

Revised Report



## INCEPTION REPORT

# Preparing District Disaster Management Plan of Bihar (District Bhojpur)



Gorakhpur Environmental Action Group



Govt. of Bihar



Bihar State Disaster Management

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## Preface

This report marks the inception of the study titled 'Preparation of District Disaster Management Plan (DDMP) of the Bhojpur district of Bihar. The study is commissioned by Gorakhpur Environmental Action Group with the support of Bihar State Disaster Management Authority.

This inception report presents the plan, process, approach and methodology for carrying out the assignment. The study will proceed over the next six months with a number of activities to achieve the ambitious goals of all the components DM plan development as outlined in this report. The research team will be grateful to the BSDMA, District Administration and all the line departments who will be engaged in the entire process of developing the District Disaster Management Plan with the clients for successful completion of the assignment.

## Abbreviations

ACCCRN	Asian cities climate change resilience Network
BPL	Below poverty Line
BSDMA	Bihar State Disaster Management Authority
CCA	Climate Change Adaptation
CEO	Chief Executive Officer
DC	District Collector
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DM	Disaster Management
DM	District Magistrate
DRR	Disaster Risk Reduction
ESF	Emergency Service Function
GEAG	Gorakhpur Environmental Action Group
GIS	Geographic Information System
GPs	Gram Panchayat
HFA	Hyogo Framework for Action
HPC	High Power committee
HVCRA	Hazard vulnerability Capacity Risk Assessment
IDNDR	International Decade for Natural Disaster Reduction
ISDR	International Strategy for Disaster Reduction
NIDM	National Institute of Disaster management
PRI	Panchayat Raj Institution
PWD	Public welfare Department
SLD	Shard learning dialogue
ULBs	Urban local Bodies

# Conceptual Background

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## Introduction

The catastrophic flood of 2013 of Uttarakhand and recent earthquakes (2015) in various parts of Nepal and foothill of Bihar and Uttar Pradesh have raised question to retrospect the issues of disaster management in India. On the brink of celebrating a decade since the passing of the Disaster management Act 2005, India's disaster management system has seen a significant shift from a relief- driven response to being more proactive , with an emphasis on multi hazards disaster prevention , mitigation and preparedness. The Act paved the way by providing a detailed action plan right from the central government to the district and local level to design and implement disaster management plans.

With increasing frequency and intensity of disaster and numerous death and enormous loss of property have compelled the states as well as civil societies to ponder on such issues to evolve more systematic attention and planned approach to strengthen the entire system, agents and institutions to fight such situation. In this context, there is a greater need for political commitment to keep the momentum going for building resilience since the 2005 enactment. Over the past few years to address mounting losses due to disasters, the Government of India, both at national and also even at the states level, has brought t a paradigm shift in its approach to disaster management. The High Powered Committee (HPC) work, the National Disaster Management Act and the National Policy on Disaster Management are some landmark initiatives that have driven a reactive relief based approach to a more proactive disaster risk reduction approach; and the agenda has been integrated into practicable instruments including the National Five Year Plans and the Finance Commission Reports. The new approach proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process. Another cornerstone of the approach is that mitigation has to be multi-disciplinary, spanning across all sectors of development. The new policy also emanates from the belief that investments in mitigation are much more cost effective than expenditure on relief and rehabilitation.

Progress has also been aligned with the international perspective and the evolution of disaster risk reduction (DRR) frameworks and initiatives with special reference to IDNDR, ISDR, Yokohama Strategy and the Hyogo Framework for Action (HFA). Critical inter-linkages across DRR and Climate Change Adaptation (CCA) concerns and issues are another emerging concern that is being addressed at various levels. Hence, 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 model plans and a standard process for development of district disaster management plans for replication in different parts of the country.

The country requires a long -term development –oriented approach to disaster risk management. Until recently, the focus was on post disaster relief and rehabilitation. However, the present philosophy lays more emphasis on mitigation and vulnerability reduction and it has become absolutely necessary to strike a balance between mitigation and managing disaster

The current study is the part of this initiative to prepare a disaster management plan at district level with an objective to provide long term development –oriented approach to disaster risk management.

## **Purpose and scope of the Study**

The key purpose of the study is to meet BSDMA expectations by delivering highest quality outputs i.e. District Disaster Management Plan (DDMP) of Bhojpur district within six months starting from July 2015. In this work order the Gorakhpur Environmental Action Group (GEAG) will produce good quality DDMPs that enable disaster resilient development in the intervention district and promote the continuity of services essential for life and dignity of citizens during disaster and non disaster situations. While developing the district disaster management plan following points to be taken into account:

1. Assessment of the geography, social, political and economic context of the district from disaster management lens
2. Assessment of current development problems and it's linkage with past disasters and hazards in the district.
3. Identification of vulnerable areas in the district to different natural and man-made hazards
4. Involvement of lower administrative units such as – Block ,Panchayat , village level stakeholders in comprehending the underlying risks and develop action plan for risk reduction
5. Enhance 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. Introduction of innovation and good practice in institutional mechanism at district level to make it an integrated and coordinated plan at all levels.
7. Development of action plans for different stakeholders (Communities, Govt. Line departments and other stakeholder groups) for disaster risk reduction, emergency response and recovery actions.
8. Recommendation of mitigation measures to be adopted by different stakeholders for the risks identified in the district.
9. Development of standardized mechanism for mainstreaming the disaster risk reduction and climate change adaption in the departmental developmental plan

Thus, the developed District Disaster Management Plan (DDMP) will be the tool/guide for different stakeholders to respond in pre, during and post disaster phase with a sense to minimize human, property and environmental loss.

## Approach and Methodology

The broad approach would be one of participatory research, action learning and collaborative strategy development. This would entail widespread stakeholder consultation; participatory needs assessments involving communities and other stakeholders; and the development of innovative tools and techniques to mainstream DRR and CCA, integrate climate projection in DRR and departmental plan (DPs), gender concern in disaster and design need based DDMP.

GEAG has a strong background in disaster management activities at local level. From the past experiences of projects related with disaster management at district and sub district level, it is quite explicit that there exist wide vertical (national, state and district) and horizontal (intra departments at district and sub district level) gaps in coordination and implementation of programme due to lack of capacity, both financial and human resources and skills of the relevant departments or organization especially on assessing and managing risks. Consequently, agencies such as the District Disaster Management Authority (DDMA) seldom have a forward looking approach in their planning and implementation activities. Furthermore, an array of development departments (such as water supply, health, agriculture, PWD and urban development) undertake activities that influence climate and disaster resilience, however, very little effective horizontal coordination exists between departments especially on integrating development and DRR into their sectoral/ departmental programmes. Such gaps undermine the ability to translate concepts and DRR policies into action on the ground and have potential to create a mal-adapted scenario.

The strategy to be adopted in each district towards developing DDMP will be as follows:

1. Formation of core team composed of a department /(s) or office/(s) that are generally involve in most, if not in all, responses. The purpose of the core team formation is to provide support in inviting representative from civil societies for consultation on specific components of the plan
2. Interaction with core team including DDMA to introduce the concepts and approaches in developing the DDMP of the district and finalizing the tools and methodology in the specific context of the district needs
3. Secondary data collection on district profile, administrative set up, existing DM plan, disaster losses and damages, and climate trends. Review of existing DDMP and finding out the gaps
4. Proper Hazard, Vulnerability and Capacity Risk Assessment (HVCRA) to be conducted. This will include the analysis of the matrix of past disaster on magnitude, frequency, duration and best practices. This will also include GIS mapping to assess the spatial and temporal pattern of hazards and risks

5. Iterative shared learning dialogue (SLDs) with different line departments will be organized to comprehend their institutional arrangement and assess their capacities and weaknesses (at system, agents and institution level) in implementing the DM plan. This will further lead to design the content and structure of the District Disaster Management Plan (DDMP). The shared learning dialogues will include following steps of information milestones in drafting the DDMP.

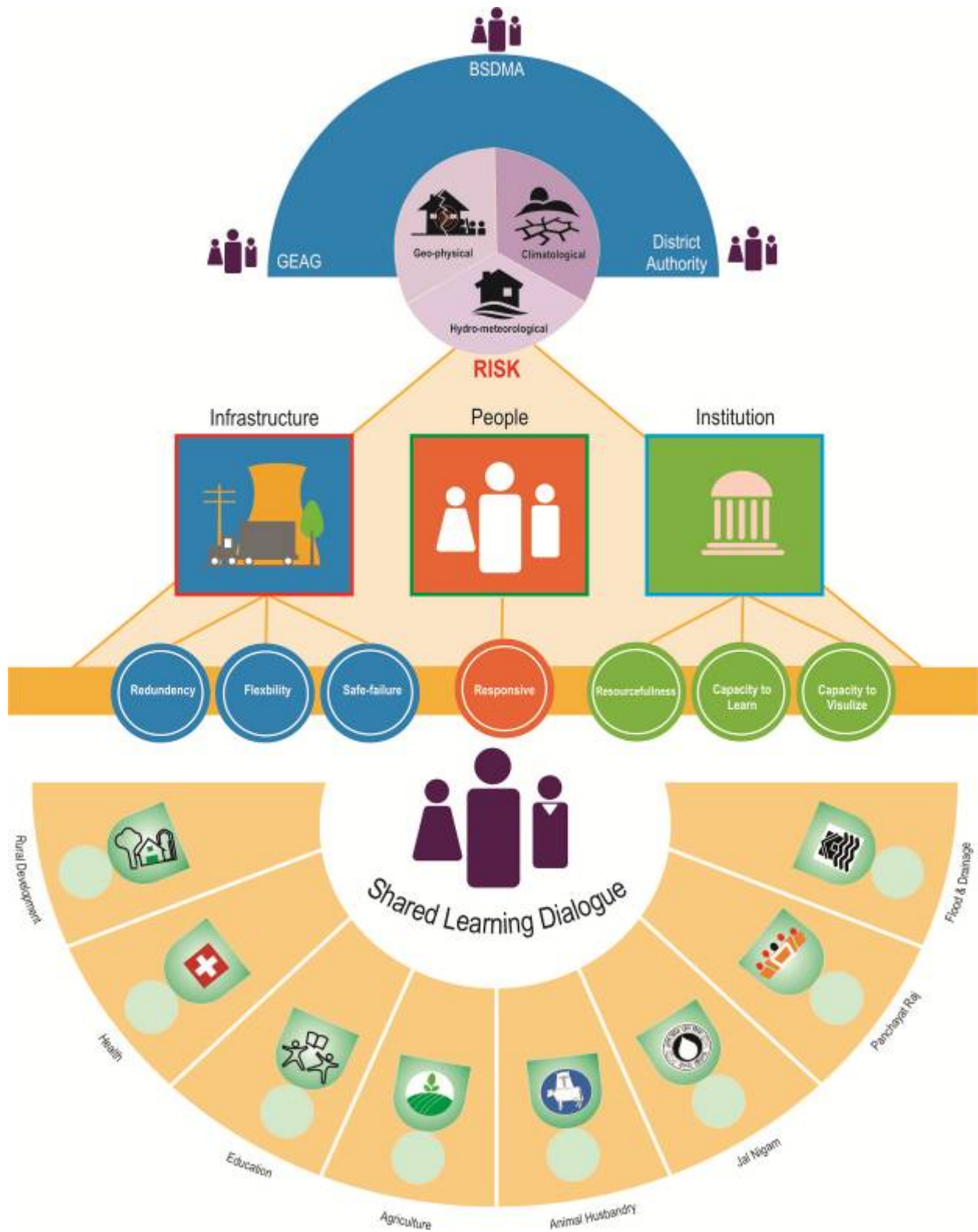
**A. Understanding systemic factors within the district that contribute to resilience or increase vulnerability:**

In this process interactive meetings with core implementing and planning departments will be done to collect following sectoral information:

1. Comprehensive planning: This would involve the mapping of all possible stakeholders at all levels in the state and district to discuss and comprehend all possible hazards, vulnerabilities and all phases of disaster i.e Mitigation, Preparedness, response, and recovery
2. Assessment of Essential service Function (ESF): This is basically the capacities of stakeholder at all level which includes the considerations of planning, reducing disaster risk, continuity and maintenance of essential services functions at different level
3. Exposure and fragility of key system considering the recent signature events. Indicative examples of such data/ information that would be collected including:
  - a. Frequency of failure of a system under stress periods. For example whether a fragile power system has regular backups which determines the current failure rates; number of breaches in roads and embankments; areas on embankments that are designated as weak; failures in communication systems (eg number of cell-towers that went down);
  - b. Failures across systems i.e. where failures in power system affected communication system, and failures in communication affected transport.



# Approach



4. Overlaying the climate projections for the district on current vulnerability to map out future vulnerabilities and risks. Specifically the climate projection will be interpreted and translated in a way that is more meaningful for departments to understand and comprehend the current and future risks. In addition, tools of the systematic Resilience Planning will be utilized. This involves systematic evaluation of the impacts of disaster on key systems and relates them to current indicators of fragility, such as existing failure rates. The core point of such exercise is to compare disaster effects to the causes of failure in existing system and probing into reasons for them.

## **B. Understanding vertical and horizontal gaps**

For understanding barriers in bridging the horizontal and vertical gaps from district to national levels an in-depth institutional analysis ( on prevention, mitigation and preparedness measures) will be undertaken using a shared learning dialogue process and instruments such as interactive learning sessions with key government organizations. This includes:

5. Analytical review of programmes and policies of core departments like fire and police chiefs, the emergency Manager and the planner, agriculture, water supply, health, PWD, housing, flood control etc vis-à-vis different hazard and disasters like flood, drought , cyclone, and earth quake
6. Analytical review of codes, legal and regulatory frameworks of various departments such as housing vis-à-vis disasters
7. Assessment of capacity building and training needs of stakeholders ( including community) for successful and sustainable plan
8. Integration and Coordination of all stakeholder and essential services functions: This includes institutional mechanism, tools and good practices which will be comprehended for integration and coordination of all stakeholders and essential service functions at different levels.
9. Assessment of gender concern in plan's preparation
- 10 Review of worst case scenario, contingency planning and field coordination mechanism : In this segment comprehensive discussion will be made to understand the contingency planning of the departments for worst case scenarios (past disasters or assumed

situations), periodic validation and inter, intra and extra agency coordination testing as per that

- 11 Using a Causal-loop-diagramming tool to understand relationship between sectoral department programmes and reduction/ exacerbation of disaster vulnerability. This tool has been used by GEAG in the ACCCRN programme and will be adapted to formulate the DDMPs.
- 12 Follow up actions for the stakeholder groups, ESFs and local self governments at each level to develop their own comprehensive plans will be assessed
- 13 Sharing of findings and sectoral disaster management plans with each of the identified department for getting their feedback and assessing the financial aspects. Annual work and time plan of the department will be developed in different phases (preparedness, event response, recovery, rehabilitation) of disaster management.
- 14 Sharing of the departmental plans and coordination plan with DDMA.

## **Assumptions and Risk**

GEAG will collect primary and secondary data with the facilitation of BSDMA and district administration, to the extent feasible, through their respective Nodal Officers designated at different levels. District administration will also facilitate through their nodal officers, meetings for In-depth interviews with senior officers, and respective DM/ DC/ CEO of DDMA's etc.

### **Risks**

1. Part of the survey may coincide with adverse conditions created by the weather, and the long periods of festivities during the intervention period, which may interfere with smooth implementation of project activities.
2. As the election has declared in the state, which also may also affect the availability of the officer during the intervention period.
3. Lack of proper documentation or response from the stakeholders may hamper data collection process.
4. Since a number of planned activities are sequentially linked, any delay on part of the client in reviewing and approving the deliverables and releasing payments will lead to corresponding overrun in project time and cost. This may be evaluated and addressed at the time of review.

### ***Survey Schedule Risks:***

The field visits will commence from the date of approval of the Inception Report. Initially it was envisaged to complete it in six months. The reasons it cannot be completed in six months are:

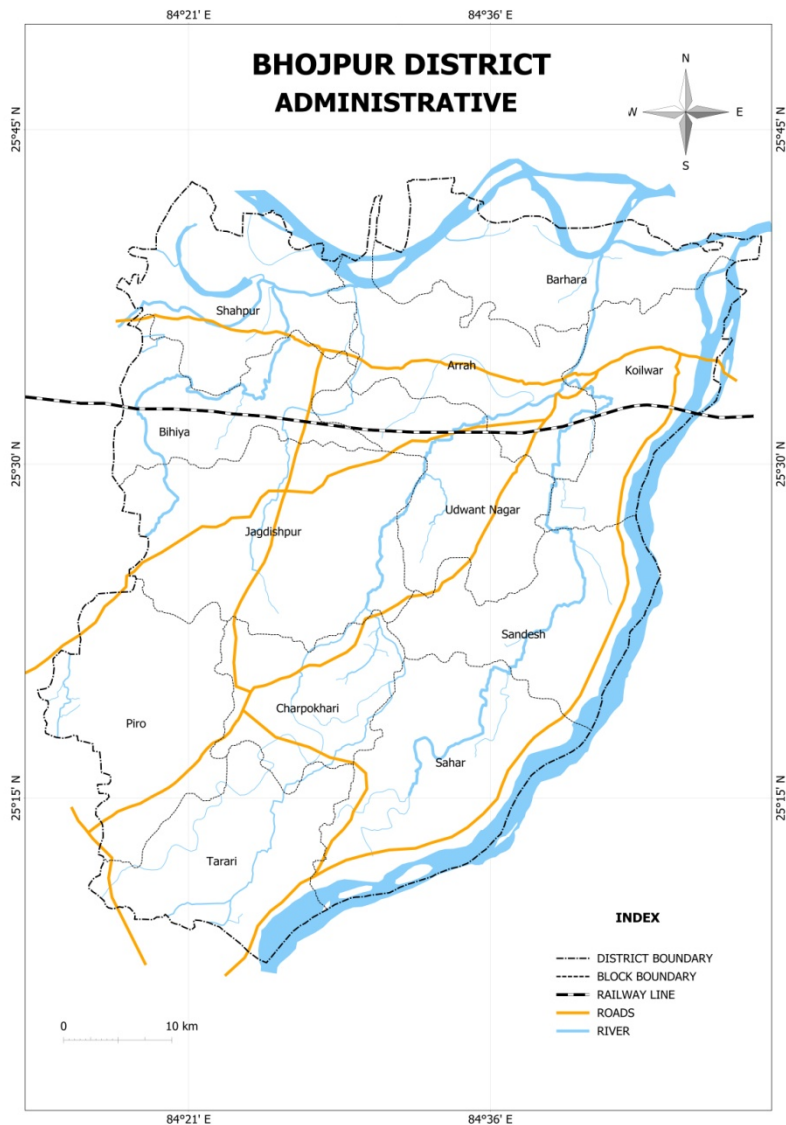
- The period of field visits and stakeholder consultation may coincide with main holidays such as Dussehra, Diwali, Christmas and New Year. The concerned State Government Officers are not likely to be available during these main festivals
- Adverse weather conditions may also delay the conduct of field surveys.
- The more time taken for completion of Field Visits will result in some slippage in completion of deliverable

Despite the slippage in time line, due to situations beyond the control of the Study Team, intensive efforts will be made to complete the entire Study within the stipulated six months or, if it is not feasible, to reduce the slippage period to the barest minimum.

# District's profile and Formative Research

The present district of Bhojpur came into existence in 1992. Earlier this district was the part of old Shahabad district. In the year 1972 Shahabad district was bifurcated in two parts namely Bhojpur and Rohtas. Buxar was a sub-division of old Bhojpur district. In 1992 Buxar became a separate district and rest of the part become Bhojpur district. Ara town is the headquarters of the district and also its principal town. The district is known for its rich language - Bhojpuri. It played a major role in India's struggle for independence. Veer Kunwar Singh of Jagdishpur was the leader of the mutineers during the first war of independence in 1857.

Geographically, the district Bhojpur district falls within the latitude and longitude of  $25^{\circ}00''$  to  $25^{\circ}30''$  N and  $84^{\circ}15''$  to  $84^{\circ}45''$  E. The district is spread over a total geographical area of 2474 sq km. Total population of the district stands at 2728407 with the urban and rural populations of 389861 and 2338546 respectively. The decadal population growth of the district was 21.22% (2001-2011). The district has three Sub Divisions namely Ara Sadar, Jagdishpur and piro. The blocks of the district include Ara Sadar, Udwanthnagar, Jagdishpur, Koilwar, Sahar, Barhara, Sandesh, Shahpur, Charpokhari, Piro, Tarari, Bihia, Agiawon and Garhani. The district is bounded on the north by the district of Saran ( Bihar ) and Balia district of Uttar Pradesh; on the south by the district of Rohtas; on the West by the district of Buxar and on the East by the district of Patna, Jahanabad and Arwal.



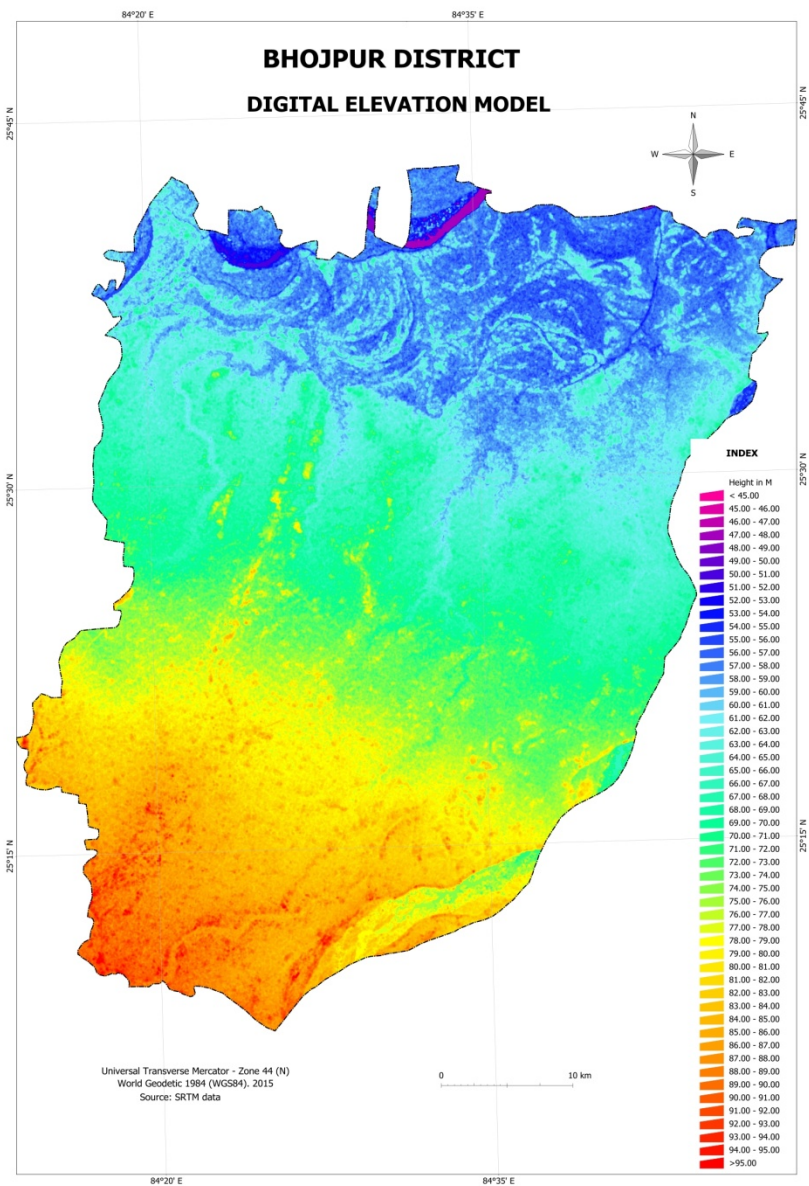


## Physical setting

Bhojpur district is mainly covered with alluvium deposited by the river Ganga and its tributaries. The north and northeast parts of the district are covered with Newer Alluvium and younger flood plains (diara formations) while the central and southern parts are covered with Older Alluvium and older flood plains. The entire area of the district has a general slope towards the north and northeast. The general elevation with respect to mean sea level is 50-90 m. The gradient is 0.6 m/km approximately from south to north. The north and northeast area of the district is pitted with oxbow lakes, meander scars with point bars left over by old Ganga channels. The local small rivers follow little yazoo pattern before entering the meander belt of river Ganga and flow few kilometers parallel to the southern levee of river Ganga.

The district have warm and humid climate. The temperature touches 39°C on an average during the months of April and May, and that of the minimum 6.3°C during

January. The monsoon starts mostly from the mid of June and continues up to the end of the September. The district experiences maximum rains during the months of July and August. The average rainfall of the district is at 1060 mm.



**Table 1 District Profile and Development Indicators: Bhojpur**

<b>Indicators</b>	
Total Population	2728407
Area in sq km	2474
Density /sq km	1136
Rural Population (in %)	85.71 %
Urban Population ( in %)	14.29 %
Literacy Rate	70.47
SC Population (in %)	14.78
ST Population (in %)	0.49
Sex Ratio	907
Population Growth (2001 - 2011)	21.63
Population Density (person per sq km)	1202
Number of Household	415555
Household Size	4.9
Per Capita Income	3728
Total workers (number)	822000
Main workers (number)	512000
Marginal workers (number)	310000
Non - workers (number)	266000
Total workers to total population (%)	30.12
Cultivators to total workers (%)	28.83
Agriculture laborers to total workers (%)	35.99
Workers in HH industries to total workers (%)	4.82
Main workers to total population (%)	18.76
Non workers to total population (%)	17.8
Number of villages	1217
Number of panchayats	228
Number of blocks	14
Ranking of district according to CDI	5
Number of Health Sub Centre	163
Number of Additional Primary Health Centre	54
Number of Primary Health Centre	14
Number of Sub-divisional hospital	02
Percentage of children having complete immunization	42.4
Percentage of women having safe delivery	40.0
Average size of operational holding	0.37
Normal RainFall	1060 mm
Density of livestock per sq km	245
Density of poultry per sq km	51

Source: Bihar through figures- 2013, Published by Directorate of economic and statistic, Patna, Bihar

## Demography

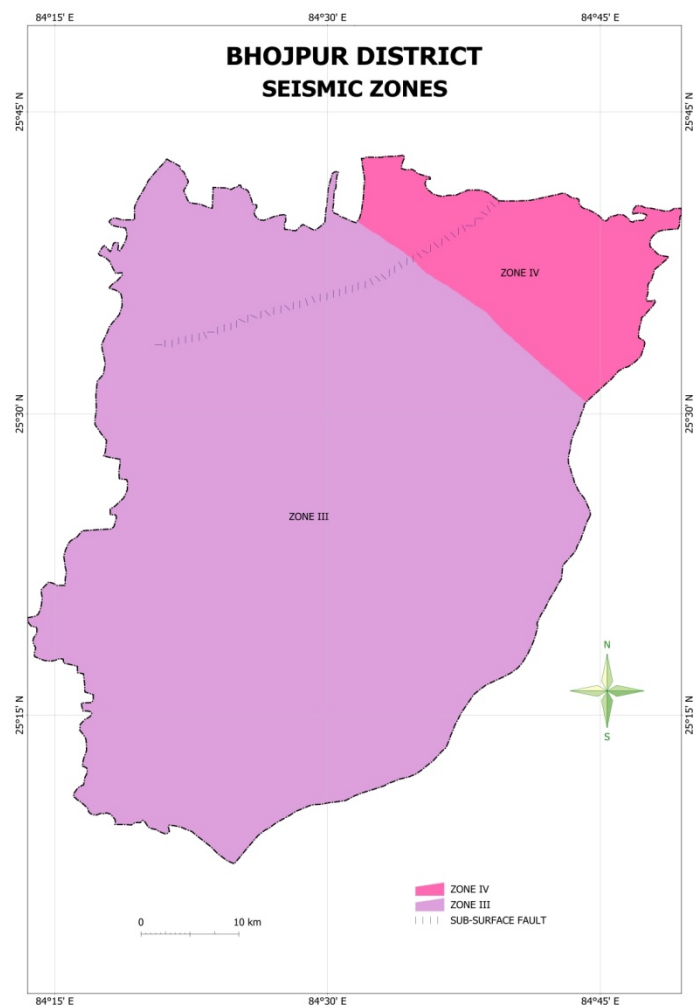
According to the 2011 census Bhojpur district, Bihar has a population of 2,728,407 of which male and female were 1,430,380 and 1,298,027 respectively. The district ranks 145th in India (out of a total of 640) in term of population. The district has a population density of 1,103 inhabitants per square kilometer. Its population growth rate over the decade 2001–2011 was 21.22%. Bhojpur has a sex ratio of 900 females for every 1000 males, and a literacy rate of 72.79%. 30% of the population belongs kushwaha, kshatriya community.

## Land use

In this district both the irrigated and un-irrigated areas except the small hills are being exploited for cultivation. Even some of the large ponds and "Jhils" which were duck-shooting areas have been de-watered and put to crop and grows "Boro crops". Intensive agriculture is also being attempted by what is popularly known as "Package Program". The Block Development Authorities are also trying to extend cultivation and improve the output. The remodeled Sone Canal System has the objective of bringing in more land under cultivation. Horticulture is spreading and orchards are springing up of all parts.

## Multi hazard profile

The district Bhojpur is prone to natural and man-made hazards. According to vulnerability Atlas of India, the district is prone to earthquake, cyclone, drought and flood. The whole district is falling under the seismic zone of IV and III. About 87 percent of the is under III seismic zone while 12.2 percent is under zone IV. A sub surface fault line passes through the district. The Table 2 shows the potential risk and areas under different hazards in the district.



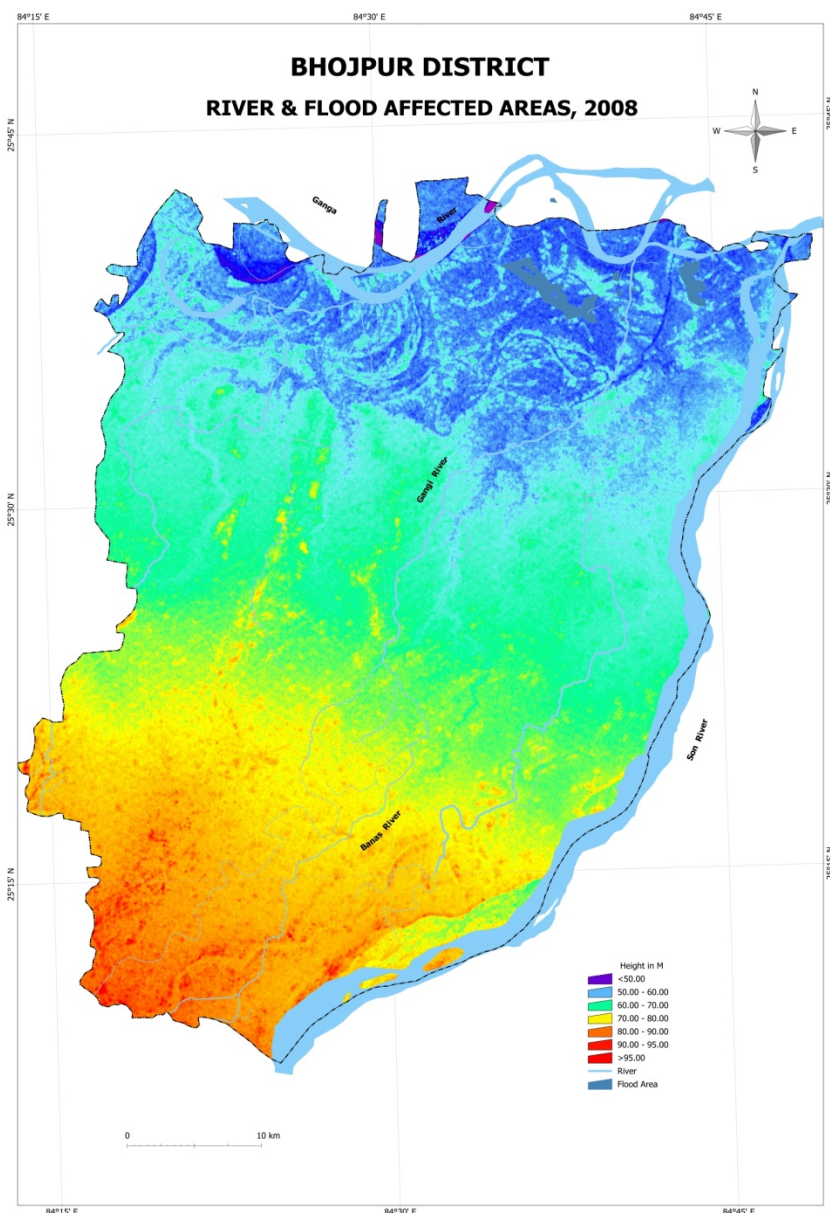


**Table 2. Distribution of Houses by Predominant Materials of Roof and Wall and Level of Damage Risk**

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## Floods:

About 3.5 lakh people get affected annually. Flood in the northern part of the district is an annual feature. On an average, a few hundred lives are lost, millions are rendered homeless and several hectares of crops are damaged every year. Nearly 75% of the total rainfall occurs over a short monsoon season (June – September). As per vulnerability atlas of India, about 6.8% areas of the district, is considered prone to floods. Floods are a perennial phenomenon but during last three years the severity has increased.



District Bhojpur

	2005	2006	2007	2008	2009	2010	2011	2012	2013
No of Affected blocks		-	-	3	-	-	6	-	6
No of affected panchayat		-	-	19	-	-	58	-	73
Fully	-	-	-	2	-	-	23	-	56
Partially	-	-	-	17	-	-	35	-	17
Population affected (In lakh)	-	-	-	0.78	-	-	3.21	-	6.47
Livestock affected (In lakh)	-	-	-	.002	-	-	.19	-	.34
Area affected (in Ha)	-	-	-	.002	-	-	.22	-	1.44
House damages	-	-	-		-	-	5988	-	1207

Source: BSDMA, Bihar

## **Drought**

In contrast to flood, the specter of drought looms large part of the district due to climate change impacts. The dry spell in monsoon has also raised the problem of drought and fire. The observation of rainfall data clearly over the 100 years clearly manifested that during last one decade the rainfall in central Bihar has been decreasing and it remains 25 to 45 percent below the average. This year the rainfall during June was 95.3 mm as compared to the normal of 178.3 mm; in July it was 156.5 mm, much below the normal of 316.6 mm. As a result, large tracts of land remain barren. Although the time for sowing the kharif crop is coming to an end, paddy saplings have not been planted in about half the cropped area in the district

## **Literature review and data collection**

The literature review will be the key source of secondary data input, which will be synergized with the primary data collected from the field. The questionnaires/ checklist for the shared learning dialogue (SLD) will be based on inputs taken out from literature review. Both processes – literature review and the design of questionnaires/checklist format have been initiated and as per the time schedule will be finalized by the time approval of Inception Report is received. The specific documents to be reviewed have been identified in each section of the Inception Report. As the study proceeds further, additional documents, on a need based basis, will be accessed through web search/ collection from different stakeholders. This includes BSDMA, District Governments, DDMA's and the concerned Departments of DM, Rural Development, Health, Education, PRIs and ULBs for additional inputs, which will also feed into the gaps and needs analysis.

In addition to the stakeholders identified Institutions / reports of those sectors which are not directly dealing but directly responding to disaster situation, will also be referred.

## **Field Visits**

The field visits will be undertaken to obtain primary data from the institutions at district and community levels and to interact with communities at various levels. The visits will help the team to map the DM and sectoral institutions, carry out interviews with the nodal officers and assess the infrastructure and available with institutions. The information collected would feed into the gaps and needs analysis.

During field visits at community level, preferably the most risk prone Gram Panchayats and wards/ urban agglomerations will be covered in consultation with district authority. Mohallas (or ward) to be picked up with support from Municipality, and Village in a Gram Panchayat, if more than one, to be picked up, after consulting the concerned district authorities.

## Sampling

The field and community consultation will be conducted in two of the most vulnerable blocks of the district. A sample of two GPs in each block and one urban centre in the district will be taken. This would involve 4 GPs and one urban area in the district. The criteria for selection of the panchayats and ULBs will be:

- Panchayats/ ULBs that are prone to multiple hazard and have significant disaster in the past
- Geographical Location of the Panchayats/ULBs
- Highly Vulnerable Panchayats/ULBs of the district in term of BPL and socially disadvantage population

## DDMP Preparing plan and tools

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The framework of work plan and the time for carrying out the study has been developed by the GEAG which involved mapping of key departments, analysis of vulnerabilities under different Geo-hydrological, Climatological and Geo-physical conditions, institutional arrangements and current planning process. To meet out the objectives, specific set of tasks and tools are developed and will be adopted during the process of the study. Based on the objectives, the entire study has broadly divided into four Phases .

Phase 1: Inception Phase

Phase 2: 1<sup>st</sup> Round of shared learning dialogue

- Interaction with key stakeholders and data collection

Phase 3: 2<sup>nd</sup> Round of shared learning dialogue

- Hazard, vulnerability , Risk and capacity assessment

Phase 4: 3<sup>rd</sup> Round of shared learning dialogue

- Sectoral workshop and need assessment for disaster management

Phase 5: Documentation and sharing

### A. Inception Phase :

Under this component following task has been undertaken

1. Formulation of Research team
2. Literature review on disaster management like Disaster Management Act, 2005 and various report of disaster related with Bihar
3. Review of existing Disaster Management plan of the intervention district
4. Secondary data related with the concern district on disaster and, demographic Profile
5. Internal meeting of research team on approach and methodology for DDMP development
6. Developed detail Work plan
7. Correspondence with district administration to update the initiative and visit of research team in the district
8. Interaction with District Magistrate, and nodal authorities related with Disaster management in the district
9. Facilitated district administration to set up either a core group or nominate a nodal person
10. Participated in inception workshop at Patna and shared the approach and methodologies to develop the DDMP
11. Feedback of BSDMA received and revised the inception report as per their suggestions
12. Submission of revised Inception Report

Recently the research team visited the district (July, 2015) and shared the work plan with the district administration. The purpose of the visit was to meet district magistrate and other officials for initial rapport building, brief the project work plan, assess the current scenario of data and information availability at district level and tentatively finalize the dates of field visit as well as departmental dialogues. The overall output of the visit was:

1. A good rapport building with district administration
2. Nomination of nodal officer in the district and initial discussion on planning
3. Some useful insights of the officials on DDMP process and content received
4. Procurement of some reports from the departments
5. Initial agreement on tentative dates of field visit and departmental meetings in the district.
6. Department wise data checklist is being developed and will be shared with the Nodal to get the information from the concern departments.

## **B. Phase 2: 1<sup>st</sup> Round of shared learning dialogue**

As it is mentioned in the methodology section that the whole process of Disaster Management plan development would be collaborative/ participatory in nature, hence will involve widespread stakeholder consultation to identify their needs. In the entire process of DDMP development, the District Disaster Management Authority (DDMA) will play key role in the district. In the chairmanship of District Collector, DDMA is supposed facilitate the process of revisiting existing DDMP, preparing plan of revising/redevelopment, finalizing methodology with framework, establishing monitoring & evaluation mechanism and coordination with concerned government department. However, there are several existing factors which need to be relooked and revived at district so that DDMA can start taking required actions on the planning. In this phase following task will be performed:

1. At the outset, to steer the whole process, a 'Core Team' of key departments would be constituted with the consultation of district administration under the chairmanship of district Magistrate. While forming the core team it would be good to involve the key agencies/ departments such as DDMA, Fire and Police Chiefs, the Emergency Manager and the Planner (DDMO/DPO), Civil Surgeon and the Superintending Engineer / Executive Engineer (Public Works), which are generally involved in response activities during the time of odds. Other agencies / members of community may also be contacted as per the need of information. This core team will help, in the entire process plan development, to invite representatives for consultation on specific components of the plan.

2. Finalisation of operational strategies of plan development by the core team
3. Collection of district profile data on social, economic, political and critical infrastructure etc
4. Identification of vulnerable areas and visit to these places
5. Collection of past and future climate data
6. Desk review of the existing DM plan of the intervention district

### **C. Phase 3: 2<sup>nd</sup> Round of Shared Learning Dialogue (Hazard, Vulnerability, Capacity and Risk Assessment)**

In this section nature of hazards, vulnerability, risk and capacity of the district to be visualised based on district profile and exposure to hazards. There are some subjective methods which will be used for identification of hazards and vulnerabilities and regional priority for their mitigation. Following steps will be adopted to analyse the HVCR of the district:

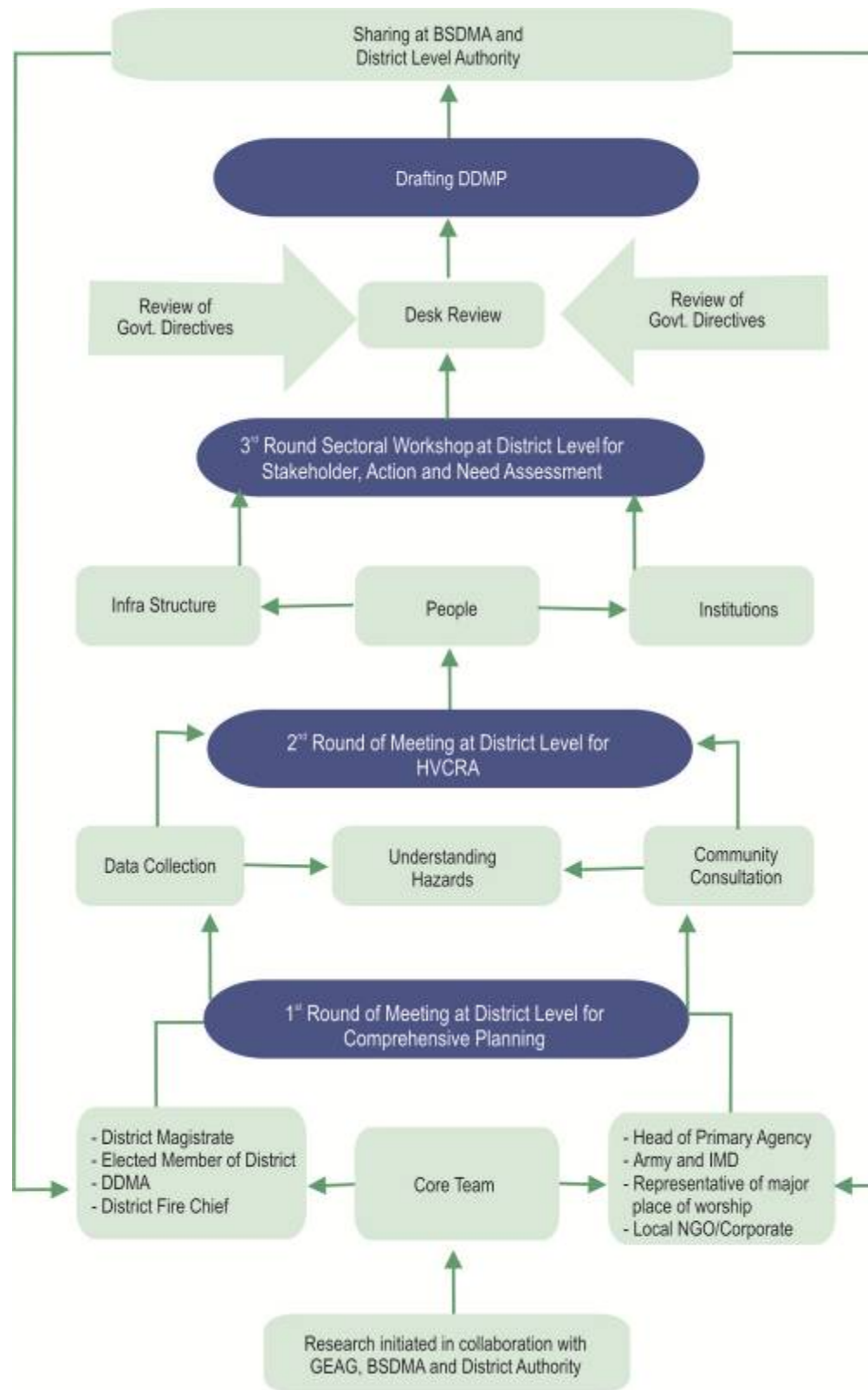
1. Collection of hazard information from local administration
2. Development of hazard matrix of past disasters on magnitude, frequency, and duration scale
3. Seasonality of hazards
4. Development of matrix of hazards and its impact on system ( assets and infrastructures), agents (population) and institution (rules and response)
5. Based on severity scale<sup>1</sup> - catastrophic (> 50%), critical ( 25-50%), limited( 10-25%) and negligible ( < 10 %) scoring (1-5 scale, where 1 would be least and 5 would be highest) will assigned
6. Based on the review and analysis of hazards and exposure of system, agents and institutions to risk, the most important disaster risk with reference to the lowest administrative unit in the district will be identified.
7. List of critical infrastructure, key resources, and essential facilities will be collected to determine the capacity to respond the risk
8. Probable damage scenario of earthquake at block level will be computed based on housing condition of the district.

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<sup>1</sup> Percentage of community affected



## Task Flow





#### **D. Phase 4: 3<sup>rd</sup> Round of Shared Learning Dialogue (Sectoral workshop and Need Assessment for Disaster Management)**

This is the important component for DDMP development. The DDMP development strategy starts with the interaction of key stakeholders who are actively engaged in planning and implementing the policy. In this phase following key activities will be performed to identify the key stakeholders, their roles and responsibilities, and assess their capacity and needs.

The iterative shared learning dialogue will be conducted to interact with stakeholders to assess their existing DRR, and Mitigation actions, and comprehend the present response, relief, reconstruction, and rehabilitation and recovery measures at Relevance, effective , efficiency and sustainability scale . This subjective method of information collection will also help to understand the underlying factors/ constraints related with institutions responsible to enhance/reduce the vulnerabilities/resilience of district.

1. Comprehensive stakeholders analysis will be done at all level (National, state, District, GP and ULB) to discuss and comprehend the mitigation actions and response measures adopted at all phases of disaster i.e Mitigation, Preparedness, response, and recovery.
2. Listing of preventive and mitigation measures-building codes, flood plain management, storm water management- planned and implemented by the district will be done.
3. Analytical review of programmes and policies of core departments.
4. Assessment of gender concern in plan's preparation.
5. Capacity Building and training needs of stakeholder and institutions will be comprehended and measures to be incorporated in the Plan.
6. Comprehension of institutional mechanism and implementation of plan in different case scenario, contingency planning and field coordination mechanism will be evaluated.
7. Scope of using developmental programme in DRR will be assessed
8. Assessment format will be developed so that the department can gauge their preparedness level of disaster
9. Design of Short and long term recovery plan will be evolved through damage assessment mechanism.

# Operational Strategy

## MONITORING AND EVALUATION SYSTEM

To monitor and evaluating the effectiveness of plan and its components a core team composed of a department or office that was likely to be involved in most. The Core team should invite representatives from civil societies for consultation on specific components of the plan. Propose Members of core team are –

- ✓ Superintendent of Police
- ✓ Additional District Magistrate, Finance & Revenue
- ✓ Chief Fire Officer
- ✓ Chief Medical Officer
- ✓ Chief Veterinary Officer
- ✓ Executive Engineer, Public Welfare Department
- ✓ Executive Engineer, Irrigation

The input and support given by core team will be monitored and evaluated by M&E team, which is proposed at three levels:-

Level	Monitoring & Evaluation Team	Assessor	Roles & Responsibilities
01	District Level team	<ul style="list-style-type: none"><li>• District Magistrate</li><li>• Nodal Officer, appointed by DDMA of respective district</li><li>• Project Coordinator, GEAG</li></ul>	<ul style="list-style-type: none"><li>➤ Coordinate with all stakeholders</li><li>➤ Organize meetings/ consultation district as well as grass root level</li><li>➤ Support in data collection and review</li><li>➤ Project management at district level</li></ul>
02	Project Management team	<ul style="list-style-type: none"><li>• Representative of BSDMA</li><li>• Project Director, GEAG</li><li>• Consultant appointed by GEAG</li></ul>	<ul style="list-style-type: none"><li>➤ Monitor Day to Day activity</li><li>➤ Provide guidance and support at District Level.</li><li>➤ Act as a bridge between BSDMA &amp; DDMA.</li></ul>
03	Steering Team	<ul style="list-style-type: none"><li>• Hon'ble VC, BSDMA</li><li>• Representative of BSDMA.</li><li>• District Magistrate</li><li>• Project Director, GEAG</li></ul>	<ul style="list-style-type: none"><li>➤ Trouble shooting/ key decision making</li><li>➤ Overall guidance</li><li>➤ High level support</li></ul>

## Research Team

Following list of Personnel will be deployed/engaged for the Project (with their names, qualifications, experience, their jobs' responsibilities, and no. of person days of commitment for each district)

Name	Qualification	Experience	Responsibility
Dr . Shiraz Wajih	Ph.D in Botany	Programme Management. Expert on participatory Planning	Support and overall research guidance in the project
Dr. Bijay Singh	Ph.D in Geography	Researcher	Operational Coordinator
Mr .Gautam Gupta	MBA	Disaster Management Expert	Provide technical advice and support on a range of disaster risk management, climate change and recovery issues
Mr Amit Kumar	Post Graduate in Rural Management	Disaster , CCA- DRR Expert	Provide technical advice and support on a range of disaster risk management, climate change and Disaster Risk reduction issues
Mr . K.C Panday	Post graduate in Meteorology	Climatologist	Climate data analysis and interpretation
Ravi Mishra	MSc in Chemistry	Livelihood and DRR expert	Shared learning dialogue with key stakeholder
Prof. S.S. Verma	Ph D in Geography	Participatory vulnerability assessment and Hazard Analysis.	Provide support in conducting shared learning dialogue with Line departments
Vijay singh	MA in Geography	GIS mapping , data collection	GIS mapping , data collection and analysis

### Detail work Plan and time line

[illegible]

[illegible]

[illegible]

## Reporting to BSDMA

## Deliverables and Reporting Mechanism

Reporting of the planning and related ongoing activities will be done in periodic basis. GEAG research team will report to the district administration by time to time and the representative of BSDMA on monthly basis. GEAG team will be in touch with District Nodal person on day to day basis for timely and smooth implementation of the activities. However following will be the reporting mechanism-

- a. Inception report will be submitted within one month of the award of the work in hardcopy and a softcopy. Apart this, presentation of the inception report will be made in the workshop organized by the BSDMA. BSDMA will send its comments within 15 days the presentation. The revised final Action Plan will then be commenced immediately thereafter.
- b. One deployed person of GEAG will work closely with DDMA and report to nodal officer/DC along with reporting to GEAG
- c. The monthly accomplishment reports, in the format prescribed by BSDMA, will be shared with BSDMA representatives and district authorities.
- d. Brief field visit reports/meetings reports will also be shared with nodal officer/DC
- e. Draft report of DDMP will be submitted after 5 months of the award of the work order of the assignment in hardcopy and a softcopy through email.
- f. Final Report after (incorporating the comments/feedback from BSDMA) will be submitted within 6 months of the award of the work order of the assignment in two hardcopies and two softcopies in CDs.
- g. The Draft Report and the Final Report of the District Disaster Management Plan (DDMP) will be developed as per the structure of model DDMP of Madhubani, in two volumes, as below –
  - i. Vol. I – Disaster Risk Reduction Plan
  - ii. Vol. II – District Response Plan
- h. All the above mentioned reports should be submitted to DM/DDMA of concerned district along with copies to each of BSDMA and Department of Disaster Management, GoB.

In case BSDMA requires additional hard copies of the finally approved report, the GEAG will provide at the rates approved by Government of Bihar.

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