and QRT etc. for coordination and integration among different stakeholders. This volume also describes the linkages with other districts, divisions, state and national level as per the level of disaster and the emerging needs. Implementation of plan; the responsibility and accountability; financial provisions; and follow-up actions at different levels are also described in this volume.

2. **Volume-2: DISTRICT RESPONSE PLAN:** This volume (also referred as Red Book) enlists the specific actions to be performed at district level in case of any disaster situation. The key response actions are divided into various phases including Actions on Receipt of Early Warning; Response Activation; Relief and Response; Deactivation of Response; and Recovery Actions alongwith enlisting disaster specific contingency actions. This also covers setting up of Field EOC.
3. **Volume-3: CHECKLISTS, FORMATS AND RESOURCE DATABASE:** There is a separate compilation of useful checklists, assessment formats and database of resources available in the district alongwith the contact lists etc. This can be referred as and when required.
4. **Volume-4: SPECIFIC ACTION PLANS FOR DIFFERENT STAKEHOLDERS:** Apart from the above main volumes, there are specific action plans prepared for different stakeholders at various levels. There are specific action plans for 27 line departments, 13 Gram Panchayat level committees, and 13 other key non-govt. stakeholders at district level. These action plans are compiled in two separate booklets for each stakeholder groups. These booklets are, (1) Red Book – for response actions during emergencies, and (2) Green Book – for DRR and mitigation actions during non-emergency period.

ABBREVIATIONS

BRGF	:	Backward Regions Grant Fund
BSNL	:	Bharat Sanchar Nigam Limited
CBO	:	Community Based Organizations
CE	:	Chief Engineer
CEO	:	Chief Executive Officer
CMO	:	Chief Medical Officer
CMRF	:	Chief Minister Relief Fund
CSO	:	Civil Society Organization
DDMA	:	District Disaster Management Plan
DDMP	:	District Disaster Management Plan
DDRF	:	District Disaster Response Force
DM	:	District Magistrate
DMT	:	Disaster Management Team
DRR	:	Disaster Risk Reduction
EOC	:	Emergency Operation Center
ESF	:	Essential Service Functions
EWS	:	Early Warning System
FRT	:	First Response Team
GIS	:	Geographic Information System
GP	:	Gram Panchayat
GPS	:	Global Position System
HFA	:	Hyogo Framework for Action
HRVCA	:	Hazard Risk Vulnerability Capacity Analysis
HVCA	:	Hazard Vulnerability Capacity Analysis
IAF	:	Indian Armed Force
IAG	:	Inter-Agency Group
IAP	:	Immediate Action Plan
ICDS	:	Integrated Child Development Services
IMT	:	Incident Management Teams
IRS	:	Incident Response System
IRT	:	Incident Response Team
IYA	:	Indira Awas Yojna

LSG	:	Lower Selection Grade
MGNREGS	:	Mahatma Gandhi National Rural Employment Guarantee Scheme
MLA	:	Member of Legislative Assembly
MNREGA	:	Mahatma Gandhi National Rural and Education Guarantee Action
MP	:	Member of Parliament
MPLADS	:	Member of Parliament Local Area Development Schemes
NABARD	:	National Bank for Agriculture and Rural Development
NCC	:	National Cadet Corps
NDMA	:	National Disaster Management Plan
NDRF	:	National Disaster Response Force/Relief Fund
NGOs	:	Non- Government Organizations
NREGA	:	National Rural Employment Guarantee Act
NREGS	:	National Rural Employment Guarantee Scheme
NRHM	:	National Rural Health Mission
NSV	:	National Service Volunteer
NYK	:	Nehru Yuva Kendra
OEOC	:	Onsite Emergency Operational Center
PDS	:	Public Distribution Shop
PHC	:	Primary Health Center
PHED	:	Public Health Engineering Department
PMRF	:	Prime Minister Relief Fund
Q&A	:	Quality and Accountability
QRT	:	Quick Response Team
SDMA	:	State Disaster Management Plan
SDRF	:	State Disaster Response Force/Relief Fund
SHG	:	Self Help Group SME Small and Medium Enterprise
SOP	:	Standard Operating Procedure
SP	:	Superintendent of Police
SSA	:	Sarva Shiksha Abhiyan
UN	:	United Nations
URS	:	Unified Response Strategy
VKC	:	Village Knowledge Center
WASH	:	Water Sanitation and Hygiene

INTRODUCTION

Disaster management has been an evolving discipline particularly in India over last one decade. With increasing frequency and intensity of disasters and large number of people coming in their way, the subject needs a more systematic attention and a planned approach.

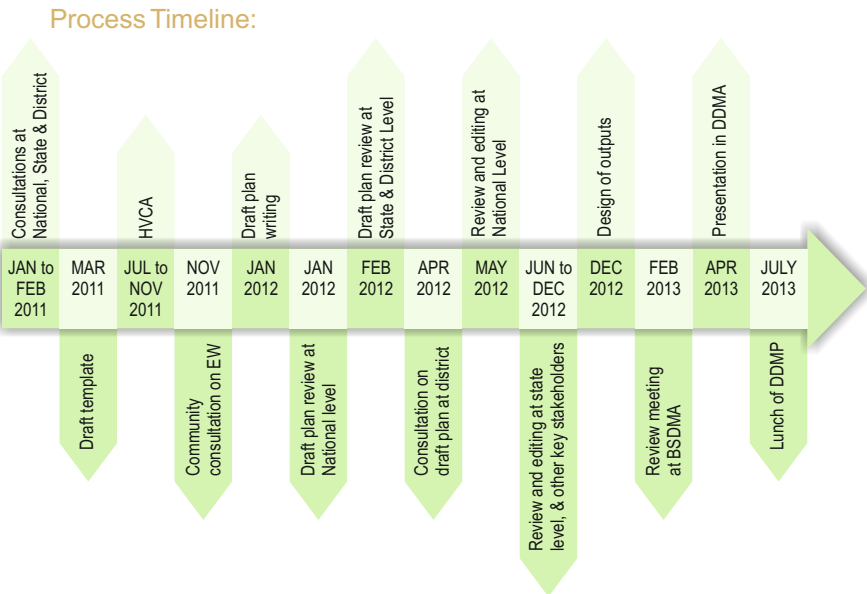
National disaster management Act, 2005 provides mandate for development of comprehensive disaster management plan at national, state and district level. In particular, there is a need to have a comprehensive plan at district level which is the cutting edge level for implementation of all policy guidelines and strategies.

A lot of efforts have been going on for development of plans at different levels by different agencies. In the absence of standard framework and process guidelines, the early experiments with development of district disaster management plan have been very useful to build experience and validate it from the direct application during disasters. There is a lot of variation in the existing plans and the analysis of existing plans shows different plans has different strengths. They act as good source of information about the district collected in one place and is a rich source of knowledge on aspects of disaster management in the country. However, these documents largely remain limited to knowledge and information manuals rather than practical action plans for the stakeholders. Further, since there have been little involvement of stakeholders in development of these plans, there has been little awareness about them and it remained as an administrative document, rarely used in pre disaster or post disaster situation.

There has also been a significant change in our understanding of disaster management from Global to grassroots levels in last few years. Hyogo Framework for Action and later National Disaster Management Act in 2005 brought a paradigm shift in disaster management from a reactive relief based approach to a more proactive disaster risk reduction approach.

The evolving understanding of the subject of disaster management, lessons learnt from the existing plans and the mandate provided by National Disaster Management Act, 2005 to DDMA's to develop comprehensive disaster management plan provides an excellent opportunity to develop some modal plans and a standard process for development of district disaster management plans for replication in different parts of the country.

Sphere India, National Coalition of Humanitarian Agencies in the country, in collaboration with NDMA, SDMA, DDMA and its member agencies like Tearfund, EFICOR initiated the process to develop some modal plans and Madhubani district of Bihar was selected as a first pilot. The figure below illustrates the timeline and process followed for the same.



Objectives of the Plan:

Vision: The vision of this plan is to enable disaster resilient development in Madhubani district and continuity of services essential for life and dignity of citizens during disaster and non disaster situations.

The key objectives of developing this plan are:

- 1. To analyse the geography, social, political and economic context of Madhubani district from disaster management lens.
- 2. To analyse current development problems and it's linkage with past disasters and hazards in the district.

PRINCIPLES OF PLANNING

As planning being a continuous process, the planners and authorities shall consider following principles in implementation and future revision of the plan:

- 1. **Comprehensiveness:** Take into account all hazards, all phases, all stakeholders and all impact relevant to disasters.
- 2. **Progressive:** Anticipate future disasters and take preventive and preparatory measures to build disaster resilient communities.
- 3. **Risk-driven:** Use sound risk management principles (hazard identification, risk analysis and impact analysis) in assigning priorities and resources.
- 4. **Integrated:** Ensure utility of efforts among all levels of government and other stakeholders.
- 5. **Collaborative:** Create and sustain effective relationships among individuals and agencies to develop a common platform for convergence of all stakeholders and common processes for unity of efforts by all stakeholders.
- 6. **Flexible:** Use creative and innovative approaches in solving disaster challenges.
- 7. **Professional:** Value a science and knowledge based approach based on education, training, experience, ethical practice, public stewardship, accountability and continuous improvement.

3. To identify areas vulnerable to different natural and manmade hazards
4. To know underlying risks and develop action plans for different stakeholders for risk reduction.
5. To build awareness among different stakeholders by their direct engagement with development of disaster management plan and establishing a process for regular up gradation of it in future.
6. To introduce innovation and good practice in institutional mechanism at district level to make it an integrated and coordinated plan at all levels.
7. To develop action plans for different stakeholders (Communities, Govt. Line departments and other stakeholder groups) for disaster risk reduction, emergency response and recovery actions.
8. To suggest mitigation measures to be adopted by different stakeholders for the risks identified in the district.

Who is this plan for?

The authority and responsibility for developing, implementing and regular up gradation of this plan lies with District Disaster Management Authority, Madhubani. However, the process is collectively owned by all stakeholder groups represented in Inter Agency Group, Madhubani. The roles and responsibilities of these stakeholder groups are illustrated in separate volumes linked with this plan.

This plan is to be used by the key authorities and departments at district level such as DDMA, EOC, DDMC, the Line departments etc. Further, the plan as specific action plans for other stakeholders as well which include the Gram Panchayat committees and the key non-govt. stakeholders.

1. Context Analysis

Madhubani Context Analysis

1. General Information

Madhubani district is located in the northern most part of the state of Bihar bordering Nepal. It was carved out of the old Darbhanga district in the year 1972 as a result of reorganization of the districts in the State.

1.1 Political/Administrative:

The district is located at a Longitude of 25°-59' to 26°-39' east and the Latitude is 85°-43' to 86°-42' north and occupies a total area of 3501 sq km. It is situated at a height of 80 meters from the Sea level.

The administrative set up of Madhubani district is further divided into 5 Sub Divisions, constituting 21 Blocks and 399 GPs. The Madhubani Town is the Administrative Headquarter of the district.

Some DRR measures are being carried out by the district administration to mitigate the adverse impacts of any probable event in the district. District Disaster Management Authority (DDMA-Madhubani) has also been set up to carry out DRR and Response actions effectively. The district is one of the most backward districts of India (Ministry of Panchayati Raj, 2006) and the whole district falls under earthquake zone V and is highly vulnerable to multiple hazards like flood, fire, drought and many other small localized hazards.

Micro-hazard zonation, which can be one important step to help plan for effective disaster management in the district, has been challenging and out of scope due to limited resources and infrastructure.

1.2 Economic

- **Agriculture:** Being a predominantly agrarian economy, the source of livelihood in the district primarily depends on the agricultural and its products. Paddy, sugar cane and the staple crops like rice, cereals and vegetables are the main crops grown in the total cropped area of 218381 hectare.

The agriculture in the district mainly depends on rainfall. Artificial irrigation practices through tanks, tube- wells and artesian wells are also being used for irrigation purpose. There is a scope to increase such practices especially in the GPs where there is a scarcity of water.

There are three major canals in the district: (1) Western Kosi canal, (2) Kamla irrigation canal, and (3) Old Keans canal. However, their proper maintenance is required for their use in full potential.

As the agriculture mainly depends on the rainfall, the failure or premature

cessation of rainfall leads to crop failure mainly in the winter and besides that the district is highly vulnerable to flood which damages the standing crops.

- **Industry:** Industry sector in Madhubani District is not much developed. A number of rice mills and timber saw mills have been set up in the district and the district has been an important trade center with the Nepal since the later part of 19th century and exports cotton, silk, betel nut and tobacco besides exporting fish, handloom cloths, water barriers, mangoes, sugar cane and brass metal articles to various places. There are around 3000 registered small scale industries in Madhubani.

The existing industries and small scale industries provide an opportunity to the landless and marginal farmers to earn their living and also provide a secondary source for economic growth of the district besides agriculture which highly depends on rainfall.

One of the major constraints for the growth of industry sector in the district is infrastructural poverty and the level of urbanization which is merely 3.65%. Overall composite index of development of the district is only 96.8 as compared to highest index values of 224.53 for Patna district (Madhubani District Potential Linked Credit Plan 2008-09, NABARD).

- **Services:** Beside agriculture and industries there are other services like painting; fisheries, handicrafts and weaving etc. which are primary source of income for many families and also a vital source for the economic growth of the district. The handicraft art form called *Sikki- Mauni* is also popular and the local people prepare many items of daily use like jewelry box, doll etc. These are used traditionally for keeping grains and also the food items and other bamboo works.

The Madhubani paintings have distinct identity because of its unique texture and design. These paintings are made by using locally available resources like vegetable dyes (all natural colours), and the canvas is usually paper or cloth. These paintings are largely done by women who have successfully transformed their technique of bhitti chitra or wall painting through the medium of paper/cloth.

Although Madhubani painting is highly popular & in demand, but it has not received adequate support from administration. The recognition of Mithila painting is also decreasing gradually.

1.3 Social

- **Demography:** The total population in the district is 3,575,281 out of which 1,840,997 are male and 1,734,284 are female with growth rate of 26.08% (1991-2001). The total number of population living in rural areas is 3,450,736 and urban population only 124,545. Out of total population 13.48 percent of population is schedule caste.

The district has high population density (37th Rank out of 640 districts in India) which makes it more vulnerable to various risks of one or other kind.

- **Education:** The total literacy rate in the district is only 41.97 percent and the female

literacy rate is only 26.54 percent while the male literacy rate is 56.79 percent. There are 901 primary schools, 382 secondary schools, 119 high secondary schools and 27 colleges in the district.

1.4 Technological:

The Madhubani district is the one of the most backward district in the State. Ministry of Panchayati Raj has ranked Madhubani as one of the country's most backward districts in the year 2006. The technological progress/ development in the district are also negligible.

The land use in the district is highly dependent on the traditional agriculture practices. The average size of land holding is small & fragmented which, along with poverty of the farmers, becomes the main reason for poor use of technology in the agricultural sector.

1.5 Physical:

The soil in the district is calcareous which is a mixture of clay and sand in varying proportion. Clay (or *Matari*) is found in most part of the district and is suitable for paddy cultivation as it can retain moisture. The district has got many rivers including Baghmati, Kamla, Kareh, Balan and Tiljuga which also make favorable conditions for paddy cropping.

1.6 Climate:

There are three well marked seasons, viz, a pleasant cold season, a hot, dry summer and the rainy season. The cold weather begins in November and continues up to February, though March is also somewhat cool. Westerly winds and dust storms begin to blow and the temperature goes up to about 42°C. Rains set in towards the middle of June when the temperature begins to fall and humidity rises. Though the rains continue till the end of September or the middle of October, these months are not so hot. It receives average annual rainfall of 1273.2 mm.

The climate of the district is generally healthy but the early onset of monsoon and heavy rainfall always cause havoc in the district by damaging the standing crops. Further heat waves during summer and severe cold waves during winter mostly affect the poor therefore to mitigate the adverse effect of such seasonal hazards in the district is a challenge to address.

Hazard, Vulnerability, Capacity Analysis (HVCA)

2.1 Hazard Analysis:

The district has been traditionally vulnerable to different disasters on account of its unique geo-climatic condition. Floods, Drought, Earth Quake (Zone- V), Fire Incidents, Heat Waves, Cold Waves and High Wind have been recurrent phenomena.

The land pattern of the area is declining in nature making most of the land to be low lying. During monsoon, rivers get filled with water and starts flowing through sides causing floods. Almost 18 rivers and its tributaries (Kamla, Kareh, Balan, Bhutahi Balan, Gehuan, Supen, Trishula, Jeevachh, Koshi and Adhwara Group) pass through this district. To be noted, most of the rivers are seasonal and depend on monsoon water.

Most of the rivers are embanked but various factors including negligence and lack of repair and maintenance of the embankments, the district often faces floods due to embankment breaches.

Below is the list of hazards and hazard ranking

Table 2.1 Hazard/ Risk Assessment of Madhubani District

Hazard	Characteristics	Who/What at risk	Probability of occurrence (Rating)	Vulnerability (Rating)	Ranking (probability x vulnerability)
Flood	- The district has 18 rivers and its tributaries and flood situation arises almost every year. - The houses build in the villages are kaccha which makes its highly vulnerable to flood especially in the GPs which are inside or next to the embankments	Agriculture crops, Transport, Houses, Constructions, Drinking Water, Cattle, Irrigation Equipments, Educational Institutes, Vulnerable Groups	Frequently (3)	High (3)	9
Fire	Fire incidents are more frequent in the rural areas of Madhubani district due to use of traditional cooking methods (chulhas).	Human Life, Cattle Life, Houses and Property	Frequently (3)	Medium (2)	6

	In rural areas, people use fire friendly resources like wood, cow-dung cakes, straws etc. and lack fire preventive measures.				
Drought	The GPs which are away from river/embankments are prone to drought.	Crops, Drinking Water, Livelihood Options	Frequently (3)	Medium (2)	6
Earthquake	- The Madhubani district falls under Earthquake zone V. - The buildings and houses built in the district are not earthquake resilient therefore the damages will be high in case of an earthquake event.	Human Life, Cattle Life, Kutcha and Pacca Houses, Community Infrastructure	Occasional (2)	High (3)	6
CBRN	Though the occurrence of Chemical, Biological, Radiological and Nuclear disaster is very low in the district but the probability of damages is very high in case of such disasters as the district is highly populated.	Human Life, Cattle Life, Environment & Eco-System, Economy	Rare (1)	High (3)	3
Cold Wave/ Heat Wave/ Storm/ Hail Storm	- These are seasonal hazards largely affecting the poor. - The poor and marginal people are highly vulnerable to such seasonal hazards.	Human Life, Cattle life, Crops	Occasional (2)	Low (1)	2

Reference: DMA 2000 Hazard Mitigation Plan – Village of Briarcliff Manor, New York July 2007.

Table 2.2 Hazard Seasonality Mapping of the Madhubani District:

Sl. No.	Hazard	Probable Months											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Flood												
2.	Earth quake												
3.	Drought												
4.	Fire												
5.	Storm												
6.	Cold wave												
7.	Heat wave												
8.	Hail storm												

2.2 Vulnerability Analysis:

The vulnerability of the district is defined by the ability to anticipate, cope with, resist and capacity to recover from any probable disaster. The factors like limited livelihood opportunities, low per capita income, under developed infrastructure, unplanned development, rapid urbanization, prevalent social structures, demographic expansion and environmental degradation make Madhubani District highly vulnerable to multi disaster.

i) **Economic Vulnerability:**

Being an agrarian district, the economy of district is primarily dependent on agriculture and its allied sector. The average size of land holding in the district is small and fragmented and as per 2001 census, 28.1 percent of the work force in Madhubani district comprises of marginal workers. The agriculture in Madhubani is highly dependent on the local rainfall which makes the district highly vulnerable to drought and flood.

Further the technology, Industry and other services are not much developed in the district which makes the district one of the India's most 250 backward and poorest districts which resist the coping capacity of the district to anticipate, resist and recover from any threatening situation. Economic vulnerability is generally defined in terms of poverty therefore Madhubani district being economically poor and backward is highly vulnerable to multi hazards.

ii) **Social Vulnerability:**

The social structure of Madhubani is divided on Caste, religion and ethnic lines which makes the minorities and poor highly vulnerable. As per 2001 census, 13.48 percent of the population of Madhubani comprises of Schedule Castes, Dalits (they are further sub-categorized into Mahadalits) and 0.04 percent of Schedule Tribes. Such groups generally get excluded in various programs and become more vulnerable out of their social status.

Further, a large population is exposed to risk as the district is highly populated and the literacy rate is very poor. Understanding of hazard, risk, dos & don'ts, and preparedness & mitigation methods etc. is very limited as a large section of the community is illiterate. The vulnerable groups like children and women are at higher risk in the district as they are dependent on others.

iii) **Environmental Vulnerability:**

Due to urbanization and limited livelihood opportunities in the rural areas, people are migrating to urban areas creating additional pressure on the limited resources. These altogether form the key reasons for exploitation of the available resources, deforestation, unplanned development and various other related aftereffects including environmental degradation & risk of increasing man-made & human-induced disasters like accidents, industrial/ chemical disasters etc.

iv) **Technological Vulnerability:**

There is lack of proper and effective technology to forecast, monitor and disseminate early warning information of onset of any threatening event in the district. This increases the risk of people living in vulnerable areas. Besides, lack of appropriate technology and information also resists the capacity of the district to mitigate the risk.

v) **Physical Vulnerability:**

The low lying areas, GPs inside and near the embankments are vulnerable to water logging problems as the soil in the district retains water for longer duration. Many areas of the district face floods due to the heavy river (and tributaries) network.

The Gram Panchayats of the district are classified into four categories based on their location with reference to river. They are (1) GPs within the embankments, (2) GPs next to the embankments, (3) GPs far from the embankment, (4) GPs in low lying areas. The detailed list of classified GPs is available in table no. 52 in vol-4 "Checklists, Formats and Resource Database". Table no. 53 gives details of which areas are affected by which rivers during floods.

A list of highly sensitive embankments and sensitive places under different flood control divisions are given in table no. 54 and 55.

vi) **Vulnerability due to Climate:**

The poor, marginal and farmers are vulnerable to seasonal hazards like heat waves, cold waves and seasonal flooding. The sudden onset of monsoon and heavy rainfall not only damages the standing crops but also takes lives of the people and livestock. On the other hand, some parts of the district face drought due to deficient rains.

vii) **Structural Vulnerability :**

Due to rapid urbanization, the buildings, constructions, and other infrastructures have been developed rapidly without taking into consideration the disaster vulnerability of the district. Most of the constructions are not disaster resilient or earthquake safe which increases the vulnerability of the population to various hazards.

viii) **Non structural vulnerability:**

Madhubani district is highly vulnerable to multi hazards and few of the disasters are annual such as flood, fire, heat & cold waves etc. The community is aware of these recurrent disasters and has some understanding & experience towards these disasters. However, the community is unaware of the risks arising out of rapid urbanization, unplanned development, deforestation, environmental degradation and other such potential disasters. This unawareness and inexperience to these situations poses added vulnerability to the community.

2.3 Capacity Analysis:

The district has got number of resources and capacities which are useful in emergency as well as normal situations. Below is a broad listing of the key resources/capacities available in the district with different departments/ agencies:

Table 2.3 Resources/capacities available in the district with different departments/agencies.

Sl. No.	Capacity / Resource	Number and Details		Further Detail
1.	Canals	3 Major Canals		1. Western Kosi Canal 2. Kamla Canal 3. Keans Canal
2.	Power-grid sub-station	5		1. Pandaul, 2. Babubarhi, 3. Jayanagar, 4. Fulpars, 5. Rahika Contact details of Energy Department officers are given in table – 6 in volume 3 "Checklists, Formats and Resource Database".
	Power sub-station	6		
3.	Communication	BSNL office		Contact details of officials given in Table no. 7 in vol- 3
		Telegraph/ Telephone	Office	1
			Exchange	52
		Others	Mobile	Almost in every family
			Internet	Cyber café in all bazaars, broadband connection limited.
		NIC office, equipped with internet facilities, is situated in District Magistrate's Office. E-governance system is being developed. Internet facility readily available in district HQ for business purpose. Few towns also have internet facilities.		

4.	Road Connectivity	NH 104, 105 and 57 connect to other districts		Details of road connectivity of each block from district HQ is given in table – 25 in volume 3 “Checklists, Formats and Resource Database” Map of road connectivity available at Map no. 8 in volume 3 “Checklists, Formats and Resource Database”
5.	Railway Network	Small and broad gauge railway network connects to all major towns in the district.		Administrative Map of district Madhubani (with block boundaries, road and rail network) given in vol-3. Map no. 6
6.	Radio Station	Available in Darbhanga.		Darbhanga radio station contact number: 06272-222581
7.	Human Resource	Total human resource in district Magistrate office	1063	Human resource details and contacts given in volume 3 “Checklists, Formats and Resource Database” (separate tables for different departments).
		Total police force	926	
		Energy department engineers	24	
		Total human resource in health sector	1330	
		Total human resource in fire services	12	
		Raksha Vahini (trained in rescue and relief)	41	
		NCC trained cadets in schools and colleges	799	
8.	Nearest NDRF unit	In Patna Others in Agra (UP), Kolkata (WB) and Cuttak (Orissa)		Details in table no. 11 in vol-3
9.	Nearest IMD regional office	Bhagalpur, Chhapra, Forbesganj, Gaya, Mujaffarpur, Patna and Purnea		Details in table no. 13 in vol-3
10.	Elected PRI representatives	All GP		Contact Details in table no. 14 in vol-3
11.	District EOC	Functional EOC in district with necessary equipments and resources		Details in table no. 26 in vol-3
12.	Flood control divisions	2 (with necessary prepositioning)		Details in table no. 28 and 29 in vol-3
13.	HR trained in Disaster Management	NDRF officials, Home Guards, volunteers and NCC, NYK cadets are trained in different skills		Details in table no. 31 and 32 in vol-3
14.	Helipad locations in blocks	40		Details in table no. 33 in vol-3

15.	Relief centres in the District	Each block has number of identified relief centres (with facilities of drinking water, toilet)	Details in table no. 34, 35, 36, 37, in vol-3 (details of capacity – no. of families, also mentioned), alongwith the officer in charge details
16.	Temporary shelters	157 (in different blocks)	Details in table no. 38 in vol-3
17.	Shelters constructed by NGOs	16 (in Madhepur and Bisfi)	Details in table no. 39 in vol-3
18.	Boats	Available 439 (functional 288) Private boats – 72 Public boats - 198 New allotted boats in 2010-11– 143 Motorboats – 19 8 Motor boats available with NGOs Motor boats available with NGOs	Details in table no. 41 and 42 in vol-3
19.	Fire service	Fire engines – 3 Vehicle portable pump – 1 Manpower – 12	Details in table no. 43 in vol-3
20.	Health facilities	Additional PHCs 57 Health sub-centers 424 No. Of doctors 225 No. Of ANMs 475	Details in table no. 44, 45 and 46 in vol-3
21.	Irrigation resources	Tube wells 223 Hand pumps 790 Ponds 5491 Rivers (including small rivers) 53	Details in table no. 47 and 49 in vol-3
22.	PDS shops	1552	Details in table no. 50 in vol-3
23.	Non Govt. organizations in Madhubani	67 (active NGOs)	Details in table no. 51 in vol-3 (There is a district level network of NGOs / coalition of NGOs in Madhubani, which is known as Madhubani Inter-Agency Group. This is currently convened by Mr. Kameshwar Kamati who is elected by the group members.)

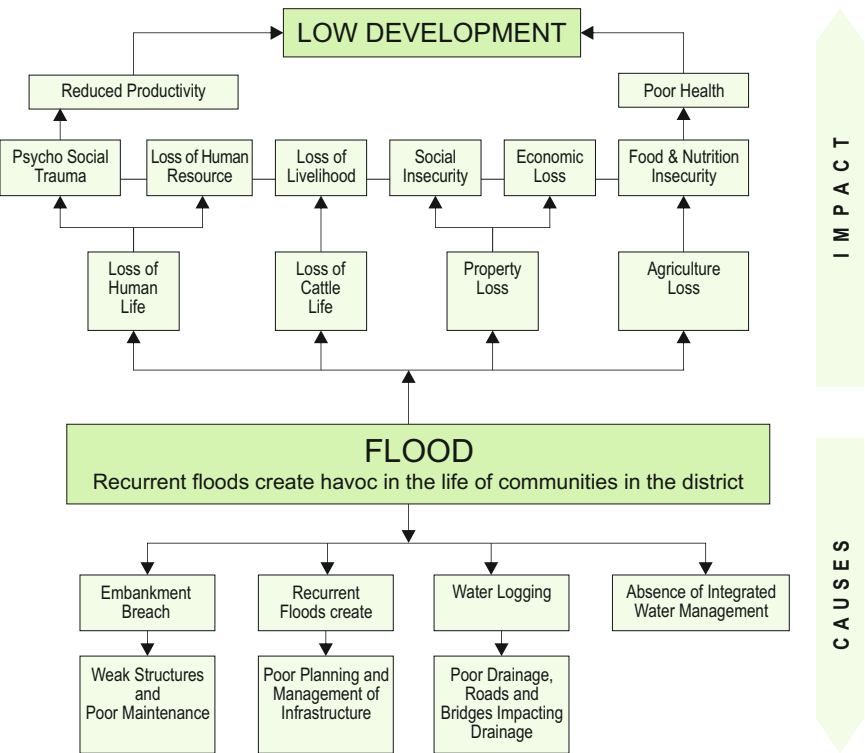
** Please see the detailed capacity/resource database in the Vol-3 "Checklists, formats & resource database"

Problem Analysis

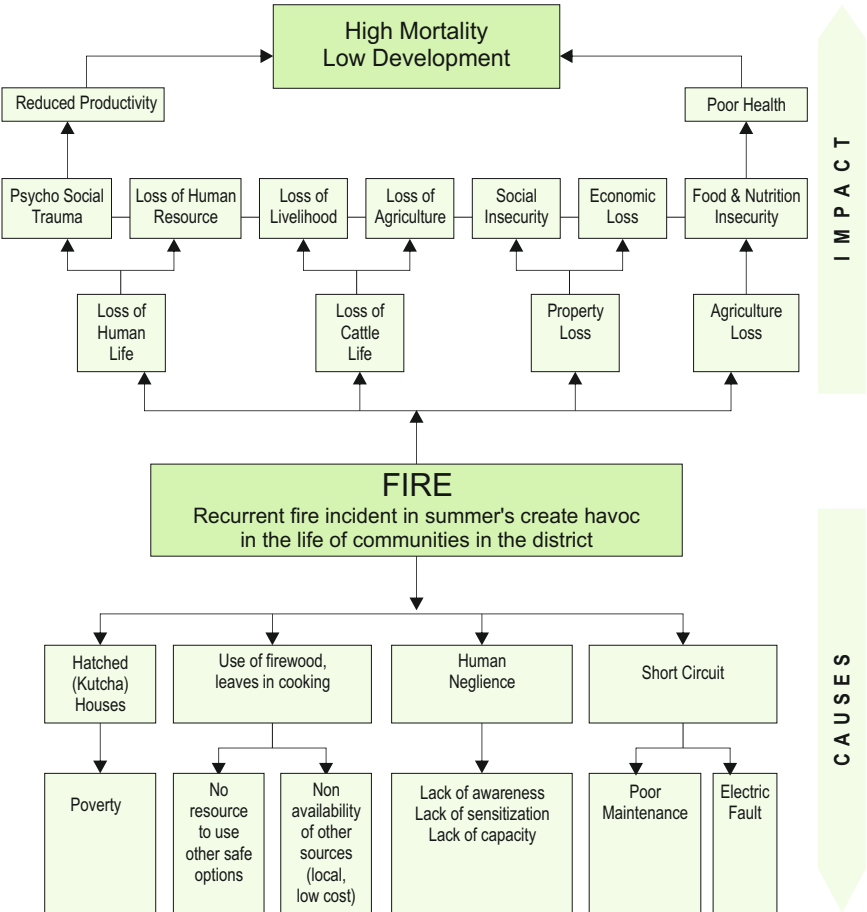
3.1 Macro Analysis

The major problems in the district arise out of recurrent floods which occur during monsoon season and frequent fire incidents occurring in summer season. These two main disasters account for the major proportion of losses (lives, property, crops etc). The other major problem may arise in case of earthquake in the region. Analyzing the historical information and experiences drawn from consultation with different stakeholders, the underlying causes and the impact of these major hazards can be understood with the help of following figures:

a) Flood



b) Fire



c) Earthquake

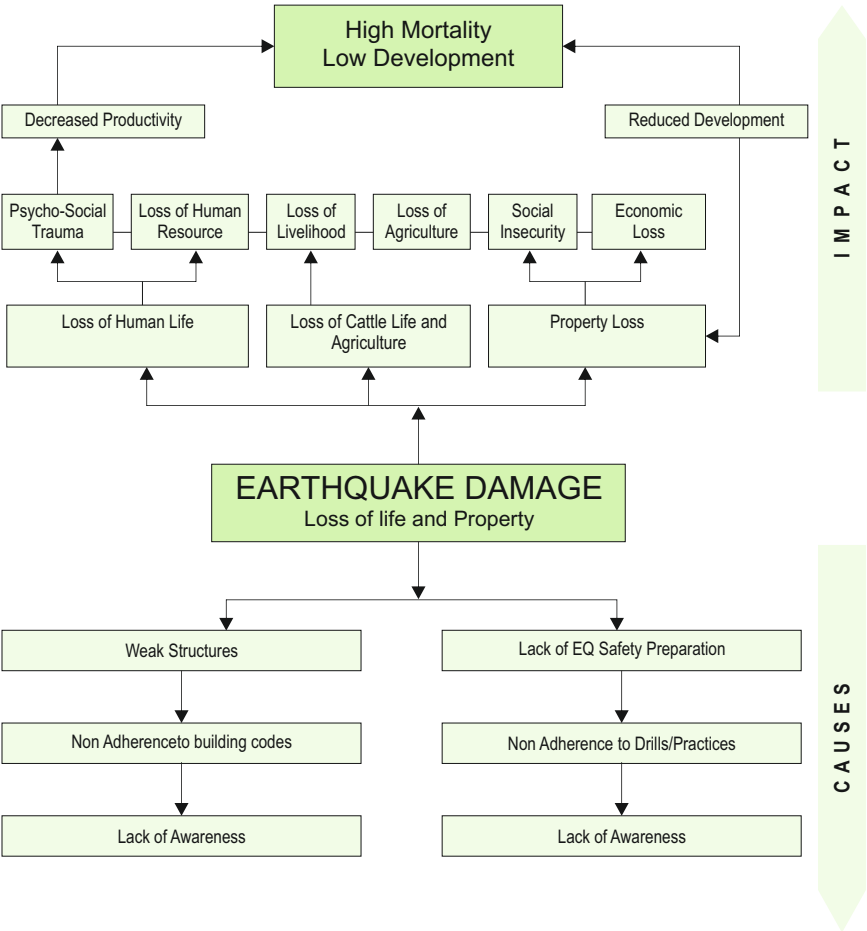


Table 2.4 List of flood history in Madhubani

Details of Affected	Year 1999	Year 1998	Year 1997	Year 1987	Year 2002	Year 2007	Year 2011
No. of affected Blocks	4	17	14	19	19		4
No. of affected Panchyat	26	150	125	350	301	328	
No. of GPs affected	90	371	353	1075			
No. population affected	16574	605.842	510178	1944731	16.883 (in lakh)	17.26301 (in lakh)	
Affected agricultural area	8189 hec	17159 hec	30413 hec	100899	171512.27 hec	77074 hac	
Estimate cost of crop loss (in lakhs)	10609.36	106759	332.85	1000196			
No. of Houses damaged	4392	5945	4602	238472	1130.62		
Estimate cost of houses damaged (in lakhs)	309.17	156.77	150.48	238472000	1708.392	46	
No. of casualty (people)	0	13	16	126	35		
Livestock loss	87	27	06	1193			
No. of Boats used	191 Govt.	30 Private	274 Govt.	516 Govt.	35		
			19 Private	235 Private			

Table 3.2 List of earthquake history in Madhubani

The district was hit by two strong earthquakes, details as below:

Sl.	Date	Epicentre		Region	Magnitude
		Lat (°N)	Long (°E)		
1.	15 January, 1934	26.6	86.8	Bihar Nepal border	8.3
2.	21 August, 1988	26.7	86.6	Bihar Nepal border	6.4

Apart from this, the district faces fire incidents every year mostly during the summer season and gets a lot of damage to houses, crops etc.

3.2 Micro Analysis

Madhubani district is divided into 399 GPs. Further micro division can be applied in terms of villages, wards or tolas (communities) as called in local parlance. Geographically Earthquake, Heat Wave, Cold Wave impacts all micro units in the same manner. The fire may vary a little in terms of rural and urban causes and impacts, however it is mainly a rural problem especially in summers.

The flood and drought produces different situations at micro level in different settings and need different solutions for each situation. These can be analyzed in terms of GPs or villages having different vulnerable situations as discussed below.

i) GPs located within the embankments:

These GPs or villages get completely submerged under water during monsoon season and people have to take shelter on embankments or temporary camps for time from few days to 5-6 weeks.

The monitoring system for water level may be strengthened and construction of houses on stilt may be promoted as per the acceptance of the community. The existing sluice gates should be strengthened and retrofitted to ensure proper discharge of water. Water sources like tube wells, community shelter etc. can be constructed on higher areas.

ii) GPs located next to embankments:

These GPs or villages located next to embankments are generally at risk of completely washed away by water, when there is breach in the embankment. The vulnerabilities could be due to weak embankments, poor maintenance and river flows within the embankments. However, with a proper survey the vulnerable points in the embankment can be identified.

The weak points at the embankments may be strengthened to avoid the risk of breaches and construction and retrofitting of sluice gates to mitigate the overflow of water. Plants (bamboo) may be grown along the both sides of water channels to minimize the erosion and technologies may be thought of that minimize the accumulation of sand in the passage to minimize the risk of over flowing of water. The ripe standing crops may be harvested before the onset of monsoon.

iii) GPs located away from the embankments:

These GPs or villages are at risk of drought situations especially when the monsoon fails or rainfall is low. In the absence of flood water reaching these villages due to embankments, absence of integrated water management system, no means of filling traditional water ponds etc., these GPs periodically suffer crop losses and drought like situations.

Fertilizers and High yielding seeds which need minimum or less water and the production is high may be promoted in the GPs where there is a scarcity of water and production is low. Artificial irrigation methods and rain water harvesting should be promoted for irrigation purpose. The plantation drives may be taken to minimize the evaporation of water and yield base crop insurance may be promoted in the region to mitigate the loss in case of drought or crops loss.

iv) GPs located in low lying areas:

These GPs or villages located in low lying areas also suffer from water logging situations that can range from few days to months. The roads and bridges without

sufficient culverts and scoping for proper water drainage has also impacted and in many places now water remain stagnant for months where it used to drain out in few days earlier.

The construction of new houses in such areas may be promoted to be built on slits as per the community acceptance and the existing houses may be retrofitted. Government and private boats at a village level may be kept to use in case of any emergency and the natural drainage and sewage system existing in the GP may be strengthen to mitigate the risk due to water logging. The community infrastructures like tube wells, toilets and bathrooms, community centers, panchayat ghar etc. may be built on high raised places.

DDMP Development Strategy

The context analysis, historical learning's from past disasters, national and international good practices and current paradigms in disaster management have been the basis of defining the vision and objectives of this plan. Further considering the principles of planning for disaster management, through an inclusive and participatory approach, the following strategies are adopted to develop this initial modal plan.

i) Comprehensive Planning:

The plan engages all possible stakeholders at all levels, included all possible hazards and all phases of disaster (Preparedness, Response, Recovery and Mitigation)

ii) Essential Service Functions (ESF):

The plan includes for considerations of planning, reducing disaster risks, continuity and maintenance of essential services functions at different levels.

iii) Integration and Coordination of all stakeholders and essential services functions:

The plan includes institutional mechanism, tools and good practices for integration and coordination of all stakeholders and essential service functions at different levels.

iv) Worst case scenario and contingency planning:

The plan includes the contingency planning for worst case scenarios (past disasters or assumed situations), periodic validation and testing as per that.

v) Follow up actions:

The plan suggests the follow up actions for the stakeholder groups, ESFs and local self governments at each level to develop their own comprehensive plans.

Stakeholder Analysis

District Madhubani has got various key stakeholders at different levels starting from community level to the district level. Apart from the known stakeholder groups (the GP committees and the Line departments), there are other few key non-govt. stakeholders who have crucial role during disasters and peace time. The following table shows an analysis of the stakeholders identified at different levels. The DDMP has separate specific action plans for all these stakeholder groups which they may use during emergency time (Red Booklet) and during non emergency time (Green Booklet).

Table 5.1 List of Stakeholder groups

Sl.	Level	Stakeholder Group	Remarks
1.	Gram Panchayat Level	1. GP WASH Committee	The team under Nirmal Bharat Abhiyan may form GP Wash Committee
		2. GP Children Committee	The team formed under ICDS schemes may form GP Children Committee
		3. GP Disaster Management Committee	
		4. GP Education Committee	The team under SSA Schemes may form GP Education Committee
		5. GP Food and Nutrition Team	The team under Mid Day Meal may be the member of GP Food and Nutrition Team
		6. GP Livestock Committee	
		7. GP Health Committee	The committee formed under NRHM Scheme may be the GP Health Committee
		8. GP Household Committee	
		9. Knowledge Centre Committee	
		10. GP Search and Rescue	
		11. GP Shelter Team	The team under IAY schemes can be the GP Shelter Team
		12. GP Social Protection Committee	The team under Social Security Schemes can be GP Social Protection Committee
		13. GP Ward Member	

Sl.	Level	Stakeholder Group
2.	District Level (Line Department)	1. Information and Public Relation
		14. Urban Development Department
		Department
		15. Water Resource Department
		2. Labour Resource Department
		16. Agriculture Department
		3. Panchayati Raj Department
		17. Animal and Fisheries Department
		4. PHED Department
		18. BSNL Company
		5. Planning and Development Department
		19. Building Department
		6. Police Department
		20. Education Department
3.	Other Stakeholder Groups	7. Post and Telegraph Department
		21. Energy Department
		8. Rural Development Department
		22. Fire Service Department
		9. Science and Technology Department
		23. Food Corporation Department
		10. Social Security Department
		24. Food Supply and Consumer Protection
		11. Statistics Department
		25. Health Department
		12. Sthaniya Kshetra Abhiyantran Sangathan
		26. Industries Department
		13. Transport Development
		1. Academic Institutions
		2. Architects, Engineers, Diploma Holders and Masons
		3. Artisans, Craftsmen Group
		4. Business Groups (Private sector to include corporate, Industry, SMEs, Traders) and Markets and Market Associations.
		5. Dalit and Tribal Association
		6. Ex Servicemen and Retired Professionals Association
		7. Health Association (Medical Association, Chemist and Druggist Association, RVC, Nurses)
		8. Inter Agency Group
		9. Local and International Media
		10. Local NGOs, International NGOs, UN Agencies, Red Cross, National NGOs
		11. SHG, Women, Farmers, JEEVIKA Group
		12. Transporters (Train, Road and Ferries)
		13. Youth Group

2. DRR & Mitigation Plan

District Disaster Management Authority – Madhubani

District Disaster Management Authority, Madhubani is an institution constituted as per the National Disaster Management Act, 2005 at the district level to ensure effective management and response to any disaster. The DDMA Madhubani has the following structure:

Sl. No.	ORGANIZATION & DESIGNATION	DESIGNATION IN DDMA
1.	District Magistrate	Chairman
2.	President – Zila Parisad	Secretary
3.	Police Superintendent	Member
4.	Chief Medical Officer (Civil Surgeon)	Member
5.	Deputy Development Commissioner	Member
6.	Additional District Magistrate (Incharge Disaster Management)	Member
7.	Executive Engineer (Flood Control Division No. 1 Jhanjharpur)	Member

Section 1 : Preparedness & DRR plan of DDMA

The current section of Madhubani DDMP (also referred as Green Book) enlists the specific actions which are meant to be taken during non-disaster time for preparedness and mitigation measures as well as disaster resilient development planning in the district. This volume gives details on various structural and non-structural as well as hazard specific mitigation measures and strategies.

The key actions in preparedness are further divided into various sections including (1) Actions for mainstreaming of DRR into development; (2) Actions for capacity building; (3) Functional continuity actions; and (4) Actions for Emergency Preparedness. The details are as below:

1. DRR Mainstreaming Actions

Objective: To ensure DRR is mainstreamed in the developmental actions of all stakeholders working on various themes in the district.

Key Actions:

- » Prepare a disaster management plan including district response plan for the district; with participation of all stakeholders
- » Coordinate and monitor the implementation of the National Policy, State Policy, National Plan, State Plan and District Plan
- » Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all departments of the Government at the district level and the local authorities in the district
- » Give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary
- » Monitor the implementation of disaster management plans at district level
- » Lay down guidelines to be followed by the departments at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore
- » Monitor the implementation of the measures referred to in the above clause
- » Set up, maintain, review and upgrade the mechanism for early warnings, and dissemination of proper information to public
- » Prepare, review and update district level response plan and guidelines
- » Ensure that the various line departments at the district level and the local authorities prepare their response plans in accordance with the district response plan

- Coordinate with, and give guidelines to, local authorities in the district to ensure that measures for the prevention or mitigation of threatening disaster situation or disaster in the district are carried out promptly and effectively
- » Review development plans prepared by the Departments of the Government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for DRR actions (prevention of disaster or mitigation)
- » Examine the construction in any area in the district and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being or has not been followed, may direct the concerned authority to take such action as may be necessary to secure compliance of such standards
- » Convene periodic meetings to emphasize the importance and ways of mainstreaming DRR in various development programs of the departments and the flagship schemes.
- » Identify and analyze any potential risks arising due to any of the developmental activities by departments.
- » Develop strategies to address these potential risks and modify the program components accordingly.
- » In consultation with technical agencies, develop disaster resilient designs and products for use by different development agencies, govt. line departments etc. in the district.

2. Capacity Building Actions

Objective: To build sufficient capacities in the departments, communities and other stakeholders to make them able to better perform the roles and responsibilities for disaster risk reduction and emergency response and achieving desired objectives.

Key Actions:

- » Conduct a periodic training needs analysis for the ESFs, EOC members, DMMC, QRTs, DMTs, FRTs etc.
- » Plan, mobilize resources and facilitate trainings on the identified training needs.
- » Review the state of capabilities for responding to any disaster or threatening disaster situation in the district and give directions to the relevant departments or authorities at the district level for their upgradation as may be necessary
- » Develop a calendar for mock drills, trainings and awareness building exercises as per seasons and needs of the stakeholders.
- » Organize and coordinate specialized training programmes for different levels of officers, employees and voluntary rescue workers in the districts
- » Facilitate community training and awareness programmes for prevention, of disaster or mitigation with the support of local authorities, government and non-governmental organizations

- » Organize awareness exercises and campaigns to make people aware of probable disasters and the minimum things they need to know and do to prevent sufferings and loss due to disasters.
- » Provide necessary technical assistance or give advice to the local authorities in the district for carrying out their functions
- » Ensure communication systems are in order, and disaster management drills are carried out periodically
- » Maintain a roster of skilled manpower, technical and professional people, list of agencies, vendors, hospitals and other such at different levels (GP, block, sub-division and district level). The sub-division, block and GP level roster may be maintained by the respective authorities at that level with clear instructions from the DDMA.
- » Organise periodic mock drills for the ESFs, EOC members, DMMC, QRTs, DMTs, FRTs etc. for different contingency situations.
- » Put the district disaster management plan in testing during such mock drills.
- » Compile the learning from the testing of the DDMP in the mock drills and update the plan accordingly.
- » Make necessary liaisons and network with other neighbouring district authorities, State, national and, as appropriate, with international agencies.
- » Analyse past experiences of the disaster response to know what went well and what could have been done better and document it as lessons learnt annually and after every disaster. Feed these learning in the updation of the DDMP.
- » Develop a minimum inventory list required for achieving minimum standards in disaster relief in different services at district level and develop a plan to acquire it over next few years. This should be achieved by all the ESFs.

3. Functional Continuity Actions

Objectives:

- » To ensure that the DDMA is able to quickly recover from the impact of any disaster and remains functional during disaster time.

Key Actions:

- » Define Rules and regulations for functioning of the DDMA especially during disaster time.
- » Ensure that nomination is in place for the Vice-Chair-DDMA who may take charge in place of the Chairman-DDMA in his/her absence.
- » Define protocol on convening the meetings in the absence of convener.
- » Identify safe building/location for operational work and meetings of the DDMA. The

DDMA may start functioning from the alternate place if the main building/ office is not usable.

- » Secure important files and information of the DDMA. Create backups if possible.
- » Develop mechanism for quick sharing of information among all key agencies, EOC, ESFs, DMMC, DMTs, QRTs, FRTs etc. If working on mobile networks, develop alternative mechanism/s for exchange of information especially during emergencies.

4. Emergency Preparedness Actions

Objective:

- » To identify potential emergency situations and be prepared for Unified Response

Key Actions:

- » Identify potential emergency situations. Make references to contingency specific action plans for the same.
- » Organise periodic meeting of the DDMA with EOC, ESFs, DMMC, DMTs and QRTs especially before Flood season.
- » Ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities
- » Review the preparedness measures and give directions to the concerned departments at the district level or other concerned authorities where necessary for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation
- » Identify buildings and places which could, in the event of any threatening disaster situation or disaster be used as relief centres or camps and make arrangements of necessary items
- » Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice
- » Coordinate with BSDMA, Department of Disaster Management and other key agencies for any specific preparedness instructions, supplies, mock drills, trainings etc.
- » Instruct EOC for regular monitoring of information on EW from different sources.
- » Create mechanisms through EOC for quick dissemination of EW information to all people.
- » Take stock of essential equipments and materials and their location in the district. Assess if there is a need to do additional procurement and preposition supplies in vulnerable areas and delegate actions for the same to respective ESFs and Block officials.
- » Review contingency action plans of the ESFs, DMTs, and QRTs and their preparedness.

Section 2: Mitigation and Development Planning

5.1 Mitigation Plan

Both structural and non structural measures shall be taken as part of mitigation plan. Structural mitigation refers to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure. Non-structural mitigation refers to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk with related impacts.

5.2.1 Multi Hazard Mitigation Actions:

The following structural and non structural measures may also be considered in addition to above hazard specific actions.

Structural Mitigation Measures:

- All public buildings like schools, hospitals, health centres should be multi hazard resilient being built on raised grounds and platforms with retrofitting and having adequate exit gates and fire extinguishers in place.
- Construct multipurpose community shelters in all vulnerable areas
- Houses built in the area should have multi hazard resilient features keeping in tune with cultural housing practices
- Watershed management:
 - ▶ A study may be conducted by the District Administration to assess the existing structures and system in place for watershed management and recommend best options for effective watershed management.
 - ▶ Periodically cleaning, de-silting and deepening of natural water reservoir and drainage channels
 - ▶ Construction of irrigation channels. Sluice gates may be linked with ponds which could be used as a water resource for enhancing livelihood.

Non-structural Mitigation Measures:

- Risk transfer mechanisms: Establishment and strengthening of insurance schemes and policies which would transfer losses the risk due to hazard to a third party. Insurance schemes for crop, cattle, small businesses and life should be strengthened and promoted to minimize economic losses.
- Formation of groups of architects, engineers and masons and trainings for them on

building safe infrastructure.

- Alternate safe housing technology along with rainwater harvesting structures is constantly encouraged & mainstreamed for long-term vulnerability reduction. Policies and bye laws could be developed for the same.
- Continuous Awareness campaign & encouragement for Disaster proof Habitat planning at community level including shifting/relocating from low lying areas and villages within embankments to safe raised grounds.(with some incentives if feasible).
- Disaster management may include first-aid & rescue & evacuation as a part of school, college, educational institutions (both techno-tech) curriculum starting from primary level.
- The DDMA may suggest conducting Research on alternative cropping to reduce adverse affect due to flood, water logging or drought.

5.2.2 Specific Hazard Mitigation Actions:

In addition to the multi-hazard mitigation actions, the following hazard specific mitigation actions should be taken depending on the vulnerability of the village/block:

Hazard Type	Structural Mitigation	Non-structural Mitigation
Flood	• Construction, maintenance and protection of flood control structures like embankments, ring bunds, etc. • Dams and levees can also be constructed which can be used as temporarily storing space which reduced the chances of lower plains getting flooded. • Critical buildings as well as private houses in flood prone areas should be constructed on an elevated area and if necessary on stilts and platform. • Construction of tube wells on raised platforms • Construction of seed bank on higher ground	• Well maintained boats available at all times at GP level • Crops that can be harvested before the onset of monsoon/flood season and crops that are flood friendly should be grown in the region. • Awareness on flood proof habitat planning with long term goal of flood plain zoning and rehabilitating all to safer zones.
Earthquake	• All buildings especially public building must have earthquake resilient features • Building bye laws applicable for Zone 5 region should be followed	• Awareness on Building bye laws applicable for Zone 5 region should be followed

Hazard Type	Structural Mitigation	Non-structural Mitigation
Drought	• Construction of irrigation channels. • Existing ponds to be cleaned and more ponds to be dug as part of MNREGA activities in village • Sluice gates to be linked with ponds • Tubewells and Borewells to be built in village • Construction and maintenance of grain banks on safer locations	• Promotion and support for rainwater harvesting • Awareness on government subsidy on borewells and tubewells for irrigation purposes
Fire	• Establishment of fire stations as per Fire Safety Bye laws	• Promotion of usage of fuel blocks during summers to minimize cases of fire during summer • Awareness campaign on fire hazard and strategies to prevent fire incidents

5.3 Specific Strategies and Projects For Mitigation

The following strategies and projects should be adopted at village level.

5.3.1 Villages within embankment:

- Houses may be built on stilts as per the community acceptance. Any Govt. or other stakeholder project on housing in these villages must have houses on stilts as a pre-requisite design
- Each village/community may have a boat which can be kept in the space created by stilts.
- Public buildings like schools and health centres should be designed keeping in mind that the level of mud/land is going to increase each year resulting in submerging parts of building.
- Safe Shelters with tube wells and toilets should be constructed on the embankments to house the population when the river spreads within the width of embankments.
- Crops that can be harvested before the onset of monsoon/flood season may be grown in the region to avoid loss due to seasonal flood.

5.3.2 Villages next to the embankment:

- Embankment should be monitored, maintained and strengthened compulsorily.

- DDMA should conduct a pre monsoon checks to identify vulnerable pockets/points in the embankment and suggest necessary actions to strengthen it.
- Sluice gates where existing should be made functions and new ones constructed where recommended for river water to pass through when water level rises. Maintenance of sluice gates and latest technologies that minimize accumulation of sand and silt in the passage must be incorporated which comes with the river water.
- Existing ponds should be cleared and new ponds dug to store the water coming through sluice gates which could be used for agricultural or fisheries purposes. This could be done utilizing NREGA scheme and based on allocation available under NREGA in the village for the same.
- Crop insurance should be promoted as the region is vulnerable to damages to crops due to drought and seasonal flooding.

5.3.3 Villages in low lying areas:

- DDMA should identify areas where water logging is caused due to roads and suggest necessary actions
- Flood friendly crops that grow well even in presence of inches of water should be grown in the region.
- DDMA may suggest the concern department to conduct study to design and establish an effective drainage system.
- Sanitation schemes should be especially strengthened by PHED and Health organization as per the standard operating procedures in the region and special measures should be taken to prevent water borne diseases due to presence of stagnant water.
- Households living in huts in the drainage or within the water logged area should be identified and land should be allocated to them in different part of village.

5.3.4 Villages far from the rivers:

- Rainwater harvesting should be promoted and supported in the region.
- Tubewells and boreholes should be placed all over the villages so that the source of water is secured
- Irrigation channels and tubewells use should be promoted amongst farmers. Awareness on the government subsidy on the same should be generated.
- Short term crops so that it can be harvested before the monsoon season and the seasonal crops can be harvested before the onset of winter.
- Crop insurance should be promoted for the region to transfer the risk.

5.4 Development Plan

- (1) All development plans and projects by different agencies shall be consulted widely with different stakeholders, IAG, DDMA to mitigate any adverse disaster risks due to development initiative.
- (2) All developmental plans approved by state / district authorities and flagships programme running in the district should have a special component for disaster mitigation and additional budgets should be ear marked for the same if required.
- (3) DDMA/ESF shall make recommendations to all the district departments about possible mitigation cum development projects that could be taken
- (4) All district departments to take lead for mainstreaming mitigation aspect in their projects and earmark at least 10% budget for the same in their plans.
- (5) Member Parliaments and MLAs under the MP Local Area Development Scheme and MLA local area development fund should sanction (a) projects which have taken into account the mitigation/disaster resilient factors (b) projects for mitigation from disaster
- (6) Continuous planning & execution of plans for providing sustainable livelihood for most vulnerable communities.
- (7) Infrastructure development like construction of irrigation channels, sluice gates, pucca roads, multipurpose safe shelter should be given a priority as it aids both mitigation from disaster and leads to development
- (8) MNERGA should be strengthened for the district so that most of the mitigation cum development projects could be locally completed generating local employment.

5.5 Emerging Advocacy Issues for strengthening Mitigation and Disaster Plan

- Flexibility given by State to Districts to plan its own budget design and utilization at as this would empower District Authorities to decide on priority mitigation and development projects for their district.
- Flagship programmes like Indira Awas Yojna and Sarva Siksha Abhiyan should not follow a uniform building design and budget. It should be flexible so that necessary mitigation measures for the particular district could be incorporated in the design.
- MNERGA should be promoted and strengthened at GP level and projects necessary for mitigation and development in the village should be given preference. This would ensure sustainable livelihood and development.

3. Institutional Mechanism & Implementation of Plan

Section 1: Institutional Mechanism for Disaster Management in Madhubani

1. Introduction:

India has an integrated administrative machinery for management of disasters at the National, State, District and Sub-District levels. The basic responsibility of undertaking rescue, relief and rehabilitation measures in the event of natural disasters, as at present, is that of the State Governments concerned. The Central Government supplements the efforts of the States by providing financial and logistic support.

The district administration is the focal point for implementation of all governmental plans and activities. The actual day-to-day function of administering relief is the responsibility of the District Magistrate who exercises coordinating and supervising powers over all departments at the district level.

The 73rd and 74th constitutional amendments recognize Panchayati Raj Institutions as 'Institutions of self- government'. The amendment has also laid down necessary guidelines for the structure of their composition, powers, functions, devolution of finances, regular holding of elections and reservation of seats for weaker sections including women. These local bodies can be effective instruments in tackling disasters through early warning system, relief distribution, providing shelter to the victims, medical assistance etc.

Other than the national, state, district and local levels, there are various institutional stakeholders who are involved in disaster management at various levels in the country. These include the police and para-military forces, civil defence and home-guards, fire services, ex-servicemen, nongovernment organizations (NGOs), public and private sector enterprises, media and HAM operators, all of whom have important roles to play.

The institutional and policy mechanisms for carrying out response, relief and rehabilitation are well-established in the district. These mechanisms have proved to be robust and effective so far as response, relief and rehabilitation are concerned. This section gives a brief overview of the institutional mechanism for disaster management in the district.

1.1. Classification of the institutions at district level:

The various institutions at district level can be classified in different groups as below:

1.1.1. Classification as per levels:

The various institutions at district Madhubani can be classified as per their administrative levels which are as below:

- District level
- Sub Division level

- Block level
- Gram Panchayat level
- Community level

1.1.2. Classification as per Stakeholders:

- **Government Stakeholders:** This include the DDMA, line departments, ESFs, local self governance etc. as below:
 - ▶ **District Disaster Management Authority (DDMA):** DDMA is an institution constituted as per the National Disaster Management Act, 2005 at a district level to ensure effective management and response to any disaster.
 - ▶ **Line Departments:** There are 28 line departments in the district and are accountable to district administration.
 - ▶ **Panchayati Raj Institutions (PRIs):** Zilla Parishad is a local government body at the district level. It is the third tier of Panchayati Raj System. It looks after the administration of the rural area of the district and its office is located at the district headquarters. The Hindi word Parishad means Council and Zilla Parishad translates to District Council.

The PRIs in the district with elected bodies at district, Block and GP level ensure the greater participation of the people and effective development and implementation of the rural programmes in the district.
- **Non Government Stakeholders:**
 - ▶ **Inter-Agency Group:** There is an inter-agency platform existing at district level for coordination and collaborative actions among the NGOs present in the district along with the other stakeholders who have roles in disaster management in the district.
 - ▶ **NGOs:** There are several non-governmental organizations actively working in the district on various issues including disaster management, capacity building, strengthening community capacities etc.
 - ▶ **Other stakeholders:** There are various other stakeholder groups in the district who have resources, capacities etc. in one or other form and have been quite supportive during disaster times.

1.2. Good Practices for coordination and Integration at District Level:

1.2.1. Essential Service Functions (ESF):

The ESFs aim to ensure continuity of services important for human life and dignity, enabling smooth governance and other socio-economic-political systems of the district during disaster and pre-disaster times.

1.2.2. Incident Response System (IRS):

Incident Response System is a combination of facilities, logistic, personnel, finance,

operation and communication operating within a common organizational structure, with responsibility for the management of assigned resources to accomplish the objectives effectively pertaining to an incident.

1.2.3. Unified Response Strategy (URS):

“Unified Response Strategy” (URS) is a good practice developed for building local capacities for inter agency coordination and creating a continuous and common process to emergency response by stakeholders.

1.2.4. Quick Response Team/ Disaster Management Team (QRTs/DMT):

The quick response team is formed to ensure prompt and effective emergency response with pre planned strategy and pre designated task, role and responsibility.

Note: The detail information about the mechanism of these practices is mentioned under 3rd point.

2. Role and Responsibilities of Stakeholders:

2.1. Government Stakeholders:

2.1.1. District Disaster management Authority (DDMA):

In general the role of District Disaster Management Authority, Madhubani is to plan, coordinate, implement and to carry out any other measures for disaster management in the district as per the guidelines laid down by National Disaster Management Authority (NDMA) and State Disaster Management Authority (SDMA). For Specific actions of DDMA in DRR/normal time refer to stakeholder action plan (DDMA) Green Book and for specific actions for emergency response and recovery refer to stakeholder action plan (DDMA) Red Book.

2.1.2. DDMA advisory Committee:

As per the provisions of the National disaster management Act, the DDMA shall appoint an advisory committee of the professionals in the district for advising DDMA on various planning and executive functions from time to time.

As per the NDMA guidelines on Role of NGOs in disaster management, few members from district IAG may be nominated for the advisory committee and the DDMA may choose any other professionals to be the member of advisory committee as well.

2.1.3. Line Departments:

In general the role of these departments is to carry out the functions and to ensure the development of district under their concern departments. For specific action in disaster management refer green book for normal days and DRR activities and red book for emergency response and recovery period designed for each line departments.

2.1.4. Panchayati Raj Institutions (PRIs):

As per the Constitution, Panchayats in their respective areas would prepare plans for

economic development and social justice and also execute them. To facilitate this, states are supposed to devolve functions to Panchayats (29 subjects as mandated) and also make funds available for doing these (as per State Finance Commission's recommendations).

The functions of Panchayats are divided among different Committees (as ministries are formed in state and union governments), which are called Standing Committees/Sthayee Samitis/Upa Samitis etc. One of the members remains in charge of each of such committees while the over-all charge rests with the chairperson of the Panchayat.

Apart from grants received from the government under the recommendation of the Finance Commission, Panchayats receive schematic funds for implementation of schemes (MGNREGS, BRGF, IAY etc.). They can also raise revenue by imposing taxes, fees, penalties etc. as per rule of the state.

2.2. Non Government Stakeholders:

2.2.1. Inter-Agency Group-Madhubani:

Inter-Agency Group (IAG) Madhubani is a district level coalition of humanitarian agencies working in Madhubani. The members of the IAG include NGOs, CSOs, and representatives of other stakeholder groups like Academic, Youth Group etc (refer Volume- I stakeholder analysis), representative of district administration, and Red Cross and UN agencies working in the district.

IAG Madhubani provides the platform for all stakeholders in Madhubani to come together during disasters and non disaster times for coordination and collaborative strategies for disaster risk reduction, emergency preparedness, response and recovery. The role of IAG, NGOs and others stakeholders are illustrated in the Green (for DRR and normal time) and Red Pocket book (emergency response and recovery period).

2.2.2. Non-Governmental Organizations:

Number of active non-governmental organization present in the district have played critical role in community capacity building on various issues including disaster management, village level planning, formation of task forces, capacity building of youth, women group etc.

Their role is crucial for effective outreach to the communities and targeting of actual beneficiaries in relief, response and rehab phases.

2.2.3. Other Stakeholders:

There are 13 other stakeholder groups identified in the district (refer stakeholder analysis) which play important role in over all social-economic development on the district.

3. Mechanisms and good practice for coordination and integration at district level:

3.1. Essential Service Function (ESF):

In the context of Madhubani, 17 such Essential Service Functions (ESF), have been identified which are listed below:

3.1.1. Working of Essential Service Functions:

The broad guidelines are:

- a) Each ESF shall have a nodal agency, primarily a government agency responsible for providing that service.

1. Search and Rescue	2. WASH	3. Food
4. Shelter	5. Health	6. Education
7. Livestock	8. Livelihoods	9. Energy
10. Communication	11. Protection: Social welfare, Child protection, Dalit/Tribal/minorities, Other vulnerable groups	
12. Public Works	13. Transport	14. Information and Planning
15. Help lines	16. Law and Order	17. Media

- b) All other agencies, government and non government that are directly/indirectly involved in provision of these services coordinate with nodal agency as support agencies.
- c) The nodal agency in consultation with the support agency shall develop it's own terms of reference, rules and regulations.
- d) The nodal agency in consultation with the support agency shall develop a plan for the particular service to include contingency planning for worst case scenarios.

The modal for WASH (Water, Sanitation and Hygiene promotion) ESF is illustration 3.1.1

3.1.2. ESF Management Committee:

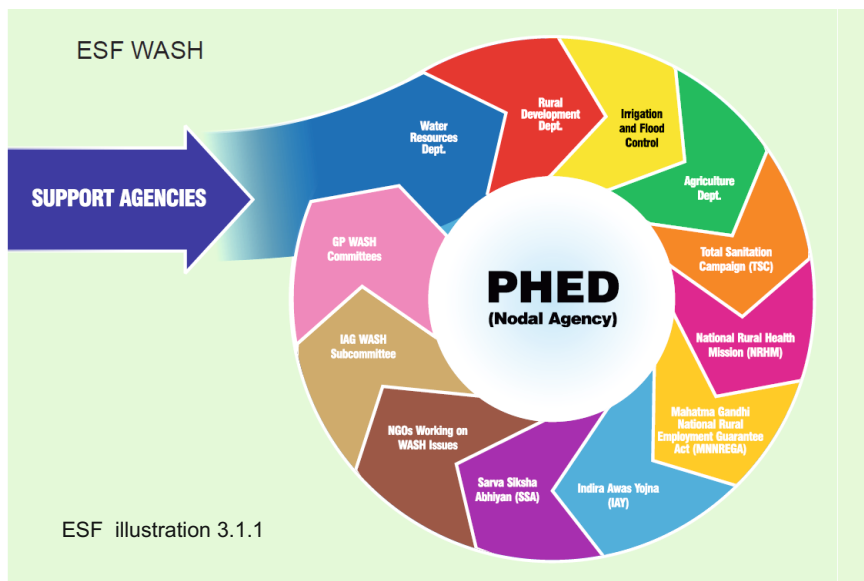
ESF management committee comprises of the heads of nodal agencies for all ESF and is chaired by Zila Parmukh and co chaired by ADM disaster management or Chief Executive Officer of DDMA.

After constitution of District Disaster Management Authority, this committee takes over the role of district disaster management committee.

The detailed information about the roles and responsibilities of the nodal agencies and support agencies for each ESF has been given in the Green and Red book for each ESF.

Key Functions of ESF management committee are:

- Collate annual DRR action plans for each ESF and monitor its implementation
- Recommend projects and activities for DRR to be included in the development activities of nodal and support agencies for each ESF



- Collaborate assessments from each ESF during emergencies and suggest strategies for intervention to DDMA.
- Finalize strategies for Response and recovery interventions
- Coordinate overall response
- Document lessons learnt and good practice
- Ensure grievance redressal mechanisms.

3.2. Incident Response System (IRS):

The IRS organization functions through Incident Response Team (IRTs) in the field. The District Magistrate (DM) as the chairman of the DDMA is a Responsible Person (RO) as overall in charge of the incident response management. If needed, he can delegate his functions to any other responsible officer or appoint another senior officer as an incident commander. If the disaster is in more than one district, the DM of the district that has maximum loss will act as Incident commander.

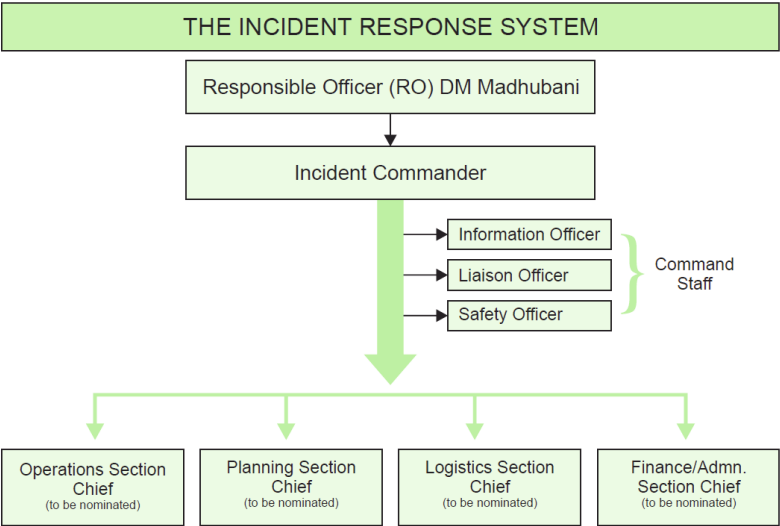
On activation of the incident response system, all line departments/ Organizations/ individuals shall follow the directions of the Incident Commander as condition demands. He can divert all mechanisms and resources in the district to fight against a scenario leading to disaster/calamity in the district.

On activation of IRS, an operation section with a chief and associates, planning section with a leader and associates, logistic section with a leader and section chief and finance section with a leader and associates shall be assume their roles. This is the sole discretion of

the Incident Commander to appoint the Section chief. These section chiefs are vested with commanding authority and logistic assistance to deliver the concerned responsibility.

The chief and associates for the different sections are as nominated below:

- 1. All team leaders will be in the rank of ADM/Line Department Heads in the district who are senior level officer.
- 2. The SDMs shall not be given any responsibility in the incident command chain since they are to look after the onsite EOC in their territory or as assigned to the affected areas as well as they are the Team Leaders of Incident Management
- 3. Teams (IMTs) in each Onsite Emergency Operation Centre.



3.2.1. Major Functions of Incident Commander:

The general functions of the Incident Commander are as follows:

- To create and integrate communication flow during emergency period
- To manage incident scene, and report through integrated and coordinated command plan
- To facilitate procedures and protocols according to ESF Departments within District as well as State and Central Government.
- To put the communication system in place to receive, record, acknowledge incoming and outgoing information of any form during the disaster
- To manage resources as per their availability such as– distribution of relief material with ESF agencies required during emergency etc

- Monitoring functional areas during and post disaster phase
- Besides these general functions, the Incident Commander has to perform certain specific functions. They are:
 - ▶ Size up the situation
 - ▶ Determine if human life is at immediate risk
 - ▶ Establish immediate objectives
 - ▶ Determine if there are enough and right kind of resources on site and/or ordered.
 - ▶ Develop immediate action plan
 - ▶ Establish an initial organization
 - ▶ Review and modify objectives and adjust the action plan as necessary.

3.2.2. Major Functions of Operation Section Chief:

- Responsible for management of all operations directly applicable to primary mission
- Activates and supervises organization elements in accordance with the Incident Action Plan and directs its execution
- Determine need and request additional resources
- Review suggested list of resources to be rebased and initiate recommendation for release of resources
- Report Information about special activities, events or occurrences to Incident Commander
- Maintain Unit / Activity details

3.2.3. Major Functions of Planning Section Chief:

- Collection, evaluation, dissemination and use of information about the development of incident and status of resources. Information needed to Understand the current situation
- Prepare alternative strategies and control of operations,
- Supervise preparation of Immediate Action Plan (IAP)
- Provide input to IC and Operation in preparation of IAP
- Reassign of service personnel already on site to other positions as appropriate
- Determine need for any specialized resources in support of the incident

3.2.4. Major Functions of Logistic Section Chief:

- Establish information requirements and reporting schedules for Planning Section Unit (e.g. Resources, Situation Unit).

- Compile and display incident status information
- Oversee preparation and implementation of Incident Demobilization Plan.
- Incorporate Plans (e.g. Traffic, Medical, Site Safety, and Communication) into IAP. Maintain Unit / Activity details.
- Other Functions include, briefing on situation and resource status, setting objectives, establishing division boundaries, identifying group assignments, specifying tactics/safety for each division, specifying resources needed by division, specifying operations facilities and reporting locations – plot on map and placing resource and personnel order.
- Assign work locations and tasks to section personnel.
- Identify service and support requirements for planned and expected operations
- Coordinate and process requests for additional resources.
- Provide input to / review communication plan, traffic plan, medical plan etc
- Recommend release of unit resources
- Maintain Unit/ Activity details

3.2.5. Major Functions of Finance Section Chief:

The Finance section is basically of the administration and managing finance. The major roles of this section include managing (1) Incident Command Post, (2) Staging Areas, (3) Base, and (4) Camps. The major functions are:

- Minimize excessive communication of resources calling for assignment
- Allow 1C/OPS to properly plan for resources use and allow for contingencies

3.3. URS

The District Magistrate as a chairman of DDMA Madhubani may activate the Unified Response Strategy or may appoint one senior officer responsible for URS. “Unified Response Strategy” (URS) is a good practice developed for building local capacities for inter agency coordination and creating a continuous and common process to emergency response by stakeholders. The key functions of URS are:

- (a) To build local capacities for coordination and collaboration: Inter Agency Groups are developed to meet this objective. Madhubani district has a dynamic IAG as part of this.
- (b) To develop a common process for collaborative response by all actors.

The key steps involved in this are:

- URS in preparedness: The member agencies share their preparedness plans and pre positioning as preparedness exercise. The resources are mapped for gap analysis.

- EW detection and Situation Report (Sitrep) dissemination
- URS activation
- Common Assessment format and Multi-Sectoral Multi Agency Assessment
- Coordination at all levels
- Sectoral Coordination and joint Strategies
- Common M&E and learning
- URS deactivation

3.4. Quick Response Team / Disaster Management Team (QRTs/DMT)

Each ESF should be well prepared to set up its coordination desks in all the Onsite EOCs as well as in the District EOC at the time of disaster. With this intention, they have to designate a nodal officer and an alternate nodal officer with specific responsibility. Besides they have to constitute a Head Quarter Team as well as Quick Response Teams (QRTs) and minimum three Field Response Teams (FRTs) with at least five members each. The name and address of the team members shall be updated time to time with latest contact number. It is the function of the Working Group - III for plan review and Updating, to coordinate the disaster management teams. The supporting agencies will directly report to the nodal agency and the nodal agency will report to the Incident Commander regarding its functions.

4. Integration and Coordination at Various Levels:

Integration and Coordination mechanism at the district involves four tier structures as illustrated below:

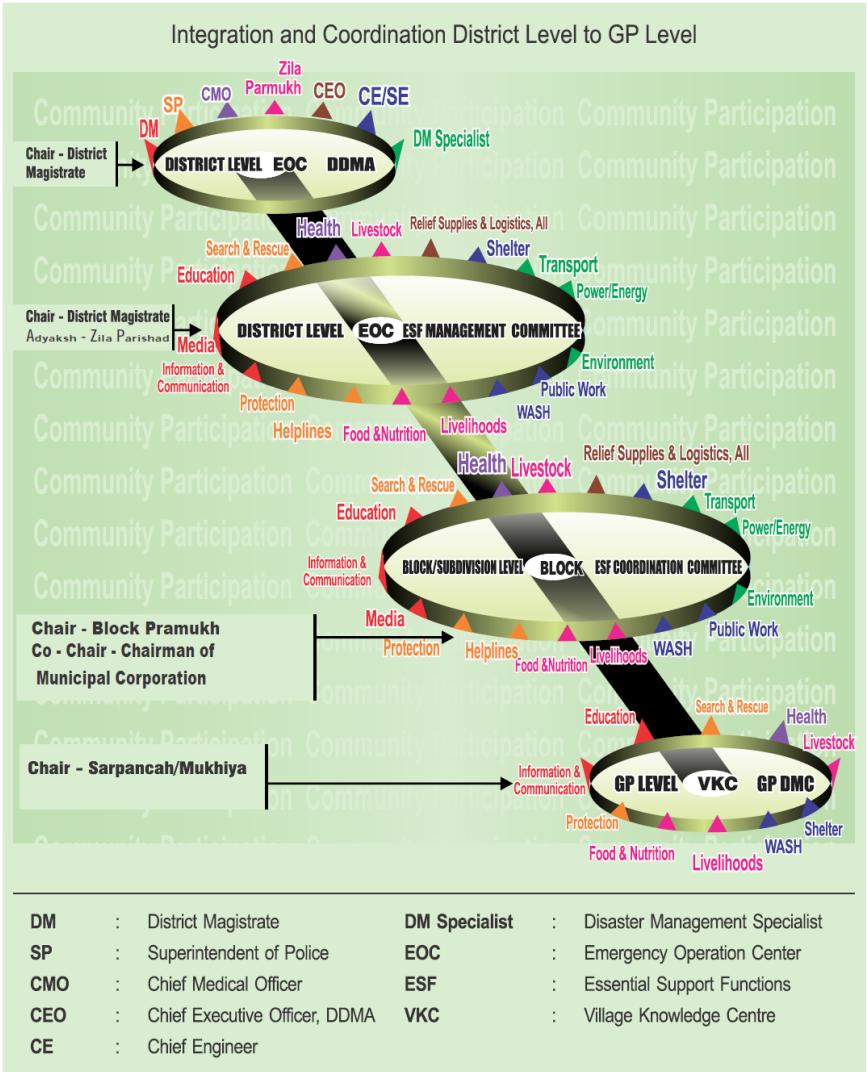
4.1. Vertical Integration from District Level to GP level:

The ESF committees at all the four level integrate vertically in two ways:

- (a) Through vertical linkages within their respective line departments.
- (b) Through information and coordination secretariat provided by Village Knowledge Center at GP level and Emergency Operation Center at Block and District Level.

The integration and coordination mechanism at the district involves four tier structures of rings that are led/ maintained by

- At district level: DDMA at district level which is chaired by District Magistrate, Madhubani and EOC at district level is responsible for coordination and dissemination of information.
- ESF management committee comprising of head of all ESF nodal agencies and Chaired by Zila Parisad Adyaksh provides the mechanism for coordination and



integration of all ESFs at district level. The EOC is responsible for dissemination of information and coordinate with EOC DDMA and EOC at Block and GP Level.

- Block level: ESF Coordination Committee at Block/ Sub Divisional Level chaired by Block Pramukh is responsible for integration and coordination at a Block level.
- At GP level: GP disaster management committee comprising of head of all GP level committees in GP and is chaired by Sarpanch/ Mukhiya at GP Level.

The mechanism may further go down to village and ward/tola level as per the need, interest and self governance mechanism of the communities.

4.2 Stakeholder Action Plans:

The stakeholders at the Madhubani district can be analysed in 3 broad categories:

- I. Government Line Departments and flagship schemes: There are 27 line departments (District Administration) and number of flagship schemes of the government (Central and State Government). These departments are accountable to district administration for their action plans in Green and Red Pocket books developed for them.
- II. Community Groups: There are 13 community level committees. These groups are accountable to GP disaster management committee which in turn is directly accountable to people and linked to block samiti and Zila Parishad which integrates with ESF management committee and DDMA respectively.
- III. Other Groups: There are 13 others stakeholder groups in the districts that play an important role in overall social-economic-political life at the district. These groups integrate into the system through InterAgency Group and different ESF functions.

All these stakeholders have their own importance for maintaining quality of life, good governance and socio-economic-political interests of the districts. So it is important that the working mechanisms of these stakeholders are disaster resilient and remain functional during emergencies. In case of emergencies, beyond the important role these stakeholders perform for their own functional continuity, they also have capacities that can be channelized for local emergency response and build back better.

This section provides guidance for these stakeholders on important actions for disaster risk reduction and emergency response and recovery. This guidance is not exhaustive, the stakeholders shall go beyond to develop their comprehensive disaster management plans and technical guidelines and manuals for their specific subjects. Some of these have been suggested in the guidelines for each stakeholder.

The guidelines for each stakeholder are divided into two volumes: a) Green pocket book that covers important actions for disaster risk reduction b) Red pocket book that covers important actions for emergency response and recovery.

These guidelines (stakeholder specific action plans) can be collected from DDMA or downloaded from the Madhubani DDMA website.

Section 2: Linkages with other districts, division, state and national plans

5. State and National Linkages

In reference to L concept, based on the impact of the disasters, the disaster may be classified into following four categories:

- ▶ **L0 Level:** Denotes normal time when there is no disaster like situation. The local administration and all stakeholders are functioning normally. This is the time to focus on Green Book activities.
- ▶ **L1 Level:** Disasters which can be handled at the district level, within the existing resources and capacities. This is the time to focus on Red Book activities.
- ▶ **L2 Level:** Disasters which are beyond existing capacities of district authorities and need active support from the State agencies.
- ▶ **L3 Level:** Disasters which are beyond existing capacities of district and state. It needs support from national level agencies.

6. Management of Level 2 Disaster:

6.1. Key Indicators for decision making of L2 disaster:

- Vast devastation and life loss in large numbers
- Break up of response machinery and local administration
- Large displacement of people
- Emerging secondary public health risks etc.

Authority for declaration of L2 disaster: State relief commissioner on request of DDMA or directly on advice of state technical agencies and SDMA can declare a particular incident as state level disaster.

6.2. Key Actions for L2 disasters:

- Seek cooperation of neighbouring district as per existing contingency plans and understanding.
- Request Divisional Commissioner and Relief Commissioner to activate Divisional resources and mechanisms.
- Request SDMA and Relief Commissioner State for activation of State resources and mechanism.

- Prepare for receiving Divisional and state level agencies (resources), their quick briefing, plan of actions if possible and deployment support.
- Enable additional capacity of EOC to support State level resources in coordination.
- Develop strategies for response and recovery in coordination with State authority and other agencies.
- After dealing with immediate priorities, Make quick assessment of resources needed in medium and long term from state and make requisitions for the same.
- If needed request Armed Forces formation in near vicinity for SOS mobilisation in aid of civil authorities.
- If needed request for activation of SDRF and other Para military capacities at state level.
- The incident commander may appoint a separate responsible officer for interaction with Divisional and State agencies.

6.3. Support from India Armed Forces:

Having the expertise, the armed forces are of great advantage in minimizing the damage to the life, property and infrastructure. The armed forces are strategically located throughout the country.

- The Response Officer (District magistrate) may ask for the assistance of the armed forces when it seems that the district administration is no more capable of functioning in the disaster situation.
- The responsible may ask the assistance of the nearby stationed unit of armed forces.
- The armed forces work under the civil administration in the affected area.
- The armed forces will work in close coordination with the EOC of that district.
- The commanding officer of the operating unit will share the situation report with the responsible officer.
- As per the situation, the armed force will support the medical, food and shelter needs.
- If there is no armed force unit in the district, then the responsible officer may ask the divisional commissioner to communicate with the commanding officer of the armed force unit in that area and ask for his assistance.

7. Management of Level 3 Disaster:

7.1. Key Indicators for decision making of L3 disaster:

- Vast devastation and life loss in large numbers
- Break up of response machinery and local administration
- Large displacement of people

- Emerging secondary public health risks etc.

Assistance for L3 disaster: On request from State Government/SDMA, the Central Government/NDMA can provide a technical, resource assistance when the damages due to disaster exceed the coping capacity of the affected state.

7.2. Key Actions at DDMA level:

- Seek cooperation of neighbouring district as per existing contingency plans and understanding.
- Request Divisional Commissioner and Relief Commissioner to activate Divisional resources and mechanisms.
- Request SDMA and Relief Commissioner State for activation of State resources and mechanism and to do necessary follow up with National authorities.
- Prepare for receiving Divisional, State and National level agencies (resources), their quick briefing, plan of actions if possible and deployment support.
- Enable additional capacity of EOC to support State/National level resources in coordination.
- Develop strategies for response and recovery in coordination with authorities and other agencies at national and state level.
- After dealing with immediate priorities, Make quick assessment of resources needed in medium and long term from state and make requisitions for the same.
- If needed request Armed Forces formation in near vicinity for SOS mobilisation in aid of civil authorities.
- If needed request for activation of NDRF/SDRF and other Para military capacities at state level/National level.
- The incident commander may appoint a separate responsible officer for interaction with Divisional and State agencies.

7.3. Support from Indian Armed Forces:

Having the expertise, the armed forces are of great advantage in minimizing the damage to the life, property and infrastructure. The armed forces are strategically located throughout the country.

- The Chairman DDMA or the incident commander may ask for the assistance of the armed forces when it seems that the district administration is no more capable of functioning in the disaster situation.
- The armed forces shall work under the civil administration in the affected area and the commanding officer of the operating unit will share the situation report with the EOC and DDMA.
- As per the situation the armed force will support the Search and Rescue, medical, food, shelter, critical logistics and emergency infrastructure needs.

Section 3: Implementation of Plan

The chapter is divided into four sections: The chapter is divided into four sections: 1) Authority for implementation of this plan, 2) Responsibility and Accountability 3) financial provisions available for disaster management at district level and 4) Suggested follow up actions for different stakeholders for implementation of this plan.

8. Authority

As per National Disaster Management Act 2005, every district shall establish DDMA and the DDMA shall develop a comprehensive disaster management plan.

9. Responsibility and Accountability

The DDMA will be responsible for the overall planning, coordination and implementation of plan. As per the National Disaster Management Act, 2005, The DDMA shall be responsible and accountable to:

- 9.1. Coordinate and monitor the implementation of National and State policies, National, State and District Disaster Management Plans.
- 9.2. Ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities.
- 9.3. Ensure that the guidelines for prevention of disaster, mitigation of its effect, preparedness and response measures as laid down by the National Authority and State Authority are followed by all the line departments at the district level, local authorities and other concerned authorities.
- 9.4. Review the preparedness and respond measures to any disaster or threatening disaster and give direction to the departments or the concerned authorities for the up gradation of the measures.
- 9.5. Give direction to the district authorities and local authorities to take measures for the prevention and mitigation of disaster on need.
- 9.6. Monitor the implementation of DDMP and the plans prepared by the district government departments.
- 9.7. Lay down guidelines to mainstream the DRR measures in the Developmental work to be followed by the government departments at district level.
- 9.8. Organise and coordinate specialised training programmes for different levels of officers, employees and voluntary rescue workers in the district.
- 9.9. Lay down guidelines for the preparation of departmental Response Plan as per the District Response plan and ensure that each District departments prepare their own departmental response plan.

- 9.10. Set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public.
- 9.11. Lay down guidelines to the government departments at district level or other district authorities to response effectively to any threatening disaster or disaster.
- 9.12. Coordinate response to any threatening disaster situation or disaster.
- 9.13. Advice, assist and coordinate government, non government and other stakeholders engage in disaster management.
- 9.14. Coordinate, lay down guidelines and provide technical and non technical support to the local authorities to take prevention, mitigation and other functions effectively.
- 9.15. Identify safe evacuation sites and make arrangements for the basic evacuation protocol in those sites.
- 9.16. Establish stockpiles of relief and rescue materials and ensure communication systems are in order.
- 9.17. Provide information to the State Authority relating to different aspects of disaster management.
- 9.18. Review and update the district level response plan.
- 9.19. Perform other activities as assigned by the State Authority or the prompt activities which are necessary for disaster management.

10. Financial Provisions for District:

As per the National Disaster Management Act, 2005, the various financial provisions available at district level for implementation of the plan are:

10.1. Funds available at National and State level:

10.1.1. Funds in 13th finance commission:

The Ministry of Finance has allocated funds for strengthening the disaster management institutions, capacity building and response mechanisms on the recommendation of thirteenth finance commission.

10.1.2. Funds allocated for Capacity Building for Disaster Response:

Year wise allocation of fund (in crore)

State	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Total (in Lakhs)
Bihar (SDRF)	334.49	351.21	368.77	387.21	406.57	1848.25
Madhubani (DDRF)*	8.80	9.24	9.70	10.18	10.69	48.61

*the estimate for district has been arrived at by dividing the total state allocation by number of district in the state (38 districts)

As mentioned in the Disaster Management Act 2005, a fund has been allocated for the capacity building of the administration for effective disaster response and for preparation of state and district disaster management plan.

10.1.3.Chief Minister Relief Fund:

Year wise allocation of fund (in crore)

State	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Total (in Lakhs)
Bihar (SDRF)	5.00	5.00	5.00	5.00	5.00	25.00

At the state level a provision has been made to provide immediate support to the distress people affected by the natural calamities and road, air or railways accidents, under Chief Minister Relief Fund.

10.1.4.Member of Parliament Local Area Development Scheme (MPLADS):

District authority may pool the MPLADS funds for the works permissible in the guidelines and the funds will be released by the Nodal District of the MP.

- 10.1.4.1. Each member has been allocated Rupees 5 crore for the development of essential functions in their own constituency. The projects are identified by the MPs and implemented by the district authority and the allocated fund could be clubbed with existing flagship programs and other development projects like MNREGA.
- 10.1.4.2. MPLADS works can also be implemented in the areas affected by natural calamities. Lok Sabha MPs from non affected states can also recommend permissible work in the affected areas up to maximum 10 lakh per annum.
- 10.1.4.3. In case of Calamity of severe nature, an MP can recommend works upto RS. 50 lakh for the affected district.

10.1.5.Other sources:

10.1.5.1. Convergence with Centrally Sponsored Schemes:

- Under NREGS, a provision has been made to provide financial relief to the needy families in the drought affected areas.
- Allocation of 5 percent is made under Accelerated Rural Water Supply Programme.
- 10 percent of Indra Awas yojana is earmarked to work for providing housing to the affected people.
- Provision has been made for the mid day meal to remain functional in the drought hit areas.

10.1.5.2. NGO'S and Private Donors:

Once the district authority decides the developmental works or projects the NGOs and private donors can provide support for incorporating disaster risk reduction measures in ongoing developmental works. The NGOs and private donors can provide support to the ESF Nodal agency during relief programmes and recovery period as per their available resources.

10.1.5.3. Insurance:

The Madhubani district is an agrarian district with most of the population depending on it for their livelihood. The National policy on Disaster Management, 2009, considered that the massive losses caused by disaster cannot be compensate by the assistance given by the government therefore new financial tools like yield based and weather based crop insurance programmes will be promoted with large scale damages to crops caused due to natural calamities every year in the district, to provide financial support to the farmers in case of adverse effect of an event.

11. Follow Up Actions:

The document i.e. District Disaster Management Plan, Madhubani was evolved out of intensive consultations at the National, State, District and Local level with various stakeholders including Madhubani IAG group, PRI etc. An effort has been done to include the community and various other stakeholders along with the government institutions and to establish coordination among them. On the basis of extensive field visits and consultation an effort have been done to incorporate new ideas in context of Madhubani District. An effort has been done to mainstream the Disaster Risk Reduction Measures with the developmental works.

Follow up actions for

11.1. DDMA:

- Prepare a comprehensive contingency plan specific for each hazard.
- Prepare a detail Hazard/Risk assessment.
- Set up an EOC.
- Ensure establishment of GP task force/committee.
- Review the DM plan twice a year and update once in a year.
- Updation of data/information annually.
- Form an advisory committee to ensure efficient discharge of its functions.
- Ensure preparation of detail Departmental DM Plan / SOPs in each Government department.
- Prepare a checklist of resources available with all the District departments and local authorities.
- Establish a District Disaster Response Force.

- Prepare Hazard map of the district.
- Prepare a format for the deployment of initial assessment team.

11.2. EOC:

- Prepare a list of manpower and equipments.
- Prepare a List of all the roads and important infrastructures.
- Prepare a list of safe shelters.
- Prepare a list of all the means of communication and broadcasting.
- Keep the list of all the Nodal ESF.
- Prepare a checklist of resources available with all the nodal ESF.
- Establish a permanent seat for each ESF in the EOC hall for emergency situation.
- Checklist for the broadcasting of information and proper documentation.
- List of all the means of information and broadcasting agencies with full address.

11.3. ESF:

- Prepare a checklist of resources, tools etc
- Prepare a format for minimum standard of resources, materials etc.
- Prepare a module to conduct training and mock drill.
- Checklist of all the important contact numbers with postal addresses.

11.4. Government Department:

- Prepare a Departmental Disaster Management Plan and specific SOPs.
- Prepare a detail Hazard/Risk assessment.
- Nominate one nodal person for disaster management.
- Prepare a list of staffs and clearly define their roles and responsibility.
- Prepare a checklist of resources available within the department.
- Prepare a list of the resources, materials needed for effective discharging of their responsibility and procuring the same.
- Format for collection of information and proper documentation.

11.5. GP committees:

- Nominate the members for each committee within 3 months of the release of DDMP.
- Prepare a detail Hazard/Risk assessment.
- Clearly define the role and responsibility of each member.
- Checklist of the resources available within the committee.

Annexes

List of Important information required for Disaster Management in Madhubani

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
IMPORTANT CONTACT DETAILS				
1.	Composition of District Disaster Management Authority (DDMA), Madhubani		April, 2013	April, 2014
2.	District Disaster Management Nodal Officers, Madhubani		April, 2013	April, 2014
3.	District level govt. officials contacts		April, 2013	April, 2014
4.	Contact details of Line Departments		April, 2013	April, 2014
5.	Contact details of Police Department	Available for each sub-division	April, 2013	April, 2014
6.	Contact details of engineers of Energy Department in Madhubani		April, 2013	April, 2014
7.	Contact details of BSNL officials		April, 2013	April, 2014
8.	Contact details of sub-division and block level officers		April, 2013	April, 2014
9.	Contact details of NDMA officials, New Delhi		April, 2013	April, 2014
10.	State Disaster Management Nodal Officers, Patna		April, 2013	April, 2014
11.	Contact details of NDRF officials and nearby battalions		April, 2013	April, 2014
12.	Contact numbers of military, air force and rehabilitation department		April, 2013	April, 2014
13.	Contact details of Indian Meteorological Department (IMD) and observatories		April, 2013	April, 2014
14.	Name and contact numbers of Gram Panchayat Mukhiya		April, 2013	April, 2014

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
DEMOGRAPHIC AND CONTEXT DETAILS				
15.	Distribution of population, sex ratio, density, child population and population aged 7 years and above by sex	Census 2011		Census 2021
16.	Population of districts by sex and percentage share of population in total population	Census 2011		Census 2021
17.	Literates and literacy rates by sex	Census 2011		Census 2021
18.	House listing and housing census data	Census 2001		Census 2021
19.	Block wise labour details	Census 2001		October, 2013
20.	Subdivision and block wise no. of Gram Panchayats and Revenue Villages		April, 2013	April, 2014
21.	Block wise list of Gram Panchayats		April, 2013	April, 2014
22.	Month wise average rainfall data	Reference – District Statistical Dept.	April, 2013	April, 2014
23.	Month wise temperature data	Reference – District Statistical Dept.	April, 2013	April, 2014
24.	River wise details of danger level and maximum water level		April, 2013	October, 2013
RESOURCE DETAILS				
25.	Detail of road connectivity of Madhubani district	Reference – Road Construction Dept.	April, 2013	April, 2014
26.	Stockpile in district Emergency Operational Centre		April, 2013	April, 2014
27.	Division of flood zones in Madhubani district	Reference – Disaster Management Office	April, 2013	April, 2014
28.	List of Flood Control Divisions in Madhubani		April, 2013	April, 2014
29.	Prepositioning at Flood Control Divisions		April, 2013	April, 2014
30.	Details of rainfall measurement officers		April, 2013	April, 2014

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
RESOURCE DETAILS				
31.	List of trained NDRF officers, home guards and volunteers		April, 2013	April, 2014
32.	Trained NCC and NYK cadets under the NCC institutions		April, 2013	April, 2014
33.	Block wise details of helipads		April, 2013	April, 2014
34.	Details of relief centres in different blocks of Madhubani	With details of capacity, available resources, officer in-charge etc.	April, 2013	April, 2014
35.	Status of drinking water resources in relief camps		April, 2013	April, 2014
36.	Status of hand pump and toilet in flood affected areas by PHED	By PHED	April, 2013	April, 2014
37.	Block wise number of identified shelters and drinking water sources	By PHED	April, 2013	April, 2014
38.	Block wise list of temporary shelters		April, 2013	April, 2014
39.	Detail of shelters constructed by NGOs		April, 2013	April, 2014
40.	Block wise availability of polythene sheets in different blocks of Madhubani	By all block offices of Madhubani	April, 2013	April, 2014
41.	Block wise boat facility details	By DDMA	April, 2013	April, 2014
42.	Details of public and private boats available in Madhubani district	By Dept. of Disaster Management and report by NGOs	April, 2013	April, 2014
43.	Resources in fire station in Madhubani		April, 2013	April, 2014
44.	Resources in health facilities	By District Health Society	April, 2013	April, 2014
45.	Details of human resources in health services in Madhubani		April, 2013	April, 2014
46.	Details of ANMs posted in PHC/HSC/APHC		April, 2013	April, 2014

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
RESOURCE DETAILS				
47.	Block wise water resources	By District Minor Irrigation Dept.	April, 2013	April, 2014
48.	Water quality testing by the department		April, 2013	April, 2014
49.	Block wise irrigation resources	By District Fishery Dept.	April, 2013	April, 2014
50.	Block wise public distribution shops (PDS)		April, 2013	April, 2014
51.	List of Madhubani Inter-Agency Group (with details of resources and work area)	This is the district level coalition of humanitarian agencies in Madhubani (a network of key NGOs)	April, 2013	April, 2014
52.	List of stakeholders' plans in DDMP Madhubani	These are the key stakeholders identified in the district. (identified by DDMA, Madhubani- IAG and Community)	April, 2013	April, 2014
VULNERABILITY RELATED DETAILS				
53.	List of villages based on their flood vulnerability	Identified by DDMA, Madhubani- IAG and Community	April, 2013	April, 2014
54.	Block wise details of rivers and the affected areas		April, 2013	April, 2014
55.	List of highly sensitive embankments in Madhubani		April, 2013	April, 2014
56.	Detail of sensitive places under flood control division 1, 2 & western kosi division		April, 2013	April, 2014
DDMP ADVISORY BODIES				
57.	National Advisory Committee on DDMP	Developed during the process of DDMP Madhubani development.	April, 2013	April, 2014
58.	State Advisory Committee on DDMP	Developed during the process of DDMP Madhubani development.	April, 2013	April, 2014
59.	Madhubani District Advisory Committee on DDMP	Developed during the process of DDMP Madhubani development.	April, 2013	April, 2014

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
LIST OF MAPS				
60.	Flood zones in Bihar	State level map	April, 2013	As required
61.	Earthquake zones in Bihar	State level map	April, 2013	As required
62.	Wind and cyclone zones in Bihar	State level map	April, 2013	As required
63.	Multi hazard zones in Bihar	State level map	April, 2013	As required
64.	Drainage area of Bihar	State level map	April, 2013	As required
65.	Administrative map of Madhubani district with block boundaries and road & rail network	District level map	April, 2013	As required
66.	Madhubani road division map	District level map	April, 2013	As required
67.	Madhubani road connectivity map	District level map	April, 2013	As required
68.	Gram Panchayat map of Madhubani district	District level map	April, 2013	As required
69.	Drainage map of Madhubani district	District level map	April, 2013	As required
70.	River map of Madhubani district	District level map	April, 2013	As required
71.	Flood map of Madhubani district	District level map	April, 2013	As required
FORMATS AND QUESTIONNAIRE				
72.	Hazard, vulnerability, risk, capacity and resource assessment questionnaire	Developed by Sphere India, Madhubani IAG, DDMA & Community representatives.		
73.	Common rapid assessment format (Sphere India)	Developed by Sphere India and member agencies. (for use within 36-48 hours of disaster)		
74.	Common detailed assessment format (Sphere India)	Developed by Sphere India and member agencies. (for use within 72-96 hours of disaster)		
75.	Initial rapid assessment format (IASC)	Developed by Inter-Agency Standing Committee.		
76.	Initial rapid assessment format (IASC)	Guidance note by IASC to use the assessment format		
77.	Updated CRF and NCCF guideline	Guidelines for provisions of relief under Calamity Relief Fund & National Calamity Contingency Fund		
78.	Important websites	Important websites for different information needs		

Sl. No.	Contents	Remarks	Last Updated	Next Update Due
ADDITIONAL INFORMATION				
79.	Average global population structure	Reference – Sphere Handbook		
80.	Household water treatment and storage decision tree (Sphere)	Reference – Sphere Handbook		
81.	Nutritional requirements	Reference – Sphere Handbook		
REFERENCES				
82.	References for coordination	Reference – Sphere Handbook		
83.	References for transparency and accountability	Reference – Sphere Handbook		
84.	References for assessments	Reference – Sphere Handbook		

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District Magistrate
Chairman, District Disaster Management Authority (DDMA)
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